Determinants of Female Employment in Agriculture, Industry, and Service Sector: A cross country analysis

Roy, Kusumita Bardhan and Tripathi, Sabyasachi

Symbiosis School of Economics (SSE), Symbiosis Centre for Urban Studies (SCUS), Symbiosis International (Deemed University)

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Kusumita Bardhan Roy* and Sabyasachi Tripathi**

Abstract

Globally, women are still less likely than men to enter the workforce. Since 1990, the gender gap in labour force participation has remained at 30% worldwide. Female employment is critical to economic stability and personal development, providing financial security, purpose, and societal contribution. However, technological advancements, R&D, and economic fluctuations constantly shape global employment opportunities, resulting in significant disparities across sectors. This study investigates the determinants of female employment separately for agriculture, industry, and service sectors, using data from the World Development Indicators (WDI) from 2004 to 2023. The Feasible Generalized Least Squares (FGLS) panel regression results show that different factors contribute to female employment in different sectors. Reducing female contribution to family work and fertility ratio is important for reducing female employment in agriculture. Exports of goods and services and female self-employment are essential for increasing female employment in the industry sector. Additionally, domestic credit to the private sector, labour force participation rate, labour force with basic education, and life expectancy at birth need to be encouraged to increase female employment in the service sector. Finally, relevant policies are suggested to increase female employment for sustainable economic growth.

Key words: Female employment, agriculture, industry, service, FGLS regression analysis, cross country.

JEL Classification: J21, J16, O10

*Post Graduate student, Symbiosis School of Economics (SSE), Symbiosis Centre for Urban Studies (SCUS), SB Road, Pune – 411004, Email: kusumita.roy.2023@sse.ac.in

**Associate Professor, Symbiosis School of Economics (SSE), Symbiosis Centre for Urban Studies (SCUS), SB Road, Pune – 411004, Email: sabyasachi.tripathi@sse.ac.in

1. Introduction

People worldwide rely heavily on employment to maintain economic stability and personal development. It offers financial stability, a sense of purpose, and societal contribution. Many countries' employment opportunities are constantly changing, influenced by technological advancements, research and development (R&D), and economic shifts. The employment landscape is not homogeneous, with significant disparities among regions and demographics. Globally, male employment benefits from fewer societal constraints and more opportunities in high-paying sectors (Tunyi et al., 2023). Men are frequently encouraged to pursue careers in science, technology, engineering, and mathematics (STEM) and leadership, resulting in higher earnings and job stability.[1] In contrast, female face numerous job market challenges, such as wage disparities, lack of representation in leadership positions, and limited access to specific industries. Traditional gender roles often require female to take on more domestic responsibilities, which can limit their professional opportunities. Furthermore, different maternity leave policies and childcare assistance affect female's ability to balance work and family life (Engelhardt, 2011).

Studies reveal that educational availability, childcare assistance, and societal standards influence female's employment. Female's engagement in the workforce is hindered by cultural hurdles, inadequate education, and restricted access to digital resources, particularly in underdeveloped nations (Taşçıoğlu, 2023; Tansel, 2001; Sarkar et al., 2019). These problems are sustained by gendered societal expectations and inadequate childcare services (Wamboye et al., 2015; Oshio, 2019). Implementing policy changes centred on education, societal views, and institutional assistance is imperative. Maternity leave and family support policies influence female's participation in the work market. Several studies (Engelhardt 2011; Brehm & Engelhardt 2015; Oshio 2019) point out that while generous parental leave can help female return to the workforce, caring for families is still disproportionately placed on female if men are not encouraged to participate.

[1] https://www.ohchr.org/en/events/forums/2021/2021-social-forum#:~:text=The%202021%20Social%20Forum%20will,to%20the%20immediate%20health%20crisis. (Accessed on 3rd June 2024)

Globally, female's employment conditions differ from men's in various ways, including labor force participation rates, wage gaps, job quality, and opportunities for advancement. Female are overrepresented in informal, part-time, and low-wage jobs, especially in developing countries. A significant gender wage gap persists worldwide, with female earning less than men for comparable work due to factors such as occupational segregation, working hours, and discrimination. Female frequently face barriers to career advancement, such as glass ceiling effects, limited networking opportunities, and poor working conditions (Blau & Kahn, 2017). The COVID-19 pandemic has exacerbated these disparities by causing female to lose jobs, work fewer hours, and take on more caregiving responsibilities. Targeted policies are needed to support female's employment and address gender inequalities in the workplace (Alon et al., 2020).

Given these disparities, it is critical to examine the state of female's employment in various sectors—agriculture, industry, and services—and understand the factors influencing their participation through econometric analysis. By analyzing these sectors globally, we can identify specific variables that affect female's employment, such as family conditions, access to childcare, cultural norms, and educational attainment. This analysis will aid in developing strategies to improve female's employment opportunities and promote gender equality in the workplace worldwide. Therefore, the main objective of this paper is to understand the condition of female's employment in three sectors: agriculture, industry, and service, and to check whether different factors and variables affect female's employment in all these sectors across the globe. Female's employment in various sectors is diverse and varied. Agriculture is a significant source of employment for female in developing countries, with many working in subsistence farming, unpaid family labor, and informal activities. However, they have limited access to resources such as land, credit, and agricultural inputs, which reduces their productivity and economic empowerment. Gender-based barriers and socio-cultural norms exacerbate these issues (Doss, 2018). Female's employment has increased in manufacturing, textiles, and electronics industries. However, they frequently hold lower-paying, lower-skilled positions and are underrepresented in managerial and technical roles. Working conditions in the industrial sector can be difficult, with issues such as job insecurity, insufficient health and safety measures, and gender discrimination (Kucera & Tejani, 2014). Female's employment in the services sector has increased significantly, especially in education, healthcare, finance, and retail. However, female in the services continue to face challenges such as wage disparities, occupational segregation,

and low representation in leadership positions. Female's increased educational attainment has fueled their growth in this sector, allowing them to take on more skilled and professional positions (Rubery & Rafferty, 2013).

While most previous research has focused on wage gaps and occupational segregation, it frequently ignores how broader economic factors influence female employment across different sectors globally (Blau & Kahn, 2017; Kucera & Tejani, 2014). Also, impact of female's centric variables on female employment in different sectors are not explored. However, a large portion of the literature has examined gender disparities in employment within specific sectors and countries. This study bridges this gap by employing Feasible Generalized Least Squares (FGLS) to analyze panel data from 2004 to 2023 and evaluate the impact of important economic and educational characteristics on female's employment across various nations and industries. In contrast to previous research, this study looks at how female's participation in the labour market is affected by exports, the educational attainment of female in programs tailored to a particular industry, and the initial costs of starting a firm, and the female share of graduates in Services programmes as the critical factors.

2. Review of the Literature

Female employment rate is very low and declining: Najeeb et al. (2020) discussed the low and stable female employment rates since 2001, with a shift from agriculture to services in some countries. Mehrotra & Sinha (2017) argued that the female labor force participation rate in India has declined due to social, cultural, and economic factors. However, there has been a significant increase in female enrollment in education, particularly at the secondary level, leading to a decline in child labor and an increase in female workforce participation in urban areas.

Females are mostly involved in low employment jobs such in unorganized sector in developing countries: Hajra (2015) highlighted the increasing participation of female in the unorganized sector in India, a sector experiencing significant growth in female employment.

However, the expansion of the informal sector and growing employment feminization have negatively impacted female's employment and income security.

Female employment rate has a positive impact on several socio economic aspects: Glick (2002) explored the complex links between female's work, child nutrition, education, and global trends on female's work, as well as policy interventions to address potential conflicts between female's work and child welfare. Collver & Langlois (1962) highlighted the intricate link between female's labor participation, fertility rates, economic development, and family structure. Higher rates of the involvement of female in non-domestic work are associated with lower fertility rates. Economic development impacts female's roles in the family and workforce, and changes in family structure may be necessary for female to participate in modern economics. The study emphasized the importance of considering the indirect effects of female's labor force participation on economic development and demographic trends.

Appendix Table A1 presents a detailed review of the literature. Based on the literature review we consider different variables for the analysis. Table 1 summarizes the primary theoretical and empirical international studies on female employment. Based on these important studies we consider variables for our analysis.

Table 1: Variables measured in the previous paper and variables taken for this study

Author	Variable	Measured in previous study	Measured in our study
Ghasemi (2014), Pal & Chaudhuri (2020).	Education	The number of educated female, secondary education, contributing family workers, and primary education.	Labor force with basic education, female (% of female working-age population with basic education)
Ghasemi (2014), Mitra & Tripathi (2024)	Male labor force	Male labor force, The ratio of female to male labor force participation rate.	The ratio of female to male labor force participation rate (%)

Ghasemi (2014), Pal & Chaudhuri (2020), Mitra & Tripathi (2024), Tasseven (2017)	Wages	Wages at time, Wage and salaried workers, Female wage and salaried workers.	Wage and salaried workers, female
Pal & Chaudhuri (2020), Brehm & Engelhardt (2015), Tasseven (2017), Oshio (2019), Emara (2016), Brehm & Engelhardt (2015), Engelhardt (2011), Engelhardt et al., (2004)	Fertility rate	Fertility rate, Female labor force participation rates on fertility rates across countries and over time, annual changes in mean fertility are included by adding fixed time effect, a random continuous time effect controls for varying fertility slopes across countries, and female labor force participation on fertility differs by year across countries.	Fertility rate, total (births per woman)
Pal & Chaudhuri (2020), Mitra & Tripathi (2024), Tasseven (2017)	Life expectancy	Life expectancy, Life expectancy at birth, Life expectancy of females at birth	Life expectancy at birth, female (years)
Mitra & Tripathi (2024), Taşçıoğlu (2023), Wamboye et al., (2015), Sarkar et al., (2019)	Employment	Female employment in industry, female employers, Employment in industry, Female employment, female absolute and relative employment, Female excited employment between 2005 and 2012	Employment in agriculture, female (% of female employment), Employment in industry, female (% of female employment) (modeled ILO estimate), Female share of employment in senior and middle management (%), Self-employed, female (% of female employment) (modeled ILO estimate), Employment in services, female (% of female employment) (modeled ILO estimate)
Ghasemi (2014), Mitra & Tripathi (2024), Oshio (2019), Emara (2016), Brehm & Engelhardt (2015), Engelhardt (2011), Pal & Chaudhuri (2020), Mitra & Tripathi (2024), Tasseven (2017), Tansel (2001), Engelhardt et al., (2004)	Labor force participation rate	The female labor force at the time, female to male labor force participation rate, female labor force participation rate, female labor force participation rates on fertility rates, the ratio of female to male labor force participation rate and urbanization, and labor force participation.	1. Labor force participation rate, female (% of female population ages 15+) 2. Labor force, female (% of total labor force)

Source: Authors' calculation

3. Empirical Framework:

We use a panel data model to investigate the variables influencing female's employment in all three sectors. The equations we seek to estimate have the following form:

$$E1it = \alpha + \beta1EGSit + \beta2CFWit + \beta3FSESMMit + \beta4\ SEit + \beta5FRit + \beta6DCPS + \beta7LFPRit + \beta8LFBEit + \beta\ 9LF + \beta10PFit + \beta11LEit + \beta12CBSFit + \beta13RFMLFPit + u \quad ----(1)$$

$$E2it = \alpha + \beta 1SEit + \beta 2FRit + \beta 3DCPSit + \beta 4\ LFPRit + \beta 5LFBEit + \beta 6LFit + \beta 7PFit + \beta 8LEit + \beta 9FSGSPit + \beta 10RFMLFPit + u \quad \text{---------- (2)}$$

$$E3it = \alpha + \beta 1CFWit + \beta 2WSWit + \beta 3FRit + \beta 4\ LFPRit + \beta 5LFBEit + \beta 6LFit + \beta 7PopFit + \beta 8LEBFit + \beta\ 9FSGFFVit + \beta 10RFMLFPit + u \quad \text{---------- (3)}$$

Where,

E1 is female employment in Industry of country i and year t; E2 is female employment in Services of country i and year t; E3 is female employment in Agriculture of country i and year t., and u stands for error term. The following variable shows the impact on each dependent variable, that is, E1, E2, & E3:

Contributing family workers, female (% of female employment) (CFW): This variable represents the proportion of female who work in the agricultural sector as unpaid family laborers or self-employment jobs, which can be seen in agricultural labor; thus, it has a positive relation with Female's employment in agriculture. (*Rural Female and Food Security in Asia and the Pacific: Prospects and Paradoxes*, n.d.). However, there will be negative relations in the industrial sector as female prefer to be paid in the industrial sector.

Wage and salaried workers, female (% of female employment) (WSW): The trend toward wage and salaried employment is predominantly in non-agricultural sectors, although female comprise a substantial portion of the agricultural workforce. Female are moving from agriculture to other industries that offer better pay and working conditions as economies grow and industrialize, which may lead to a decline in the amount of time female work in agriculture. Systemic obstacles such as lack of land ownership, credit availability, and acknowledgment of their contributions to agricultural policies cause this shift (Baliyan, 2018).

Fertility rate, total (births per woman) (FR): High fertility rates can make female's economic activities outside the home more challenging due to additional domestic responsibilities like childrearing. This can limit female's participation in agricultural labor markets and industrial job sector. Han et al. (2024). Also, the problem of maternity leaves and childcaring becomes tough to solve in the workforce. Balancing work and family responsibilities is easier in the service

sector, with part-time and flexible hours making it easier for female with children to remain employed or re-enter the workforce (Hsu, 2023).

Labor force participation rate, female (% of female population ages 15+) (LFPR): Higher female LFPR often leads to female moving away from subsistence and low-wage agricultural jobs to more formal employment in industrial and service sectors. Industrial growth in developing countries has absorbed a significant proportion of the growing female labor force, particularly in the textiles, electronics, and assembly industries. However, service industries like education, healthcare, retail, and hospitality have been more accommodating to female employment, increasing female employment rates in many economies (Klasen, 2019).

Labor force with basic education, female (% of female working-age population with basic education) (LFBE): Higher education levels are linked to decreased agricultural employment in developing countries as female shift to non-agricultural sectors. However, increased basic education benefits the industrial sector by equipping female with the necessary skills for industrial jobs. The services sector, particularly education, healthcare, and administration, benefits the most from increased female education, as these industries are traditionally more suitable for female (Shang, 2022).

Labor force, female (% of total labor force) (LF): The female labor force increases employment in agriculture, particularly in low-income countries, due to its accessibility and lower entry barriers. This sector provides flexible working hours, balancing domestic responsibilities. Additionally, increased female participation in the industrial and service sectors has a positive impact, particularly in labor-intensive sectors like textiles and manufacturing, leading to more opportunities in the service sector. (World Bank, 2022)

Ratio of female to male labor force participation rate (%) (RFMLFP): Increased female participation in agriculture, industry, and services improves access to resources, training, and productivity. Female's empowerment in agriculture boosts rural economies and food security. Diverse workforces in the manufacturing and service industries drive innovation and improve performance. Policies that promote gender diversity improve organizational outcomes. (*The Role of Female in Agriculture | FAO*, n.d.)

Population, female (PopF/PF): Due to traditional and socio-cultural factors, physical labor requirements, and gender norms, an increase in the female population may result in a significant increase in agricultural employment as there would be more individuals to work. Adeosun & Owolabi (2021). Industrial employment can be mixed with low-wage, low-security jobs in manufacturing and textiles. However, the service sector is seeing a positive impact, with diverse jobs such as education, healthcare, and retail providing flexibility and being suitable for balancing work and family responsibilities (Ritchie, 2022).

Life expectancy at birth, female (years) (LEBF/LE): Longer life expectancy can lead to better health and more years of productive work, attracting female to the service and manufacturing industries. This can increase labor market participation, particularly in sectors that require higher skill levels and education. In the industrial sector, female may invest in education and skill development, increasing female labor force participation. However, the impact on agriculture may be neutral or negative because agricultural jobs are often physically demanding and offer lower wages, which may not appeal to female with more years of work and better opportunities in other sectors (Miladinov, 2020).

Female share of graduates in Agriculture, Forestry, Fisheries and Veterinary programmes, tertiary (%) (FSGAFFV): An increase in female graduates in agriculture-related fields is expected to boost female's employment in the agricultural sector. As more female gain specialized knowledge and skills, they are better prepared to take on roles in agricultural enterprises, research, and extension services. This trend is supported by the increasing recognition of the importance of gender diversity in improving agricultural productivity and innovation (*Agriculture, Forestry and Fishery Statistics — 2020 Edition - Products Statistical Books - Eurostat*, n.d.).

Exports of goods and services (% of GDP) (EGS): When exports of goods and services increase, female's employment in the industry tends to improve. Export-oriented growth can lead to more job opportunities in these industries, potentially increasing demand for female labor.

Female share of employment in senior and middle management (%) (FSESMM): A greater representation of female in senior and middle management positions may encourage role models and mentorship, increase female participation, improve organizational policies, and improve

decision-making and innovation, potentially leading to improved organizational performance and job opportunities for female. (*Female in Management: Female Remain Underrepresented in Management Positions and Continue to Earn Less Than Male Managers*, 2022) (Smith et al., 2006).

Self-employed, female (% of female employment) (modeled ILO estimate) (SE): Self-employment among female may increase entrepreneurial and industrial opportunities in the services sector, offering diverse opportunities for female in various service-oriented businesses. This could boost job creation, stimulate economic growth, and provide more service-related jobs.

Domestic credit to private sector (% of GDP) (DCPS): Increased domestic credit can boost industrial sector investment and job creation, benefiting female. This financing enables businesses to invest in new technologies, infrastructure, and manufacturing capabilities, resulting in improved working conditions and higher-quality jobs. Beck et al. (2004). However, the impact on female's employment may be mixed, as increased competition and market pressures do not always translate into better job opportunities (Ayyagari et al., 2007).

Cost of business start-up procedures, female (% of GNI per capita) (CBSF): Higher start-up costs negatively impact female's employment in the industrial sector, particularly in industries requiring substantial capital investment. This financial strain discourages female from entering or expanding, particularly in female-owned businesses with less access to capital and resources (Klapper & Parker, 2011).

Female share of graduates in Services programmes, tertiary (%) (FSGSP): The rise in female graduates in tertiary service programs could boost female's employment in the services sector, as higher education equips them with necessary skills and qualifications, making them more competitive in various sectors like healthcare, education, finance, and information technology (Klasen & Lamanna, 2009).

4. Regression Results

Table 2 shows the summary statistics for each variable used in the regression models. The coefficient of variation (CV) quantifies the dispersion of data points in a series. FSGSP, CBSF,

and CFW have higher CVs, indicating a lower symmetric distribution. However, this is not the case for LF, LEBF, and PopF.

Table 2: Descriptive Statistics for Panel Data

Variable	Number of observations	Mean	Standard deviation	Minimum	Maximum	Coefficient of variation
E1	3552	11.607	7.065	0.391	56.507	60.87
E2	3552	62.863	25.546	3.172	98.407	40.64
E3	3552	25.53	26.427	0.01	96.095	103.51
CFW	3552	14.272	18.301	0.001	89.238	128.23
WSW	3552	57.068	31.659	0.688	99.823	55.48
FR	4000	2.779	1.435	0.701	7.634	51.64
LFPR	3737	50.241	14.941	4.828	87.123	29.74
LFBE	1813	36.447	17.112	3.496	100	46.95
LF	3737	41.089	9.177	6.538	53.574	22.33
RFMLFP	3737	70.815	19.331	6.985	106.522	27.3
PopF	4123	16496389	64.18	4878	6.92E+08	0
LEBF	3987	73.8	8.846	43.356	88.06	11.99
FSGAFFV	1010	44.118	15.019	0	100	34.04
SE	3552	42.932	31.659	0.177	99.312	73.74
EGS	3399	43.446	33.446	1.571	433.836	76.98
FSESMM	1392	30.891	10.268	1.194	74.193	33.24
DCPS	3136	52.664	45.095	0.003	304.575	85.63
CBSF	2825	45.049	95.979	0	1491.6	213.05
FSGSP	4127	2168027	12674154	356.591	1.86E+08	584.59

Source: Authors' calculation

Appendix Table A2, Table A3, and Table A4 show the correlation matrix, which displays the raw correlation coefficients. Correlation coefficients estimate the direction and strength of the

linear association between variables. Table A2 shows that the dependent variable (Female's employment in agriculture) positively relates to CFW, FR, LFBE, and PopF. E3 negatively relates to WSW, LFPR, LF, RFMLFP, LEBF, and FSGAFFV. Table A3 shows that the dependent variable (Female's employment in industry) positively relates to EGS, CFW, and PopF. E3 negatively relates to FSESMM, SE, FR, DCPS, LFPR, LFBE, LF, LEBF, CBSF, and RFMLFP. Table A4 shows that the dependent variable (Female employment in service) positively relates to DCPS, LFPR, LF, LEBF, and RFMLFP. E3 negatively relates to SE, FR, LFBE, PopF, and FSGSP.

4.3 Diagnostic Tests for Choosing the Right Panel Data Model

The statistically significant F-tests suggest a fixed-effect model over the pooled model (Table 3). The Breusch-Pagan Lagrange multiplier test demonstrates that the random effect model is significant. The Hausman test suggests using a Fixed-effect model. The fixed effect model undergoes heteroskedasticity and serial correlation tests. The Wald test for group wise heteroscedasticity shows that the regression model suffers from heteroscedasticity. The regression model faces heteroskedasticity and serial correlation issues, as indicated by the statistically significant Wooldridge test for autocorrelation. Therefore, feasible generalized least squares (FGLS) regression is used here to analyze regression and correct serial correlation and heteroscedasticity. To do that, we use the STATA command xtgls, panels (hetero).

Table 3. Test for choosing panel data for Agriculture

Diagnostic test	**Regression model (Agriculture)**	**Regression model (Industry)**	**Regression model (Service)**
F-test for model specification. Null hypothesis: Pool versus FE (p-value)	204.45 (0.000)	108.75 (0.0000)	230.84 (0.0000)
LM-criteria for model specification. Null hypothesis: Pool versus RE: Pool (p-value)	1361.45 (0.000)	2885.60 (0.0000)	5665.34 (0.0000)
Hausman criteria for model specification. Null hypothesis: RE versus FE (p-value)	79.12 (0.0000)	111.29 (0.0000)	33.39 (0.0000)
Wald test for groupwise heteroskedasticity: The null is homoskedasticity (p-value)	5.2e+32 (0.0000)	2.1e+32 (0.0000)	3.0e+33 (0.0000)
Wooldridge test for autocorrelation in panel data: The null is no serial correlation	58.647 (0.0000)	84.451 (0.0000)	75.661 (0.0000)

Source: Authors' calculation

4.4 Regression Results

Table 4 displays the results of two regression models (1 and 2) that examined the factors influencing female's employment in agriculture (E3). As expected, an increase in the proportion of female contributing family workers (CFW) positively impacts female's employment in agriculture, which is significant at a 1% level. This is logical, given that family workers frequently engage in agricultural activities. Also, as expected, increases in wages and salaries for female workers (WSW) negatively impact female's employment in agriculture. This suggests that wage and salaried employment opportunities may attract female away from agriculture. The expected sign was negative, indicating that higher fertility rates (FR) would reduce female's agricultural employment due to increased child-rearing responsibilities. However, Regression Model 2 demonstrates a positive and significant relationship, implying that in some contexts, higher fertility rates correlate with higher female participation in agriculture, possibly due to the influence of socioeconomic factors, including economic benefits like increased household income, cultural norms, community support systems, flexible work hours, and employment stability in agricultural regions, which can lead to increased fertility rates. The negative sign is consistent with the expectation that increased female labour force participation (LFPR) will reduce the proportion of female in agriculture as more opportunities in other sectors emerge. As expected, a higher proportion of female with basic education (LFBE) correlates negatively with agricultural employment, most likely because education provides opportunities in other sectors. The positive sign suggests that as the overall female labour force grows (LF), so does the number of female working in agriculture. The sign varies between models. In Model (1), the negative sign indicates that as the female population (PopF) grows, the proportion in agriculture may decrease, possibly due to shifts to other sectors. In Regression Model 2, the positive sign implies the opposite, emphasizing the relationship's complexity and context dependency. Longer life expectancy (LEBF) is associated with lower agricultural employment, possibly because it correlates with overall economic development and a shift from agriculture. As expected, more female graduates in agriculture-related fields (FSGAFFV) are positively associated with female employment in agriculture, implying that higher educational attainment in these areas promotes participation in the industry. A higher female-to-male labour force participation ratio (RFMLFP) suggests a positive relationship with female's employment in agriculture, indicating greater gender equality in the labour market. Overall, the results for the majority of variables are with

expectations. Changes in expected signs, such as the fertility rate (FR) and female population (PopF), highlight the complexities and context-dependence of these relationships, implying that economic, cultural, and social factors all impact female's employment in agriculture. These findings highlight the importance of nuanced, context-specific policies encouraging female's employment in this sector.

Table 4: Determinants of female employment in the agriculture sector

		Dependent variable	
VARIABLES	Expected Sign	**E3: Female employment in agriculture**	
		Model 1	Model 2
Contributing family works, female	+ve	0.776***	0.447***
		(0.0228)	(0.0110)
Wage and salaried workers, female	-ve	-0.387***	-0.433***
		(0.0139)	(0.00609)
Fertility rate	-ve	-0.263	2.862***
		(0.174)	(0.0744)
Labour force participation rate, female	-ve	-0.108***	-0.0600***
		(0.0239)	(0.00886)
Labour force with basic education, female	-ve	-0.0582***	
		(0.00899)	
Labour force, female	+ve	0.609***	
		(0.0374)	
Total female population	+ve	-7.85e-09**	5.83e-09***
		(3.88e-09)	(1.33e-09)
Life expectancy at birth, female	-ve	-0.372***	
		(0.0305)	
Female share of graduates in Agriculture, Forestry, Fisheries and Veterinary programmes, tertiary	+ve	0.0294***	
		(0.00625)	
Ratio of female to male labor force participation rate	+ve		0.132***
			(0.00662)
Constant		46.10***	29.09***
		(2.829)	(0.697)
Observations		722	3,552
Number of country		101	187
VIF mean		3.60	3.95

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' calculation

Table 5 shows the results of three regression models that examined the factors influencing female's employment in industry (E1). The positive coefficient of EGS is statistically significant and consistent with the expectation that higher exports boost industrial employment, most likely due to increased industrial activity. Regression models 4 and 5 show significant negative coefficients of CFW, indicating that higher rates of contributing family workers or unpaid jobs reduce female's formal employment in industry. This could be because these female are more involved in unpaid family work than formal industrial jobs. Under FSESMM, Regression models 4 and 5 are negative and significant, contradicting the expected positive sign. This unexpected sign could indicate that higher management representation does not translate to increased female employment in industry, possibly due to structural barriers, lack of mentorship, work-life balance challenges, or the concentration of female in specific managerial roles without broader industrial job growth. Educational attainment, specialized training, and supportive policies can improve female's management. The positive and significant coefficient of SE suggests that higher female self-employment rates are linked to increased female industrial employment, possibly due to entrepreneurial activities in the industrial sector. The strongly negative and significant coefficient of FR supports the hypothesis that higher fertility rates reduce female's employment in industry, most likely due to increased childcare responsibilities that limit labour market participation. The negative and significant coefficients of DCPS contradict the expected positive sign, implying that increased credit to the private sector does not lead to higher female industrial employment rates. This could be due to credit being directed towards industries that do not primarily employ female, or it could be due to barriers female face in obtaining these jobs. It also shows a scenario of limited access to financial services, economic vulnerability, socio-cultural norms, lack of financial literacy, and industry structure concerning female. The negative and significant coefficients run of LFPR counter to expectations. This could imply that higher overall labour force participation rates only sometimes lead to higher industrial employment, possibly due to female entering other sectors.

Table 5. Determinants of female employment in the industry sector

VARIABLES	Expected Sign	Dependent variable		
		E1: **Female employment in industry**		
		Model 3	Model 4	Model 5
Exports of goods and services	+ve	0.0170***		
		(0.00349)		
Contributing family workers, female (% of female employment)	-ve	-0.0154	-0.0202***	-0.0604***
		(0.00973)	(0.00514)	(0.00545)
Female share of employment in senior and middle management	+ve	-0.0133	-0.0555***	-0.0488***
		(0.00831)	(0.00883)	(0.00784)
Self-employed, female (% of female employment)	+ve	0.0192**		
		(0.00837)		
Fertility rate, total (births per woman)	-ve	-4.978***		
		(0.152)		
Domestic credit to private sector (% of GDP)	+ve	-0.0261***	-0.0208***	-0.0292***
		(0.00197)	(0.00157)	(0.00145)
Labor force participation rate, female (% of female population ages 15+)	+ve	-0.0589***	-0.287***	
		(0.0175)	(0.00811)	
Labor force with basic education, female (% of female working-age population with basic education)	+ve	-0.0271***	0.0261***	
		(0.00724)	(0.00515)	
Labor force, female (% of total labor force)	+ve	-0.0843***	0.305***	
		(0.0278)	(0.00911)	
Population, female	+ve/-ve	-2.39e-09***		
		(5.97e-10)		
Life expectancy at birth, female (years)	+ve	-0.452***		
		(0.0271)		
Cost of business start-up procedures, female	-ve	0.00201***		-0.0179***
		(0.000732)		(0.00287)
Ratio of female to male labor force participation rate (%)	+ve			-0.0951***
				(0.00553)
Constant		67.66***	16.75***	24.49***
		(2.769)	(0.391)	(0.382)
Observations		946	1,216	990
Number of country		113	128	126
VIF mean		3.56	3.07	1.35

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' calculation

For LFBE, Regression Model 3 displays a negative and significant coefficient, whereas Regression Model 4 displays a positive and significant coefficient. This disparity could be attributed to differences in model specifications or interactions with other variables, highlighting the complex relationship between basic education and industrial employment. Similarly, to

LFBE, the sign varies between models of LF. The negative sign in Regression Model 5 could represent overall labour force growth that does not directly translate to industrial employment. In contrast, the positive sign in Regression Model 5 could indicate a more direct positive impact in this Model's context. The negative and significant coefficient of PF indicates that as the female population grows, the proportion employed in industry declines, possibly due to broader labour market trends, gender bias, or demographic shifts. The negative and significant coefficient indicates that longer life expectancy (LE) is associated with lower female employment in industry, which could reflect shifts to other sectors or delayed entry into the workforce. In CBSF, Regression Model 3 has a positive and significant coefficient, contrary to the expected negative sign, which may indicate that initial start-up costs promote formal employment. However, Regression Model 5 confirms the expectation, indicating that higher start-up costs discourage industrial employment. Regression model 5 contains a negative and significant coefficient, which contradicts expectations. This could imply that systemic barriers prevent female from obtaining industrial jobs despite a higher female-to-male labour force participation ratio (RFMLFP). The regression results shed light on the complex factors influencing female's employment in industry. While many coefficients match expected signs, some unexpected findings highlight these relationships' nuanced and context-dependent nature. Fertility rate, self-employment, and credit availability all have a significant impact, with variations across models demonstrating the importance of model specification and context in understanding these dynamics.

Table 6: Determinants of female employment in the services sector

		Dependent variable	
VARIABLES	Expected Sign	**E2: Female employment in services sector**	
		Model 6	Model 7
Self-employed, female (% of female employment)	+ve	-0.721***	-0.798***
		(0.00997)	(0.00917)
Fertility rate, total (births per woman)	+ve	3.832***	2.036***
		(0.181)	(0.198)
Domestic credit to private sector (% of GDP)	+ve	0.00769***	0.0188***
		(0.00248)	(0.00252)
Labor force participation rate, female (% of female population ages 15+)	+ve	-0.00668	0.186***
		(0.0241)	(0.0325)
Labor force with basic education, female (% of female working-age population with basic education)	+ve	0.191***	0.178***
		(0.0111)	(0.0113)
Labor force, female (% of total labor force)	+ve	-0.103***	
		(0.0313)	
Population, female	+ve	-9.83e-09***	-1.27e-08***
		(1.14e-09)	(1.48e-09)
Life expectancy at birth, female (years)	+ve	0.640***	
		(0.0319)	
Female share of graduates in Services programmes, tertiary (%)	+ve	-1.74e-08***	-1.74e-08***
		(5.36e-09)	(5.59e-09)
Ratio of female to male labor force participation rate (%)	+ve		-0.183***
			(0.0199)
Constant		32.29***	87.38***
		(2.889)	(0.841)
Observations		1,580	1,580
Number of country1		162	162
VIF mean		3.21	3.68

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' calculation

Table 6 shows the results of two regression models that examined the factors influencing female's employment in services (E2). The coefficients of SE are negative and highly significant (at 1 percent level), unlike the expected positive sign. This suggests that higher rates of female self-employment are linked to lower levels of female employment in industry, possibly because self-employed female often work in informal, non-standard jobs outside traditional service sector roles, often facing barriers like lack of capital, training, and networks, which contributes to a lower representation of them in the formal sector. The coefficients of FR are positiveand highly

significant, which matches the expected sign. This suggests that higher fertility rates are associated with increased female employment in industry, possibly due to economic necessity, as higher fertility drives female to work in industries to support larger families and also as the service sector has part-time jobs and work flexibility, female thus can balance work life and personal life both. The coefficients of DCPS are positive and significant, consistent with the expectations. Increased domestic credit availability promotes service sector growth and job opportunities, which benefits female employment. Regression Model 7 of LFPR has a positive and significant coefficient that matches the expected sign, indicating that higher female labor force participation correlates with increased female employment in industry.

Regression Model 6 produces an insignificant negative coefficient, which could be due to differences in model specifications or interactions with other variables. Both models of LFBE show positive and significant coefficients, indicating that having a higher proportion of female with basic education promotes female employment in services, as basic education provides the necessary skills for jobs. The negative LF and significant coefficient contradict the expected positive sign, implying that an increased female labour force is associated with decreased female employment in the industry. This could be because informal employment, social attitudes, economic instability, lack of supportive policies, and educational barriers can negatively impact female's service sector employment and female labor force participation rates. These factors can underestimate female's participation, discourage them from labor, and hinder their economic growth. Societal attitudes, such as social stigma and prioritizing family responsibilities, can discourage female from participating in labour. The negative and significant coefficients of PF show that as the female population grows, the proportion of female working in industry decreases, possibly due to broader labour market trends, work-life balance challenges, rising incomes, lack of supportive policies, traditional gender roles, or demographic shifts. The positive and significant coefficient corresponds to the expected sign of LE, indicating that longer life expectancy is associated with higher female employment in industry, possibly reflecting improved health and economic conditions that allow female to work longer. The negative and significant coefficients contradict the expected positive sign of FSGSP, implying that a higher proportion of female graduates in service programs does not increase female employment in the services. This could indicate that female in the service sector may prioritize immediate employment over pursuing higher education, leading to a lower share of female graduates.

Informal employment, which often lacks incentives for educational advancement, may also contribute to the lower share of female graduates in formal service programs. The negative relation of RFTMF implies that systemic barriers prevent female from obtaining industrial jobs despite a higher female-to-male labor force participation ratio.

The regression results shed light on the factors influencing female's employment in industry. While some coefficients have expected signs, others show significant deviations, emphasizing the complexity and context-specificity of these relationships. Unexpected findings, such as the negative impact of self-employment and the female share of graduates in services programs, indicate that other sectoral dynamics and structural barriers are important in shaping these employment patterns. These findings highlight the need for nuanced policies that address these complexities to promote female employment in industry.

5. Conclusion and Policy Implications

Employment is critical to economic stability and personal development, providing financial security, purpose, and societal contribution. However, technological advancements, R&D, and economic fluctuations constantly shape global employment opportunities, resulting in significant disparities across regions and demographics. From this perspective, the present paper investigates the relevant determinants of female employment disparities in agriculture, industry, and the service sector separately by considering data from the World Bank from 2004 to 2023. The Feasible Generalized Least Squares (FGLS) regression model is employed for the analysis.

The results show that female employment in agriculture reduces due to higher employment as wage and salaried workers, higher female labour force participation rate, higher female labour force with basic education, and higher life expectancy at birth. However, it increases due to higher contribution to family work, fertility rate, labour force, the ratio of female to male labour force participation rate, and female share of graduates in agriculture, forestry, fisheries and veterinary programmes. However, the total female population has a mixed effect on it.

Exports of goods and services and self-employed females (% of female employment) positively affect female employment in the industry. However, female contribution to family workers, the female share of employment in senior and middle management, fertility rate, domestic credit to

the private sector, labour force participation rate, female population, life expectancy at birth, and the ratio of female to male labour force participation rate has a negative effect on it. However, the female labour force with basic education, the female labour force, and the cost of business start-up procedures have a mixed effect on female employment in the industry.

Female self-employed, labour force, female population, the female share of graduates in services programmes, and the ratio of female to male labour force participation rate reduces female employment in the service sector. However, fertility rate, domestic credit to the private sector, labour force participation rate, labour force with basic education, and life expectancy at birth positively affect female employment in the service sector.

As most countries are trying to develop based mainly on industry and service sector growth, it is suggested that female contribution to family work and fertility ratio has to decline to reduce female employment in agriculture. Exports of goods and services and self-employed females (% of female employment) must be increased to increase female employment in the industry. Additionally, domestic credit to the private sector, labour force participation rate, labour force with basic education, and life expectancy at birth need to be improved to encourage.

Overall, results show how variables such as - fertility rates, education levels, and access to financial credit affect female's employment in unique and often sector-specific ways. In particular, FGLS regression analyses revealed counterintuitive results for certain variables, highlighting these relationships as nuanced and context-dependent. The unexpected findings in some variables serve as a critical reminder of the complex interplay between gender and employment, shedding light on how socioeconomic factors can differ in their impact on female's employment outcomes across sectors. For example, while higher education levels may predict increased employment opportunities in the services sector, this relationship may be weaker in agriculture or industry, where other factors, such as access to land or capital, may play a more important role. This indicates a significant need for tailored, context-specific policies to address the identified issues. It proposes that interventions to promote gender equality in the workplace should not only seek to amend legislative frameworks but also address socio-cultural norms and provide targeted support to overcome educational and financial barriers.

The policy calls to improve female's access to education and training, promote STEM education and leadership training, assist female entrepreneurs, encourage work-life balance, address wage disparities, foster gender-inclusive work environments, strengthen legal and institutional frameworks, improve economic and social support systems, and implement sector-specific interventions. These recommendations seek to improve access to education, assist female entrepreneurs, promote work-life balance, enforce equal pay legislation, and strengthen legal and institutional frameworks. They also recommend improving social security systems, providing financial assistance to female in informal employment, and addressing socio-cultural norms. These recommendations are intended to promote gender equality and economic development across all sectors.

To summarize, advancing gender equality in the workplace requires a coordinated effort that includes policy reform, societal attitude shifts, and targeted support mechanisms. The disparities and complex factors identified in this study provide an important foundation for developing such multifaceted interventions, pointing to a more inclusive and equitable future for female in the workplace.

Appendix Table A1: Detailed review of literature on female employment

Author(s)	Main objective/ Paper name	Variables used	Source of data and countries	Methodology used	Conclusion
Ghasemi (2014).	Investigating different factors influencing female's economic activities	Dependent variable = Logarithm of female labor force at time t Independent variable = logarithm of the female labor force at time t-1, of value-added constant price at time t, wages at time t, number of educated female, and male labor force.	Survey. Italy	Regression analysis, where they used (Akaike Information Criterion (AIC) and Schwarz Information Criterion (SC)) and Johansen's cointegration.	The study analyzes the impact of GDP growth on female's employment in the service, industrial, and agricultural sectors over 50 years. Results show that GDP increases can positively affect female's employment, while wages can negatively affect it, suggesting job replacement.
Pal & Chaudhuri (2020).	To find the falling female labor force participation	The dependent variable is = Female labor force participation rate, and the independent variable = Fertility rate, wage and salaried workers, secondary education, contributing family workers, primary education, life expectancy, regulatory quality, voice and accountability, political stability, no violence, government effectiveness, rule of law, control of corruption respectively.	World Bank Report. Asia, Europe, North America, South America, and Africa (40 countries)	Panel data regression analysis and analysis of a few selected countries' labor force participation rates of females	The female LFPR is declining despite higher education levels. Factors such as regulatory quality and government efficiency impact LFPR
Sarkar et al., (2019)	Employment transitions of female in India	Dependent Variable = whether a woman exited employment between 2005 and 2012. Independent variable = includes various individual, household, and regional characteristics that affect employment transition probabilities.	India Human Development Survey (IHDS), National Sample Survey Organization (NSSO). India	Panel data analysis	The study highlights the low female labor force participation in India's emerging economy, highlighting the benefits of female's economic involvement, such as empowerment and improved resource distribution. It also highlights the dynamic nature of employment status, societal norms favoring men's employment, and the role of culture, caste, and religion in low participation rates.
Wamboye et al. (2015)	Sectoral shifts and female's employment	Dependent variable = female absolute and relative employment, independent variable = agriculture, manufacturing and services value added as a percentage of GDP, non-manufacturing industry value added, trade, % of urban population with improved sanitation facilities, absolute and relative measure of female education, age dependency ratio and country level of development proxied by the share of the urban population in total population.	World bank. 39 countries.	Random and fixed effect panel data from 1991 to 2010	Sectoral changes affect female employment in least-developed countries. The agriculture sector positively impacts female absolute and relative employment.
Engelhardt et al. (2004)	Fertility and female's employment reconsidered: a macro level time series	Dependent variable = Total fertility rate and Female labor force participation.	France, West Germany, Italy, Sweden, UK, USA	Granger-Causality	The study revealed a negative correlation between fertility and female's employment until the mid-1970s, which weakened afterward. Factors influencing fertility rates and

	analysis for developed countries 1960 - 2000	Independent variable = long-run elasticity between TFR and FLFP and short-run elasticity between TFR and TLFP			employment levels included social norms, institutions, financial incentives, and attitudes toward working mothers. Institutional context, such as childcare availability and policies supporting working mothers, reduced the conflict. Further research is needed to understand the complex interplay between fertility choices and female's labor force participation.
Mitra & Tripathi (2024)	Do more female find employment as the urban population grows?	Dependent = Ratio of female to male labor force participation rate and Urbanization, Independent = Urbanization, Female employment in industry, female employers, female wage and salaried workers, female infant mortality rate and the ratio of female to male labor force participation rate, per capita GDP, Life expectancy at birth, GDP growth rate, Employment in industry, Population ages 16-64	World bank. 217 countries	LSDV, 2SLS, Panel cointegration, Granger causality test	The study examines the relationship between urbanization and female labor force participation (FLFP) in 217 countries from 1991 to 2022. It finds a complex relationship, with urbanization negatively affecting gender ratios, while higher female participation promotes urbanization. The study suggests an inverted U-shaped relationship between GDP and FLFP, emphasizing the need for policies to enhance FLFP for urban development.
Oshio (2019).	A positive association between female employment and fertility is still spurious in developed countries.	Dependent = Total fertility rate and independent = Female labor force participation rate	OECD. 24 countries	Time series analysis by fixed effect regression model.	The connection between female's employment and fertility in developed nations can no longer be attributed to specific differences between countries. The findings suggest that increased female employment may create more supportive social and institutional environments for having children, resulting in a positive link between female labor force participation and total fertility rate.
Emara (2016).	Fertility and female employment: A panel study on Developing countries	Dependent = Fertility rate and Independent = Female labor participation rate,	World Bank Database	Panel regression (Hausman test, wald test)	Based on data from 29 countries from 1990-2011, they found that higher female labor force participation negatively impacts fertility rates. It also highlighted the role of family planning policies and the changing impact of female labor participation over time. However, limitations were noted due to a lack of microeconomic data.
Brehm & Engelhardt (2015) .	On the age-specific correlation between fertility and female employment	Dependent variable = Fertility rate and independent variable = Female labor force participation rates on fertility rates across countries and over time, annual changes in mean fertility are included by adding fixed time effect, a random continuous time effect controls for varying fertility slopes across countries, and a variable to assess the influence of female labor force participation on fertility differs by year across countries.	OECD. 17 OECD countries.	Random intercept and random coefficient models	The findings emphasize that total fertility, age-specific fertility behavior, Female labor participation effects, and country variances are separate concepts that significantly contribute to the comprehensive comprehension of the relationship between fertility and female labor participation.

Tasseven (2017).	The relationship between economic development and female labor force participation rate: a panel data analysis	The dependent variable = Labor force participation, and the independent variable = per capita gross domestic product, female-to-male primary enrollment, female-to-male secondary enrollment, female-to-male tertiary enrollment, fertility rate, unemployment rate, wage, and salaried workers, the life expectancy of females at birth.	World Bank Database. G8 countries.	Panel regression	Per capita GDP and secondary education significantly impact labor force participation, while unemployment rates negatively affect it. Economic growth increases well-being, aggregate supply, and labor force participation. Factors influencing female employment include labor market structures, gender equality, wage levels, and institutions. Strengthening policies to increase female labor force participation, reduce unemployment, and ensure equal pay is crucial.
Tansel (2001).	Economic development and female labor force participation in Turkey	The dependent variable = Female participation rate, and the independent variable = is a vector of variables representing personal and household characteristics (personal characteristics include cultural determinants such as religion and patriarchal ideology), a vector of variables representing the labor market conditions.	Population census and Household labor force survey. Turkey	Panel data regression (OLS)	The study reveals a long-term link between female labor force participation in Turkey and economic development, with high growth rates increasing job opportunities and female education positively impacting participation. The agricultural sector employs more female than the service sector, while output growth positively impacts nonagricultural activities.
Engelhardt (2011).	On the changing correlation between fertility and female employment over space and time	Dependent variable = Total fertility rate, independent variable = Female labor participation, female labor participation and time, entity-specific effect, time-specific effect.	Eurostat, OECD labor force statistics, UNESCO, Council of Europe, De la Fuente and Domenech, Barro and Lee. 16 European countries	Pooled time-series analysis (Prais-Winsten regression)	The changing correlation between fertility and female employment over space and time provides valuable insights into the complex relationship between these key demographic indicators. It highlights the importance of considering social indicators such as female labor force participation, educational attainment, and demographic factors in understanding the dynamics of fertility patterns and female's participation in the workforce.
Taşçıoğlu (2023).	Examining the relationship between female employment rate and poverty in three fragile countries.	The dependent variable = Poverty, and the independent variable = Female employment, GDP, and GDP per capita.	World Bank Indicators. Turkey, Brazil, and Indonesia.	Panel data analysis	It tells the relationship between the female employment rate and poverty in three fragile countries and emphasizes the importance of female employment in reducing poverty. It emphasizes the importance of increasing female labor force participation in these countries to alleviate poverty. It emphasizes the importance of education, job opportunities and the use of new technologies as tools for empowering female economically and socially.

Source: Authors' compilation

Appendix Table A2: Correlation Matrix of Agriculture

	E3	CFW	WSW	FR	LFPR	LFBE	LF	RFMLFP	PopF	LEBF	FSGAFFV
E3	1										
CFW	0.78	1.00									
WSW	-0.84	-0.77	1.00								
FR	0.47	0.50	-0.58	1.00							
LFPR	-0.05	-0.28	0.09	-0.12	1.00						
LFBE	0.21	0.10	-0.36	0.18	0.60	1.00					
LF	-0.11	-0.41	0.24	-0.35	0.84	0.30	1.00				
RFMLFP	-0.14	-0.42	0.27	-0.30	0.90	0.38	0.96	1.00			
PopF	0.09	0.15	-0.14	0.04	-0.08	0.06	-0.15	-0.15	1.00		
LEBF	-0.65	-0.54	0.70	-0.69	0.11	-0.16	0.17	0.21	-0.11	1.00	
FSGAFFV	-0.33	-0.35	0.45	-0.35	0.14	-0.08	0.24	0.29	-0.07	0.36	1.00

Source: Authors' Calculation

Appendix Table 3: Correlation Matrix of Industrial sector

	E1	EGS	CFW	FSESMM	SE	FR	DCPS	LFPR	LFBE	LF	RFMLFP	PF	LE	CBSF
E1	1.00													
EGS	0.07	1.00												
CFW	0.00	-0.30	1.00											
FSESMM	-0.02	-0.02	-0.37	1.00										
SE	-0.02	-0.36	0.78	-0.21	1.00									
FR	-0.27	-0.33	0.50	-0.10	0.69	1.00								
DCPS	-0.23	0.15	-0.38	-0.06	-0.48	-0.41	1.00							
LFPR	-0.26	0.23	-0.20	0.24	-0.06	-0.10	0.33	1.00						
LFBE	-0.21	-0.12	0.14	0.06	0.40	0.20	0.19	0.63	1.00					
LF	-0.12	0.28	-0.39	0.33	-0.28	-0.34	0.30	0.84	0.32	1.00				
RFMLFP	-0.22	0.31	-0.37	0.27	-0.28	-0.28	0.38	0.90	0.39	0.96	1.00			
PF	0.02	-0.22	0.15	-0.14	0.12	0.03	0.04	-0.14	-0.05	-0.19	-0.18	1.00		
LE	-0.05	0.29	-0.48	0.03	-0.72	-0.73	0.48	0.10	-0.20	0.21	0.23	-0.08	1.00	
CBSF	-0.08	-0.14	0.31	-0.15	0.39	0.45	-0.23	-0.02	0.17	-0.13	-0.12	-0.02	-0.38	1.00

Source: Authors' Calculation

Appendix Table A4: Correlation Matrix of Service sector

	E2	SE	FR	DCPS	LFPR	LFBE	LF	RFTMF	PF	LE	FSGSP
E2	1.00										
SE	-0.85	1.00									
FR	-0.58	0.73	1.00								
DCPS	0.49	-0.53	-0.47	1.00							
LFPR	0.07	0.02	-0.03	0.22	1.00						
LFBE	-0.22	0.42	0.23	0.03	0.64	1.00					
LF	0.15	-0.15	-0.22	0.22	0.80	0.30	1.00				
RFMLFP	0.17	-0.15	-0.18	0.27	0.90	0.42	0.94	1.00			
PF	-0.19	0.16	0.04	0.02	-0.16	-0.06	-0.20	-0.21	1.00		
LE	0.70	-0.78	-0.80	0.56	0.03	-0.28	0.14	0.14	-0.13	1.00	
FSGSP	-0.12	0.12	-0.05	-0.01	-0.17	-0.02	-0.25	-0.23	0.08	-0.01	1.00

Source: Authors' calculation

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