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INVESTIGATING THE RELATIONSHIP BETWEEN MATERIAL DEPRIVATION AND HOUSEHOLD CONTEXT AMONG OLDER PEOPLE IN ITALY

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Abstract. A large body of literature has delved into socioeconomic inequalities, emphasizing the multidimensional nature of deprivation. However, previous research has only considered deprivation in additive terms and has not adequately combined the variety and intensity of different deprivation indicators. Using data from the 2018 Multipurpose Survey on Households, Aspects of Daily Life (Italian National Institute of Statistics), we conducted a Latent Class Analysis to identify distinct deprivation profiles based on gradual patterns of hardship. This method allows for a better understanding of the interplay between varying degrees of severity across different deprivation indicators. In a second step, probit regression analyses were used to examine the impact of diverse living arrangements on latent deprivation classes among older individuals. Our findings reveal that older people living with others experience higher levels of housing deprivation but lower overall material deprivation than those living alone. Furthermore, living with family members, whether a spouse or descendants, is associated with higher levels of housing deprivation than cohabiting with strangers, while the reverse is true for overall material deprivation. These results underscore the need for further research to explore the varying degrees of deprivation across subpopulations, highlighting the importance of nuanced investigations in this field.

1. Introduction

Over the past two decades, an extensive body of literature has explored socioeconomic inequalities, focusing on the multidimensional nature of deprivation (Kim, 2016). In shaping various patterns of material deprivation among older individuals, scholars have highlighted the role played by individual socio-demographic characteristics, such as education level (Pham and Mukhopadhaya, 2018) and health conditions (Terraneo, 2017), as well as contextual factors like the role of the welfare system (Zaidi, 2012).

Regarding Italy, many studies have investigated material deprivation among older individuals from different points of view. Some of these have explored the determinants of material deprivation and its different measurement approaches (Istat, 2024; Mussida and Parisi, 2019; Terraneo, 2017), while a strand of research on this topic has focused on the additive concept of deprivation as the sum of different degrees of hardship in different deprivation items (Andress *et al.* 2001). In this study, we aim to delve into the multifaceted nature of deprivation, considering the simultaneous combination of hierarchical degrees of hardship (frequency) in different deprivation indicators (variety). To achieve this purpose, we used data from the 2018 Multipurpose Survey on Households Aspects of Daily Life (Italian National Institute of Statistics) to identify distinct deprivation profiles based on their patterns of hardship. In the first phase, we conducted a Latent Class Analysis, while in a subsequent step Probit regression analyses were employed to explore the impact of diverse living arrangements (living alone, living with family members, i.e. spouse or descendants, and living with people other than family members, such as roommates or caregivers) among older individuals on latent deprivation classes (specifically, food deprivation, housing deprivation, and overall material deprivation) while controlling for variables such as income sources, education levels, and the existence of physical limitations. This perspective is better suited to offer a comprehensive understanding of poverty in its broader meaning of material deprivation.

2. Literature

In recent years, various approaches have been employed to assess disparities in poverty and the related concept of deprivation between different target groups (Navarro and Ayala, 2008). Starting from a conceptualization of poverty, earlier research predominantly employed an income-based metric to investigate poverty trends among the elderly, owing to its simplicity, international comparability, and widespread accessibility (Ringen, 1988). However, poverty metrics primarily reliant on income suffer significant drawbacks (Cheung and Chou, 2018). First, while household income-based measures offer insight into an individual's immediate financial status, they fall short of fully capturing the multidimensional nature of deprivation. This limitation appears especially pronounced among older individuals (Breheny et al., 2016), reflecting the common scenario of being "asset-rich but cashpoor" (Sullivan et al., 2008). To overcome these constraints, some studies have considered a living standard deprivation measure (Andress et al. 2001; Boarini and d'Ercole 2006), able to isolate the mere concept of disposable income and shed light on the effective living conditions of individuals (Pfoertner et al., 2011). Compared to income-based indicators, the deprivation approach based on living standards offers several advantages. First of all, it allows us to emphasize the role of deprivation as a multidimensional concept. Secondly, it directly pertains to an individual's actual living situation. Although numerous works have investigated the role of economic and social dimensions in a comprehensive notion of deprivation, a consensus on a definition of the term has yet to be reached (Pirani, 2013). The acknowledged definition of material deprivation is grounded in the premise that deprivation is a multifaceted phenomenon, encompassing various aspects of daily life and not solely tied to an individual's economic status. It includes limitations across numerous material and sociodemographic indicators that are generally "considered by most people to be desirable or even necessary to experience an adequate quality of life" (Eurostat, 2023). These indicators include the ability to afford a meal, maintain a sufficiently warm household, own durable goods such as a car, telephone, or personal computer, and have housing amenities like an indoor flushing toilet, as well as the size and condition of the home (Istat, 2024; Kim, 2016). However, the existing studies tend to consider the concept of material deprivation only in additive terms, neglecting to take into account the simultaneous combination of hierarchical degrees of hardship (frequency) in different deprivation indicators (variety). A large strand of studies report that age has the potential to moderate the perception of the deprivation effects (Kwan and Walsh, 2018; Doebler and Glasgow, 2017). Traditionally, three different theories are called into question to explain the moderating effect that age can have on deprivation. According to the Life-Cycle Effect Theory, material deprivation may have a more pronounced impact on older age groups due to the greater difficulties they encounter in accessing alternative sources of income (Kwan and Walsh, 2018), strictly connected to declining work capacity, reduced physical mobility, and diminished social connections, particularly after retirement. Similarly, the Cumulative Disadvantage Theory has postulated that individual disadvantages (originating from characteristics such as ethnicity or socioeconomic class) accumulate over the life course from childhood to adulthood and tend to intensify in older age (Arber et al., 2014), heightening the adverse effects of deprivation in later life. Finally, other studies have identified age as a "leveler" (Herd, 2006). Specifically, the progressive frailty experienced by individuals in later life, regardless of their socioeconomic status, tends to equalize the potential adverse effects of deprivation between older age groups.

The discussion about the influence of different living arrangements on the material deprivation experienced by older individuals continues to generate diverse viewpoints. Some studies suggest that certain living arrangements, such as living with a partner, can mitigate the effects of material deprivation and poverty (Ku and Kim, 2020; Karagiannaki and Burchardt, 2020). The main idea is that family ties serve as a financial support mechanism for older individuals (Smeeding *et al.*, 2008). In multigenerational extended families, the market incomes of younger family members can be shared with older adults (Smeeding *et al.*, 2008). Karagiannaki and Burchardt (2020), exploring how living arrangements affect material deprivation across Europe, find significant disparities in various deprivation indicators, with individuals living alone facing higher levels of deprivation. Their study also shows that cohabiting with a partner offers economic support, mitigating the risk of material

deprivation. In this direction, Meemon and Paek (2020) investigating the association between different living arrangements and material well-being among individuals over 55 years in Thailand, reveal that living with a partner generally results in lower material deprivation. Older individuals living with a partner show typically better material well-being than those living alone, shedding light on the protective effect of familiar cohabitation. An interesting study in this vein is Ku et al. (2021). This study analyzes the shifts in income distribution among older adults in South Korea from 1996 to 2016. The authors identify the transition in living arrangements-from extended families to single-member households-as a key factor exacerbating income inequality, particularly in the presence of a decline in market income, increasing inequality, and poverty. Regarding Italy, a large strand of literature investigated material deprivation among individuals over 55 years old in Italy from different perspectives (Istat, 2024, 2020; Mussida and Parisi, 2019; Terraneo, 2017). One of these lines of research aims to identify the determinants of material deprivation and its different measurement approaches (Istat, 2024; Mussida and Parisi, 2019), often offering cross-country comparisons (Whelan and Maître, 2012). Whelan and Maître (2012) emphasize the significance of non-monetary measures of deprivation due to the limitations of income and related poverty metrics, including basic needs, consumption, household conditions, health, neighborhood environment, and access to public facilities. Focusing on older individuals, Bertoni et al. (2015) explore the determinants of the multidimensional concept of poverty and material deprivation across European countries. More specifically, they focus on specific indicators such as housing conditions, basic needs, and financial security, emphasizing the necessity of addressing multiple dimensions of deprivation to comprehensively grasp the economic challenges experienced by the older. The study shows a clear geographical gradient in the material deprivation of older adults in Europe. Scandinavian countries exhibit the lowest levels of deprivation, whereas higher levels are observed in Southern European countries (such as Italy), representing a significant factor in social exclusion among older individuals in these regions. The importance of considering a comprehensive approach to address the multifaceted nature of deprivation, especially for the older population, is also highlighted by other studies (Vignoli and De Santis, 2010). Regarding the relationship between living arrangements and material deprivation among older individuals in Italy, not many studies exist that directly investigate the differentiated effects of material deprivation among various household contexts among individuals over 55. One exception is Ivaldi (2016). This study examines two distinct forms of deprivation (material and social) on a regional basis in Italy. Generally, the findings indicate that older individuals living alone (or in single-parent households) tend to experience higher levels of both material and social deprivation, shedding light on the supportive role of family. In the Southern regions, a strong sense of family

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attachment mitigates the negative effects of living alone, due to robust family networks.

Drawing from prior literature, two research hypotheses are formulated:

RQ1: Which sociodemographic characteristics of older people exhibit a stronger association with the different dimensions of material deprivation?

RQ2: Which dimension of material deprivation is more likely to be experienced by older individuals differentiating by living arrangements?

3. Data and methodology

We use data from the 2018 Italian Multipurpose Survey on Households "Aspects of Daily Life", conducted by the Italian National Institute of Statistics. After selecting individuals aged 55 and above, we obtained a sample of 16,494 individuals. Following the material deprivation concept and measures adopted by Eurostat (2023), we collected data on material and social indicators of deprivation such as i) the capacity to afford a meal with meat, chicken, and fish; ii) maintaining a sufficiently warm household; iii) having some durable goods such as a car, personal computer, telephone, and washing machine; iv) the presence of housing amenities like an indoor flushing toilet; v) the size and living condition of the home. Additionally, we included data on the degradation of the neighborhood (pollution, crime, violence, and noise). Finally, we also consider information concerning the ability to cover essential expenses such as housing costs. The measurement scale for items concerning food and warm households ranges from 1 to 3 (more than 2 times per week/1 time per week/ rarely or never), while dummy variables are considered for other deprivation items. Once collected information about the main deprivation indicators and their frequency, we employed a Latent Class Analysis (LCA) to derive distinct deprivation profiles¹. Our goal is to explore how the joint influence of the diversity and intensity of various deprivation items may lead to distinct patterns of deprivation. To do that, different degrees of hardship relating to different deprivation indicators are taken into account, at the individual level. More in-depth, through LCA we are able to assign each member of the sample to the specific latent class that best fits their deprivation characteristics. These classes are mutually exclusive: each individual belongs to only one class. Through this methodology, we can cluster individuals exhibiting comparable deprivation patterns in terms of intensity of hardship and variety of deprivation indicators, allowing for further empirical analyses of these delineated subgroups. Therefore, we first evaluate different models with different numbers of classes, spanning from a single class to up to five classes.

¹ The LCA specification of our model is available upon request.

The optimal number of classes will be determined by considering the AIC and BIC criteria². Consequently, we identify three distinctive deprivation profiles, that is *food deprivation, housing deprivation*, and *material deprivation*, labelled according to the features of their specific characteristics of deprivation. Regarding our main explanatory variable, we gathered information on the living arrangements of older individuals in Italy. We collapse the observations to obtain the following three categories: living alone, living with family members (i.e. spouse or descendants), and living with people other than family members (i.e. roommates or caregivers). In all our analysis, we also control for some demographic and territorial characteristics, such as gender, age, labor status, educational levels, presence of physical limitations, economic resources, and the region of residence.

4. Results

The profiles derived from the LCA reflect the results of various combinations of the diversity and frequency of individual-level deprivation patterns³. These combinations encompass different degrees of deprivation across multiple items. The first profile is food deprivation, including individuals who have a very high likelihood of insufficient access (rarely or never) to an adequate quantity and quality of nutritious food, despite having proper housing conditions and an acceptable standard of living. This analysis specifically focuses on access to meals containing meat, fish, and chicken (Istat, 2024). The second profile is housing deprivation. This group includes individuals encountering significant housing difficulties and living in areas with neighborhood deterioration (elevated crime levels, violence, vandalism, and pollution). Additionally, individuals in this profile are very likely to reside in small and unaffordable homes and are less likely to own common consumer durables, such as televisions, mobile phones, and washing machines. Finally, the third profile is high *material deprivation*. This group includes individuals with a very high likelihood of experiencing all the previous deprivation indicators. It could be considered the most serious and comprehensive form of material deprivation. The most representative profile in our data is housing deprivation (41%), followed by food deprivation (37%). The most serious and comprehensive form of deprivation (material deprivation) is represented within the sample by 22%.⁴

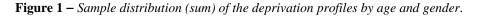
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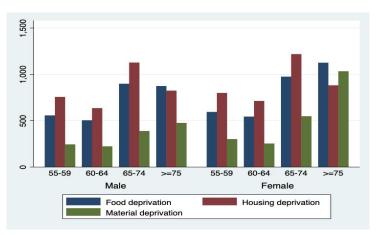
² Given space limitations, Akaike's information criterion, Bayesian information criterion, and Goodness of fit measures for LCA are available upon request.

³ Given space limitations, the parameter estimates obtained through LCA implementation and the conditional probabilities are available upon request.

⁴ Given space limitations, the marginal probabilities of each class in our sample are available upon request.

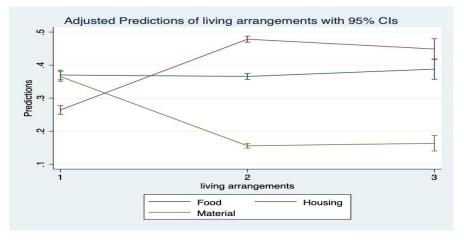
Figure 1 shows the distribution of the deprivation profiles by age and gender (RQ1). These findings indicate that food deprivation is homogeneously distributed across genders even considering a light peak for women over 75 years although it shows higher values compared to more severe forms of deprivation (e.g., material). Housing deprivation, on the other hand, presents more elevated values. More in-depth, the risk of housing deprivation is higher in the 65-74 age group, while the likelihood of experiencing food deprivation is decreasing. Additionally, figure 1 reveals a clear peak in material deprivation within the over-75 age group, with a more pronounced effect observed among women over 75 years. This suggests that the oldest individuals experience worse conditions, mainly linked to increased social isolation and growing vulnerability in older age. This finding aligns with the Life-Cycle Effect Theory, which suggests that material deprivation could have a more significant impact on older age groups due to the greater difficulties related to declining work capacity, reduced physical mobility, and diminished social connections, particularly after retirement. Examining gender differences, our analysis also reveals that the most marginalized socio-demographic categories (women over 75) seem experiencing the most severe form of material deprivation.





Subsequently, we implement a Probit estimation to explore the impact of diverse living arrangements (as explanatory variables) among older individuals on latent deprivation classes (as dependent variables) obtained through LCA while controlling for some demographic and territorial characteristics, such as gender, age, labour status, educational levels, presence of physical limitations, economic resources, and the region of residence. To assess the fit of the Probit model, we employed several measures of goodness of fit, including McFadden's pseudo R-squared, Akaike Information Criterion (AIC), and Bayesian Information Criterion (BIC)⁵.Figure 2 shows the average predicted value for food, housing, and material deprivation given various household contexts, such as living alone, living with family members (spouse or descendants), and living with people other than family members (e.g., roommates or caregivers).

Figure 2 – Predictive Margins with 95% CI of the impact of diverse living arrangements among older individuals on latent deprivation classes.



1: living alone; 2: living with family members; 3: living with people other than family members

We find that food deprivation is evenly distributed across older people regardless of the household context to which they belong. Conversely, older individuals living with others, instead of living alone, experience heightened levels of housing deprivation but a decrease in more serious overall material deprivation. In this context, living with others, whether family members or strangers, appears to exacerbate the challenges associated with cohabitation while improving the hardship associated with a more serious form of material deprivation. This result suggests that living with other adults could represent a crucial strategy for older individuals to avoid poverty and deprivation. In this case, the market incomes of younger household members are often shared with older adults. This is true above all in Italy

⁵ For the food deprivation model, AIC: 19941.79; BIC: 20094.65 and Pseudo R-squared: 0.018. For the housing deprivation model, AIC: 19297.68; BIC: 19450.54 and Pseudo R-squared: 0.083. For the material deprivation model; AIC: 13451.7; BIC: 13604.56 and Pseudo R-squared: 0.150.

where the lack of opportunities caused by housing market policies and characteristics such as restrictions in the access to credit or rigid mortgage regulations and the unavailability of housing for young people discourage young adults from leaving the parental home. Additionally, figure 2 shows that living with family members, whether spouse or descendants, is associated with higher levels of housing deprivation compared to cohabiting with people other than family members (e.g., roommates or caregivers), while the reverse is observed for high material deprivation.

5. Conclusions

This study provides insights into the potentially pivotal role of graduality in understanding the multidimensional nature of material deprivation. Through the implementation of a novel approach based on the latent class method, we can go into the concept of material deprivation and segment the sample into distinct deprivation profiles (food, housing, and material deprivation), clustering individuals exhibiting comparable deprivation patterns in terms of intensity of hardship and variety of deprivation indicators. In line with previous literature (Myck et al., 2020; Kwan and Walsh, 2018), we find that the most severe forms of material deprivation are experienced by the population over 75 and the female population (RO1). This could be mainly linked to increased social isolation and growing vulnerability in older age (Myck et al., 2020). We also find that older individuals living with others, instead of living alone, experience a decrease in more serious overall material deprivation. This evidence aligns with studies showing that living with other adults is vital for older individuals to avoid poverty and deprivation (Smeeding et al., 2008). Additionally, living with family members, compared to cohabiting with people other than family members (e.g., roommates or caregivers), is associated with lower levels of material deprivation (RQ2). This result supports recent European studies that highlight the positive impact of cohabitation with a partner or other family members (Karagiannaki and Burchardt, 2020).

Summarizing, this contribution, which is an evolution and in-depth analysis of a preliminary study on this topic (Carella *et al.* 2025), complements the body of research on the multidimensional nature of deprivation among aging adults. It highlights the importance of considering a multifaceted approach to material deprivation and the crucial role played by the combined interplay of variety and intensity of marginal deficiencies and varying degrees of severity across different deprivation items. Moreover, our approach aligns with recent studies that emphasize the importance of non-monetary measures of deprivation. Addressing deprivation in the aging population is crucial for formulating effective policies that promote wellbeing and social inclusion. Additionally, it sheds light on the precarious conditions faced by elderly individuals living alone or with non-family members or caregivers.

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