

## IN-WORK POVERTY AT THE LOCAL LEVEL: GENDER INEQUALITIES AND EMPIRICAL EVIDENCE FROM ADMINISTRATIVE SOURCES

Gianluca Truscello, Maria Chiara Zanarotti

**Abstract.** This study investigates in-work poverty within the local context of an Italy's province with two main objectives: (1) assessing whether the main individual and household-level risk factors identified by national and international research are also valid at subnational level, even in contexts where poverty is relatively less widespread; (2) evaluating the feasibility and adequacy of using administrative data sources to study socio-economic vulnerability. The broader goal is to contribute to the understanding of in-work poverty by exploring its determinants within a localized context and by testing the potential and added value of existing data infrastructures. The analysis focuses on the province of Reggio Emilia, using microdata from CAF-CGIL users. While the dataset is not statistically representative and lacks certain key variables - such as working hours, education, and industry - nonetheless it offers a rich, replicable data resource for local-level research. Empirical findings confirm the relevance of established risk factors such as household composition and labour market attachment. The incidence of in-work poverty is particularly high among foreign citizens, single-parent households, and large families. Furthermore, logistic regression models highlight the so-called "gender paradox": women living with partner are generally less likely to be working poor, but in single-earner households female workers face a significantly greater risk. This outcome reflects gendered economic dependence and household dynamics, contributing to the broader debate on in-work poverty and its determinants at the local level.

### 1. Introduction

In recent years, scholarly interest in the issue of in-work poverty, a phenomenon traditionally considered prevalent mainly in the United States, has significantly increased across Europe. Initially addressed primarily by economists, the topic has attracted growing attention from sociological literature as well, particularly since the end of the 2000s and in conjunction with the global economic crisis. Sociological contributions have explored the relationship between in-work poverty and various factors operating at both the micro level (socio-demographic characteristics and economic conditions of households) and the macro level (welfare regimes, wage policies, and labor market structures) (Brady *et al.*, 2010; Crettaz, 2013). These studies have highlighted the emergence of a structural paradox that challenges the

foundational assumptions of welfare policies: employment no longer guarantees automatic protection from poverty (Filandri, 2022; Saraceno, 2015).

The present contribution is part of a local welfare project promoted by the Municipality of Reggio Emilia, involving a network of public and private local stakeholders united by the objective of developing coordinated interventions to counter economic vulnerability. The focus on in-work poverty emerged as a shared concern among the stakeholders, despite the fact that the province of Reggio Emilia is among the most economically robust areas in Italy. As part of this project, the CGIL made available administrative data collected through its CAF service, allowing for an analysis of in-work poverty at the local level with a degree of territorial detail rarely accessible in other studies.

The aim of this analysis is to investigate how gender, family composition, and the socio-economic characteristics of households influence the risk of experiencing in-work poverty, in light of evidence already established in national and international literature on the topic.

## 2. Literature Review

The definition commonly adopted by Eurostat - now the European standard - identifies working poor as individuals (both full and part-time workers) who were employed for at least seven months in the reference year and who live in households with an equivalised disposable income below 60% of the national median. This measure, based on the modified OECD equivalence scale<sup>1</sup>, incorporates both individual and household dimensions, distinguishing working poverty from the concept of low-wage employment, which is based solely on individual earnings (Salverda, 2018; Gautié and Ponthieux, 2017). As a result, low-paid workers may not be classified as poor, and conversely, higher earners may fall into poverty depending on household composition.

Criticism of the Eurostat indicator concerns the use of a relative poverty line - which may fluctuate with economic cycles - and the exclusion of workers with occasional (or seasonal) employment, a group particularly vulnerable during recessions (Crettaz, 2015; Horemans and Marx, 2013; Marx and Nolan, 2012). In response, scholars have proposed expanding the definition or complementing it with non-monetary indicators, such as material and social deprivation (Andress and Lohmann, 2008; Nolan and Whelan, 2010).

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<sup>1</sup> This equivalence scale assigns a weight to each household member based on their age: 1 to the first adult, 0.5 to additional adults, and 0.3 to each child under the age of 14.

Despite these limitations, Eurostat's approach remains essential to capturing the interplay between income, work, and household structure. A purely individual perspective focused on wages risks distorting our understanding of inequalities and family economic well-being (Barbieri *et al.*, 2018). In fact, low wages only partially explain working poverty: many working poor are not low-paid, and vice versa (Maitre *et al.*, 2012). Household characteristics - such as number of earners, demographic structure, and shared expenses - and the role of national redistributive policies are key factors influencing poverty risk (Filandri and Struffolino, 2019).

Policy implications vary depending on the level of analysis. An individual wage-based approach emphasizes minimum wages, contract stability, and skills training. Conversely, a household-centred perspective highlights the importance of multiple earners and suggests policies that promote employment participation, parenting, work-life balance, and the inclusion of disadvantaged groups (Barbieri *et al.*, 2018; Marx and Nolan, 2012).

The sociological literature on in-work poverty can be divided into three main strands. The first examines macroeconomic factors and labour market transformations. The so-called Unified Theory (Brady *et al.*, 2010; Crettaz, 2013) sees in-work poverty as a consequence of institutional failure to absorb macroeconomic shocks. Theories of skill-biased technological change and labour market polarization link the phenomenon to structural changes in the economy (Barbieri *et al.*, 2018), while empirical studies point to the effects of growth, unemployment, and sectoral composition (Albertini *et al.*, 2020; Lohmann, 2009).

A second line of research focuses on welfare regimes and their impact on in-work poverty rates (Andress and Lohmann, 2008; Brady *et al.*, 2010). Social-democratic countries generally show lower rates thanks to inclusive and universal systems, whereas Mediterranean and liberal regimes record higher rates due to weaker or more selective protections (Lohmann, 2009; Saraceno *et al.*, 2022).

A third group of studies looks at socio-demographic risk factors. Single-parent families, large households, low education levels, and foreign citizenship are consistently associated with high in-work poverty risk (Crettaz, 2013; Crettaz, 2018; Polizzi *et al.*, 2022). Furthermore, self-employed workers show a significantly elevated risk (Horemans and Marx, 2017).

The model proposed by Crettaz and Lohmann (2018) integrates macroeconomic, institutional, and demographic dimensions. It explains in-work poverty as the result of the interaction between low wages, weak work intensity, high family needs, and limited public redistribution, producing different outcomes depending on the balance between market dynamics, welfare systems, and family structures. A notable gap concerns the lack of micro-level, locally grounded analyses capable of capturing how individual socio-demographic characteristics, such as gender, and household configurations shape in-work poverty. Survey data rarely allow this level of detail.

Using rich local administrative records, this study addresses this limitation and offers a distinct empirical contribution.

In Italy, in-work poverty is a structural issue within the national labour market. The country's rate is nearly two percentage points above the EU average, with almost 10% of workers employed at least seven months per year living in poverty. Alongside Spain, Greece, and Portugal, Italy belongs to the so-called "Mediterranean poverty regime" (Saraceno *et al.*, 2022), marked by weak labour market inclusion, high youth and female unemployment, limited active labour market policies, and a reliance on family-based welfare.

Labour market segmentation, exacerbated by deregulation since the 1990s and the 2008 economic crisis, has fostered a dual system: protected and stable workers coexist with an increasing share of precarious, involuntary part-time, and underpaid self-employed workers, often young people, women, and migrants. Marginal flexibility has weakened the bargaining power of low-skilled workers, increasing wage and regional inequalities, especially in Southern Italy, where most working poor are concentrated. Furthermore, in-work poverty in Italy often proves persistent rather than temporary, affecting the same individuals or families over long periods (Barbieri *et al.*, 2018).

Weak public redistribution and fragmented, insufficient social services contribute to the vulnerability of many households, especially those with a single income, single parent, multiple dependents, or inactive members. Persistent gender asymmetries and the dominance of the male breadwinner model also increase working poverty risk, despite recent improvements in female employment.

International research has highlighted a paradoxical relationship between gender and in-work poverty. Although women are more exposed to precarious and low-paid employment, they often show a similar - or even lower - risk of in-work poverty than men. This "gender paradox" (Peña-Casas and Ghailani, 2011) reflects women's secondary economic role within households: their earnings commonly supplement those of a primary male breadwinner, thus protecting dual-earner families (Ponthieux, 2018). Yet this household-level shield can obscure women's individual vulnerability, including dependency and unequal intra-family resource allocation shaped by persistent gender norms (Kulic and Dotti Sani, 2020). Indeed, such disadvantages are particularly evident for single women or mothers lacking a second income (Gautié and Ponthieux, 2017).

Although in-work poverty can potentially be reduced by increasing the number of earners, typically through female employment, research warns against the exclusive reliance on this strategy. Policies aimed solely at raising women's labor market participation, without improving job quality, may even heighten individual poverty risks (Barbieri *et al.*, 2018; Filandri and Struffolino, 2019).

These findings underscore the need to examine more closely how gender and household structure shape the likelihood of experiencing in-work poverty, the central focus of the present study.

### **3. Data and methods**

This study uses microdata provided by the CGIL of Reggio Emilia, based on tax returns and ISEE (Equivalent Economic Situation Indicator) applications collected in 2021 by local CAF offices. Although these data are not an official statistical source, they allow for an in-depth analysis of in-work poverty at a fine-grained local level, such as municipalities, which are not typically covered by standard surveys.

The two datasets (tax returns and ISEE declarations) were linked using two identifiers: a personal ID and a family ISEE code. This linkage enabled the construction of family-level variables assigned to each individual.

The dataset includes: family ISEE code, individual ID, relationship to the ISEE applicant, age, gender, citizenship (Italian or foreign), employment status and contract type, days worked, individual and spousal earnings (if jointly declared), total income, municipality of residence, and net tax. From these, net individual income was calculated by subtracting net tax (including local add-ons) from gross income. Summing the net income of all household members and adjusting using an equivalence scale produced the net equivalent family income.

In accordance with the Eurostat definition, individuals were classified as working poor if they were employed for at least seven months in 2021 and their household equivalent income fell below 60% of the median household equivalent income. However, due to the non-random nature of the dataset, the poverty threshold was not calculated internally. This may have led to an underestimation of poverty, given the generally disadvantaged profile of the CAF sample.

To address this issue, a locally calibrated threshold was adopted in place of the national median income, in order to better reflect the socio-economic conditions of the population under study. Specifically, the poverty line was defined externally as 60% of the net median household income in Emilia-Romagna, based on Istat's "Income and Living Conditions" survey, and adjusted using a simplified equivalence scale (the square root of household size). The same scale was applied to the CAF data to ensure comparability. Households without any employed members (e.g., pensioners only) and cases with incomplete income information were excluded from the final dataset.

Using CAF data offers several strengths: it relies on official tax records, which reduces the bias from self-reported income, and provides detailed local information. However, it also has limitations. The data are not representative of the general

population, as they come from individuals who voluntarily sought services from a union-affiliated CAF, likely overrepresenting socially vulnerable groups. Moreover, some important variables - such as educational level and weekly working hours - are missing, making it impossible to distinguish between full-time and part-time work. The dataset *also* does not allow for analysis of post-transfer poverty, as information on social benefits is lacking. These limitations must be kept in mind, but the methodology remains robust and consistent with European standards.

The empirical analysis proceeds in two steps. First, descriptive statistics are used to measure the rate of in-work poverty in 2021, disaggregated by key individual and household characteristics. Second, logistic regression models are estimated to examine the relationship between gender and the likelihood of being working poor. These models are appropriate for binary outcomes and estimate the probability of in-work poverty based on categorical (e.g., gender) and continuous variables, using a logit function and maximum likelihood estimation.

To explore the gender effect in more detail, an interaction term is added between gender and a binary variable indicating whether the household has one or more earners. Two additional gender-specific models are also estimated. The first uses a classification of households based on the number and type of workers (following Barbieri *et al.*, 2018). The second adopts a simplified Istat-based classification<sup>2</sup> that considers household structure and member relationships.

#### 4. Results

As expected, the descriptive analysis reveals that the in-work poverty rate within the CAF-CGIL sample (23.7%) is higher than that of the Italian population as a whole (11.7%). The share of working poor in the sample is slightly more than double the national one reported by Eurostat in 2021. This suggests that CAF-CGIL clients in the province of Reggio Emilia experience a condition of economic disadvantage at the household level compared to the rest of the provincial population. Moreover, the in-work poverty rate for female workers (22.6%) is slightly lower than that observed for men (24.8%), a trend also seen at the national level and in several European countries (Eurostat, 2021).

To explore the association between gender and in-work poverty, an initial logistic regression model was estimated, to which individual demographic control variables and variables describing household and occupational characteristics were progressively added. The construction of the regression model is inspired by the work of Barbieri *et al.* (2018), adapted to the specific research needs and the data

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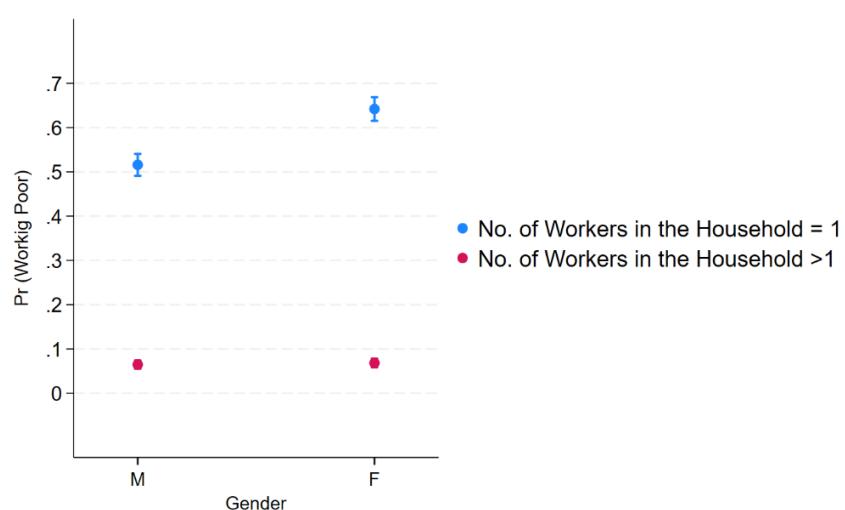
<sup>2</sup> See: Famiglie per tipologia di famiglia

limitations, particularly regarding the selection of control variables included in the model.

The effect of gender remains robust across all model specifications: women exhibit a significantly lower likelihood of experiencing in-work poverty than men, even after controlling for age, citizenship, marital status, geographical area, household composition, and occupational characteristics. This result is consistent with the hypothesis of the so-called “gender paradox” (Peña-Casas and Ghailani, 2011; Ponthieux, 2018), according to which female workers are less exposed to the risk of in-work poverty than male workers, once individual socio-demographic and occupational characteristics are accounted for.

To further investigate gender differences and verify whether the effect of gender varies depending on the household’s occupational structure, an interaction between gender and a dummy variable describing the number of workers in the household (0 = only one worker, 1 = more than one worker) was estimated. The gender effect varies substantially when the number of workers in the household is taken into account. As shown in Figure 1, the predicted probability of being working poor is significantly higher for women when they are the sole earner in the household (almost 65%), compared to men in the same situation (approximately 51%).

**Figure 1** - *Predicted probabilities of being working poor by gender and number of earners in the household. 95% C.I.*



However, when more than one worker is present in the household, this probability drops drastically for both genders, settling at very similar levels: 6.4% for men and 6.8% for women.

In line with our research objectives, to further examine how the probability of being working poor varies depending on the interaction between gender and household characteristics, two additional logistic regression models were estimated.

The first model can be expressed as follows:

$$\text{Logit}(P(Y = 1)) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_5 X_5 \quad (1)$$

where the main independent explanatory variable of interest,  $X_1$ , is a categorical qualitative variable describing the household occupational characteristics<sup>3</sup>. Only individual-level control variables not strongly correlated with the two types of household structures were included in the model to limit multicollinearity issues.

**Figure 2 - Average Marginal Effects (AME) of Household Occupational Characteristics on the Probability of being Working Poor, by Gender. 95% C.I.**

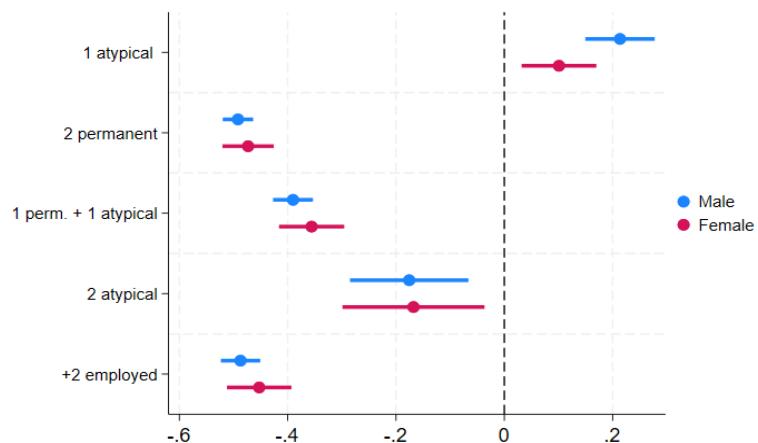


Figure notes: Reference category: only one permanent worker in the household

As shown in Figure 2, which reports the estimated AMEs (Average Marginal Effects), any combination of dual employment (whether with stable or atypical contracts) significantly reduces the risk of in-work poverty compared to the reference category of a single permanent worker. In particular, the presence of two permanent

<sup>3</sup>  $X_2 \dots X_5$  = citizenship, age, marital status, municipality of residence  
Models estimated separately for males (M) and females (F)

workers in the household reduces the probability of being working poor by over 40 percentage points (p.p.) for both genders. Other household configurations with at least two workers, such as the presence of one stable and one atypical contract (approximately -39 p.p. for men and -35 p.p. for women) or two atypical contracts (around -17 p.p. for both), are also associated with a lower probability of in-work poverty compared to the reference category. In households with only one atypical worker, the risk of poverty compared to those with a single permanent worker appears to be more pronounced among men (approximately +20 p.p.) than among women (about +10 p.p.). These results suggest that, even within the CAF-CGIL sample, the protective effects of dual employment are relatively similar for both men and women. Thus, even in a local context, the national-level findings of Barbieri and colleagues (2018) are confirmed: the presence of two or more workers in a household significantly reduces the risk of in-work poverty, regardless of contractual status.

The second model follows the same formulation as the previous one, but the main independent explanatory variable ( $X_1$ ) is the household type.

**Figure 3 - Average Marginal Effects (AME) of household type on the probability of being working poor, by gender: 95% C.I.**

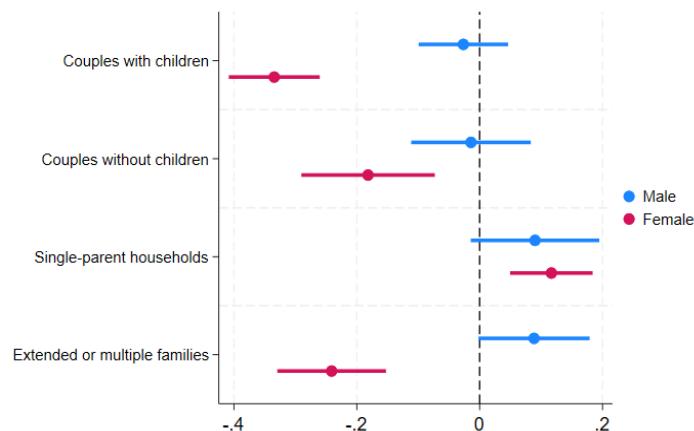


Figure notes: Reference category: solo member household

Looking at the AMEs reported in Figure 3, it can be seen that for women, living in a couple - whether with or without children - is associated with a substantial reduction in the absolute probability of being working poor compared to living alone: around 35 p.p. less for women living in a couple with children, and nearly 20 p.p. for those without children. Also, belonging to extended or multi-nuclear families represents a markedly protective economic condition for female workers compared

to living alone (over 20 p.p. less). For men, by contrast, being in a couple (with or without children) leads to a much smaller reduction in the risk of in-work poverty, close to zero and statistically not significant. On the contrary, for men as well, living in a single-parent household or in extended/multi-nuclear families results in an absolute increase in the risk of being working poor of nearly 10 p.p. in both cases. However, in these two cases, the wide confidence intervals indicate greater uncertainty in the estimates.

These results show that for female workers, living in a couple or extended family is strongly protective against the risk of in-work poverty compared to living alone. This finding confirms what has emerged at the national level, where the presence of shared family resources represents an important safeguard, particularly for women (Ponthieux, 2018). For men, however, the relationship with family structure is less clear: even when the result is statistically significant, as in the case of extended or multi-nuclear families, the direction of the effect is opposite to that observed for women, indicating a higher risk of experiencing in-work poverty.

## 5. Conclusion

The analysis confirms that gender remains a crucial factor in determining the risk of in-work poverty: on average, women are less exposed than men when controlling for relevant characteristics, in line with the so-called "gender paradox" described in the literature. The findings also point to a weakening of the traditional single-earner model: being the sole income earner, also for men, is no longer a safeguard against economic vulnerability. In this regard, the role of the "male breadwinner" appears to be losing its effectiveness in today's labour market.

These dynamics are clearly reflected within the CAF-CGIL Reggio Emilia sample, a population of formally employed workers who, nonetheless, are not exempt from economic hardship. The use of CAF data has proven especially valuable for analysing in-work poverty at the local level: these are actual administrative data, not self-reported, on both individual and household income, updated and detailed, providing a solid empirical basis for the analysis of economic inequality.

Looking ahead, integration with other administrative sources - such as INPS records and municipal population registries - could further enhance the analytical potential of the dataset, enriching the available information with additional variables (e.g., hours worked, social transfers, educational attainment, sector of employment, occupational status), and enabling the construction of statistically representative samples. The use of integrated datasets could open up new avenues of research aimed at exploring the relationships between individual and household conditions and

poverty, including through the use of alternative indicators to the in-work poverty measure adopted here.

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Gianluca TRUSCELLO, Università Cattolica del Sacro Cuore Milano,  
[gianluca.truscello@unicatt.it](mailto:gianluca.truscello@unicatt.it)

Maria Chiara ZANAROTTI, Università Cattolica del Sacro Cuore Milano,  
[maria.zanarotti@unicatt.it](mailto:maria.zanarotti@unicatt.it)