

Consumption, Housing Costs, and Disposable Income: Cross-Country Evidence on Poverty Risks Across Tenure Groups

by

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Abstract

This paper moves beyond the affordability-oriented approaches that dominate the housing-cost literature. Cost-to-income thresholds and poverty-after-housing-costs measures capture expenditure burdens but say little about how these burdens reshape households' remaining consumption and overall well-being. Using microdata for four countries (France, Israel, Italy, and Spain) from the forthcoming beta release of the Luxembourg Consumption Study and the U.S., we jointly analyze income, consumption, and housing-related expenditure across tenure groups to uncover vulnerability that standard measures, taken in isolation, can obscure.

We construct four concepts of economic well-being — disposable income, income after housing costs, LCS consumption inclusive of gross equivalent rent from owner-occupied and subsidized housing, and net consumption with housing removed — and show that the concept used to ascertain housing cost burden and poverty affects the results. Heat maps of the joint quintile distributions show that housing-cost adjustment alone re-ranks relatively few households, with strong stability at the top and bottom; overlap falls substantially once income and consumption are compared directly, and further once both are adjusted for housing.

Our results reveal marked cross-country differences in housing burden, poverty, and inequality. Average burden, and the share of households spending above 30 percent of income on housing, is highest in the U.S., followed by France, Israel, and Spain; in these four countries (Italy does not include income data), most cost-burdened households are in the bottom two income quintiles. Mortgaged owners show the lowest poverty rates of any tenure group across all five countries, before and after housing is netted from consumption. Though mortgaged owners face high average cost burdens, few are poverty-affected by it; among them, those in France and Spain are more heavily burdened than elsewhere.

A primary contribution is showing how inequality shifts moving from income to housing-cost-adjusted and consumption-based measures, separately and jointly — with direct implications for cross-national poverty comparison and program targeting reliant on a single measure of well-being.

JEL codes: D12, D31, E21, I31, I32

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1. Introduction

How we measure poverty depends fundamentally on how we conceptualize economic well-being. This paper takes that premise seriously in the context of housing costs and housing consumption, where the choice of welfare concept is not merely a technical matter but one with direct consequences for who is identified as poor, how severe their deprivation appears, and how tenure groups compare across countries.

Housing is simultaneously a consumption good, a financial asset, and a long-term commitment. These dimensions do not map neatly onto any single welfare aggregate, and herein lies the central challenge: income, consumption, and expenditure each capture a different aspect of economic reality. And when housing costs are large, the three concepts can diverge sharply. For completeness a brief reference is made also to wealth, where owned housing provides the main asset in the balance sheet, and often provides security for the homeowners. However, in this study we do not elaborate on the stock of assets and debt, rather we concentrate on the flows within a given reference period and analyze well-being from this lens. In this scope, a household may appear non-poor by disposable household income yet face severe constraints on non-housing consumption. Conversely, a household with low measured consumption may face a high mortgage burden or high housing burden more broadly. We take a closer look at the interplay of the income, consumption, and expenditure concepts, and how they relate to poverty. Our aim is to better understand how the poverty status of a household changes depending on which concept is applied. This consequently may affect poverty ranking of entire tenure groups.

In this study, we consider differences in concept – income, consumption, and expenditures – and thus conceptual sensitivity to ascertain differences in economic well-being as related to housing. Our study highlights the fact that poverty risk is concept-dependent relative to the population at risk, its size, and its composition shift as we move from an income and expenditure lens to a consumption lens. Making this variation visible, and understanding what drives it, is the primary contribution of this paper.

To do so, we exploit the forthcoming beta release of the *Luxembourg Consumption Study (LCS) Database*. This new *ex-post* harmonized infrastructure, integrates income, consumption, and expenditure information at the household level, and reveals at the same time (1) what households spend on housing relative to income and (2) how housing consumption affects other consumption. It therefore provides valuable insights regarding the financial constraints experienced by households once we separate housing, as a block of expenses. Likewise, an analyses of housing consumption helps better understanding the relevance of housing for economic well-being. Both analyses are presented for different tenure types. This study complements the manifold income-based analyses focusing on the housing cost burden, where well-being is primarily assessed by income-based well-being measures.

Concretely, we construct and compare four economic well-being aggregates: (1) disposable monetary income; (2) residual income after housing costs; (3) COICOP household consumption (including imputed rent for owners; and (4) consumption net of housing consumption. This approach connects two literatures that have largely developed in parallel. The housing affordability literature which is built around cost-to-income thresholds, rent burden ratios, and poverty-after-

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housing-costs measures captures expenditure pressure but abstracts away from actual consumption possibilities. The consumption poverty and well-being literature addresses living standards more directly but often treats housing in a stylized way, relying on imputed rents that smooth over the financial burdens borne by tenants and mortgage holders. We bridge these perspectives by showing how the interaction of housing costs with broader welfare aggregates reconfigures poverty risk across tenure groups. The major findings of this study are:

Poverty risk and housing cost burden are highly sensitive to the underlying economic well-being concept, with agreement between income- and consumption-based measures falling sharply once either is adjusted for housing costs. Mortgaged owners consistently show the lowest poverty rates and largely escape severe housing-cost burden despite high average costs. In contrast, cost-burdened households are concentrated mostly among tenants, and subsidized tenants in particular. This is consistent across income and consumption-based measures.

The remainder of the paper is structured as follows. Section 2 provides a brief literature review and lays out the conceptual framework, defining each economic well-being aggregate, and making explicit the theoretical claim that poverty risk is concept-dependent. Section 3 summarizes the core reflections following from the literature review. Section 4 presents the data and methodology. Section 5 reports empirical results and discussion by tenure group and by country. Section 6 discusses implications for measurement along with a summary and conclusions.

2. Literature Review

Before turning to how the literature has operationalized housing cost and consumption, it is worth establishing why the choice of concept matters at all. Galster and Lee (2021) formalize this problem directly: specifying housing affordability requires taking a position on housing and non-housing prices, a household's financial resources, and a normative standard of adequate consumption of each. Different reasonable choices along these dimensions identify materially different sets of households as facing an affordability problem. Only households failing every plausible definition simultaneously are unambiguously identified as poor; everywhere else, the classification is an artefact of the measure chosen.

In the following, we describe how two literatures have responded to the use of different economic well-being concepts in practice: a budgetary tradition treating housing cost as a claim against income, and a consumption-based tradition treating housing as a component of well-being to be valued in its own right. We concentrate on contrasting the literature on housing affordability, labelled here as the budgetary tradition with the consumption-based approaches to measure economic well-being. An aim of this paper is to bridge these traditions empirically, which requires a clear definition of housing cost and its relationship to the National Accounts framework — a task we take up after reviewing each tradition in turn.

The Budgetary Tradition — Housing Cost as a Claim Against Income

The housing-cost research divides into two traditions that differ in what they take as the object of measurement: how much of a household's income housing absorbs, or how much housing is worth to the household as a flow of services. This section addresses the first and longer-established of

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the two. It asks what share of a household's income housing absorbs, treating the remainder as what is left over for everything else, and takes income, rather than consumption, as its fixed reference point, evaluating housing cost as an outflow against it. Two distinct measurement conventions have developed within this tradition, and both retain a narrower, cash-based notion of income. The two measurement conventions are as follows (1) the ratio approach, which flags households as burdened once housing costs exceeds a fixed proportion of income; and (2) the residual income approach, which instead asks whether what remains after housing costs are paid is sufficient to meet a defined standard of non-housing need (Stone, 2006).

The ratio approach has been operationalized differently across the countries, producing thresholds and conventions that are not always directly comparable despite sharing a common logic. In Australia, the "30:40 rule" identifies housing stress among the bottom 40 per cent of the income distribution who spend more than 30 per cent of gross income on housing (Yates, 2007; Rowley and Ong, 2012). In the United States (U.S.), a comparable 30 per cent rent-burden threshold has become the standard convention, under which roughly half of working-age renter households are currently classified as cost burdened (Airgood-Obrycki et al., 2025). The United Kingdom's (UK) approach diverges in structure rather than in threshold logic. The UK Department for Work and Pensions distinguishes Before Housing Costs (BHC) from After Housing Costs (AHC) measures of disposable income within its Households Below Average Income series, explicitly in order to separate variation in housing cost from variation in housing quality. A BHC measure credits higher-cost, higher-quality housing as an improvement in living standards, whereas an AHC measure treats the same higher cost as a reduction in resources available for everything else (DWP, 2025). Tunstall et al. (2013) demonstrate what is at stake in this choice empirically: measuring UK poverty after housing costs rather than on total income substantially raises measured poverty among renters, particularly in the private rented sector. Waters and Wernham (2023) sharpen this further by tenure, estimating AHC poverty rates of 46 per cent for social (e.g., those living in government subsidized households) renters, 34 per cent for private renters, 11 per cent for mortgagors, and 15 per cent for outright owners, a fourfold gradient across tenure that a BHC measure would substantially compress.

The European equivalent of this ratio convention is codified in Eurostat's official housing cost overburden indicator, which identifies as overburdened any household spending more than 40 per cent of disposable income (net of housing allowances) on housing. It uses only the EU-SILC variable HH070 to represent housing costs; this explicitly excludes mortgage principal repayments, on the grounds that these represent asset accumulation. A later study by Hick, Pomati and Stephens (2025) departs from this convention in one respect: they include mortgage principal repayments alongside mortgage interest on the grounds that principal repayments constrain a household's remaining disposable income just as interest does, and that omitting them would understate the cost burden for mortgaged owners relative to renters. At the same time, they retain the tradition's core commitment to a cash-expenditure basis, explicitly excluding imputed rental income from their measure on the grounds that this would capture housing consumption rather than expenditure. Deidda (2015) and Saunders et al. (2022) adopted the same inclusion of mortgage principal before them in independent EU-SILC and Australian analyses respectively. Dustmann et al. (2022), studying income after housing expenditure in Germany, also exclude mortgage principal on the grounds that it constitutes wealth accumulation rather than a

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consumption outflow, retaining only interest, energy costs, and maintenance. Deidda's EU-SILC sample (Italy, Germany, UK, Spain, and France) also shows that a cash-based ratio and a self-reported burden measure need not move together. She reports that Italy records one of the lower housing-cost-to-income ratios in her data, yet by far the highest share of households reporting housing costs as a heavy burden. In contrast, she finds Germany shows close to the reverse pattern. The divergence points to a further limitation of the ratio approach considered on its own: a fixed cost-to-income figure can sit well below or above what households themselves experience as burdensome, a narrower instance of the concept-dependence this paper documents across welfare aggregates.

Hick, Pomati and Stephens (2025) also demonstrate a limitation intrinsic to the ratio approach itself. Because a fixed cost-to-income threshold takes no account of the income level at which it is breached, thus a substantial share of the mortgaged owners it identifies as overburdened are not poor on an after-housing-costs basis at all. This plausibly reflects a preference to spend more on housing rather than being a resource constraint. To address this, they construct a Low-Income High-Cost measure restricting the overburdened population to those also below an after-housing-costs poverty line. They report that this reclassifies renters, rather than owners, as the group facing the more severe and (over their 2010–2018 EU-SILC panel) increasingly severe affordability pressure. This finding foreshadows a broader point taken up in the remainder of this paper: that the population identified as "at risk" from housing costs is highly sensitive to which economic well-being concept and threshold convention are applied. Ratio-based approaches in particular can misclassify in both directions, flagging comfortable over-spenders as burdened, while, as the following subsection discusses, saying nothing about what a household's income actually allows it to consume once housing costs are paid.

The residual income approach has received comparatively less sustained empirical development than the ratio convention. This is in part, because this approach requires a normative judgment about what a minimum standard of non-housing need requires, and data capable of operationalizing that judgment consistently across geographies and over time. Airgood-Obrycki et al. (2025) provide the most complete recent implementation for the U.S. (U.S.), combining household expenditure-need estimates from the Economic Policy Institute's Family Budget Calculator with income, and housing-cost data from the American Community Survey to classify a household as burdened whenever its income net of housing cost falls short of estimated non-housing needs. Applied to working-age renter households in 2023, this yields a residual-income burden rate of 65 per cent, substantially above the 50 per cent implied by the standard 30 per cent ratio threshold applied to the same sample. The gap between the two measures is not uniform: it is narrower among the lowest-income renters who are burdened under either measure, and among the highest earners who are rarely burdened under either. It is widest among middle-income renters and two-adult households with children, groups whose ratio-based burden understates the pressure of non-housing needs. The same measure also inverts part of the conventional geography of unaffordability: non-metropolitan counties show the lowest ratio-based burden of any country type but at the same time show the highest residual-income burden. This is because incomes in these areas fall short of a minimum cost of living even where housing itself is comparatively less expensive. This divergence by income group and geography anticipates the divergence by tenure

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and economic well-being concept that this paper investigates: which households are identified as poor depends on which claim against income, or which resource concept, is held fixed.

From Income to Consumption — Valuing Housing

A parallel strand of research treats housing not as a claim against income but as a component of household economic well-being that must itself be measured. The impetus for this shift was set out programmatically by the Canberra Group in its *Handbook on Household Income Statistics* (Canberra Group, 2001; revised 2011), which argued that income statistics built around cash receipts alone understate households' true command over resources, and proposed broadening the income concept to include an imputed return to owner-occupied housing. This is not a rejection of income as the starting point of analysis but an extension of it. Both traditions begin with income; they diverge only on whether housing enters the framework as an outflow subtracted from it, or also as an imputed inflow added to it, the value of housing services accruing to the household whether or not that value is realized through a financial transaction. This same principle, that housing consumption should be captured in survey measurement independent of tenure, is foreseen in the methodology developed for harmonizing Household Budget Surveys across Europe (Eurostat, 2003).

A recent large-scale application of this imputed-rent framework is Bérard and Trannoy (2025). These researchers use EU-SILC data for 27 European countries to construct housing services and housing expenses separately by tenure status, and compare counterfactual income measures that isolate the contribution of “cash” housing benefits and in-kind (social housing) benefits to inequality and poverty reduction. They report that cash benefits are markedly more cost-effective than social housing at reducing poverty, and more effective at reducing poverty than they are in reducing inequality. This study provides evidence that measured economic well-being outcomes are sensitive to how housing is folded into the income concept and by which policy channel. This is the same sensitivity that motivates asking whether poverty measurement itself should rest on income, expenditure, or consumption, or whether poverty measurement should be expanded to account jointly for all three.

It is this second, consumption-based tradition that the present paper takes as its point of departure. Rather than treating housing cost as a residual claim on income, we treat the value of housing consumed – whether purchased through rent, as an in-kind rent subsidy, financed through a mortgage, or owned outright – as a component of household welfare in its own right. Thus, housing is measured on a common basis across tenures rather than inferred asymmetrically from “cash” flows. The remainder of this section sets out the technical basis for that measurement, beginning with the question of how the value of owner-occupied housing services can be estimated with reasonable accuracy.

The technical challenge this raises, how to value dwelling services soundly rather than merely to argue for their inclusion in principle, is taken up directly by Garner and Short (2009). Using the U.S. Consumer Expenditure (CE) Interview Survey and American Housing Survey, they compare three approaches to valuing dwelling services. The first, **rental equivalence**, values owner-occupied housing as what a comparable unit would rent for on the open market. The U.S. Bureau of Labor Statistics (BLS) determines the rental equivalence of owner-occupied homes by asking owners in

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the CE Interview Survey what *their* home would rent for monthly (unfurnished and without utilities), not what *comparable* homes would rent for. There is no statistical algorithm that matches an owned home to a comparable rented home, to determine the rental value from a contract rent. It is a respondent-provided estimate. Owners' reported rental equivalence is the weight of owner-occupied housing for the U.S. CPI; price change is imputed from the CPI Housing Survey and from rented housing units. The second, the **capitalization-rate method**, instead starts from the home's reported market value and converts it into an implied annual rent by applying a capitalization rate — the ratio of rental income to property value observed in the rental market — so that a higher-valued home is assumed to generate proportionally more rental value. The third, the **hedonic method**, estimates a regression of observed market rents on a set of dwelling characteristics (e.g., number of rooms, age of structure, location, amenities) using the sample of actual renters, then applies the estimated coefficients to owner-occupied dwellings' own characteristics to predict what each would rent for. The U.S. Bureau of Economic Analysis (BEA), in production of Personal Consumption Expenditures (PCE), uses a variant of the hedonic method. Added to the imputed rent is an “owner premium” to adjust for quality differences between owner-occupied and renter dwellings.¹ The three methods can, in principle, diverge substantially in both level and distribution since they draw on different data (the actual rental stock versus the owned-home stock) and different implicit assumptions about what drives rental value. Using the three approaches to valuing the flow of services from owner-occupied housing, Garner and Short reconcile the resulting aggregate net implicit rental income (after owner landlord-like expenses are deducted) against the corresponding entry in the National Accounts — the imputed owner-occupied housing component of PCE that the BEA independently estimates as part of GDP — to assess which of the three survey-based methods best approximates the macro-level benchmark, and how the choice of method reshapes the imputed value's distribution across the income scale rather than only its aggregate size. Their distributional analysis finds that adding net implicit rental income to before-tax money income produces only marginal reductions in measured income inequality overall, and that this effect appears only when rental equivalence and a return-to-home-equity method are used to estimate rent, with implications in particular for how the relative well-being of older householders is assessed. Garner and Short's own review situates this exercise alongside a parallel set of European country studies developing comparable imputation methods: Verbist and Lefebure (2007) for Belgium, Frick et al. (2007) for Germany, Koutsambelas and Tsakloglou (2007) for Greece, Callan (2007) for Ireland, D'Ambrosio and Gigliarano (2007) for Italy, De Vos (2007) for the Netherlands, and Mullan et al. (2007) for the United Kingdom. Together these establish that the imputation problem is shared across market structures rather than specific to the U.S. context, and directly relevant to the cross-national analysis undertaken here.

For Germany specifically, Dustmann et al. (2022) update this exercise with more recent data and extend it to include capital gains (expected home price appreciation) as part of net imputed rents.² Capital gains or expected home appreciation is an addition in the equation to derive net implicit rental income as opposed to depreciation, interest, property taxes, insurance, and maintenance and repairs which are subtractions. This is consistent with the user costs approach to value the flow of services from owner-occupied housing; this is an approximation of rental equivalence in

¹ See Chapter 5: Personal Consumption Expenditures (updated December 2024), page 5-45, <https://www.bea.gov/resources/methodologies/nipa-handbook/pdf/chapter-05.pdf>

² By definition, capital gains are excluded from income in the National Accounts.

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frictionless markets. The researchers find that the capital gain adjustment moves inequality trends only marginally. They attribute this to two factors: homeownership in Germany is concentrated among middle- and higher-income households for whom the housing expenditure share is already declining, and German house prices grew far more moderately over their sample period than in the U.S. or the UK. This suggests that imputed-rent adjustments depend on the extent of house-price appreciation and the income distribution of ownership within a country.

Depreciation, Appreciation, and the Derivation of Net Implicit Rent

Across all of these applications, net implicit rent is not simply gross rental equivalence. What a household actually gains from occupying its home, net of the costs of holding it is further shaped by two elements that are not directly observed and must instead be estimated: depreciation of the structure, and appreciation in the value of the underlying asset (as referenced previously for the German study, Dustmann et al., 2022, that addresses appreciation or capital gain). Depreciation represents an inherent cost of consuming the housing service, since the structure wears down through use and time. Appreciation, by contrast, reflects a change in the value of the asset itself rather than a flow of consumption. Since expected appreciation is by definition incorporated into rental equivalence, the question of how to treat it only arises under a national accounts framework and is not a substantive issue for consumption measurement.

Garner and Short (2009), following the U.S. National Accounts framework, specify the derivation of net implicit rent in detail. Net implicit rental income is measured as rental equivalence (gross output) less expenses, plus any subsidies. Expenses comprise intermediate consumption, taxes on production, mortgage interest, current transfer payments, and the consumption of fixed capital (another way to reference depreciation). Intermediate consumption also includes landlord-like maintenance and repairs, property (structure) insurance, and, where relevant, one-off transaction costs such as mortgage origination fees, closing costs, and broker commissions. A distinction worth preserving here, and easily lost in aggregate treatments, is between landlord-like maintenance and repair (M&R) and expenditures a tenant would normally not be assigned because they fall to the property owner. Landlord-like maintenance and repair expenditures, incurred by owners only, would fall into one of two categories: (1) major and (2) related to fixed capital formation. Following COICOPS 2018, major maintenance and repair expenditures would include, for example, replastering walls or repairing roofs; fixed capital formation would include work that changes the “dwelling’s performance, capacity, or expected service life,” such as replacing a roof outright or finishing a basement. These landlord-like expenditures are excluded from the consumption measure entirely and instead treated as investment³. Only the former enters intermediate consumption and is netted out of rental equivalence to derive net implicit rental income; the latter is out of scope by construction. Property taxes enter separately, as taxes on production, and depreciation enters as the consumption of fixed capital, typically approximated as a fixed percentage of the structure’s current market value (Garner and Short, 2009, use one%. By

³ Only maintenance and repair expenditures that are “related to interior decoration and to other such minor maintenance and repair, which would normally be seen as the responsibility of a tenant, are considered part of the individual consumption expenditure of households” according to COICOPS (2018). Renters who incur landlord like expenditures would be assumed to be in rental agreement in which they pay less market rent but incur these landlord-like expenditures. However, such major, landlord like expenditures are excluded from the COICOPS definition of consumption and thus are excluded in the LCS measure too.

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2013, somewhat higher depreciation rates were published by the BEA with differences by structure characteristics. For example, the BEA document lists a 1.14% depreciation rate for new residential structures that include 1-4 units, but a rate of 2.27 for residential structures with 1-4 units that include additions or alterations.⁴ Higher depreciation rates are expected for older properties. Other countries' National Accounts offices publish rates specific for their countries and residential housing types. Whereas the U.S. BEA practice explicitly applies geometric rates, while estimating depreciation, in a later OECD study by Pionnier et al. (2023), which replicates the U.S. approach to the G7 countries, other national practices are documented. For example, France uses a practice of linear depreciation profiles (Cabannes et al., 2013) and Italy uses a straight-line depreciation.

Appreciation (as noted above is also referred to as “capital gains”) raises a different and more contested question. If one follows a national accounts framework, appreciation would be excluded from net implicit rental income. However, if one follows a user costs approach to valuing the flow of services from owner-occupied housing, one would include appreciation. Garner and Verbrugge (2009) set out the underlying logic through a user-cost formulation of the flow of housing services in which rental equivalence and user cost are, in theory, equivalent ways of pricing the same flow, though empirically the two diverge. Following this framework, and building on Diewert (2006, 2009), user cost can be expressed as the sum of out-of-pocket expenses (mortgage interest, property taxes, property insurance, landlord-like maintenance and repair expenditures), and implicit depreciation and opportunity costs with a subtraction for appreciation. Implicit costs include depreciation and the return foregone by holding home equity rather than an alternative interest-bearing asset. These costs are offset by expected appreciation. Because depreciation and the opportunity costs of capital and expected appreciation largely offset one another, most treatments of net implicit rent omit these three rather than attempting to estimate each separately. For owners with mortgage interest, this can be a proxy for the opportunity cost of capital. As noted earlier, National Accounts practice, excludes appreciation categorically on the grounds that changes in asset prices are not a source of income from current production and therefore fall outside the income and consumption boundary altogether (SNA 2025: Chapter 9).⁵

This leaves three defensible ways of deriving net implicit rental income from the same rental-equivalence starting point, differing only in how depreciation and appreciation are handled. (1) A housing-economics approach, following the user-cost logic of Garner and Verbrugge (2009) and Diewert (2006, 2009), subtract from rental equivalence the following: mortgage interest, property taxes, property insurance, landlord-like maintenance and repairs, and depreciation, then adds back expected appreciation. (2) The National Accounts approach subtracts the same set of expenses, including depreciation, but omits opportunity costs and appreciation entirely, consistent with the treatment of capital gains as outside the production boundary. (3) A simplified approach, closest to actual household cash flows and the one adopted here, subtracts only the realised out-of-pocket components, mortgage interest, property taxes, structural property insurance, and landlord-like maintenance and repairs, and omits depreciation, the opportunity costs of capital, and appreciation. This third approach is the most tractable across countries with uneven data on structure age, condition, and local house-price trends. However, comes at a stated

⁴ BEA Depreciation Rates (2013). https://apps.bea.gov/national/pdf/BEA_depreciation_rates.pdf

⁵ Also see Aten (2018) for a presentation of options to value owner-occupied housing with a focus on user costs and application to national accounts in the U.S.

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cost: it does not capture the role that expected appreciation plays in the return to home ownership, and so understates the economic logic that leads households to own rather than rent, and landlords to invest in rental property in the first place.

Dustmann et al. (2022) illustrate this starkly for Germany by using the opposite operation to imputation. Rather than adding a net implicit rent value for owner-occupied housing to income, they deduct actual housing out-of-pocket expenditure from income, drawing a distinction between housing expenditure and the residual available for saving and non-housing consumption. On a before-housing-expenditure basis, the 50/10 ratio of net equivalized income rose by 22 percentage points between 1993 and 2013. On an after-housing-expenditure basis, the same ratio's increase nearly tripled. They attribute this to housing expenditure's income share rising disproportionately for the poorest households and falling for the richest, driven by declining relative costs of homeownership versus renting, changing household structure, declining real incomes among low-income households, and residential mobility toward larger, more expensive cities.

3. Core Reflections and Conceptual Framework

Section 2 has shown that housing costs sit at the boundary between consumption and expenditure: it changes which households are identified as poor and how poverty is ranked across tenure groups (Tunstall et al., 2013). High housing spending compresses the budget available for food, transport, and other essentials. Evidence suggests that high-rent tenants and heavily indebted homeowners face comparable consumption constraints and vulnerability to income shocks, despite sitting on opposite sides of the tenure divide (Campbell and Cocco, 2007; Attanasio et al., 2009). Meyer and Sullivan (2012) take up this question directly for poverty measurement. Rather than treating income-based and consumption-based approaches as competing in principle, they compare three concrete measures side by side, the official U.S. poverty rate, the Supplemental Poverty Measure introduced by the Census Bureau in 2011, and a consumption-based poverty measure, asking how each performs against two goals: identifying the most disadvantaged at a point in time, and tracking how disadvantage changes over time. Their finding is that the choice between income, expenditure, and consumption concepts has direct consequences for those who are identified as poor and how poverty trends are read. This is the same logic that motivates the four-concept schema developed in this paper, extended here to a cross-national rather than single-country setting.

Housing is central to material well-being because it simultaneously is a major consumption item, providing shelter, comfort, and security, and a long-term financial commitment. To make tenure groups comparable on this basis, we treat consumption as the flow of housing services actually received: rent for tenants plus in-kind rental subsidies, imputed rent for people living rent free, and imputed rent (rental equivalence) for owners. Thus, consumption is not represented as a cash outflow. Waters and Wernham (2023) show that, among lower-income English households, private renters are markedly more likely than owner-occupiers or social renters to live in homes failing the Decent Homes Standard, chiefly through poor energy efficiency, damp, and disrepair. A consumption measure that imputes housing services from paid rents alone, without adjusting for quality, will therefore tend to overstate the relative living standard of lower-income renters against owners occupying better-maintained homes of similar market value.

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A second departure from the standard SNA framework concerns non-consumption housing expenses, mainly mortgage instalments (interest and principal) and property taxes. In the SNA, mortgage interest and property taxes are classified as transfers and principal repayments as investment (SNA 2025, Chapters 9 and 12). However, for the U.S. National Accounts, mortgage interest and property taxes are expenses subtracted from the rental value of owner-occupied housing (see Garner and Short 2009); mortgage repayments are also excluded in the U.S. case. The SNA approach, as opposed to the U.S. National Accounts approach, obscures a simple budgetary fact: mortgage interest and property taxes still reduce the resources a household has left for non-housing consumption. But so does the repayment of mortgage principal. For this reason, we present these separately from other housing costs in our results across tenure groups.

4. Methods and Data

We operationalize two income and two consumption concepts to assess households' economic well-being with a focus on housing. We refer to these as conceptual measures. The methods that we use to assess well-being we refer to as analytical measures. We use year-specific household survey microdata for the analysis. In this section we first present the income and consumption concepts that guide our research, followed by a description of the data and the conceptual and analytical measures that we use to assess economic well-being and poverty.

Income and Consumption Concepts

The income and consumption concepts that underlie this research are presented in Table 1. *Disposable income* is defined as monetary income; this is an “inflow” to the household to represent monetary resources available to meet the expenditure choices (and those for savings) of the household. *Residual income after housing costs* reveals the monetary income available after meeting housing needs defined as out-of-pocket expenditure; it can be referred to as “net” income. Residual or net income is a direct measure of income capacity under housing cost pressure. In this study, we do not produce an income measure that accounts for in-kind transfers, like rental and household assistance, or net implicit rental income from owner-occupied housing. While such an income concept would be more comparable to our consumption measure, we leave this for future research.

Complementary to the two monetary income concepts are two focused on consumption. The first is household consumption expenditure which integrates actual and imputed rents making tenure groups comparable in terms of housing services. In addition, in-kind public transfers are included, for example, subsidies for rent, energy, food, and broadband as well as the flow of housing services for households who live rent free. This is referred to as the *LCS household consumption* measure. While the LCS operationalization of this concept is closely following COICOPS (2018), there are three deviations, explained in detail in Garner et al. (2025). The first is the exclusion of education and the second is the exclusion of health. These are excluded due to cross-national differences in the provision of education and health goods and services across countries. Third, under COICOPS, the purchase of durables is treated as household consumption expenditure at the time of purchase. Conceptually, a consumption measure only requires accounting for the flow of services durables provide in a certain reference period. In this analysis, however, both elements are excluded from the measure, though for different reasons: (1) the purchase of durables is excluded

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by choice, to keep the measure focused on recurring consumption rather than lumpy one-off spending; and (2) the imputed flow of services from durables is excluded because it is not estimated in the data provider's data.

The second consumption expenditure concept, comparable to the second income one, is the consumption that remains when housing consumption is subtracted; we refer to this as *net household consumption*. Housing consumption that is subtracted is defined as the sum of actual and imputed rents (including owners' equivalent rent and rent subsidies), housing utilities (energy, water and waste/sewerage services and energy subsidies), household content insurance, and maintenance and repair expenditures incurred by tenants and by owners who have comparable such expenditures. Implicit in market rents (actual rents plus subsidies and imputed rent for those living rent free) and owners' rental equivalence, and thus not added to housing consumption, are the following: mortgage interest and principal payments, property structural insurance and taxes, landlord-like maintenance and repair expenditures, depreciation, and appreciation. With the exception of the last two, those listed are housing out-of-pocket expenditures; they do not enter consumption but, as noted above, are the expenditures subtracted to derive monetary income net of housing expenditures. Net consumption is a direct measure of consumption realization under housing consumption pressure.

<insert here: Table 1. Income and Consumption Based Concepts Underlying this Study>

Figure 1 includes the conceptual building blocks to implement the housing components of the income and consumption concepts regarding tenants (renters) and owners. It summarises the relationship between the cash housing cost concept and the housing consumption concept. The non-monetary (imputed) value of the flow of services from owner-occupied housing and subsidized and free housing is a benchmark consumption value for both tenure groups and is consistent with Eurostat and national account (BEA and SNA) practices. The fourth entry in the Figure includes the concept of net implicit rent which applies to owners only as the producers of their own housing services. As noted earlier, net implicit rent is defined as rental equivalence minus direct costs incurred by the owner (referred to as intermediate consumption), depreciation, and expected appreciation). Direct costs include interest, structural insurance, property taxes, major (landlord-like) maintenance and repairs. Interest may consist either of mortgage interest paid on borrowed funds or the opportunity costs of the loss of interest incurred as a result of investing one's own funds in this housing. In our study, as described in the four concepts schema, at this stage, we do not construct the net implicit rent concept.

<insert here: Figure 1. Housing Related Building Blocks: Housing Cost, Housing Consumption, Residual after Other Goods and Services, and Net Implicit Rent >

Data

The underlying data used for this study were originally collected by national statistical offices using country-specific household budget, expenditure, or consumption surveys. Under the auspices of the newly created Luxembourg Consumption Study (LCS), these data have been harmonized as a cross-national project.⁶ In the beta launch scheduled for September 2026, data for 16 countries

⁶ See: <https://www.lisdatacenter.org/our-data/luxembourg-consumption-study-lcs-database-beta-launch/>

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are included for at least one year and for some countries, several years (e.g., data for 2006-2024 are included for Spain). Since this study focuses on housing, we restricted our analysis to countries with the most extensive housing expenditures and consumption data. In addition, we selected one year of data over another if a more recent year's variables were created following COICOPs. Such is the case for Spain. The countries and years of data for our study include the following: France (2017), Israel (2022), Italy (2023), and Spain (2024). In addition, we use data internal to the BLS for the U.S. (2022); the U.S. data have yet to be incorporated into the LCS.

All results are presented for populations of people as opposed to households with income, expenditures and consumption in U.S. 2021 constant dollars. As in much of the research using Luxembourg Income Study (LIS) data, we use the square root of household size as the equivalence scale for each of our measures. To directly compare absolute monetary values across countries and over time, we apply to each country's income, expenditure, and consumption measure what is known as the LISPPPs, LIS Purchasing Power Parities (PPPs) or deflators.⁷ These are derived by LIS (the Luxembourg Income Study team) using the country/year specific Consumer Price Indices (CPI) and the PPPs from the World Bank Development Indicators; these are constantly updated. The CPI is used to compare amounts over time within a country, while the PPP is used to compare real amounts across countries. As noted in the LIS website, 2021 LISPPPs take into account inflation in each country measured by the CPI and the 2021 PPP conversion factors. The LISPPP is equal to the country-specific CPI times the PPP. Thus, in addition to the equivalence scale adjustment, we also apply an adjustment to convert country specific currencies into constant 2021 U.S. dollars. For example, to adjust 2024 Spanish income in Euros to 2021 U.S. dollars that take account of differences across countries and time and as well as differences in household size, we divide the 2024 Spanish income by the square root of household size times the 2021 LISPPP for Spain.

Challenges arose when working with the country specific data that impact our ability to fully operationalize the housing consumption concept, specifically regarding property insurance, and maintenance and repairs. Renters purchase contents insurance to cover potential losses due to, for example, fire, theft, and water damage, as well as liability. Owners too may purchase contents insurance, but they also purchase structure insurance. In addition, owners can purchase single policies that cover both contents and structure. For renters and owner-occupants, contents insurance is consumption as defined by COICOP, but owner's structural insurance is out of scope and not included in consumption. Institutional arrangements with respect to content and structural insurance vary by country, which does not all for a systematic categorization of content versus structure insurance by housing tenure. In addition, the underlying source data do not allow for clear separation of content from structure insurance. For the U.S. data, insurance industry data is used to decompose owners' property insurance into content and structure insurance.⁸

⁷ See: <https://www.lisdatacenter.org/resources/ppp-deflators/>

⁸ For the U.S., we use adjustment factors estimated by researchers at the BLS to partition content and structure insurance premiums into the two categories. The adjustment factors are based on insurance industry data and incorporate differences in insurance rates across states and across dwelling structure types (e.g., free standing home versus condominium). These factors are based on related work by researchers at the BLS. The partition into content and structure insurance is based on data provided by the National Association of Insurance Commissioners (NAIC) by calculating adjustment factors for homeowners' insurance. These data are from the NAIC *Dwelling Fire, Homeowners Owner-Occupied, and*

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However, for the other countries, the insurance component of housing is possibly an over estimate for the consumption measure since structure insurance is included in the country reported property insurance in the LCS database.

Identifying maintenance and repairs for housing consumption is another challenge. According to COICOP 4.3,

Maintenance and repair of dwellings are activities that are distinguished by two features: first, they have to be undertaken regularly if the dwelling is to remain in good working order; second, they do not change the dwelling's performance, capacity or expected service life. (UNSD, 2023, p.92)

The COICOP document goes further to distinguish minor and major maintenance and repair.

There are two types of maintenance and repair of dwellings: those that are minor, such as interior decoration and repair to fittings and that are commonly carried out by both tenants and owner-occupiers, or major, such as replastering walls or repairing roofs, which are carried out only by owners.

Only the expenditures incurred by tenants and owner-occupiers on materials and services related to interior decoration and to other such minor maintenance and repair, which would normally be seen as the responsibility of a tenant, are considered part of the individual consumption expenditure of households.

Expenditure incurred by owners, including owner-occupiers, on dwelling-related interior decoration and minor maintenance and repair that would normally be seen as the responsibility of a landlord, are considered intermediate expenditure and should not be treated as final consumption expenditure of households. Expenditure incurred by owners, including owner-occupiers, on major maintenance and repair are seen as gross fixed capital formation and thus also outside the scope of COICOP.

Materials purchased by tenants or owner-occupiers with the intention of undertaking minor maintenance or repair themselves should be assigned to subclass 04.3.1.1. If tenants or owner-occupiers pay an enterprise to carry out the minor maintenance or repair, the total value of the services, including the costs of the materials used, should be assigned to subclass 04.3.2.0. However, the cost of the materials should be assigned to 04.3.1.1 if they are separately priced. (UNSD, 2023, p.92)

But, given the way the variables in the household survey data files are created or coded, the distinction between minor and major maintenance and repairs is not clear in the country data files. For example, COICOP lists “small plumbing items (pipes, taps, joints, etc.)” as minor for both renters and owners and thus this set of items is included in housing consumption. But what if in the data files the variable is “plumbing supplies and equipment” with no distinction regarding whether these are “small” or “major”? For renters these could represent “small” repairs while for owners they could represent major plumbing repairs. To guide us in distinguishing minor from major in the country data files, we use the following phrase from the COICOP documentation to guide our decision: “which would *normally* be seen as the responsibility of a tenant” unless another

Homeowners Tenant and Condominium/Cooperative Unit Owner's Insurance Report. A library of reports for 2021.

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option is presented. For example, the Spanish data for 2024 are collected following COICOPs definitions. Thus, we assume that all reported housing maintenance and repair expenditures, regardless of type (e.g., plumbing, electrical, painting) are minor and thus represent housing consumption. However, for the U.S. and Italy, we use our best judgment to identify what is “normally seen as the responsibility of the tenant” to define minor maintenance and repairs. The norm in the U.S. is that renters rarely incur expenditures associated with maintenance and repairs outside of perhaps painting, wallpapering, and landscaping. An exception would be renters who have made agreements with landlords to pay a lower than market rent and in return will do what would normally be considered landlord-like housing maintenance and repairs. For Spain, we assume all maintenance and repair expenditures represent those normally undertaken by the tenant/renter. For France and Israel, we were able to separate out major repairs and renovations to the residence and thus our consumption housing measure for these countries only includes minor or tenant-link expenses. When not distinguishing by minor and major maintenance and repairs, we could be overvaluing housing consumption for owners, as conceptually the component of major repairs is implicitly accounted for in the value of gross equivalent rent, which should reflect higher values after major repairs.

In contrast to our housing consumption concept, when deriving housing monetary costs, we include all expenditures for maintenance and repairs for both tenants and owners. These are expenditures for minor and major maintenance and repairs, plus the purchase of materials and services that would be identified as capital improvement and thus out of scope for COICOP housing consumption. In other words, in housing monetary costs, we include maintenance and repairs that can “change the dwelling’s performance, capacity or expected service life.” A criticism of this approach is that we are assuming that these are being funded out of current income. Given the magnitude of such expenditures, it is more likely that they are being funded using credit or dissaving.

As noted earlier, we do not include depreciation or appreciation in housing consumption. If we included depreciation, we could consider remodeling – a capital improvement – as a forestalling depreciation – and at the same time a contribution to an increase in appreciation.

Analytical Measures

The analytical measures that we use to compare the economic well-being of people across countries include relative poverty and housing burden. We define a relative poverty line for each country as 50% of a country’s median equivalized income or consumption. We calculate this measure following the Foster-Greer-Thorbecke (FGT) Indices, ($\alpha = 0$) for the poverty rate, and ($\alpha = 1$) for the poverty gap. The latter measure adds up the extent to which individuals on average are below the poverty line as a proportion of the poverty line.⁹

For the poverty analyses, we produce four relative poverty measures; two for our income-based conceptual measures and two for our consumption-based conceptual measures. A person is

⁹ Foster-Greer-Thorbecke Index by Yanan Chen in The Sage Encyclopedia of World Poverty, Chapter DOI: <https://doi.org/10.4135/9781483345727.n306>

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identified a poor if his/her equivalized LCS household income or consumption is less than 50% of the comparable median equivalized value for the total population in his/her country.

Housing burden is defined in terms of ratios and distribution. The following four measures are calculated:

1. the ratio of average housing out-of-pocket (OOP) expenditures to average gross monetary income (before deduction of income taxes and social contributions, and before in-kind transfers),
2. the proportion of households with housing OOP expenditures above 30% of disposable monetary income,
3. the proportion of households with housing OOP expenditures above 30% of disposable monetary income that falls in the two bottom quintiles, and
4. the proportion of households with housing OOP expenditures above 30% of disposable monetary income and within the two bottom quintiles (referred to as the 30/40 rule).

For the housing burden analysis, quintiles of income are derived by ranking households using their equivalized disposable monetary income weighted by households, following the approach used in the production of the distributional national accounts (produced by countries for a project coordinated by the OECD.¹⁰) For our poverty analysis, we use the same ranking procedure but weight by person (number of persons in the household times the household weight) following the practice in the poverty literature. We produce both the poverty and the housing burden indicators by housing tenure group: outright owner, owner with mortgage, tenant who pays market rent, tenant who pays subsidized rent, and one who lives in a dwelling without any payment of rent (referred to as “rent free”).

We also show the distribution of household consumption across countries and by component of consumption by major COICOP category; these are also person weighted. Since our focus is on housing, we decompose the category “housing, water, electricity, gas and other fuels” into subcomponents. These include for consumption: actual rents paid, imputed rents, maintenance and repairs and security of the dwelling, utilities, and housing (property) insurance. Imputed rents are broken down even further into imputed rentals for owner occupied dwelling, housing benefits (public in-kind), and imputed rental for dwelling provided for free. Utilities are those that are paid except for the U.S.; utilities include both paid and in-kind (public in-kind energy assistance administered under the Low-Income Energy Assistance Program, LIHEAP).

Although not included in household consumption, we present OOP spending for health and education to provide information on the magnitude of what people across countries pay for these relative to their consumption.

¹⁰ As noted in the OECD (2024) report, “... whereas the classification is done on the basis of equivalized results, thus taking into account the number of consumption units, the distribution into quintiles is done solely on the basis of the number of households. Hence, when breaking down by income quintile, each quintile represents 20% of the total number of households and not of consumption units” (section 2.1.5, OECD (2024), *OECD Handbook on the Compilation of Household Distributional Results on Income, Consumption and Saving in Line with National Accounts Totals*, OECD Publishing, Paris, <https://doi.org/10.1787/5a3b9119-en>).

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Housing monetary costs are presented as a share of disposable monetary income for each country by household type. Housing costs include the following: actual rents; utilities paid; housing/property insurance (both content and structural for all countries); all maintenance and repair expenditures plus for security; mortgage installments (principal repayments and interest) when they are not separated in the country’s data file, and when they are separated, mortgage principal paid and mortgage interest paid.

And finally, we show the joint distribution of income and consumption measures with and without housing. These are presented as heat maps using quintile distributions.

5. Results and Discussion

In this section we present descriptive statistics of the weighted population samples by country followed in terms of household type and disposable household income and expenditures with particular attention to housing costs. Next, we turn our attention to consumption patterns by housing tenure type. Both analyses include a decomposition by tenure type: tenants, outright owners, and owners paying mortgages. This is followed by results focused on housing cost burden defined with respect to gross income (as opposed to disposable income) and expenditures. Gross income is monetary income before income taxes and social contributions paid and before in-kind benefits are added. The housing burden results are also presented for households (using household weights) as opposed to the other results that are primarily produced for people in the population (using person weights). Then, we present poverty rates using disposable household income and consumption. And finally, for each country we show heat maps comparing the joint distribution of the population by income and consumption. All results are presented for individuals or persons within households with two exceptions: when we show homeownership rates and for housing burden statistics.

Demographic Characteristics, Income, and Consumption

In this section, we focus on the demographic composition of the populations and average equivalized income and consumption across countries. Since housing is related to household structure we limit our demographics to household type, geography, and homeownership. Table 2 includes population distributions by household type. Households with dependent children account for 20-37% of the total population, with the lowest in France (21.8%) and the highest in Israel (36.5%). Not considering the “other household type,” a reverse pattern appears for the next largest household type that is singles of working age; France has the largest share (18.9%) and Israel (11.4%) the lowest. In Italy, working age singles (18.4%) and retirement age singles (17.6%) are nearly equally represented. In the U.S. singles of retirement age (12.9%) and couples of working age (12.6%) are fairly equally represented in the total population. The smallest shares of the population for all the countries are for people living in single parent households: 3.8% in Spain to a high of 6.7% in France. The distributions for the U.S. are most similar to those for Spain.

<insert here: Table 2. Percentage Distribution of the Population by Household Type by Country>

Table 3 includes homeownership rates by household type and by rural versus urban area. Here we define homeownership rate, in the usual way, as the percentage of dwellings in a country that is owner-occupied within a country. We are assuming that each household is the same as a dwelling since households are based on dwelling addresses. The exception is for the U.S.; rather than

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households, the CE data are collected from consumer units. While there may be more than one consumer unit in a household, this is rare; about 97% of all consumer units are the same as households. Thus, we interpret the U.S. results as homeownership rates as well.

The highest homeownership rates on average are for Spain and Italy; 75% of all dwelling in each country is owner-occupied. By household type, couples who are retired (both 65 or older) have the highest ownership rates across all the countries without a mortgage). The highest rate is for Spain, 93.4%, followed by Italy (90.9%), the U.S. (90.4%), Israel (86.7%), and France (83.9%). The lowest homeownership rate is for France with single parent households being least likely to live in homes that they own at 30.2%. In the U.S., single parents are also the least likely to own their homes (38.2%) Homeownership rates for households characterized as single working age also are among the lowest among these countries and household types with a rate of 32.2% for Israel, followed by France and the U.S. There is also a difference in rural versus non-rural areas. Households living in rural areas are more likely to be homeowners than those living in non-rural areas. The difference is greatest for the U.S. (82.9) followed by Spain with 82.7 of all household living in owner-occupied housing. The differences in homeownership rates in rural versus non-rural areas are smallest for Israel and Italy with the lowest percentage point differences (2.9 and 5.5 respectively), and the greatest differences are for France and the U.S. (24.6 and 21.7).

<insert here: Table 3. Homeownership Rates by Household Type and Rural versus Urban Areas (household weighted)>The focus of Table 4 is monetary income and housing related costs. Included are average equivalized monetary disposable household income and expenses in 2021 U.S. dollars by housing tenure group by country. There are no results for Italy as disposable housing income is not included in the Italian Household Budget Survey (HBS). People living in households in which the owner is paying a mortgage have, on average, the highest equivalized monetary incomes with the U.S. with the top value (\$66,164 per equivalent adult), over \$20,000 higher than the other countries. Tenants have the lowest equivalized income in Spain (\$29,946). The income of tenants in Israel is only about \$500 less than the income of owners without mortgages. In France, the average equivalized incomes of people are about the same for owners with and without mortgages (approximately \$38,500). Out-of-pocket rent payments account for 18-23% of income in these countries. Mortgage installments (principal and interest) account for a low of 11.9% of equivalized income in the U.S. for owners with mortgages to a high of 24% in France.¹¹

<insert Table 4. Income and Expenses by Tenure Type by Country>

In Table 5 we turn to consumption. Included are the distribution of household consumption across major categories of consumption, again with a focus on housing. To highlight the consumption preferences across households, again with a focus on housing, we present these results for each of the three housing tenure groups: tenants, outright owners, and owners paying a mortgage. The average equivalized housing consumption by country, in 2021 US dollars, is presented first. This is followed by the shares of consumption by major category. To understand the magnitude of difference in health and education expenditures across countries, as noted earlier, we also present

¹¹ See Appendix Table 1 for a comparison of shares of disposable income for housing by household type for each country. These tables provide further insights within and between countries which groups bear specifically high cost, which might give further indication about policy implications.

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average equivalized expenditures as a share of total consumption. On average, the value of consumption in all four countries is highest for outright owners and owners paying mortgages. The average equivalized consumption is valued marginally highest in the U.S. (\$6,555-\$39,698); this is about \$10,000 higher than for the other countries. People who live in rental units have the lowest total value of consumption among the three household tenure groups starting with Italy (\$19,400) and Spain (\$19,490), followed by France (\$21,116) and Israel (\$21,807); the highest consumption is for the U.S. renters (\$28,083). Of the 14 groups of consumption listed in Table 5, the one accounting for the largest share is “housing, water, electricity, gas and other fuels.” This group of consumption accounts for 30-8% of total consumption, with the lowest share for owners paying mortgages in France (30.4%) and the highest share by people living owning outright in the U.S. (48.4% of total consumption). The consumption category with the second highest shares is “food and non-alcoholic beverages.” The shares for this group range from a low of 12.4% in the U.S. for people living in households identified as owners with mortgages to a high of 24.5% for Italy for people living in rental units. When we consider housing consumption specifically, we found that actual rents account for the largest share of housing consumption for renters in Israel (29.4%). In contrast, the highest share of consumption for imputed rents across the countries is for outright owners in the U.S. (40.9%). Across all the countries, imputed rents account for 21-41% of total consumption for people living in owner-occupied housing. Owners’ imputed rents account for the lowest share of total consumption in Israel (approximately 21%). The next largest share of total consumption devoted to housing is for utilities, accounting for approximately 6-10% of total consumption. Property insurance and maintenance, repairs, and security of the dwellings, account for the smallest shares. Although not part of consumption, out-of-pocket (OOP) health and education expenses differ across countries. Relative to total consumption, people living in France pay the least OOP, based on relative shares, when compared to other countries, and those living in the U.S. pay the most.¹²

<insert here: Table 5. Total and Subcomponents of Consumption by Tenure Type>

Housing Cost-Burden

Housing cost burden is the focus of Table 6. Included in this table are four complementary indicators of housing cost burden: (1) the average share of monetary disposable income spent on housing; (2) the proportion of households exceeding the 30% threshold of disposable income (we refer to this as the traditional “cost-burdened”); (3) the concentration of that housing cost-burdened group within the two bottom income quintiles; and (4) the joint incidence of being both housing cost-burdened (housing costs exceed 30%) and income poor (belonging to the two bottom quintiles in equivalized disposable household income). The income quintiles are based on equivalized disposable income, still using the distribution of households. This is done to consistently report here household level rates. The threshold of exceeding 30% is borrowed from the methodology on measuring housing burden for renters in the U.S., and the additional implementation of the two bottom quintiles is taken from the approach in Australia (30/40 rule). Both analytical measures are described in the literature section in detail. We apply in this study the

¹² See Appendix Table 2 for a comparison of shares of consumption for housing and other categories by household type for each country. As does Appendix Table 1, this table provides further insights within and between countries which groups bear specifically high cost.

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burden to be measured after taxes and social contribution have been deducted.¹³ The results are estimated separately for Spain, France, Israel, and the U.S., and disaggregated by five tenure categories. The tenure categories include outright owners, owners with a mortgage, market-price tenants, subsidized tenants, and those living in rent-free accommodation.

<insert here: Table 6. Housing Cost Burden by Tenure Type>

Across the whole population, the average housing cost burden is highest in the U.S. (31.2% of income is allocated to housing), followed by France (29.1%), Israel (21.4%) and Spain (17.5%). The share of households with housing costs exceeding the 30% threshold follows the same ranking across the countries (47.7%, 40.7%, 27.7% and 21.6% respectively). In all four countries, a majority of these cost-burdened households are concentrated in the bottom two income quintiles, though the ordering here differs from the average-burden ranking. The concentration is highest in Spain, with 63.7% of households in the lowest two income quintiles and having over 30% of their income allocated to housing costs. This is followed by Israel, the U.S., and France, where slightly more than half belong to the lower bottom quintiles. As a result, one in four in the U.S. households (25.1%), one in five French households (20.9%), roughly one in seven of the Israeli (15.3%) and Spanish households (13.8%) are simultaneously income-poor and house cost-burdened.

The tenure breakdown shows that the picture is mixed across tenure types and countries. The average household cost-burden as a share of income for mortgaged owner households (33.8% in the U.S. and 28.4% in Israel) is closely aligned with the that of tenant households at market-price for two of the countries: 30.7% in the U.S. and 32.4% in Israel. Whereas in the U.S. the owners have the higher shares, the opposite is observed in Israel. In France the share for mortgaged owners exceeds the one among the tenants at market price; both are the highest in this comparison. Spain again has the reversed pattern, and with 22.8% among mortgaged owner households, the lowest share in this category.

As referenced earlier, the rather high share of housing costs can be notably attributed to the mortgage burden. A meaningful proportion of the mortgage expenses consists of principal repayment, which is a form of wealth accumulation (building home equity) rather than a pure housing expense, unlike rent or mortgage interest. In other results (not presented here but available upon request), households paying mortgages are also disproportionately in higher income quintiles. This is mirrored in the concentration indicator (column 3): only 24–52% of cost-burdened mortgaged owners fall within the bottom two income quintiles, markedly lower than the 54–73% observed among tenants at market price. Thus, when implementing the 30/40 rule, analytical measure 4, the proportion of households with a mortgage and income poor (all between 15–17%) drops to roughly half of the proportion of households in rented dwellings and paying market price (29–39%). A general finding across all four countries.

Subsidized tenants stand out based on the concentration indicator (measure 3 with results in column 3): 78–98% of the households living in subsidized rental housing have housing costs that exceed the 30% threshold and belong to the bottom two income quintiles in all four countries. This does not, however, translate into the highest *joint* poor-and-housing cost burdened share. The largest share of households in rental units with market-prices and income poor live in Spain (39.5%) and France (36.9%), closely followed by the U.S. (36.4%), while in Israel subsidized rental

¹³ After some sensitivity checks using alternative definitions for gross income, we conclude that the 30/40 rule produces similar rates for gross and net incomes, a finding which has been equally reported by Yates et al. (2007).

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households have the highest incidence (53.6%). These findings support the fact that housing costs are notably a burden among tenants. The latter is less clearly observed in the U.S., where also outright owners face on average a high housing cost. The share of housing cost is for this group is by far the highest in this comparison, and leads with 29.1% of households to a rather high incidence; the essential cost for them are property taxes (Table 5).

Apart from the U.S. results, households with no mortgage and those in rent-free accommodations show the lowest average housing costs burdens and joint poor-burden concentrations. These are lowest for Spain for both housing tenure groups. They are notably low also for outright owners in Israel and rent-free households in the U.S.. Here the U.S. do show another discrepancy. Unlike in the other countries, subsidized tenants face very low housing cost, which results in very low percentage (4.8%) of household paying more than 30% of their income on housing. This is likely due to the fact that in the U.S., housing subsidies are in-kind and not monetary.

Poverty Statistics

As noted earlier, the analytical measure that we use to present poverty statistics are the Foster-Greer-Thorbecke (FGT) Indexes. Table 7 includes poverty rates ($\alpha = 0$) for people living in the different housing tenure groups with heat maps used to highlight higher versus lower poverty. Table 8 includes poverty gap indexes ($\alpha = 1$) also with heat mapping. Results are presented separately for equivalized disposable monetary income and equivalized consumption for each country. As noted earlier, poverty is defined as an individual having equivalized income or consumption below 50% of median equivalized income or consumption. Using the person-weighting approach, if one member of a household is poor, all members of that same household are poor (equivalent to headcount-ratio or index). The poverty gap index can be interpreted as the average proportional income/consumption shortfall of the poor individual from the poverty line.

Not surprisingly, the highest poverty rates are for individuals living in subsidized rental housing and most notably when measured using income, but consumption poverty is rather high as well. In the U.S. individuals living in subsidized housing have income poverty rates near 70%, the highest of all countries and household tenure groups. The share of population that is considered poor after housing cost (measure 2) is higher throughout all countries, though the rates shift for some tenure types more than for others. As we consider the full mortgage payment, including principal and interest payments, as part of housing cost, it is notably the mortgaged households which increase in poverty incidence. Even though the share more than doubles in Spain and France, doubles in the U.S. and increases by 50% in Israel, this group shows consistently the lowest poverty rates across all countries (15-20%). Thus, persons living in mortgaged housing remain still far below the average poverty rate of the total population (19-31%). After housing cost is deducted, also tenants at market price move consistently up in poverty rates (from 23-37% to 30-42%) Percentage point increases are particularly high in France and Israel. We find a consistent pattern: When housing cost is deducted, market rate tenants remain below the subsidized tenants, but the difference in the poverty rates gets notably smaller in France, Spain and the U.S. The U.S. reveals that outright owners have comparatively high-income poverty rates before and after deduction of housing cost. On average, retirees in the U.S. have lower incomes, and are more likely to be outright owners. Even without a mortgage they are still required to pay all the other owner's expenses. Of all households identified as outright owners, 22.9 are singles of retirement age, the largest share of any household type. And among single retirees, 48% are outright owners; 62% of people living in households

identified as couple retirement age are outright owners. It is also likely that their housing is older than those for younger households; however, age of dwelling unit is not available in the dataset.

Moving to the consumption side, the patterns for the U.S. are more similar to the other countries. Persons living in owned dwellings have generally substantially lower poverty rates compared to tenants. We remind the reader that this is notably the case as our approach assigns a value to owner occupied housing which makes housing consumption comparable across owners and tenants. In parallel to the income measure before deduction of housing, the mortgaged owner population has the lowest poverty rates in all five countries. After housing consumption, the rates go up, but in all countries the group remains the group with the lowest rates (7-12%). This is an interesting finding, as it answers directly to one of our research interests in the paper. Are mortgaged owners burdened in their other consumption due their high-cost burden. Our findings seem to show, not generally, if so only a small proportion is affected. In fact, even the poverty gap findings indicate, that the ones who are considered consumption poor are those closest to the poverty line across all groups. However, as the income after housing cost measure confirms, there is a somewhat higher share of persons that is further away from the income poverty line, hence those living in mortgage housing are highly burdened, especially in France and Israel. It seems less problematic in Spain and the U.S. where the gap is smallest across all groups.

So the bottom-line remains a different one. It is particularly tenants who are considered consumption poor. Again, this is very much in parallel with the income measures. Incidence of poverty increases after housing cost, foremost for the population living in market-priced dwellings. Their rates get closer to the rates of subsidized tenants (37-54%), but remain consistently below these (23-43%). The distance remains strongest in the U.S., followed by France, and Spain. For free housing we refer the reader to the tables, as these numbers are best explainable with the social institutions in place in the individual countries which we do not identify for this study.

<insert here. Table 7. Poverty Rates by Tenure Type and Income versus Consumption
and
Table 8. Poverty Gaps by Tenure Type and Income versus Consumption>

Figures 2.1-4 include heat maps for each country showing the joint distribution of different measures of economic well-being by quintile. For all of these figures, quintiles are based on the ranking of households by each of the equivalized measures using population (person) weights. For example, in Figures 2.1, quintiles q1-q5 refer to the ranking of households by equivalized disposable income after housing costs (vertical axis) by the rank in quintiles q1-q5 of equivalized disposable income (horizontal axis). Thus, we rank for each measure the population separately. We assume that the lower the quintile, the lower the economic well-being of the population. The diagonal axis represents the percentage of the population that is in the same quintile for both measures. If each measure, the one represented by the vertical and the other by the horizontal axis, resulted in joint distributions with 20% of the population in each cell along the diagonal, then we would conclude that there is no difference in how well the measures represent economic well-being. In other words, the two measures tell the same story.

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Distributions of Income after Housing Costs by Disposable Income

Figure 2.1 shows the joint distribution of households by quintile of equivalized disposable income (horizontal axis) and equivalized income after housing costs (vertical axis) for Spain, France, the U.S., and Israel (Italy is excluded from this and the two following figures, as a disposable income variable is not available in the Italian Household Budget Survey). Total diagonal correspondence is high in all four countries: 70.1% in Israel, 65.8% in Spain, 63.3% in the U.S., and 62.7% in France of the population remains in the same quintile once housing costs are deducted from disposable income. The bottom and top quintiles show even stronger stability: 79–85% of top-quintile households and 71–79% of bottom-quintile households remain in the same quintile across both measures. Israel shows the strongest overlap (79.4% at the bottom, 85.5% at the top), while the U.S. shows the weakest bottom-quintile overlap (70.9%). The latter is also represented in the second largest shift in the U.S. across the distribution, roughly 3.3% of households from the three upper quintiles find themselves after deduction of housing cost in the lowest income quintile. A similar percentage is observed in France (3.4%).

Distributions of Consumption after Housing Costs by Consumption

Figure 2.2 presents the analogous comparison on the consumption side. Equivalized LCS consumption (horizontal axis) against equivalized consumption after housing consumption (vertical axis). The overlap is even more pronounced more widely here than on the income side: Israel shows the strongest overlap in quintiles in both measures (74.8%), followed by France (68.3%), Italy (62.2%), and Spain (60.9%), while the U.S. shows much lower overlap at 51.5%. In total, 9.2% of the U.S. population is reranked by two or more quintiles. This points to housing costs being a more heterogeneous share of consumption in the U.S..

Distributions of Disposable Income by Consumption

Figure 2.3 turns to the comparison of equivalized LCS consumption (horizontal axis) against equivalized disposable income (vertical axis), both measured before any housing adjustment. The overlap drops sharply and becomes, however is rather uniform across countries: 40.0% in Spain, 39.9% in France, 39.8% in the U.S., and 41.0% in Israel remain in the same quintile. The share that moves exactly by one quintile is around 40% of households in every country, and approximately 20% are reranked by two or more quintiles. This finding supports that a household's position in the well-being distribution depends heavily on which resource concept is used.

Distributions of Income after Housing Costs by Consumption after Housing Costs

Figure 2.4 combines equivalized consumption after housing costs (horizontal axis) with equivalized income after housing costs (vertical axis). Interestingly the overlap falls further to 32.3% in Spain, 34.2% in France, 33.1% in the U.S., and 35.2% in Israel. The patterns are quite similar across all four countries, with now 27–30% of households reranked by two or more quintiles. Additional analyses by tenure type would further clarify differences across the income vs. consumption measures.

<insert here Figures 2.1-4. Heat Maps>

6. Summary and Conclusions

This paper moves beyond the affordability-oriented approaches that dominate the housing-cost literature. Cost-to-income thresholds and poverty-after-housing-costs measures both capture housing expenditure burdens but say little about how those burdens reshape households' remaining consumption possibilities and overall economic well-being. By jointly analyzing income, consumption, and housing-related expenditure across tenure groups and countries, we sought to uncover the kind of "hidden" vulnerability that standard income- or consumption-based poverty measures, taken in isolation, can obscure – households that appear non-poor on one aggregate may face substantial constraints once housing is accounted for.

Poverty risk is a concept-dependent measure, operationalized here on two analytically separable choices: whether economic well-being is measured through income or consumption, and how housing is treated within that measure. We created four related concepts — disposable monetary income, income after deduction of housing costs, LCS household consumption inclusive of imputed rent, and net household consumption with the housing component removed — and show with the microdata for four countries (scheduled to be released in the beta release of the Luxembourg Consumption Study) and the U.S. that each measure identifies a meaningfully different subset of the population as poor.

The heat maps in Section 5 make this concept-dependence visible. Comparing a measure to its own housing-adjusted counterpart – income against income after housing cost, or consumption against consumption after housing consumption – leaves most households in the same quintile position, with particularly strong stability at the top and bottom of the distribution. This finding changes markedly, however, once income and consumption are compared directly: overlap between the two falls substantially and falls further once both are adjusted for housing. This could hint to the usefulness of analyzing both jointly when assessing poverty risk.

Our findings support the idea that poverty rates shift markedly depending on which of the four concepts is applied. Consumption-based poverty is consistently lower than income-based poverty before any housing adjustment, but this gap narrows once housing is taken out of consumption. The effect of housing-cost deduction is felt most acutely by mortgaged owners whose poverty rates rise sharply once mortgage principal, interest, and other housing costs are subtracted from income. This is a finding consistent with the tenure-disaggregated housing-cost-burden results discussed above. Subsidized tenants show the highest poverty rates under nearly every concept and country.

Housing cost burden itself also varies substantially in level and distribution across countries. Moreover, average burden and the prevalence of cost-burdened households (spending above 30 percent of income on housing) follow a broadly consistent country ranking, highest in the U.S. and lowest in Spain. However, across tenure types, cost-burdened households are disproportionately concentrated in the bottom two income quintiles. Average burden and burden concentration among the poor are therefore separate dimensions of housing-cost vulnerability, and a country can rank favorably on one while ranking poorly on the other.

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Taken together, who is identified as poor, the proportion of the population identified as poor, and how housing burden is distributed across the income distribution all depend on the choice between income and consumption as the underlying resource concept, and on how housing is incorporated into that concept. This has direct implications for cross-national poverty comparison, where reliance on a single measure of economic well-being risks systematically under- or over-identifying particular tenure and household groups in need.

A natural extension of this analysis, left to future work, concerns the treatment of net implicit rent. The measures compared here treat housing either as a cost to be deducted from income or as a consumption flow to be valued and then netted out of consumption. Neither measure directly incorporates the value of housing services that owner-occupants generate for their own consumption as a component of income. Such a measure would reflect the resources available to households and thereby realized through their household consumption. And owner-occupants and renters would be treated comparably when assessing their economic well-being. Constructing an income-based measure augmented with net implicit rent — the imputed rental value of owner-occupied housing net of the operating costs incurred to generate it — would bring the income concept structurally closer to the consumption concept used here. Both would then account for the housing services owners consume rather than only their cash spending. Whether this convergence in construction translates into greater empirical concordance between income- and consumption-based poverty rankings, and whether it narrows the tenure-specific gaps documented above, is an open question that we leave for subsequent analysis.

References

- Aten, Bettina (2018). "Valuing Owner-Occupied Housing: an empirical exercise using the American Community Survey (ACS) Housing files," BEA Working Paper (WP2018-3), https://www.bea.gov/sites/default/files/papers/WP2018-3_1.pdf
- Attanasio, O. P., Blow, L., Hamilton, R., and Leicester, A. (2009). "Booms and Busts: Consumption, House Prices and Expectations." *Economica*, 76(301), 20–50.
- Attanasio, O. and Pistaferri, L. (2016). 'Consumption inequality', *Journal of Economic Perspectives*, vol. 30(2), pp.3–28.
- Australian Council of Social Service (ACOSS), and UNSW Sydney. 2020. "Profile of Poverty by Housing Tenure of Households in Poverty." In *Poverty in Australia 2020: Part 2 – Who Is Affected?* Sydney: ACOSS/UNSW Poverty and Inequality Partnership.
- Bérard, G., and Trannoy, A. (2025). "Housing Policy Impacts on Poverty and Inequality in Europe." *Review of Income and Wealth* 71: e70028. <https://doi.org/10.1111/roiw.70028>.
- Blundell, R. and Etheridge, B. (2010). 'Consumption, income and earnings inequality in Britain', *Review of Economic Dynamics*, vol. 13(1), pp. 76–102.
- Callan, T. (2007). "Imputed Rent in Ireland: Distributional Implications." AIM-AP National Report, mimeo, Economic and Social Research Institute (ESRI), Dublin.
- Campbell, J. Y., and Cocco, J. F. (2007). "How Do House Prices Affect Consumption? Evidence from Micro Data." *Journal of Monetary Economics*, 54(3), 591–621.

Consumption, Housing Costs, and Disposable Income: Cross-Country Evidence on Poverty Risks Across Tenure Groups

Cabannes, P.Y., A. Montaut and P.A. Pionnier (2013), 'Évaluer la productivité globale des facteurs en France : l'apport d'une mesure de la qualité du capital et du travail', Working Paper, No. G2013/07, Direction des Études et Synthèses Économiques, INSEE.

City Futures Research Centre. 2012. "Poverty after Housing Costs." Sydney: City Futures Research Centre, UNSW.

D'Ambrosio, C., and Gigliarano, C. (2007). "The Distributional Impact of Imputed Rent in Italy." AIM-AP National Report, mimeo.

Department for Work and Pensions (DWP), released 27 March 2025, GOV.UK website, statistical release, [Households below average income: for financial years ending 1995 to 2024](#).

De Vos, K. (2007). "Imputed Rent in the Netherlands." AIM-AP National Report, mimeo, CentERdata, Tilburg University.

Diewert, W. E. (2006). "Conclusions and Future Directions." Summary paper, OECD-IMF Workshop on Real Estate Price Indices, Paris.

Diewert, W. E. (2009). "Durables and Owner-Occupied Housing in a Consumer Price Index." In W. E. Diewert, J. S. Greenlees, and C. R. Hulten (eds.), *Price Index Concepts and Measurement*, NBER Studies in Income and Wealth, vol. 70. Chicago: University of Chicago Press.

Dustmann, C., Fitzenberger, B. and Zimmermann, M. (2022). "Housing Expenditure and Income Inequality." *The Economic Journal* 132 (645): 1709–1736.

Eurostat. *Household Budget Surveys in the EU: Methodology and Recommendations for Harmonisation – 2003*. Luxembourg: Office for Official Publications of the European Communities, 2003.

Expert Group on Household Income Statistics (The Canberra Group). (2001). *Final Report and Recommendations*. Ottawa: The Canberra Group.

Fernandez, A. (2024), "Investigating the impact of housing price increases on consumption: heterogeneity by age, tenure and housing quality". *Journal of European Real Estate Research*, Vol. 17 No. 2 pp. 232–262, doi: <https://doi.org/10.1108/JERER-11-2023-0043>

Frick, J. R., Grabka, M. M., and Groh-Samberg, O. (2007). "Estimates of Imputed Rent and Analysis of Their Distributional Impact in Germany." AIM-AP National Report, mimeo, DIW Berlin.

Fuchs-Schündeln, N., Krueger, D. and Sommer, M. (2010). 'Inequality trends for Germany in the last two decades: A tale of two countries', *Review of Economic Dynamics*, vol. 13(1), pp. 103–32.

Galster, G. and Lee, K.O. (2021). 'Housing affordability: a framing, synthesis of research and policy, and future directions', *International Journal of Urban Sciences*, vol. 25(S1), pp. 7–58. <https://doi.org/10.1080/12265934.2020.1713864>

Garner, T.I., and Short, K. (2009). "Incorporating the Value of Owner-Occupied Housing in Poverty Measurement." U.S. Bureau of Labor Statistics, Office of Prices and Living Conditions, Working Paper.

Garner, T.I. and Verbrugge, R. (2009). "Reconciling User Costs and Rental Equivalence: Evidence from the US Consumer Expenditure Survey," *Journal of Housing Economics*, Volume 18, Issue 3, September 2009, pp. 172- 192.

Heathcote, J., Perri, F. and Violante, G.L. (2010). 'Unequal we stand: An empirical analysis of economic inequality in the United States, 1967–2006', *Review of Economic Dynamics*, vol. 13(1), pp. 15–51.

Hick, R., Pomati, M. and Stephens, M. (2025). Housing affordability and poverty in Europe: on the deteriorating position of market renters, *Journal of Social Policy*, vol. 54, 2025, pp. 1072–1095.

Consumption, Housing Costs, and Disposable Income: Cross-Country Evidence on Poverty Risks Across Tenure Groups

Kartashova, K., and Tomlin, B. (2017). "House Prices, Consumption, and the Role of Non-Mortgage Debt." *Journal of Banking & Finance* 85: 150–165.

Koutsambelas, C., and Tsakloglou, P. (2007). "Estimating the Distributional Effects of Imputed Rents in Greece." AIM-AP National Report, mimeo, Athens University of Economics and Business. (Also circulated as a conference paper: Tsakloglou, P., and Koutsambelas, C. (2007), "Estimating the Distributional Effects of Imputed Rents in Greece," 14th Annual Conference of the European Real Estate Society, London.)

Mullan, K., Sutherland, H., and Zantomio, F. (2007). "Imputed Rent in the UK." AIM-AP National Report, mimeo, Institute for Social and Economic Research (ISER), University of Essex.

Mutter, K. D., Pretsch, J. and Winkler, C.K. (2022). "Housing Cost Burden and Life Satisfaction: A Cross-Country Analysis." *International Journal of Environmental Research and Public Health* 19 (2): 897.

Pionnier, Pierre-Alain, Belén Zinni, and Kéa Baret. (2023). "Sensitivity of Capital and MFP Measurement to Asset Depreciation Patterns and Initial Capital Stock Estimates." OECD Statistics Working Paper No. 115 (SDD/DOC(2023)1). Paris: OECD Statistics and Data Directorate.

Roll, S., and Currier, E. (2022). "Housing Assistance, Poverty, and Material Hardships." *Housing Policy Debate* 32 (4–5): 643–665.

Tunstall, R., Bevan, M., Bradshaw, J., Croucher, K., Duffy, S., Hunter, C., Jones, A., Rugg, J., Wallace, A. and Wilcox, S. (2013). *The links between housing and poverty: an evidence review*. York: Joseph Rowntree Foundation.

United Nations Economic Commission for Europe (UNECE), Canberra Group. (2011). Canberra Group Handbook on Household Income Statistics, 2nd edition. Geneva: United Nations.

United Nations Statistics Division (UNSD) (2023). Classification of Individual Consumption According to Purpose (COICOP) 2018 Revision. Statistical Papers, Series M, No. 99,. https://unstats.un.org/unsd/classifications/Econ/Download/COICOP_2018_draft_publication.pdf .

Verbist, G., and Lefebure, S. (2007). "Country Report Belgium on Imputed Rent." AIM-AP National Report, mimeo, University of Antwerp.

Waters, T. and Wernham, T. (2023). *Housing quality and affordability for lower-income households*. London: Institute for Fiscal Studies. Available at: <https://ifs.org.uk/publications/housing-quality-and-affordability-lower-income-households>.

Table 1. Income and Consumption Based Concepts Underlying this Study

INCOME - BASED	(1) <i>Disposable monetary income</i> captures resources before most consumption decisions are made. It includes all monetary income including monetary transfers. But it does not reflect what households actually spend on housing or what remains afterward. Unlike the LIS definition of disposable income, it does not include housing-related transfers and benefits. And specifically, to this study, it also does not include the net implicit rental income of owner-occupants.
	(2) <i>Residual income after housing costs</i> (sometimes called "after housing costs" income, or AHC) deducts from disposable monetary income, actual housing expenditures including those for rents paid, maintenance and repair, housing related utilities (for energy, water, and waste/sewerage services), content and structural insurance, mortgage payments (interest and principal repayments), and property taxes. This reveals the monetary budget available for non-housing needs.
CONSUMPTION - BASED	(3) <i>LCS household consumption</i> integrates actual and imputed rent, making tenure groups comparable in terms of the housing services consumed. Housing rent and energy subsidies are included in addition to other in-kind transfers, for example, those provided by the government for school meals. This follows rather closely the COICOP concept of household consumption expenditure; however, it deviates from the COICOP standard in two ways: (1) out of pocket expenses for health and education are excluded due to cross-national institutional differences in the health and education system; and (2) the acquisition of durables is excluded. For durables, a more appropriate operationalization of a consumption-based measure would include the consumption flow of services from the ownership of durables, rather than its full value at acquisition. However, due to data limitations, currently we do not include the flow of services from durables in our measure.
	(4) <i>Net household consumption</i> is computed as LCS household consumption minus housing consumption. The housing component removed here is a consumption concept, not a cost concept: it is the value of housing services actually paid or valued by gross equivalent rent consumed. So owner-occupants and renters have a comparable amount subtracted regardless of what either group actually pays out of pocket.

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Figure 1. Housing-related Building Blocks: Housing Cost, Housing Consumption, Residual after Other Goods and Services, and Net Implicit Rent

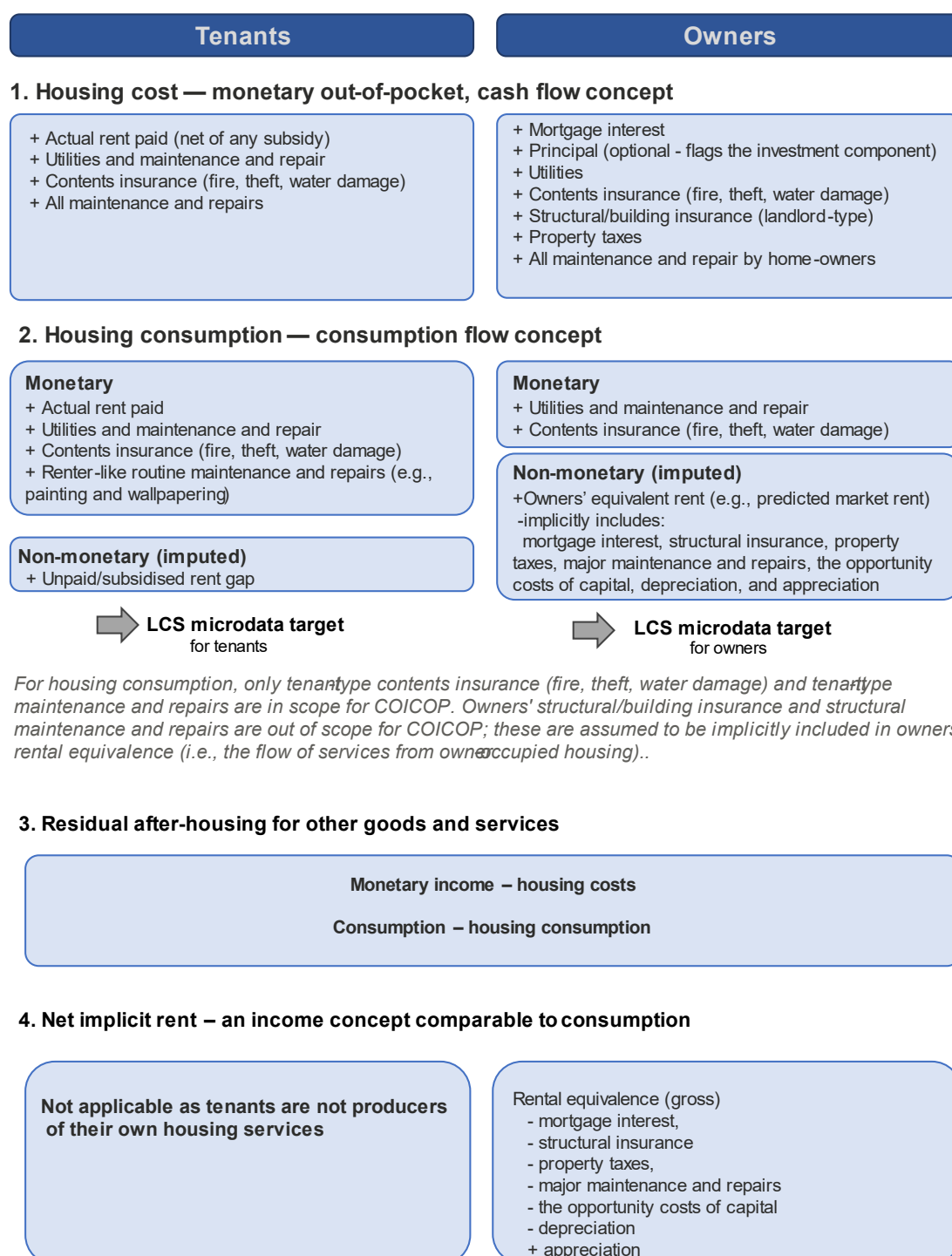


Table 2. Percentage Distribution of the Population by Household Type by Country (population weighted)

	Spain es24	France fr17	Italy it23	Israel il22	United States us22
Single, working age (25-64)	16.2	18.9	18.4	11.4	16
Single, retirement age (65+)	11.9	14	17.6	9.7	12.9
Single parent	3.8	6.7	3.7	4.6	4.8
Couple, working age (25-64)	12.6	15	10.7	9.3	12.6
Couple, retirement age (65+)	9.1	9.6	11.1	8.7	8.4
Family with dependent children	23.1	21.8	22	36.5	25.6
Other household type	23.3	14.1	16.6	19.8	19.7
	100	100	100	100	100

Table 3. Homeownership Rates by Household Type and Rural versus Urban Areas (household weighted)

category	Spain es24	France fr17	Italy it23	Israel il22	United States us22
total	74.3	56.5	74.9	62.7	65.4
Single, working age (25-64)	57.9	37.6	60.1	32.3	44.9
Single, retirement age (65+)	84.7	58.1	82.3	69.1	66.5
Single parent	62	30.2	59.4	43.3	38.2
Couple, working age (25-64)	67.4	70.3	77.7	53.3	73.5
Couple, retirement age (65+)	93.4	83.9	90.9	86.7	90.4
Family with dependent children	76.3	68.5	74.5	66.4	77.5
Other household type	76.7	41.2	75.1	68.7	56.3
not rural area	73.3	51.1	72	62.4	61.2
rural area	82.1	76.9	77.6	66.6	82.9

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Table 4. Income and Expenses by Tenure Type

	Spain es24			France fr17			Israel il22			United States us22		
	tenants	outright owners	owners paying mortgage	tenants	outright owners	owners paying mortgage	tenants	outright owners	owners paying mortgage	tenants	outright owners	owners paying mortgage
Average equivalized monetary disposable household income in 2021 Dollars	\$21,946	\$28,054	\$29,460	\$25,593	\$38,569	\$38,497	\$28,258	\$28,759	\$33,451	\$36,547	\$47,454	\$66,164
Proportion of category in relation to monetary disposable income												
actual rental payments	23.4	0.4	0.5	17.8	0.3	0.2	22.7	0.2	0.2	19.9	0.0	0.0
utilities paid	6.5	6.9	5.9	7.0	5.9	4.6	3.0	4.0	3.1	3.6	4.8	3.3
housing (content and structural) insurance	0.2	1.0	0.9	1.0	1.1	0.8	0.0	0.0	0.0	0.2	1.3	0.8
maintenance, repair and security of the dwelling	0.3	0.8	0.8	1.5	7.1	5.0	1.4	4.9	5.6	0.1	0.9	0.6
mortgage installment (principal & interest)	0.0	0.0	13.3	0.7	1.9	23.5	5.0	0.0	18.8	0.2	0.2	11.9
mortgage principal paid	0.0	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	5.4
mortgage interest paid	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	6.6
property taxes	0.0	0.0	0.0	1.3	4.4	3.2	0.2	0.1	0.3	0.6	18.3	15.0

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Table 5. Total and Subcomponents of Consumption by Tenure Type

	Spain es24			France fr17			Italy it23			Israel il22			United States us22		
	tenants	outright owners	owners paying mortgage	tenants	outright owners	owners paying mortgage	tenants	outright owners	owners paying mortgage	tenants	outright owners	owners paying mortgage	tenants	outright owners	owners paying mortgage
Average equivalized household consumption in 2021 Dollars	\$19,490	\$27,514	\$27,064	\$21,116	\$28,370	\$28,803	\$19,367	\$26,519	\$27,465	\$21,807	\$30,380	\$30,984	\$28,083	\$36,555	\$39,698
Proportion of category in relation to total consumption															
food and non-alcoholic beverages	18.5	18.4	16.5	15.8	18.8	15.6	24.5	22.1	20.1	16.7	16.3	13.3	15.6	12.6	12.4
alcoholic beverages and tobacco	1.5	1.5	1.5	3.3	2.5	2.4	2.3	1.7	1.8	1.4	0.9	0.7	1.4	1.2	1.1
clothing and footwear	5.9	4.4	5.4	6.1	4.1	5.7	4.0	4.3	5.0	4.1	3.2	3.6	3.3	2.0	2.8
household equipment and routine household maintenance	2.6	3.0	2.9	2.1	3.9	3.1	2.6	3.2	2.8	3.5	3.2	2.6	1.5	2.6	2.4
transport	9.8	8.3	9.8	9.8	9.2	9.5	8.5	9.0	10.0	10.0	8.1	9.1	10.4	9.7	10.5
information and communication	3.4	2.7	2.8	4.3	3.4	3.2	2.6	2.6	2.5	2.1	1.7	1.5	5.1	5.1	4.7
recreation, sport and culture	5.3	5.2	6.4	5.9	7.0	7.6	3.4	4.1	5.7	6.4	3.9	5.1	3.7	4.3	5.0
food and beverage serving services	9.8	8.7	10.3	6.0	5.1	6.9	4.8	5.3	7.6	4.4	2.3	2.7	7.7	6.5	7.5
accommodation services	1.3	1.7	2.1	1.1	1.3	1.6	0.5	0.8	1.3	3.2	2.3	3.1	1.2	1.6	1.8
insurance	2.9	4.5	4.4	3.8	4.7	4.1	2.1	2.5	2.5	4.6	5.2	4.8	3.2	2.9	3.0
personal care	3.4	3.1	3.0	2.7	2.8	2.7	2.9	3.3	3.3	1.8	1.6	1.4	2.1	1.9	2.1
social protection	0.1	0.3	0.1	1.2	0.5	2.5	0.4	0.4	0.7	1.3	0.3	1.0	0.3	0.1	0.5
miscellaneous goods and services n.e.c.	1.1	0.8	1.1	2.3	3.2	4.9	1.5	2.2	2.5	5.7	24.8	25.3	0.6	0.9	0.7
housing, water, electricity, gas and other fuels	34.7	37.4	33.9	35.8	33.7	30.4	40.1	38.9	34.6	35.4	26.9	26.2	44.0	48.4	45.6
<i>of which</i>															
actual rental payments	26.3	0.5	0.6	21.6	0.3	0.2	26.3	0.2	0.2	29.4	0.1	0.2	25.8	0.0	0.0
imputed rentals	0.7	29.2	26.0	5.5	24.3	23.4	4.0	28.1	24.6	0.7	21.5	21.3	11.2	40.9	39.0
<i>of which</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
imputed rentals for owner occupied dwelling	0.7	29.2	26.0	0.0	24.3	23.2	4.0	28.1	24.6	0.0	21.5	21.3	9.2	40.9	39.0
housing benefits	0.0	0.0	0.0	5.5	0.0	0.2	0.0	0.0	0.0	0.7	0.0	0.0	2.0	0.0	0.0
maintenance, repair and security of the dwelling	0.4	0.8	0.9	0.3	1.0	0.6	0.4	1.3	1.3	1.4	1.4	1.3	0.0	0.9	0.7
utilities paid	7.3	7.0	6.4	8.5	8.1	6.2	9.5	9.3	8.5	3.8	3.8	3.3	4.7	6.2	5.5
housing (content and structural) insurance	0.2	1.0	1.0	1.2	1.5	1.1	0.0	0.3	0.3	0.0	0.0	0.0	0.2	1.7	1.4
<i>additional expenses outside of the LCS consumption measure</i>															
health - OOP expenses	4.6	4.8	4.3	1.7	1.9	1.7	4.0	4.9	4.1	3.7	4.2	3.0	6.7	11.8	9.4
education services - OOP expenses	2.0	1.6	3.2	0.9	0.8	1.0	0.5	0.8	1.2	6.4	3.4	5.2	2.0	2.1	2.3

Consumption, Housing Costs, and Disposable Income: Cross-Country Evidence on Poverty Risks Across Tenure Groups

Table 6. Housing Cost Burden by Tenure Type

	Spain es24				France fr17			
	(1) Average spending on housing in %	(2) Share spending > 30%	(3) Share of (2) within the two bottom quintiles	(4) Share of spending > 30% and within the two bottom quintiles	(1) Average spending on housing in %	(2) Share spending > 30%	(3) Share of (2) within the two bottom quintiles	(4) Share of spending > 30% and within the two bottom quintiles
overall rates	17.5	21.6	63.7	13.8	29.1	40.7	51.5	20.9
outright owner	9.8	3.7	86.5	3.2	21.9	20.4	42.9	8.7
owner with mortgage	22.8	30.9	52.3	16.2	40.9	64.2	24.4	15.7
tenant (market price)	32.9	59.3	66.5	39.5	33.3	56.2	65.7	36.9
tenant (subsidised)	21.6	30.0	89.7	26.9	29.5	46.1	78.0	36.0
rent free	8.8	4.3	91.6	4.0	16.6	12.5	60.8	7.5

	Israel il22				United States us22			
	(1) Average spending on housing in %	(2) Share spending > 30%	(3) Share of (2) within the two bottom quintiles	(4) Share of spending > 30% and within the two bottom quintiles	(1) Average spending on housing in %	(2) Share spending > 30%	(3) Share of (2) within the two bottom quintiles	(4) Share of spending > 30% and within the two bottom quintiles
overall rates	21.4	27.7	55.3	15.3	31.2	47.4	52.9	25.1
outright owner	9.8	6.3	61.1	3.8	29.4	43.9	66.4	29.1
owner with mortgage	28.4	32.4	46.5	15.0	33.8	54.6	31.1	17.0
tenant (market price)	32.4	53.9	54.0	29.1	30.7	50.0	72.8	36.4
tenant (subsidised)	29.2	56.6	94.6	53.6	4.2	4.8	98.3	4.7
rent free	10.8	13.8	88.1	12.1	7.7	5.1	54.5	2.8

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Table 7. Poverty Rates by Tenure Type and Income versus Consumption

	Spain es24				France fr17			
	income (<50 % eq. median)		consumption (<50 % eq. median)		income (<50 % eq. median)		consumption (<50 % eq. median)	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	disposable monetary income	after deduction of housing cost	LCS consumption	after deduction of housing consumption	disposable monetary income	after deduction of housing cost	LCS consumption	after deduction of housing consumption
	13.25	19.46	9.88	17.56	14.77	19.63	9.98	19.52
outright owner	10.12	10.53	5.66	15.14	6.53	9.4	5.81	15.25
owner with mortgage	6.83	16.16	5.41	11.59	4.25	14.88	2.89	7.76
tenant (market price)	25.21	42.43	22.61	30.06	23.75	30.46	11.28	24.38
tenant (subsidized)	51.47	50.92	57.38	38.1	34.25	34.57	25.14	37.33
rent free	23.24	22.2	12.12	20.59	21.2	17.46	13.35	26.37

	Italy it23				Israel il22			
	income (<50 % eq. median)		consumption (<50 % eq. median)		income (<50 % eq. median)		consumption (<50 % eq. median)	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	disposable monetary income	after deduction of housing cost	LCS consumption	after deduction of housing consumption	disposable monetary income	after deduction of housing cost	LCS consumption	after deduction of housing consumption
			12.07	23.5			14.54	19.22
outright owner			9.22	21.57	23.2	27.03	14.54	19.22
owner with mortgage			5.07	12.29	25.2	22.14	9.21	10.21
tenant (market price)			29.75	38.65	16.07	24.11	8.55	9.69
tenant (subsidized)			11.62	40.63	23.41	34.38	27.59	42.91
rent free			16.63	27.19	63.52	62.77	48.83	53.57
					34.6	32.76	11.91	9.85

	United States us22			
	income (<50 % eq. median)		consumption (<50 % eq. median)	
	(1)	(2)	(3)	(4)
	disposable monetary income	after deduction of housing cost	LCS consumption	after deduction of housing consumption
	24.63	29.8	11.31	14.96
outright owner	30.12	33.09	11.38	16.75
owner with mortgage	10.31	19.97	3.65	7.21
tenant (market price)	37.03	40.22	23.87	22.7
tenant (subsidized)	70.17	54.98	5.89	40.86
rent free	46.57	32.91	31.28	24.82

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Table 8. Poverty Gaps by Tenure Type and Income versus Consumption

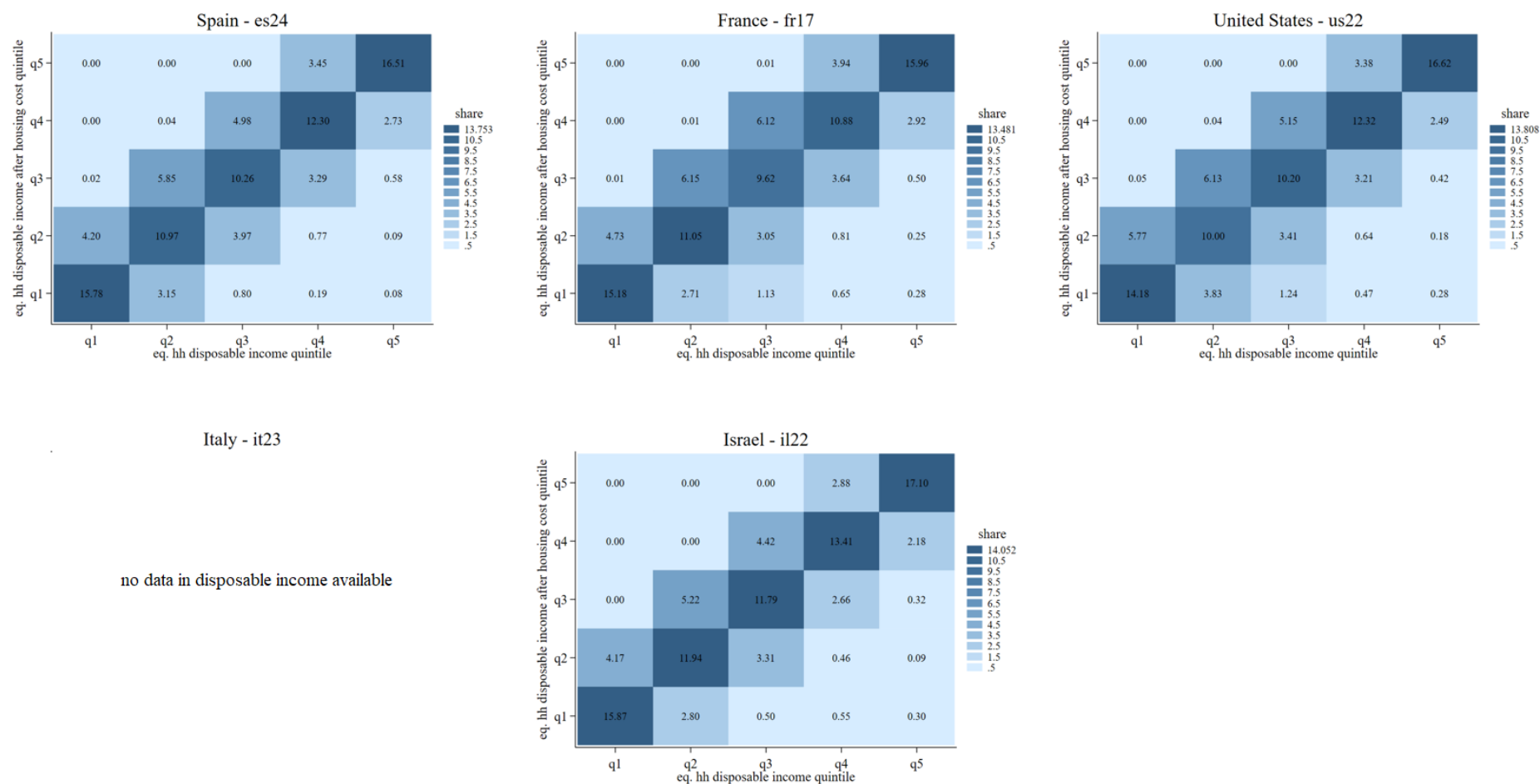
Spain es24					France fr17				
income (<50 % eq. median)		consumption (<50 % eq. median)			income (<50 % eq. median)		consumption (<50 % eq. median)		
(1) disposable monetary income	(2) after deduction of housing cost	(3) LCS consumption	(4) after deduction of housing consumption		(1) disposable monetary income	(2) after deduction of housing cost	(3) LCS consumption	(4) after deduction of housing consumption	
	4.05	7.82	2.02	5.29		4.47	12.29	1.98	6.63
outright owner	2.73	3.07	0.91	4.56	1.98	8.23	1.13	4.93	
owner with mortgage	1.96	6.6	0.93	3.16	1.13	14.8	0.42	1.88	
tenant (market price)	8.18	19.53	5.08	9.29	7.87	17.17	2.4	8.59	
tenant (subsidized)	18.35	22.71	16.81	12.06	10	12.55	4.78	13.64	
rent free	8.71	8.51	2.58	7.18	6.31	6.52	4.41	10.16	

Italy it23					Israel il22				
income (<50 % eq. median)		consumption (<50 % eq. median)			income (<50 % eq. median)		consumption (<50 % eq. median)		
(1) disposable monetary income	(2) after deduction of housing cost	(3) LCS consumption	(4) after deduction of housing consumption		(1) disposable monetary income	(2) after deduction of housing cost	(3) LCS consumption	(4) after deduction of housing consumption	
			2.32	7.64		7.81	16.39	3.12	5.66
outright owner			1.55	6.75	8.42	10.41	1.34	2.04	
owner with mortgage			0.83	3.46	5.89	20.2	1.38	1.85	
tenant (market price)			6.75	13.72	6.9	19.73	6.9	14.87	
tenant (subsidized)			2.19	15.46	20.86	35.16	21.66	23.01	
rent free			3.29	8.8	14.71	18.95	1.84	2.36	

United States us22				
income (<50 % eq. median)		consumption (<50 % eq. median)		
(1) disposable monetary income	(2) after deduction of housing cost	(3) LCS consumption	(4) after deduction of housing consumption	
	9.24	18.26	2.27	3.72
outright owner	10.97	21.14	1.93	4.04
owner with mortgage	3.9	14.38	0.52	1.54
tenant (market price)	13.13	21.75	5.51	5.8
tenant (subsidized)	32.52	23.27	0.78	12.18
rent free	21.21	16.85	6.75	8.23

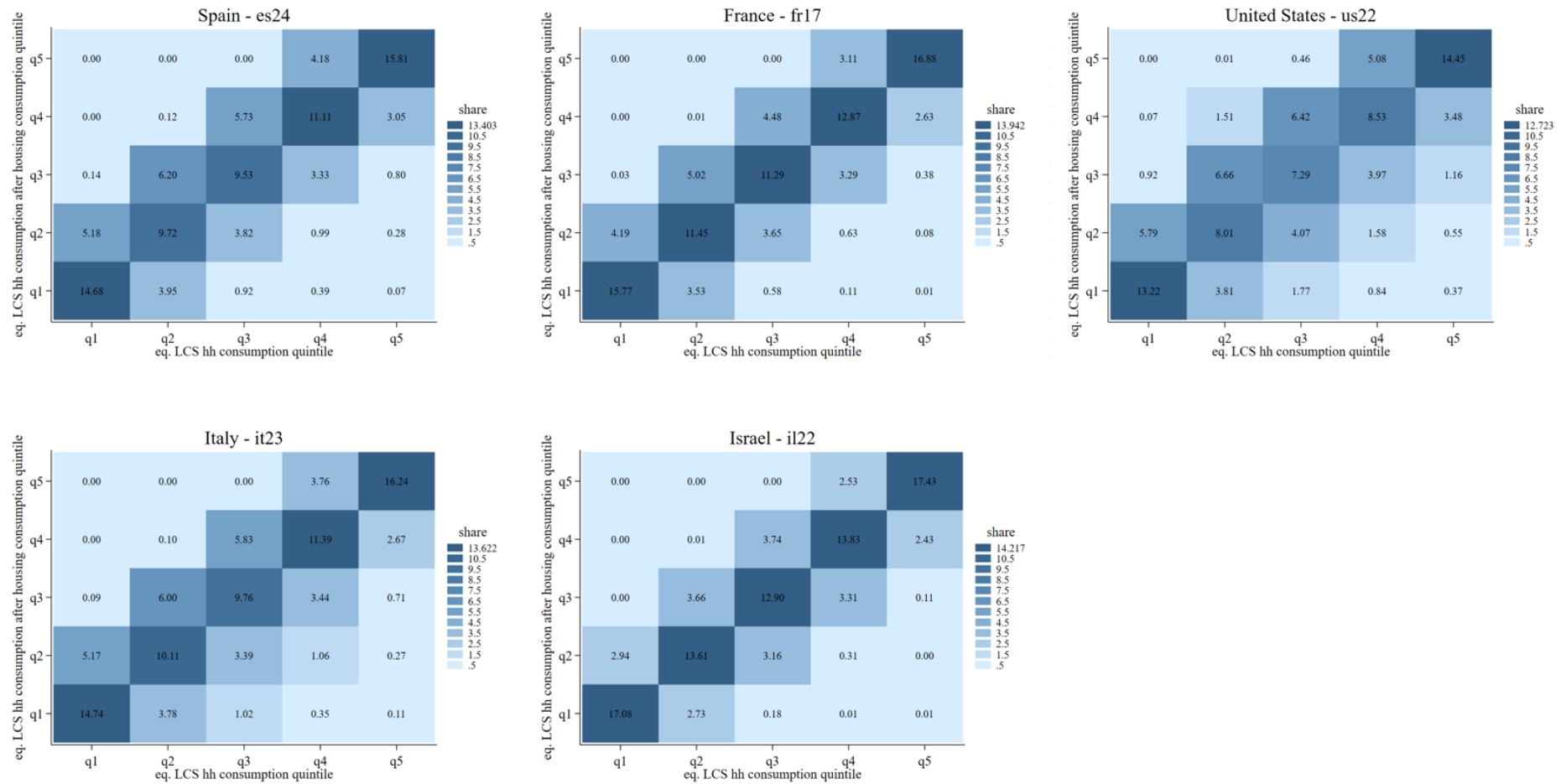
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Figure 2.1 Heat Maps by Quintiles. Equivalized Household Disposable Monetary Income vs. Equivalized Household Disposable Monetary Income After Housing Cost



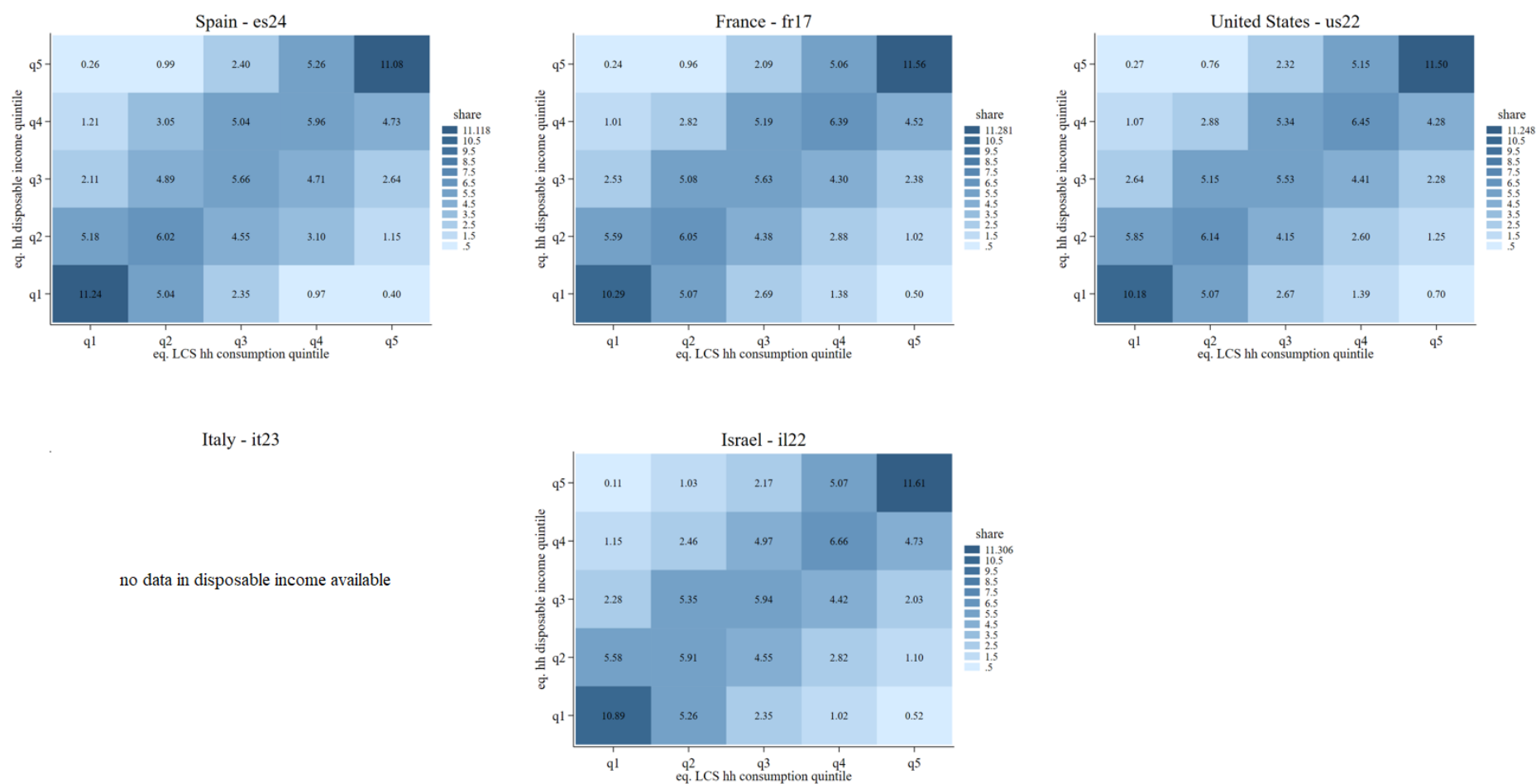
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Figure 2.2 Heat Maps by Quintiles. Equivalized Household LCS Consumption vs. Equivalized Household LCS Consumption After Housing Consumption



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Figure 2.3 Heat Maps by Quintiles. Equivalized Household LCS Consumption vs. Equivalized Household Disposable Monetary Income



Consumption, Housing Costs, and Disposable Income: Cross-Country Evidence on Poverty Risks Across Tenure Groups

Figure 2.4 Heat Maps by Quintiles. Equivalized Household LCS Consumption After Housing Consumption vs. Equivalized Household Disposable Monetary Income After Housing Cost

