

Intergenerational co-residence and married women's labour force participation in Ghana

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Abstract

This paper uses a nationally representative sample of married women living with their husband from the 2021 Population and Housing Census in Ghana to study how intergenerational co-residence affects married women labour market outcomes. We use recursive bivariate probit and copula-based bivariate probit regression models to estimate the effect of co-residence with mother or mother-in-law on a wife's probability of working and/or seeking a job. We exploit differences or variations in post-marital residence patterns among different ethnic groups as our instrument to analyse the causal effect of co-residence. Our result suggests that co-residence with mother or mother-in-law has a significant positive effect on married women's labour force participation. We specifically find that co-residence increases the probability of married women working by 19.1 percentage points and that this effect which spread across both rural and urban households predominantly occurs in households with young children who need childcare and women in monogamy family (one wife one husband) as the result suggest insignificant effect on polygamous (one man married to multiple women) family. The results suggest that policies that encourage co-residence in households with young children and in monogamous families in the current ageing population would enhance young and reproductive married women to work.

1. Introduction

Female labour force participation remains an important factor for economic development and transformation for many developing countries including Ghana. As a result, it has attracted much academic interest for a long time. Ghana's female labour force participation has declined from its early-1990s peak (~ 76–76.5%) to about 61.5% in 2024, while male participation stands around 64.6% in 2024. Women constitute roughly 49.2% of Ghana's total labour force. These modelled ILO/World Bank series show Ghana still above the global average for FLFP, but with a long-run downward trend.

Cultural scripts and gender norms continue to shape women's work and caregiving roles. Mothers navigate a "double burden" of paid work and unpaid care, with bi-directional role conflict and health costs reported when formal childcare is absent or unreliable (Waterhouse et al. 2017). Women's labor market decisions in Ghana are deeply embedded in family living arrangements (Waterhouse et al., 2017; Owoo et al., 2021). According to Baafi et al. (2025) and WIEGO (2020), in Ghana's mixed formal–informal economy, extended families are common, and childcare or eldercare support is often provided within the home. Married women bear family care-related responsibilities in the household and therefore tend to live with their parents or parents-in-laws, especially when they are caring for their little children (Ruggles & Heggeness, 2008).

Ghana's household structures are evolving. The 2021 Population and Housing Census documents rapid urbanization (urban share rose from 50.9% in 2010 to 56.7% in 2021) and declining average household size (urban: 4.1 → 3.3; rural: 5.0 → 4.0 between 2010 and 2021) (Ghana Statistical Service 2024; World Bank 2025). These shifts are consistent with pressures toward smaller, more nuclear households. Yet

there is weak evidence for a wholesale shift to nuclear families and reports growing shares of multigenerational extended households in certain areas—suggesting that intergenerational co-residence remains salient and may even be increasing in some contexts (Baafi et al., 2025; GSS 2022).

However, there is little research on how intergenerational co-residence impacts labor market outcomes in the economic literature, especially in Sub-Saharan Africa. Intergenerational co-residence affects the time availability of women for family caregiving, and therefore women's labor market outcomes. Norm enforcement within multigenerational homes functions as a “shadow authority”: conservative elders may constrain mobility or push women toward home production, whereas supportive grandmothers and mothers-in-law can unlock time for trading or self-employment (Boudet et al. 2013; Waterhouse et al. 2017; Ampim and Kpoor 2025). Co-residence with parents, in-laws, or grandparents can provide free childcare and household help, thereby increasing mothers' labor supply (Heath, 2017; Ampim & Kpoor, 2025). Zhou & Wang (2023) suggest the possibility of both a crowding-out effect and a spillover effect in households with married women with young children, and living with parents or parents-in-laws with ultimate effect on labor market outcome depending on which one of the two contrasting effects outweighs the other (see also Albertini et al., 2007; World Bank, 2015; Arpino, Pronzato and Tavares 2014; Landmann et al. 2018; World Bank 2015). Yet, existing research tends to isolate one dimension—either the constraints of eldercare or the benefits of grandparental childcare—without examining their combined impact or unpacking the underlying pathways. In Ghana's cultural setting, where women already perform most childcare and household work (Waterhouse et al., 2017; Ampim et al., 2022), intergenerational co-residence may thus have particularly mixed and nuanced effects.

A clear understanding whether, and how, intergenerational co-residence affects Ghanaian women's participation in the labour market is crucial for policy in an environment where the government wants to promote female labour force participation. For example, if intergenerational co-residence is found to depress married women labour supply, then a government that intends to increase labour force participation of women to benefit from complementarities associated with gender equality, can promote the institutionalisation of elderly care to allow more women to enter the labour market. This paper uses a nationally representative sample from the 2021 Population and Housing Census data of Ghana and adopts the method of empirical research to explore the specific impact of living with mother or mother-in-law on the labor market participation.

The results of this paper show that, first, co-residence with mothers or mothers-in-laws significantly improves labour force participation of married women. Second, we find that this evidence of positive effect of intergenerational co-residence on women's labour force participation is only applicable for married young women (18–35 years) in monogamous union with children of less than 5 years. Third, in terms of rural-urban dimension, we find that the impact of intergeneration co-residence with mothers or mothers-in-laws have a significant positive effect on married women's labour force participation living in both urban and rural areas but with a more pronounced effect on married women living in urban places.

Our paper contributes to the extant literature on co-residence and labour market outcomes on the following aspects. First, previous studies on co-residence and labour market outcomes have focused on countries and traditions in Asia. There are very scanty studies relating to Sub-Saharan Africa. This presence study discusses the effect of co-residence with mothers or mothers-in-laws from the perspective of sub-Saharan Africa with different culture and norms from that of Asia. Second, this paper further analyzes the heterogeneous effects of co-residence with mothers or mothers-in-laws on married women in different families based on the presence of young children, type of marriage (polygamy or monogamy), age group of married women and rural-urban differences hence critical for targeted policies. This is the first study to show that co-residence with mothers or mothers-in-laws promote labour market participation only for married women in monogamous families. Third, this paper uses both recursive bivariate probit regression method (an instrumental variable method) and copula based recursive bivariate probit model (without instrument) for regression, thereby effectively overcoming the potential endogenous bias in the analysis process and resulting in more robust conclusions. This paper investigates how intergenerational living arrangements affect Ghanaian married women's labor market behaviour. The results will contribute to the existing body of research and provide valuable guidance for policymakers in designing strategies that foster women's employment.

The remainder of this paper is structured as follows. Section 2 reviews both the theoretical and related empirical literature. The data and methods for the study are described in Section 3. Section 4 presents and discusses the regression results with discussions in section. Finally, Section 5 concludes the study.

2. Literature review

2.1. Theoretical Frameworks

Multiple economic and social theories explain how multigenerational living arrangements shape women's labor supply decisions. The New Home Economics framework (Becker, 1965) emphasizes intra-household time allocation and specialization: extended households can enable an older female relative, often a grandparent or mother-in-law, to specialize in childcare and domestic tasks, substituting for the mother and freeing her to engage in paid work (the childcare-substitution hypothesis). Conversely, when a woman's time is heavily demanded for caregiving childcare or eldercare her labor supply is constrained, producing an eldercare-burden effect (Garcia-Moran & Kuehn, 2017; Du et al., 2019). Collective and intra-household bargaining models (Chiappori, 1988; Lundberg & Pollak, 1993) view the household as a site of negotiation over labor and consumption. In this view, a woman's bargaining power linked to earnings capacity, assets, or social capital influences her participation: where working wives face stigma, only women with strong bargaining power may enter employment (Boudet et al., 2012), while pooled resources with husbands and co-resident parents can either amplify her voice or reinforce traditional hierarchies if elders oppose female employment. Intergenerational transfers theory highlights reciprocal time, money, and resource flows across generations: grandparents may provide childcare, housing, or finance that increases maternal labor supply, but demands for eldercare or material support from adult daughters can reduce participation (Cox, 1987; Lee, 1994; Duflo, 2003).

From these theories emerge testable hypotheses: if childcare substitution dominates hence a spillover effect, co-residence with able-bodied, younger parents or parents-in-laws should increase maternal labor force participation, especially for mothers of young children (World Bank, 2015); if eldercare burdens dominate leading to a crowding-out effect, co-residence with infirm elders should suppress female labor supply (World Bank, 2015).

2.2. Empirical Evidence

Globally, there is a robust body of research from East Asia, Europe, and the United States that shows that living with or near parents or grandparents is associated with higher labour force participation among married women. In the United States, Kolodinsky and Shirey (2000) find that adult daughters who co-reside with an elderly parent are significantly more likely to be in the labour force and work longer hours than comparable women whose parents live elsewhere. In China, Shen, Yan, and Zeng (2016) estimate that co-residing with parents raises middle-aged married women's probability of working by about 28 percentage points, while living in the same neighbourhood (but not the same dwelling) raises it by roughly 35 percentage points, largely because parents take on part of women's housework burden. Studies for Japan and urban China similarly report positive labour market effects of intergenerational co-residence, consistent with a childcare- and housework-substitution mechanism (Maurer-Fazio et al., 2011; Oishi & Oshio, 2006). Evidence from Europe and North America shows similar patterns when proximity rather than strict co-residence is considered: in the United States, proximity to or childcare provision by grandparents increases married mothers' employment and labour force attachment (Compton & Pollak, 2014; Posadas & Vidal-Fernández, 2013), while in Germany and other European settings, grandparent-provided childcare is associated with higher maternal employment and longer working hours (Arpino et al., 2014; García-Morán & Kuehn, 2017). Taken together, these studies highlight grandparental and parental support via co-residence or nearby residence as a robust predictor of stronger maternal labor force attachment, especially where formal childcare is scarce or expensive.

However, more nuanced evidence suggests variability. Recent instrumental-variable analyses from Central Asia (Landmann et al. 2016) indicate that co-residence can negatively affect women's labor supply in patrilocal societies, where daughters-in-law primarily provide eldercare but do not receive equivalent childcare support, leading to reduced female labor force engagement. As noted by ageing and family-care syntheses, eldercare demands may disproportionately reduce labor supply among women aged 45–65 (Albertini, Kohli and Vogel 2007), and policy reviews similarly emphasize that the net effect of co-residence depends on the local balance between childcare support and eldercare burden (World Bank 2015).

Although there is overwhelming evidence of positive co-residence on women's labor market outcomes, the few contrary evidence suggest that need for studies caution as estimates are sensitive to how family proximity is measured (co-residence vs. distance to parents), to whether the elder's functional status is observed (able vs. dependent), and to identification strategies that address selection into multigenerational living (Compton and Pollak 2014; García-Morán and Kuehn 2017; Landmann et al. 2016). In short, while a large cross-country literature links grandparent availability to higher maternal

employment especially in contexts with scarce or costly formal childcare credible designs also show that where eldercare obligations dominate or authority relations are asymmetric, co-residence can depress women's labor supply (Arpino, Pronzato and Tavares 2014; Landmann et al. 2016; World Bank 2015).

In Sub-Saharan Africa (SSA), empirical studies explicitly assessing co-residence and women's labor supply remain scarce. One notable exception is Ghana: according to an urban panel, older co-resident adults (siblings, grandparents) enable mothers of infants to increase labor hours, an evidence of the childcare-support channel (Heath 2017). As noted by broader African demographic work, kin systems of child fostering and matrilocal/extended households shape women's time and work options, even when not measured as strict co-residence (Madhavan 2004; Sear and Mace 2008).

At the same time, SSA evidence highlights how elder resources and obligations cut both ways. According to South African pension studies, income and authority held by co-resident grandmothers can reshape household labour choices: pension eligibility raises household resources and has been linked to shifts in prime-age women's time allocation and migration decisions, with mixed effects on labour supply depending on who receives the pension and local opportunities (Bertrand, Mullainathan and Miller 2003; Case and Menendez 2007; Duflo 2003). As stated by ageing research in SSA, eldercare needs are rising while formal services remain limited; co-residing middle-aged women often shoulder hands-on daily care, which can depress market hours when elder dependency is high (Aboderin 2004; Schatz and Seeley 2015).

Childcare bottlenecks are pervasive across sub-Saharan Africa and amplify reliance on kin, as documented in regional analyses of unpaid care and childcare coverage (UN Women 2019; ILO and WIEGO 2020). Drawing on evidence from urban informal economies, limited, unaffordable or inflexible childcare pushes mothers toward home-based or low-hour work (ILO and WIEGO 2020; WIEGO Network 2024). Comparative labor analyses show that, where formal childcare is scarce or costly, proximity to grandmothers and other female kin is strongly associated with higher maternal employment (Compton and Pollak 2014; García-Morán and Kuehn 2017), a pattern that mirrors findings from Europe and North America on grandparental care, even though rigorous causal SSA evidence remains limited.

3. Data and Methods

3.1. Data and descriptive statistics

This study utilized data from the 2021 Ghana Population and Housing Census (PHC), provided by the Ghana Statistical Service. The census aimed to deliver updated demographic, social, and economic information, along with housing characteristics and living conditions, to guide national development planning. This study draws on 10% sample data for the 2021 Population and Housing Census (PHC), representative at the regional, district/subdistrict level and also by the urban-rural classifications, to examine the causal effect of intergenerational co-residence on married women labour market. The

resulting sample comprises approximately 3,000,000 individuals living in about 500,000 households. The dataset used for this research is publicly available at <https://microdata.statsghana.gov.gh/index.php/catalog/110>.

The analytical sample is restricted to individuals married women between ages 18 and 49 years old living with their husband in the same household. This yields a final sample of 292,633 respondents who are married women aged between 18 and 49. For all individuals in this sample, data are available on their labour market participation including working, seeking job, and unemployed statuses. Also, we extract information on whether the mother or mother-in-law of the wife is residing in the household of the married woman. Table 1 provides descriptive statistics for the analytical sample of married women living with their husband in Ghana. About 186,620(63.7%) of married women living in the same households with husbands were working or participating in the labour force, while the remaining 106,013 (36.2%) were not in the labor force. About 4.3% of married women live (intergenerational co-resident) in the same household with their mother or mother-in-law. The average age of married women and men is 33.8 years and 40.7 years respectively. Marriages are largely organized based on post-marital residence patterns that shape household structure: 33.7% and 54.2% of marriages are based on matrilocal and patrilocal systems respectively.

Table 1
Summary Statistics (mean) of dependent and explanatory variables

Variables	Labor Force Participation Status		
	Outside labour force	In labour force	Total
Wife			
Co-residence with mother/in-law	0.040	0.043	0.042
Age	31.824	34.881	33.773
Religion: Catholic	0.077	0.092	0.087
Protestant (Anglican, Presby, etc.)	0.139	0.161	0.153
Pentecostal/ Charismatic	0.300	0.347	0.330
Other Christian	0.120	0.124	0.123
Islam	0.301	0.195	0.233
Traditionalist	0.024	0.043	0.036
No Religion	0.029	0.026	0.027
Other Religion	0.011	0.012	0.011
Education: No education	0.389	0.343	0.360
Primary	0.098	0.110	0.106
JHS	0.283	0.296	0.292
SHS	0.160	0.134	0.143
TECH/VOC/COMM	0.012	0.015	0.014
Teacher Cert/Dip	0.011	0.018	0.016
HND	0.012	0.015	0.014
Bachelor	0.024	0.047	0.039
Post Bachelor	0.010	0.021	0.017
Other	0.001	0.001	0.001
Marriage status: Informal	0.193	0.143	0.161
Civil/Ordinance	0.137	0.185	0.168
Customary/Traditional	0.401	0.502	0.465
Islamic	0.254	0.158	0.193
Other type	0.015	0.012	0.013

Variables	Labor Force Participation Status		
	Outside labour force	In labour force	Total
Literacy: read and write	0.568	0.600	0.588
read only	0.021	0.019	0.020
No	0.411	0.381	0.392
Husband			
Age	38.960	41.720	40.720
Education: No education	0.308	0.263	0.279
Primary	0.073	0.076	0.075
JHS	0.282	0.307	0.298
SHS	0.188	0.170	0.177
TECH/VOC/COMM	0.016	0.019	0.018
Teacher Cert/Dip	0.020	0.022	0.021
HND	0.027	0.027	0.027
Bachelor	0.060	0.077	0.071
Post Bachelor	0.024	0.037	0.032
Other	0.001	0.001	0.001
Literacy: read and write	0.670	0.706	0.693
read only	0.019	0.016	0.017
No	0.311	0.278	0.290
Household			
Wife is head	0.077	0.091	0.086
Number of children less than 5 years	1.190	1.049	1.100
Number of wives in the household	1.047	1.038	1.041
Community in urban area	0.588	0.538	0.556
Community in rural area	0.412	0.462	0.444
IVs			
Matrilocal wife & patrilocal husband	0.331	0.373	0.357
Matrilocal wife & patrilocal husband	0.055	0.058	0.057

Variables	Labor Force Participation Status		
	Outside labour force	In labour force	Total
Patrilocal wife and patrilocal husband	0.571	0.525	0.542
Patrilocal wife and matrilocal husband	0.043	0.045	0.044
Total	106,013	186,620	292,633

Source: Computed from the Ghana 2021 Population and Housing Census Data

3.2. Methods

The aim of this paper is to analyse the impact of intergenerational co-residential patterns of married women on their labour market participation. The dependent variable, labour force participation status, is a binary variable, hence the need to employ limited dependent variable models for correct specification in order to efficiently estimate the impact of co-residence with parents/in-laws on labour market participation. We apply both probit and linear probability models to analyse the possible causal relationship between the co-residence and labour market participation. The model of the paper is stated as follows:

$$Pr (LP_i) = \Phi \left(\beta_0 + \beta_1 Coresidence_i + \beta' X_i + \epsilon_i \right)$$

The dependent variable LP_i refers to the binary dummy variable of whether married women living with her husband participate in the labor market; $Coresidence_i$ is the main covariate of interest, indicating whether married women live with their parents or in-law; X_i is a series of control variables; and ϵ_i is the residual term. Finally, $\Phi (.)$ represents the type of function that relates labour force participation decision to co-residence status and other covariates. We assume $\Phi (.)$ to either represent standard normal cumulative distribution function hence probit model or linear function hence linear probability model.

A simple linear probability model or probit model can only provide a consistent estimate of the impact of co-residence on labor market outcomes only if co-residence is exogenous. The decision to co-reside with parents/parents-in-law is unlikely to be random. Thus, intergenerational co-residential status is potentially endogenous. For example, career ambition (hence labour market participation decision) of married women also facilitate the need for co-residence hence reverse causality. Also, the care needs of parents or parents-in-law may affect the likelihood to co-reside also influence the labour market outcomes of married women.

This paper therefore relies on both linear and non-linear instrumental variable estimators to obtain more consistent and efficient estimates than those from a simple linear probability model or a standard probit model. When we assume linear relationship, the standard instrumental variable estimation method is

employed. We also use a recursive bivariate probit model to obtain more consistent and efficient estimates when a standard probit model is assumed.

To use instrumental variables to deal with the endogeneity problem, this paper needs variables that qualify to be used as instruments. First, the instrumental variables need to satisfy the requirement of being highly correlated with the endogenous variable (co-residence) but uncorrelated with the error term or has direct effect on labour market outcomes of married women. This paper constructs an instrumental variable from ethnic background of the wife and husband. Social systems including patrilocal and matrilineal societies may have differential impact on decision to co-reside with parents or parents-in-laws. When husband and wife are from a patrilocal social system, it is easier for them to reside with woman in-laws. Similarly, matrilineal societies support married women living with their parents. On the other hand, when wife and husband hail from different social systems, it may create tension that may not affect the decision to co-reside with parents/parents-in-laws. However, this decision based on the social system does not have a direct influence on women's decision to participate in the labour market. Thus, dummy variables from combinations of patrilocal and matrilineal marriage arrangements satisfy the relevant assumptions of the instrument. In this regard, this paper creates four dummy variables comprising combinations of patrilocal-matrilineal marriage arrangements.

3.2.1. Dependent variable

The dependent variable of the main equation is a binary variable for labour market decisions—work or not working. The labour market participation variable is created from a series of responses to the following survey questions including: “During the 7 days before Census Night (i.e. 21st – 27th June 2021), did [NAME] engage in any economic activity, for at least one hour? (this includes helping in the family business/ farm, trading, street vending, ‘by day’ work)”.

Responses include “Yes, worked for pay (cash or in-kind)”; “Yes, worked for profit on own/family business”; “Yes, engaged in economic activity, but received no pay/profit”; “Yes, worked in own agricultural activity”; and “No”. For those who responded as No (not working), a follow up question was asked: “During the 7 days, how was [NAME] mainly engaged?” with the following responses: “Had work to go back to”; “Available and seeking for work”; “Available BUT NOT seeking for work”; and finally “Not available and NOT seeking work”.

The dummy labour market participation (LP) takes a value of 0 when respondents choose the answer “Available BUT NOT seeking for work; and Not available and NOT seeking work”. All other responses of the first and the following questions are classified as participating in the labour force hence and take the value 1.

3.2.2. Endogenous variable and instruments

The principal explanatory variable in the analysis is a binary indicator capturing intergenerational co-residence (ICR). Respondents are classified as intergenerational coresidents if they reside with either

their parents or their spouse's parents, and as non-coresidents if they live with neither. Intergenerational co-residence is defined here as a working-age woman and her nuclear family residing in the same household with at least one member of the parental generation, as noted by Ruggles (2008). According to Mutanda and Amoo (2020), household structures in Ghana have shown persistence of multigenerational living, especially in more rural and northern areas. Consequently, "co-residing parents" encompass biological parents or in-laws, and "coresident grandparents" include any grandparents sharing the household space (Biritwum et al., 2013). Co-residence variables are commonly operationalized as binary indicators reflecting whether a woman lives with any parent generation members, analogous to definitions used in cross-country studies such as Landmann et al. (2016) in Kyrgyzstan (Landmann et al., 2016).

4. Results

4.1. Linear regressions

Here, linear relationship is assumed for $\Phi(\cdot)$ in (1). First, we estimate the effect of co-residence with mothers or mothers-in-law on labour market outcomes of women using an instrumental variable approach. In the first stage of the estimation, the endogenous variable (co-residence) is treated as a linear function of the instrument (dummy variable of family marriage system) and the remaining control variables (X_i). In the second stage (Eq. 4), we estimate a linear probability model and replace co-residence by the predicted values of the first stage. The results of two-stage least square (instrumental variable method) estimates are presented in columns (1) and (2) of Table 2. Second, we also estimate a naive ordinary least square (OLS) assuming the co-residence with mother or mother-in-law is exogenous. The results are also presented in column (3) of Table 2.

This leads to biased estimates of marginal effects and incorrect interpretation as result of functional form bias that the linear probability model (using OLS for binary Y) forces a straight line, although the true probability function is more sigmoid-shaped.

Table 2
Effect of co-residence on married women's labour market participation

	Two-stage LS		Ordinary LS
	(1)	(2)	(3)
VARIABLES	First Stage	Second Stage	OLS
Matrilocal wife and patrilocal husband	0.000179		
	(0.00128)		
Patrilocal wife and patrilocal husband	0.0154***		
	(0.000808)		
Patrilocal wife and matrilocal husband	0.00202		
	(0.00143)		
Co-residence with mother or in-law		0.718***	0.0195***
		(0.142)	(0.00431)
Constant	-0.0335***	0.143***	0.128***
	(0.00460)	(0.0105)	(0.00958)
Observations	292,633	292,633	292,633
R-squared		-0.018	0.064
Wife Characteristics	Yes	Yes	Yes
Husband Characteristics	Yes	Yes	Yes
Household Characteristics	Yes	Yes	Yes
Residence Characteristics	Yes	Yes	Yes
Cragg-Donald Wald F statistic		97.81	97.81
Kleibergen-Paap rk Wald F statistic		131	131
Hansen J statistic		3.793	3.793
Chi-sq(2) P-val		0.150	0.150
Note: Robust standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1			

4.2. Non-linear regression

In this section, since the dependent variable is binary outcome, we assume that the function form Eq. (1) $\Phi(\cdot)$ is not linear but has standard normal cumulative distribution function. Thus, the appropriate regression model for unbiased and consistent estimates is probit model. In addition, since co-residence

status is endogenous, we employ a recursive bi-probit model that relies on instrumental variable technique to consistently estimate regression coefficients. We also use copula-based recursive bivariate probit model that do not rely on an instrument to estimate the coefficients. A naïve univariate probit model that assumes that co-residence is exogenous is also estimated for comparison. Table 3 presents the results of the average treatment effect of co-residence on married women labour market participation.

Column (1) of Table 3 reports the result of using a bivariate recursive model to estimate the average treatment effect of co-residence of labour market participation. The results in column 3(1) of Table 3 indicates that a married woman co-residing (living) in the same household with her mother or mother-in-law leads to an increase in probability of being in the labour force by 19.1 percentage points compared to a wife without mother or mother-in-law. In other words, when married women get their mothers or mothers-in-laws to live with them their likelihood of working increases by 19.1 percentage points. Column (2) of Table 3 which reports average treatment effect using copula based recursive bivariate probit regression also suggests similar finding as co-residence increases the likelihood of being in the labour force by 18.9 percentage points. This is very interesting as copula-based recursive probit does not rely on instruments for estimation and identification, yet it produces results similar to the recursive bivariate probit method. Generally, our two consistent and unbiased estimates from recursive and copula-based bivariate probit models corroborate the findings from other countries, especially Asia. Studies for Japan and China similarly report positive labour market effects of intergenerational co-residence, consistent with a childcare- and housework-substitution mechanism (Maurer-Fazio et al., 2011; Oishi & Oshio, 2006; Shen, Yan, and Zeng, 2016). Evidence from Europe and North America shows similar patterns when proximity rather than strict co-residence is considered: in the United States, proximity to or childcare provision by grandparents increases married mothers' employment and labour force attachment (Compton & Pollak, 2014; Posadas & Vidal-Fernández, 2013), while in Germany and other European settings, grandparent-provided childcare is associated with higher maternal employment and longer working hours (Arpino et al., 2014; García-Morán & Kuehn, 2017). However, our finding is contrary to few studies that find co-residence to depress women's labour market outcomes, especially when co-residence involves elderly care responsibilities on women (Albertini, Kohli and Vogel, 2007). For example, Landmann et al. (2016) show that co-residence can negatively affect women's labor supply in patrilocal societies, where daughters-in-law primarily provide eldercare but do not receive equivalent childcare support, leading to reduced female labor force engagement

Table 3
Average treatment effect of co-residence on married women labor market participation

VARIABLES	(1)	(2)	(3)
	recursive	copula-based	univariate probit
Co-residence with mother or in-law	0.191***	0.188***	0.0185***
	(0.0198)	(0.0181)	(0.00440)
Observations	292,633	292,633	292,633
Wife Characteristics	Yes	Yes	Yes
Husband Characteristics	Yes	Yes	Yes
Household Characteristics	Yes	Yes	Yes
Residence Characteristics	Yes	Yes	Yes

Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4.3. Heterogeneity analyses

The results presented in Table 4 indicate that there is significant difference in the magnitude of co-residence effect on labour market outcomes of women living in rural and urban areas. A married woman living in an urban area with a mother or mother-in-law increases the probability of working by 13.6 percentage points compared to those without a mother or mother-in-law. This is 2.7 percentage points higher than married women living in rural areas with mothers and in-laws who experience 11.9 percentage points increase in their labour force participation.

We now examine the role of the marriage type (monogamy and polygamy) plays on the effect of co-residence on married women labour market participation. Results presented in Table 4 show that it is only in monogamy households that co-residence enhances married women labour market participation. In monogamy households, co-residing with mother or mother-in-law increases a married woman's labour market participation by 19.1 percentage points. However, co-residence does not affect married women labour market participation in a polygamous household.

Table 4
Average treatment effect of co-residence on married women labour market participation by location and marriage type

	Location		Marriage type	
	(1)	(2)	(3)	(4)
VARIABLES	Urban	Rural	Monogamy	Polygamy
Co-residence with mother or in-law-ATE	0.136***	0.119***	0.191***	-0.0708
	(0.0414)	(0.0327)	(0.0213)	(0.305)
Observations	162,802	129,831	272,826	19,807
Wife Characteristics	Yes	Yes	Yes	Yes
Husband Characteristics	Yes	Yes	Yes	Yes
Household Characteristics	Yes	Yes	Yes	Yes
Residence Characteristics	Yes	Yes	Yes	Yes

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In Table 5, we analyze the role of presence of children and age of married women on the effect of co-residence on labor force participation. The results in columns (1) and (2) show that the effect of co-residence on married women labor force participation is observed only in the household with young children needing care. Thus, the role of mothers and mothers-in-laws in helping child caring activities are evidence from this result. Specifically, we find that in a household with children of less than 6 years, co-residing with a mother and mother-in-law increases the probability of the wife working by 15.8 percentage points compared to a similar household with neither mother nor mother-in-law. However, we find no evidence to support the impact of co-residence for married women with no young child in the household. Thus, this study finds evidence to support the *spillover effect* of co-residence for married women labor market participation in Ghana. Zhou & Wang (2023) also find evidence for the spillover effect of co-residence in China as sub-sample co-residence does not promote female labor market participation for women without children and those who are married with adult children. Results in column (3) and (4) also show that the impact of co-residence with a mother or mother-in-law on a wife's labor force participation is significant only for young women (18–35).

Table 5

Average treatment effect of co-residence on married women labour market participation by age of married women and presence of children less than 6 years

	Presence of children less than 6 years		Age of married women	
	(1)	(2)	(3)	(4)
VARIABLES	No child	At least a child	Young women (18–35)	Adult women (35–49)
Co-residence with mother or in-law	0.0796	0.158***	0.268***	0.0686
	(0.0862)	(0.0279)	(0.0193)	(0.0545)
Observations	99,058	193,575	171,963	120,670
Wife Characteristics	Yes	Yes	Yes	Yes
Husband Characteristics	Yes	Yes	Yes	Yes
Household Characteristics	Yes	Yes	Yes	Yes
Residence Characteristics	Yes	Yes	Yes	Yes

Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6 presents probit regression results of probability of labour market participation with disability status of mother or mother-in-law as the key explanatory variable in order to test the crowding-out effect of co-residence. To do this, we rely only on the sample with wives who co-reside with mothers or mothers-in-laws. The result in column (1) indicates that married women co-residing mother or mother-in-law with disability have a negative statistical significance effect on the possibility of women's labor market participation suggesting *the crowding-out effect* of co-residence with parents or parents-in-laws. Specifically, co-residing with mother or mother-in-law with disability reduces married woman's labor market participation by 8.4 percentage points compared to a woman who co-reside with mother or mother-in-law with no disability. Results in columns (2) and (3) suggest that married women facing a double burden of elderly care and childcare exerts a stronger negative effect on the probability of participating in the labor market. When a married woman co-resides with a parent or an in-law and has young children, her probability of being in the labor force declines by 9.2 percentage points compared with the 5.5 percentage points reduction in the probability of labor force participation for married women without young children.

Table 6
Marginal effect of disability status of mother or in-law on labor force participation

VARIABLES	(1)	(2)	(3)
	Co-residence women	No young children	Young children
Coresident disability status	-0.0844***	-0.0545**	-0.0917***
	(0.00943)	(0.0225)	(0.0104)
Observations	12,271	2,392	9,874
Wife Characteristics	Yes	Yes	Yes
Husband Characteristics	Yes	Yes	Yes
Household Characteristics	Yes	Yes	Yes
Residence Characteristics	Yes	Yes	Yes

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

5. Conclusion

This study has used individual and household level data and recursive bivariate probit regression models to consistently estimate the impact of married women living with their mothers or mothers-in-laws in their (married women) labour market participation. The paper finds that for married women co-residing in the same household their mothers or mothers-in-law significantly promote their likelihood of participating in the labor market. Through heterogeneity analysis, we find that the positive impact of co-residence is more pronounced for women in monogamous marriage families, young women (18–35) and women with children. In terms of heterogeneity of urban-rural community dynamics, our findings indicate that co-residence has a positive effect on married women living in both urban and rural communities although co-residence has greater effect for married women living in urban communities. Our results also confirm both the spillover and crowding-out effects of intergeneration co-residence on married women labour market participation in Ghana.

Declarations

1. Funding Declaration

Authors did not receive any funding for this work

2. Ethics

Not applicable (We used secondary data collected by the Ghana Statistical Service)

3. Consent to Participate

Not applicable

4. Consent to Publish

Not applicable

Author Contribution

KO - Conceptualization, analysis and writing of manuscript AAH - Conceptualization, analysis and writing of manuscript BAB - Conceptualization, analysis and writing of manuscript

Data Availability

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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