

Invisible Burdens, Visible Gains: How Managing Leisure and Caregiving Impacts Women's Socioeconomic Status

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Abstract

This study investigates how women's engagement in leisure activities, domestic responsibilities, and structural labour market conditions jointly shape their socioeconomic outcomes in the European Union. Using a hierarchical regression framework based on panel data from 27 E.U. countries (2010–2021), indexed by the European Institute for Gender Equality (EIGE), we analyse three outcome domains: health, knowledge, and labour market participation. The results reveal that women's frequent participation in out-of-home leisure activities and access to flexible working arrangements significantly enhance health, educational, and employment outcomes. Intensive caregiving responsibilities have a strong negative impact on both health and employment, while routine household tasks exhibit negligible effects. Structural employment factors further moderate these relationships: employment in education, health, and social work sectors improves outcomes across all domains, whereas a longer working life tends to weaken women's health and knowledge-related results, suggesting potential trade-offs between sustained career engagement and well-being. The findings highlight that women's socioeconomic advancement depends on the balance between personal autonomy, caregiving obligations, and structural work conditions. The study underscores the importance of policies that expand workplace flexibility, strengthen support for caregiving, and promote women's participation in socially oriented sectors, thereby advancing gender equality and economic sustainability across the European Union.

Keywords: *Gender disparities, Leisure activities, Caregiving responsibilities, Labour market conditions, European Union.*

JEL Classification: J16, J22, J24

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1. INTRODUCTION

Gender equality has become a pivotal societal and economic goal across the European Union, receiving significant attention from policymakers and researchers alike. Despite considerable efforts and policy interventions, gender disparities remain evident, particularly regarding women's participation in health, education, and the labour market. These disparities are shaped by complex interactions between personal, domestic, and structural conditions. Understanding the nuances of these relationships is essential for designing effective policies aimed at promoting women's socioeconomic advancement (Hagqvist et al., 2016; Fraile & Gómez, 2017; Klasnić, 2020; Mangimela-Mulundano et al., 2022).

Existing literature has emphasised various determinants influencing women's socioeconomic outcomes, notably workplace conditions, domestic responsibilities, and leisure activities (Park & Mwiambi, 2021). Although extensive research highlights how structural employment

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factors and domestic responsibilities individually affect women's economic status, relatively little empirical evidence simultaneously examines how leisure activities interact with domestic roles and broader employment conditions across multiple dimensions of women's socioeconomic outcomes (Hernández et al., 2021). Furthermore, previous studies often focus narrowly on specific aspects of women's lives without systematically addressing the interplay between leisure, caregiving, and structural labour market factors (Kim & Kim, 2016).

Motivated by this research gap, our study aims to provide a comprehensive understanding of how women's engagement in leisure activities, domestic responsibilities, and structural labour market factors collectively shape their socioeconomic outcomes across health, education, and employment domains. Specifically, we investigate whether regular participation in leisure and voluntary activities, flexibility in workplace arrangements, caregiving duties, household responsibilities, and employment conditions such as sectoral employment and duration of working life systematically influence women's health status, educational attainment, and labour market success.

To accomplish our objective, we employ a robust hierarchical regression analysis framework applied to a unique dataset covering 27 European Union countries over the period 2010–2021. This empirical strategy allows us to distinguish clearly between the independent impacts of leisure activities, domestic responsibilities, and structural labour market conditions on women's outcomes. Our results offer valuable insights into key determinants shaping women's socioeconomic experiences and highlight the most promising areas for targeted policy interventions.

Beyond its implications for gender equality, the topic also relates directly to women's competitiveness in the labour market. As Laschinski (2024) argues, understanding how leisure engagement, caregiving duties, and structural work conditions interact is essential not only for assessing gender disparities but also for evaluating women's capacity to maintain sustainable and competitive positions within increasingly dynamic European labour markets.

The remainder of the paper is organised as follows: Section 2 presents a detailed literature review and hypotheses development, providing theoretical grounding and justification for our empirical strategy. Section 3 outlines our data, variables, and methodological approach. In Section 4, we present and interpret our empirical results, supplemented by robustness checks. Finally, Section 5 summarises our key findings and outlines relevant policy implications.

2. THEORETICAL BACKGROUND

2.1 Literature review

The issue under study has been analysed by researchers from multiple aspects of gender equality and inequality in various contexts (including definitions and concepts of gender equality; feminist theories; institutional or structural barriers; and regulation and legislation), spanning education, employment, entrepreneurship and political representation. They examine how factors such as access to energy, economic development, social norms and corporate policies

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influence gender differences in outcomes. Some studies focus on the impact of gender diversity on corporate performance (e.g. Boukattaya et al., 2022; Yarram & Adapa, 2023) and on the mechanisms of discrimination in the workplace (e.g. Borm et al., 2020; Feess et al., 2021; Schnurr & Fuchs, 2023). Others analyse the effectiveness of policies aimed at reducing gender inequality and the relationship between gender equality and other phenomena such as fertility and automation. Azzollini et al. (2023) show – and at the same time confirm – counterfactual changes in inequality (gini coefficient), obtained by counterfactually closing gender gaps in employment, hours, and pay separately for each country and aggregating them for comparison with full-equality counterfactuals (Fig. 1).

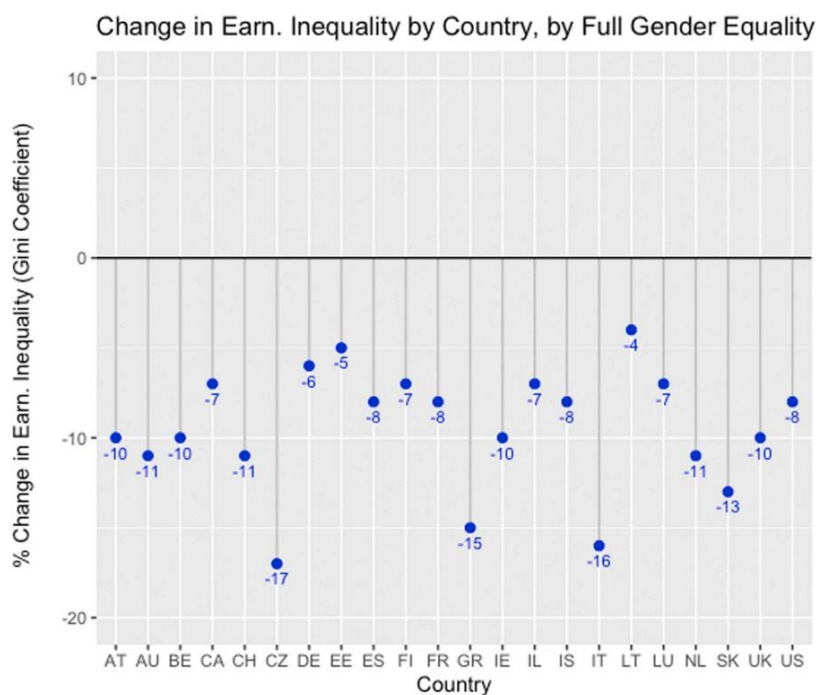


Fig. 1 – Impact on Inequality by Country, Full Gender Equality Counterfactuals. Source: Azzollini et al., 2023

There are also studies examining gender differences in employment decisions that have used men as a comparison group; however, family factors have a more significant influence on women than on men (Chen et al., 2021). Miller and Bairoliya (2021) determined that unpaid care for elderly parents weakens individuals’ (especially women’s) bargaining power in the labour market. Meurs & Giddings (2021) also verified that living with elderly or disabled parents increases the family care burden for women with negative impacts on employment probabilities. As they are influenced more strongly by family factors, women are more likely to be marginalised in the labour market than men, with a higher possibility of participating in unstable or part-time jobs that are typically lower-income and often exclude welfare and social security (Mussida & Patimo, 2020).

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Researchers once believed that only those who were unable to enter the formal employment sector would turn to the traditional informal employment sector (Williams & Krasniqi, 2021). Traditional informal employment is considered to be a suitable and sustainable form of employment for low-skilled, low-income workers (Gordon, 2017; Liwiński, 2022). From the perspective of labour market segmentation, the traditional informal employment market is viewed as a low-end secondary labour market (Khan, 2021). Informal employment is also associated with poverty, wherein poverty can reinforce the intergenerational transmission of informal employment (Kishwar & Alam, 2021). Previous studies have demonstrated a more severe gender imbalance in informal employment (Wang & Raymo, 2021; Neog & Sahoo, 2023).

The analysis of the socioeconomic impact of women's participation in leisure activities, domestic responsibilities, and labour market conditions emerges as a multifaceted issue intertwined with gender roles, economic structures, and cultural expectations. Women's engagement in these spheres significantly shapes their socioeconomic outcomes and those of their families, reflecting broader societal trends in gender equality and economic participation (Samari & Coleman-Minahan, 2017; Mendiola & Cortina, 2024). The literature suggests a strong linkage between leisure-time physical activity and overall well-being, with women in caregiving roles often exhibiting a sedentary lifestyle due to the rigours of their obligations (Kuramoto et al., 2023). Consequently, the health outcomes influenced by reduced physical activity can perpetuate cycles of poverty and ill health, further entrenching women socioeconomic challenges.

In the realm of leisure activities, women's participation is often influenced by their dual role in domestic responsibilities and employer expectations in the labour market. Studies indicate that women frequently navigate a complex landscape where societal expectations dictate their engagement in leisure, often at the expense of personal time (Yoo, 2022; Hybholt & Spotswood, 2025). Given that women traditionally take on the majority of family caregiving roles, their leisure time is typically reduced compared to that of men, leading to increased stress and lower overall life satisfaction, which in turn affects their participation in the labour force (Kasearu et al., 2016; Stam et al., 2013). This phenomenon underscores a broader argument regarding how leisure activities can impact well-being and potential productivity in work environments, as sufficient leisure is linked to improved mental health and, subsequently, performance in both paid work and unpaid domestic contributions (Maestriperi, 2018; Seo, 2023). Furthermore, women's limited access to leisure activities reflects systemic inequalities; initiatives that allow women to participate in leisure not only promote personal well-being but also contribute to broader economic gains through improved labour market outcomes and increased productivity (Buterin et al., 2023).

The structural conditions of labour markets are pivotal in shaping women's employment prospects and economic stability. Traditional labour market structures are frequently designed around male-centric models, which often lack the flexibility women require to balance work and caregiving (Mussida & Patimo, 2023). For example, dual labour market theories posit that women disproportionately occupy "outsider" jobs – those characterised by lower pay, fewer benefits, and less job security (Akhtar et al., 2020). This occupational stratification results in women facing significant barriers to upward mobility and economic independence, further entrenching gender inequities across economic spheres (Buterin et al., 2023; Kotze et al., 2021).

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Labour market integration programs and policies frequently neglect to incorporate considerations for unpaid work and domestic responsibilities, undermining their effectiveness in enhancing women's employment outcomes. Addressing these structural issues requires transformative policy changes that focus on reconceptualising women's roles in both the workforce and at home, thus fostering an environment conducive to equal opportunity and socioeconomic advancement (Miaari et al., 2023; Wang et al., 2024). Labour market competitiveness is shaped by how effectively women can reconcile work and family demands while accessing high-quality, stable employment. Policies enhancing flexibility and reducing unpaid care burdens can therefore strengthen both gender equality and the overall competitiveness of the workforce (Brady et al. 2019).

The socioeconomic impact of women's participation in leisure activities, management of domestic responsibilities, and the structural conditions of the labour market is profound and intricately linked. While progress has been noted in certain areas of female participation, sustainable improvements hinge upon comprehensive policy reform and societal shifts that challenge existing norms and empower women across various spheres of life (Ventura et al., 2021). Such multidimensional changes would not only enhance women's lives but also drive broader economic advancement by fully leveraging women's potential.

2.2 Hypothesis development

Each hypothesis is formulated not only to test gender-related disparities but also to assess their broader implications for women's competitiveness and long-term labour market positioning.

2.2.1 Health domain

Health is deeply intertwined with sociocultural structures, economic factors, and gender norms, shaping individuals' well-being and opportunities. The way health is perceived, accessed, and experienced is influenced by societal expectations, economic disparities, and institutional frameworks that reinforce gender inequalities.

Research has shown that gender roles significantly impact health outcomes. Women often take on unpaid caregiving responsibilities, which can limit their economic independence and access to healthcare (Milner et al., 2021; Picó-Pérez, 2025). Conversely, men may face pressures to engage in physically demanding or high-risk occupations, leading to increased workplace injuries and mental health struggles (Wightman et al., 2025). Social norms also discourage men from seeking medical care, reinforcing harmful stereotypes of masculinity. However, women's increasing participation in leisure activities and their adoption of flexible work arrangements can serve as protective factors, promoting both mental and physical well-being (Yun & Hong, 2022).

The literature emphasises that women are more likely to work in lower-paid sectors with limited health benefits, reducing their access to quality medical care (Syed, 2021). Additionally, the gender pay gap exacerbates financial barriers to healthcare, particularly in regions without universal health coverage (Johns et al., 2022). However, employment models that offer flexible working hours and remote work opportunities have been shown to improve women's overall

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health by reducing stress, enhancing work-life balance, and allowing more time for physical and recreational activities (Franklin et al., 2022).

Therefore, we argue that public health policies can either reinforce or alleviate gender disparities in healthcare access and outcomes. Maternity leave, workplace health protections, and gender-sensitive medical research are essential for fostering equality. Additionally, policies that promote work-life balance, such as flexible working conditions and support for recreational activities, have been linked to improved physical and mental health among women. Based on the above, we propose the following first hypothesis:

H1 *Women's frequent participation in leisure activities and flexible work arrangements are positively associated with their overall health outcomes.*

2.2.2 Knowledge domain

The increasing participation of women in economic activities has demonstrable effect on economic growth, reducing inequality and enhancing the overall prosperity of society (Bustamante et al., 2024). Education plays a crucial role in this context, as it influences women's employment opportunities, their earnings, and their ability to contribute to innovation and productivity (Sarfraz et al., 2021).

Gender norms, economic structures, and workplace policies shape the extent to which individuals can access and benefit from educational and intellectual opportunities. Evidence from the literature (Marino & Berritella, 2024) shows that social norms and gender expectations influence the distribution of educational opportunities. Women have historically faced barriers to accessing formal education, particularly in societies where traditional gender roles prioritise domestic responsibilities over intellectual pursuits. While access to education has improved globally, women's continued engagement in lifelong learning depends on the flexibility of work structures and the availability of knowledge-enhancing activities such as community education programmes and voluntary initiatives (Lee & Manzoni, 2023).

Based on the research and empirical evidence (Tokal et al., 2023), gender-based economic disparities impact access to education and professional development. Women are more likely to experience career interruptions due to caregiving responsibilities, which in turn limit their opportunities for continuous skill development.

In response to the literature reviewed so far, participation in leisure and voluntary activities significantly contributes to knowledge acquisition (Kuo et al, 2021). Women who engage in such activities often benefit from expanded networks, increased confidence, and improved problem-solving abilities, further reinforcing their educational and professional growth (Tiwari & Malati, 2023).

Governments and institutions play a crucial role in shaping knowledge-related gender outcomes. Policies that promote flexible working arrangements, encourage participation in continuing education, and support voluntary sector engagement contribute to a more inclusive knowledge economy (Urquijo, 2021). Understanding the interplay between gender, leisure

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activities, voluntary engagement, and workplace flexibility is essential for evaluating knowledge-related outcomes. Therefore, we propose the following second hypothesis:

H2 *Women's involvement in regular leisure and voluntary activities, along with greater workplace flexibility, positively affects their educational and knowledge-related outcomes.*

2.2.3 Work domain

The labour market is shaped by various economic, social, and cultural factors that influence gender roles and employment opportunities. Women's participation in the workforce is particularly affected by caregiving responsibilities, workplace policies, and sector-specific employment trends (Cavapozzi et al., 2021; Kanas & Müller, 2021).

Research indicates that women have shouldered the majority of unpaid caregiving responsibilities, a trend that continues to affect their participation in the workforce. Whether through childcare, elder care, or managing household duties, these responsibilities frequently translate into career interruptions, part-time employment, or reduced opportunities for promotion (Zamarro & Prados, 2021). The lack of accessible childcare and limited parental leave options in many regions further exacerbate these challenges, leaving women with fewer choices and lower earning potential (Thorpe et al., 2024). Chen et al. (2023) also demonstrate how domestic responsibilities affect structural labour market conditions for women, leading to different employment decisions, and have socioeconomic impacts in the form of lower competitiveness and potential mental health problems.

Studies have shown that the emergence of flexible working arrangements has introduced new opportunities. Remote work, adjustable schedules, and job-sharing models enable women to remain active in the labour market while managing caregiving duties (Maraziotis, 2024). These arrangements have been particularly beneficial in sectors where work-life balance is prioritised, such as education, healthcare, and social services. However, while these industries offer stability and adaptability, they are also often associated with lower wages and fewer leadership opportunities, reinforcing long-standing gendered divisions in employment (Oo et al., 2021).

Research suggests that beyond individual choices and workplace policies, broader economic and social factors shape women's employment outcomes. Government interventions, such as affordable childcare programmes, equal parental leave for both parents, and initiatives promoting women in leadership, play a critical role in levelling the playing field. Organisations that actively support work-life balance tend to benefit from a more engaged and productive workforce, demonstrating that gender-sensitive policies can be mutually beneficial for employees and employers alike (Kaur & Randhawa, 2024).

Baranowska-Rataj and Matysiak (2016) found that family size and the number of children have a significant negative influence on women's labour force participation and working hours. Duan (2022) argued that preschool children's care has a negative spill-over effect on women's employment opportunities. The cost of childcare has been considered an important factor for scholars in examining the impact of family factors on women's employment decisions.

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Understanding these dynamics is essential for addressing gender disparities and promoting equitable labour market outcomes. Therefore, we extend this stream of research and formulate our third hypothesis:

H3 *Women’s caregiving responsibilities negatively affect their labour market participation, whereas flexible working conditions and sector-specific employment (especially in education, health, and social sectors) positively influence their employment outcomes.*

3. RESEARCH OBJECTIVE, DATA AND METHODOLOGY

3.1 Data

Our study is based on a uniquely compiled dataset covering 27 European Union countries. Data were collected for the years 2010, 2012, 2015, 2017, 2018, 2019, 2020, and 2021, with the indexing carried out by the European Institute for Gender Equality (EIGE) in 2013, 2015, 2017, 2019, 2020, 2021, and 2022–2023, respectively. In agreement with previous studies (e.g. Filippi et al., 2023; Martinez-Garcia et al. 2024; Bellani & Hidalgo-Hidalgo, 2025) we use a similarly modified dataset, which incorporates measures pertaining to three domains: *health*, *work*, and *knowledge*, each of which reflects gender disparities in outcomes such as health status and behaviour, labour market participation and working conditions, and educational attainment and participation. According to previous research (Agénor & Agénor, 2022; Filippi et al., 2023; Baraybar-Fernández et al., 2025) we consider these research domains to be essential because they represent key dimensions of gender equality and have a direct impact on the position of women in society and on the labour market, providing a comprehensive view of gender equality in terms of key socio-economic factors.

For the independent variables, we employ data on women’s engagement in leisure activities, voluntary or charitable actions, and the flexibility to take time off during working hours. Additionally, variables capturing daily household and caregiving responsibilities, as well as employment indicators such as the full-time equivalent employment rate, duration of working life, and employment in education, human health, and social work, are incorporated. These indicators are derived from internationally recognised sources including Eurofound (EWCS and EQLS), Eurostat (EU LFS), and EIGE’s microdata calculations. Detailed descriptions of all independent variables are provided in Table 1.

Table 1: Description of independent variables. Source: Own study

Variable	Description	Source
workers_activity	Workers doing sporting, cultural or leisure activities outside of their home, at least daily or several times a week (%) Women	Eurofound, EWCS, EIGE' survey on unpaid care, EIGE's calculation with microdata
workers_voluntary	Workers involved in voluntary or charitable activities, at least once a month (%) Women	Eurofound, EWCS, EIGE' survey on unpaid care,

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		EIGE's calculation with microdata
ability_off	Ability to take one hour or two off during working hours to take care of personal or family matters (%) Women	Eurofound, EWCS, EWCTS, microdata calculations
people_household	People doing cooking and/or household tasks every day (%) Women	Eurofound, EQLS, EIGE' survey on unpaid care, EIGE's calculation with microdata
people_caring	People caring for and educating their children or grandchildren, the elderly or people with disabilities, every day (%) Women	Eurofound, EQLS, EIGE' survey on unpaid care, EIGE's calculation with microdata
fte_employment	FTE employment rate (%) Women	Eurostat, EU LFS, EIGE's calculation with microdata
duration_work	Duration of working life (years) Women	Eurostat, EU-LFS, (lfsi_dwl_a)
employed_edu	Employed people in education, human health and social work activities (%) Women	Eurostat, EU LFS, (lfsa_egan2)

The descriptive statistics shown in Table 2 indicate considerable variation across the key dimensions of women’s socio-economic engagement. The data reveal that women’s participation in leisure and voluntary activities, as well as their perceived ability to take time off work, differs markedly across observations, while involvement in household tasks appears consistently high. Measures related to formal employment and the length of working life show notable disparities, and the share of women employed in education, human health, and social work also varies significantly.

Table 2: Descriptive statistics. Source: Own study

Variable	N	mean	sd	min	max
workers_activity	216	26.93764	14.72163	6.32424	60.08725
workers_voluntary	216	11.83161	5.985396	2.92865	37.50272
ability_off	216	24.96209	9.360067	10.99098	48.47107
people_household	216	75.56637	8.618309	44.27555	88.74654
people_caring	216	37.49066	6.752901	14.69513	51.72059
fte_employment	216	43.52648	5.96011	28.93073	59.3035
duration_work	216	33.2037	3.663571	21.6	41
employed_edu	216	28.67269	6.886167	14.12426	43.59889

3.1 Correlation matrix

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Table 3 presents the cross-correlation matrix for our independent variables, offering an initial insight into the bivariate relationships among the measures used in our analysis.

Table 3: Correlation matrix. Source: Own study

	workers_activity	workers_voluntary	ability_off	people_household	people_caring	fte_employment	duration_work	employed_edu
workers_activity	1.0000							
workers_voluntary	0.6985	1.0000						
ability_off	0.5680	0.4280	1.0000					
people_household	0.3260	0.1214	0.2093	1.0000				
people_caring	-0.2358	-0.3058	-0.1223	0.4486	1.0000			
fte_employment	0.1347	0.0702	0.0011	-0.2171	-0.2303	1.0000		
duration_work	0.4683	0.3622	0.3415	0.0467	-0.4327	0.6988	1.0000	
employed_edu	0.7359	0.6039	0.5201	0.1632	-0.4097	0.2003	0.5258	1.0000

Overall, the matrix indicates moderate associations across most variables. For instance, the variable workers_activity, which captures the frequency of sporting, cultural, or leisure activities is moderately positively correlated with both workers_voluntary (engagement in voluntary or charitable activities) and ability_off (the ability to take time off during working hours). This pattern suggests that individuals who frequently participate in out-of-home leisure activities are also more inclined to engage in volunteering and have greater flexibility in managing personal or family-related commitments during work.

The variable people_household, which reflects daily involvement in cooking and household tasks, exhibits negative correlations with certain employment-related measures such as fte_employment (FTE employment rate) and duration_work (duration of working life). This finding implies that higher domestic responsibilities may be associated with lower levels of formal employment or shorter working lives. Notably, some pairs of variables such as workers_activity and employed_edu (employment in education, human health, and social work sectors) as well as fte_employment and duration_work display correlation coefficients around 0.70 or higher, reflecting the expected overlap between aspects of leisure engagement and employment patterns.

Despite these moderate to strong associations, none of the correlations are so high as to raise concerns regarding multicollinearity, as confirmed by our subsequent variance inflation factor (VIF) analysis. The observed correlations support the conceptual distinctiveness of each variable while also underscoring their interrelated nature in capturing the various dimensions of women’s socio-economic roles. This coherence in the data validates our measurement

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approach and justifies the inclusion of all the independent variables in our hierarchical regression models.

3.2 Methodology

To clarify the various distinct consequences of individual behaviours, domestic responsibilities, and structural employment factors on gender-specific outcomes, we adopt a hierarchical regression approach. Although our dataset possesses a panel structure spanning several years, the intermittent absence of observations across certain time periods renders classical panel regression techniques less reliable. Data for missing years could not be collected at the time the research was conducted because they were not available in the source materials. Given the unbalanced nature of our panel, using the *xtreg* command (in Stata 18) could introduce complications in accounting for missing data and potentially bias the estimates. To ensure robustness and consistency in our analytical framework, we therefore employ classical cross-sectional regression methods. This approach allows us to fully utilise all available observations for each model and facilitates a direct, transparent comparison of the effects across the three domains, while diagnostic tests confirm that our estimation strategy is statistically robust.

Our analysis consists of a total of nine models, where each of the three dependent variables – health, work, and knowledge – is regressed on three sets of independent variables. The additive specification of our regression model is given by:

$$Y_i = \beta_0 + \beta'_L X_{(L,i)} + \beta'_D X_{(D,i)} + \beta'_S X_{(S,i)} + \varepsilon_i$$

Where Y_i denotes the dependent variable, which can be health, knowledge or work;

$X_{(L,i)} = (\text{workers_activity}, \text{workers_voluntary}, \text{ability_off})$ represents the set of leisure and work-related flexibility;

$X_{(D,i)} = (\text{people_household}, \text{people_caring})$ represents the set of domestic responsibilities;

$X_{(S,i)} = (\text{fte_employment}, \text{duration_work}, \text{employed_edu})$ represents the set of structural factors.

ε_i represents the error term (or residual), which captures all the variability in the dependent variable Y_i that is not explained by the independent variables. This term includes unobserved factors, measurement errors, and any other influences omitted from the model.

3.3 Robustness check

We conducted a variance inflation factor (VIF) analysis to assess multicollinearity among the independent variables (Table 4). VIF is a standard diagnostic tool that measures the extent to which the variance of a regression coefficient is inflated due to correlation among the predictors. In our analysis, the mean VIF with value of 2.63 across the models is well below the conventional thresholds – typically, values below 5 (and in many cases even below 10) are considered acceptable. The low average VIF suggests that the independent variables are not highly collinear, thereby confirming that each variable contributes unique information to the model. These findings are consistent across all model specifications, despite the changes in the dependent variable, and underscore that our estimation approach is robust and well-founded.

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Overall, the VIF results provide strong support for the validity of our analytical framework and reinforce the reliability of our regression estimates.

Table 4 – VIF analysis. Source: own study

Variable	VIF	1/VIF
workers_activity	3.92	0.255183
workers_voluntary	3.43	0.29159
ability_off	2.85	0.350635
people_household	2.76	0.362328
people_caring	2.26	0.44255
fte_employment	2.11	0.474213
duration_work	2.08	0.481538
employed_edu	1.67	0.599199
Mean VIF	2.63	

4. RESULTS AND DISCUSSION:

The aim of this analysis is therefore to show how women’s participation in leisure activities, their domestic responsibilities, and structural labour market conditions influence their socioeconomic outcomes in the areas of health, education, and employment.

4.1 Findings

Table 5 presents hierarchical regression results examining the determinants of women’s health outcomes. In the first model, women's frequent participation in leisure activities (*workers_activity*), involvement in voluntary work (*workers_voluntary*), and flexibility to take time off during working hours (*ability_off*) each have a significantly and positive influence women's health outcomes. After introducing domestic responsibilities in the second step, daily caregiving responsibilities (*people_caring*) exhibit a strong negative impact on health outcomes, highlighting the significant health burden associated with caregiving duties. Interestingly, daily household tasks (*people_household*) show no statistically significant effect, suggesting these responsibilities might not be detrimental to women’s health. Finally, the inclusion of structural employment indicators reveals that a longer duration of working life (*duration_work*) negatively affects women's health outcomes, indicating potential trade-offs between sustained labour market participation and personal health. Employment in education, human health, and social work (*employed_edu*) exerts a positive effect on women’s health outcomes, demonstrating the beneficial nature of work in these sectors.

Table 5 – Hierarchical regression – Health. Source: own study

Dep. Variable - Health	First model	Second model	Third model
workers_activity	0.116***	0.098***	0.052*
workers_voluntary	0.190***	0.150**	0.109
ability_off	0.118***	0.119***	0.097***
people_household		0.047	0.033
people_caring		-0.173***	-0.139**

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fte_employment			-0.021
duration_work			-0.217**
employed_edu			0.287***
_cons	77.942***	81.745***	83.685***
N	216	216	216
r2	0.413	0.446	0.508

Note: Results show hierarchical regression for women’s health outcomes. The first column includes leisure activities, voluntary work, and workplace flexibility. The second column adds domestic responsibilities (household tasks and caregiving), and the third column incorporates structural employment factors (full-time employment rate, duration of working life, and employment in education, health, and social sectors). Significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

In the first model, which includes leisure activities (*workers_activity*), voluntary work (*workers_voluntary*), and workplace flexibility (*ability_off*), both variables *workers_activity* (frequent participation in leisure activities) and *ability_off* (flexibility to take time off work) show a statistically significant positive influence on women's health status (*workers_activity*: 0.116***, *ability_off*: 0.118***). After introducing domestic responsibilities in the second model, both variables *workers_activity* (0.098*) and *ability_off* (0.119***) remain statistically significant and positively associated with women's health status. Even in the third model, which includes structural employment factors, the variable *ability_off* (0.097*) remains statistically significant and positive. The variable *workers_activity*, although its coefficient decreased, still shows a statistically significant positive influence (0.052*). Hypothesis H1 proposed that women’s frequent participation in leisure activities and access to flexible working arrangements are positively associated with their overall health outcomes. The results fully support this hypothesis. The coefficients for *workers_activity* and *ability_off* are consistently positive and statistically significant ($p < 0.05$) across all models, indicating that both leisure engagement and work flexibility improve women’s health status. Conversely, *people_caring* (caregiving responsibilities) exerts a strong negative effect, while *people_household* (household tasks) shows no significant relationship. The inclusion of structural variables slightly reduces the strength of the leisure coefficient but does not alter its direction or significance. Overall, H1 is fully supported, confirming that leisure participation and workplace flexibility are key determinants of women’s health.

Table 6 presents hierarchical regression results focusing on determinants influencing women’s outcomes in the domain of knowledge (education). In the first step, we find strong positive associations between women’s frequent participation in leisure activities (*workers_activity*) and their educational outcomes, suggesting that active leisure participation significantly enhances women's knowledge-related achievements. Similarly, workplace flexibility (*ability_off*) consistently demonstrates a positive and statistically significant impact, emphasising the importance of flexible working conditions in supporting women’s educational engagement and skill acquisition. Participation in voluntary activities (*workers_voluntary*), however, does not initially show a significant effect.

Upon adding domestic responsibilities (second column), we observe that daily household chores (*people_household*) and caregiving activities (*people_caring*) exhibit no statistically significant direct effects on knowledge outcomes. This indicates that daily domestic tasks, although demanding, neither substantially enhance nor hinder women's knowledge acquisition

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directly. Thus, the role of domestic duties appears less critical for educational outcomes compared to health or employment outcomes.

Finally, after including structural employment factors (third column), the results highlight clear relationships between employment characteristics and educational outcomes. Employment in education, human health, and social work sectors (*employed_edu*) strongly enhances women’s educational outcomes, aligning with the expectation that these sectors inherently promote knowledge and skill development. Full-time employment rates (*fte_employment*) also positively correlate with women’s knowledge outcomes, reinforcing the value of stable employment as a facilitator for continuous learning and educational growth. Conversely, the duration of working life (*duration_work*) negatively affects women’s knowledge-related outcomes, suggesting that extended workforce participation could limit women’s opportunities or motivation to pursue further educational advancement. Interestingly, after including structural employment factors, voluntary activities (*workers_voluntary*) negatively influence knowledge outcomes, suggesting that extensive volunteering might limit women’s time for formal education.

Table 6 – Hierarchical regression – Knowledge. Source: own study

Dep. Variable - Knowledge	First model	Second model	Third model
<i>workers_activity</i>	0.241***	0.260***	0.140***
<i>workers_voluntary</i>	-0.076	-0.091	-0.153**
<i>ability_off</i>	0.224***	0.226***	0.207***
<i>people_household</i>		-0.07	-0.037
<i>people_caring</i>		0.019	0.053
<i>fte_employment</i>			0.238***
<i>duration_work</i>			-0.750***
<i>employed_edu</i>			0.628***
<i>_cons</i>	49.247***	53.428***	50.634***
N	216	216	216
r2	0.477	0.482	0.653

Note: Results present hierarchical regression for women’s knowledge (educational) outcomes. Column one shows leisure activities, voluntary work, and workplace flexibility. Column two adds domestic responsibilities (household tasks and caregiving), while column three further incorporates structural employment factors (full-time employment rate, duration of working life, employment in education, health, and social sectors). Statistical significance levels are indicated as: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Frequent participation in leisure activities (*workers_activity*): This variable shows a statistically significant positive influence on women’s education and knowledge in all three models (First: 0.241***, Second: 0.260***, Third: 0.140***). Involvement in voluntary activities (*workers_voluntary*): In the first two models, this variable does not show a statistically significant influence on women’s education and knowledge (First: -0.076, Second: -0.091). In the third model, after including structural employment factors, a statistically significant negative influence emerges (Third: -0.153**). This result does not confirm the positive influence of voluntary activities on women’s education and knowledge and suggests that extensive volunteering may even limit the time spent on formal education. Greater workplace flexibility (*ability_off*): This variable consistently shows a statistically significant positive influence on women’s education and knowledge in all three models (First: 0.224***, Second:

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0.226***, Third: 0.207***). Hypothesis H2 assumed that women’s involvement in regular leisure and voluntary activities, combined with greater workplace flexibility, positively influences their educational and knowledge-related outcomes. The empirical results partially support this hypothesis. *Workers_activity* (leisure participation) and *ability_off* (flexibility at work) both have positive and highly significant coefficients across all models, affirming their beneficial impact on knowledge and learning outcomes. However, *workers_voluntary* (volunteering) exhibits a negative and statistically significant effect in the final model, suggesting that extensive voluntary engagement may substitute for time or energy devoted to formal education or professional training. Domestic responsibility variables (*people_household*, *people_caring*) remain insignificant, while structural employment factors (*employed_edu*, *fte_employment*) strongly enhance knowledge-related results. Therefore, H2 is only partially supported – the positive roles of leisure and flexibility are confirmed, whereas volunteering shows an unexpected negative association.

Table 7 provides results from hierarchical regression analyses examining the determinants of women's labour market outcomes. Initially, leisure activity (*workers_activity*) and workplace flexibility (*ability_off*) both exhibit significant positive effects, emphasising that regular engagement in leisure activities and the ability to take time off for personal or family issues substantially enhance women’s labour market participation. Participation in voluntary activities (*workers_voluntary*) does not appear to significantly influence employment outcomes at this initial stage.

When domestic responsibilities are considered in the second column, caregiving duties (*people_caring*) display a notable negative impact on women's labour market participation. This underscores the considerable challenge caregiving presents to women's employment engagement. Interestingly, household tasks (*people_household*) remain statistically insignificant in this model, implying these daily responsibilities do not notably impede women's participation in paid work.

The inclusion of structural employment factors (third column) notably alters the relationships observed previously. Employment indicators such as full-time employment rates (*fte_employment*), duration of working life (*duration_work*), and employment in education, health, and social sectors (*employed_edu*) all show significant positive effects, strongly suggesting that structural employment characteristics play a critical role in enhancing women's labour market participation. The initially observed positive effect of leisure activities (*workers_activity*) diminishes, indicating that structural employment factors significantly mediate or outweigh leisure impacts. Notably, after structural employment factors are included, the initially observed negative impact of caregiving responsibilities (*people_caring*) on women’s labour market participation loses significance, indicating stable employment conditions may help offset caregiving burdens.

Table 7 – Hierarchical regression – Work. Source: own study

Dep. Variable - Work	First model	Second model	Third model
<i>workers_activity</i>	0.100***	0.088***	-0.009
<i>workers_voluntary</i>	-0.01	-0.052	-0.036
<i>ability_off</i>	0.283***	0.285***	0.267***
<i>people_household</i>		0.029	0.045***

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people_caring		-0.163***	-0.016
fte_employment			0.258***
duration_work			0.356***
employed_edu			0.162***
_cons	62.523***	67.155***	35.657***
N	216	216	216
r2	0.589	0.627	0.918

Note: Results provide hierarchical regression for women’s labour market outcomes. Column one includes leisure activities, voluntary work, and workplace flexibility; column two adds domestic responsibilities (household tasks and caregiving); column three includes structural employment factors (full-time employment rate, duration of working life, employment in education, health, and social sectors). Statistical significance is denoted as: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

In the second model of the regression analysis, after including domestic responsibilities, the variable *people_caring* (caring for children, grandchildren, the elderly, or people with disabilities) shows a statistically significant negative influence (-0.163*) on women’s labour market participation. However, in the third model, after adding structural employment factors, the negative influence of the *people_caring* variable (-0.016) loses statistical significance. This suggests that structural employment conditions may play a role in mitigating the negative impact of caregiving responsibilities. The variable *ability_off* (ability to take one or two hours off work for personal or family matters) consistently shows a statistically significant positive influence on women's labour market participation in all three models (First: 0.283***, Second: 0.285***, Third: 0.267***). This confirms the second part of the hypothesis. In the third model of the regression analysis, the variable *employed_edu* (people employed in education, human health, and social work activities) shows a statistically significant positive influence (0.162*) on women's labour market participation. This confirms the third part of the hypothesis. Hypothesis H3 states that women’s caregiving responsibilities negatively impact their labour market participation, whereas flexible working conditions and employment in education, health, and social sectors improve their employment outcomes. The regression results largely confirm this hypothesis. In the second model, *people_caring* has a significant negative coefficient ($p < 0.05$), validating the assumed detrimental effect of caregiving duties. However, this effect diminishes and becomes statistically insignificant once structural employment variables are included, implying that stable labour market conditions can mitigate caregiving-related constraints. *Ability_off* remains strongly positive and significant across all models, underscoring the importance of flexibility for women’s employment engagement. Additionally, *employed_edu*, *fte_employment*, and *duration_work* exert positive and significant effects, demonstrating that both sectoral composition and job stability are crucial for women’s labour market success. Accordingly, hypothesis H3 is mostly supported, with caregiving burdens partly offset by favourable structural conditions.

4.2 Discussion

Empirical results support the theoretical premise that leisure activities and work flexibility positively affect women’s health (Franklin et al., 2022). The negative impact of longer working hours on health suggests a potential trade-off, which may be related to the accumulation of stress and lack of time for regeneration, as the theoretical part implicitly suggests (Johns et al., 2022).

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While the positive impact of leisure activities and flexibility on education is confirmed by theoretical assumptions, the negative impact of volunteering contradicts the expectations outlined in the theoretical part. Scholars suggest a positive impact of volunteering on knowledge (Tiwari & Malati, 2023), while the empirical results show the opposite after taking structural factors into account. A possible explanation, as suggested by the previous analysis, is that extensive volunteering may limit women's time devoted to formal education, which the theoretical part does not explicitly mention.

The empirical results strongly support the theoretical assumptions regarding the negative impact of care responsibilities (although this impact may vary depending on structural conditions), and the positive impact of work flexibility and employment in specific sectors. The loss of statistical significance of the negative impact of care after including structural factors may suggest that stronger social and job security in certain countries or sectors could compensate for some of the negative impacts of care on women's employment, which would be interesting for further theoretical investigation.

The hierarchical regression results demonstrate differentiated support for the proposed hypotheses. H1 and H3 are strongly validated, confirming that leisure engagement and flexible work arrangements promote women's health and employment outcomes. H2 receives partial confirmation, as volunteering exerts a negative rather than positive effect on knowledge once structural factors are controlled for. These findings collectively highlight that women's well-being and socioeconomic advancement depend on both individual and structural determinants.

The findings further reveal that gendered differences in leisure, caregiving, and employment flexibility are intrinsically connected to women's competitive capacity in the labour market. Limited access to flexible or supportive work environments reduces not only women's well-being but also their potential productivity and advancement prospects, thereby affecting the competitiveness of national labour markets as a whole.

The main contribution of this study lies in the simultaneous examination of the interactions between leisure activities, domestic responsibilities, and broader work conditions across different dimensions of women's socioeconomic outcomes (Park & Mwiambi, 2021). The authors note that while there is extensive research focusing on the individual effects of structural employment factors and domestic responsibilities on women's economic status, relatively little empirical evidence exists that simultaneously examines how leisure activities interact with domestic roles and broader work conditions in relation to women's health, education, and employment (Kim & Kim, 2016; Hernández et al., 2021).

This study provides a comprehensive view of the interplay between leisure activities, caregiving, and structural labour market factors. Previous studies have often focused narrowly on specific aspects of women's lives without systematically addressing the interplay between leisure, caregiving, and structural labour market factors. This study aims to provide a comprehensive understanding of how women's involvement in leisure activities, their domestic responsibilities, and structural labour market factors collectively shape their socioeconomic outcomes in the areas of health, education, and employment.

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Overall, it can be stated that the empirical results of the study largely correspond to the theoretical premises and hypotheses presented in the article. Some nuances, such as the negative impact of volunteering after taking structural factors into account, may be the subject of further theoretical elaboration and investigation. The study thus provides valuable empirical evidence supporting existing theories about gender differences in the labour market and in other socio-economic areas, while at the same time opening up new questions for future research.

5. CONCLUSION

In this paper, we investigated how women's participation in leisure activities, domestic responsibilities, and structural employment conditions shape their socioeconomic outcomes in health, knowledge, and labour market participation. Using a comprehensive dataset covering 27 European Union countries from 2010 to 2021, indexed periodically between 2013 and 2023 by the European Institute for Gender Equality (EIGE), we provide important insights for policymakers and researchers focused on gender equality and women's economic inclusion.

Our analysis highlights leisure activities and workplace flexibility as key factors that significantly enhance women's outcomes. Specifically, frequent engagement in leisure activities outside the home positively correlates with improved health, knowledge, and employment outcomes. These findings underline leisure participation not only as a means for personal well-being but also as a strategic factor promoting women's empowerment and professional advancement. Additionally, workplace flexibility, enabling women to handle personal or family matters during work hours, consistently emerges as beneficial, supporting both women's socioeconomic engagement and overall life satisfaction.

Our findings regarding domestic responsibilities present a nuanced picture. Routine household tasks show minimal or no significant impact on women's socioeconomic outcomes, distinctly contrasting with intensive caregiving responsibilities, which have a substantially negative impact on health and employment outcomes. However, intensive daily caregiving responsibilities clearly impose additional negative effects, particularly impacting women's health and employment opportunities. This underscores caregiving as a critical barrier requiring targeted policy interventions, such as enhanced caregiving support and family-friendly workplace practices, to mitigate these detrimental impacts.

Further analysis of structural employment and educational variables indicates notable influences on women's socioeconomic outcomes. Higher full-time employment rates positively correlate with improved labour market and knowledge outcomes, underlining the importance of stable employment conditions. However, longer working life duration appears to positively influence women's labour market participation but negatively impacts health outcomes, highlighting potential health trade-offs associated with prolonged careers. Importantly, employment within education, human health, and social work sectors significantly enhances outcomes across multiple dimensions, highlighting these sectors as critical areas for women's professional growth and socioeconomic well-being. These results have direct implications for women's competitiveness on the labour market. By improving access to flexible work arrangements and supporting participation in education, health, and social sectors, societies can

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strengthen both individual employability and the overall adaptability of the labour force, thereby enhancing economic resilience and competitiveness within the European Union.

The empirical results provide differentiated yet largely consistent support for the three hypotheses proposed in this study. Hypothesis H1 is fully supported, confirming that women's frequent participation in leisure activities and flexible working arrangements significantly enhance their health outcomes. Hypothesis H2 receives partial support, as leisure participation and workplace flexibility positively influence educational and knowledge-related outcomes, while volunteering shows a counterintuitive negative effect once structural factors are considered. Hypothesis H3 is mostly supported, indicating that caregiving responsibilities negatively affect women's labour market participation, whereas flexible working conditions and employment in education, health, and social sectors contribute positively to their employment outcomes. Collectively, these findings validate the theoretical framework linking individual behaviour, domestic responsibilities, and structural labour market conditions, underscoring the multifaceted nature of women's socioeconomic advancement across the European Union.

Overall, our analysis reveals that women's socioeconomic outcomes are influenced by a complex interplay between leisure activity engagement, domestic responsibilities, and structural labour market conditions. Leisure activities and workplace flexibility consistently enhance women's outcomes, while intensive caregiving responsibilities present significant barriers, especially in employment and health domains. Moreover, employment within specific sectors such as education, health, and social work notably benefits women's professional and educational advancement.

To effectively promote women's socioeconomic advancement and gender equality, policymakers should prioritise enhancing workplace flexibility, reducing caregiving burdens through targeted institutional supports, and fostering stable employment opportunities, especially in education, health, and social sectors. These strategic interventions promise not only to empower women economically but also to contribute positively to broader social and economic goals across the European Union.

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Appendix

Table A1 Dependent variables

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Domains (dependent variables)	Description	Source
Health	The domain of health measures gender equality in three health-related aspects: health status, health behaviour, and access to health services. Health status looks at the differences in life expectancy of women and men, together with self-perceived health and healthy life years (also called disability-free life expectancy). This is complemented by a set of health behaviour factors, based on WHO recommendations on healthy behaviour, namely fruit and vegetable consumption, physical activity, smoking, and alcohol consumption. Access to health services is measured by the percentage of people who report unmet medical and/or dental needs.	https://eige.europa.eu/gender-equality-index/2021/domain/health
Work	The domain of work measures the extent to which women and men can benefit from equal access to employment and good working conditions. The sub-domain of participation combines two indicators: participation rates in full-time equivalent (FTE) employment and the duration of working life. The FTE employment rate considers the higher incidence of part-time employment among women and is obtained by comparing each worker's average number of hours worked with the average number of hours worked by a full-time worker. Gender segregation and quality of work are included in the second sub-domain. Sectoral segregation is measured through the participation of women and men in the sectors of education, human health, and social work activities. The quality of work is measured by flexible working time arrangements and job prospects. Flexibility of work is captured by the ability of women and men to take an hour or two off during their working time to take care of personal or family matters. The Career Prospects Index captures continuity of employment, defined in relation to type of employment contract, job security (the possibility of losing a job in the next six months), career advancement prospects, and development of the workplace in terms of the number of employees. It is measured on a scale between 0 and 100 points, where 100 is the maximum and indicates the best job prospects.	https://eige.europa.eu/gender-equality-index/2021/domain/work
Knowledge	The domain of knowledge measures gender inequalities in educational attainment, participation in education and training over the life course, and gender segregation. The sub-domain of educational attainment is measured by two indicators: the percentage of women and men tertiary graduates, and participation of women and men in formal and non-formal education and training over the life course. The second sub-domain targets gender segregation in tertiary education by looking at the percentage of women and men among students in fields of education, health, welfare, humanities, and arts.	https://eige.europa.eu/gender-equality-index/2021/domain/knowledge

Table A2 Independent variables

Variables	Full description	Source
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<https://doi.org/10.7441/joc.2026.01.07>

workers_activity	Percentage of working women engaging in sporting, cultural, or leisure activities outside their home at least every other day (including those who do so daily or several times a week).	Eurofound, EWCS, EIGE's survey on unpaid care, EIGE's calculation with microdata
workers_voluntary	Percentage of working women who participate in voluntary or charitable activities at least once a month (including all women who engage in such activities monthly or more frequently).	Eurofound, EWCS, EIGE's survey on unpaid care, EIGE's calculation with microdata
ability_off	Percentage of working women who consider it very easy to take one or two hours off during working hours to take care of personal or family matters.	Eurofound, EWCS, EWCTS, microdata calculations
people_household	Percentage of working women involved in cooking and/or housework outside of paid work every day.	Eurofound, EQLS, EIGE's survey on unpaid care, EIGE's calculation with microdata
people_caring	Percentage of working women involved in caring or educational activities for children, grandchildren, the elderly, or people with disabilities outside of paid work every day.	Eurofound, EQLS, EIGE's survey on unpaid care, EIGE's calculation with microdata
fte_employment	Percentage of working women in full-time equivalent (FTE) employment. The FTE employment rate measures employed persons in a way that makes them comparable despite differences in working hours; a full-time worker equals one FTE, while a part-time worker is counted proportionally to the hours worked.	Eurostat, EU LFS, EIGE's calculation with microdata
duration_work	Duration of working life (years) for women. The duration of working life (DWL) indicator measures the number of years a woman aged 15 is expected to be active in the labour market throughout her life.	Eurostat, EU-LFS, (lfsi_dwl_a)
employed_edu	Percentage of working women employed in education, human health, and social work activities (NACE Rev. 2 sections P and Q) out of the total number employed.	Eurostat, EU LFS, (lfsa_egan2)