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Women's Empowerment Matters: Conditional Evidences on Income Level and Governance, with Reference to Mongolia

Suyeong Moon, Shurenchimeg Davaasambuu, Jinhwan Oh†

Graduate School of International Studies, Ewha Womans University

A B S T R A C T

Purpose: This research explores the intricate influence of women's empowerment on income levels and governance quality in developing nations with Mongolia as a case study.
Design/methodology/approach: This study analyzes data from 114 developing countries covering from 2003 to 2022, with a focus on 26 low-income counties to highlight the role of governance.
Findings: The major findings are: (1) Increasing women's empowerment positively affects income levels, with this association being conditionally amplified by high female employment and labor force participation; (2) Female empowerment in economic and political spheres significantly influences corruption control in low-income countries. This effect is more pronounced in smaller populations and varies based on the level of female representation, with female employers and parliamentary representation complementing each other in controlling corruption; and (3) In the case of Mongolia, political empowerment does not significantly affect income levels, while economic empowerment through female employers does have an effect. However, this impact weakens when combined with political empowerment.
Research limitations/implications: Complementary aspects of women's empowerment enhance income levels. Thus, policies should adopt an integrated approach, promoting gender equality in the workforce while ensuring significant female representation in decision-making positions. For robustness, it should be desirable to consider other variables than control of corruption as a proxy for governance. Furthermore, additional developing countries in Latin America, Africa, or Asia could be taken into consideration. All of these remain major caveats and reserved for further studies.
Originality/value: Existing studies have explored the role of female empowerment in development, but few have analyzed the issue empirically. This study examines both women's economic and political empowerment, using corruption as a proxy for governance. It provides valuable insights into how women's empowerment in developing countries affects income levels and governance in complex ways, highlighting the need for nuanced policy approaches.

Keywords: Women's empowerment, Control of corruption, Panel Data, Marginal Effect, Mongolia

I. Introduction and Review of Literature

For sustainable development and a fair society, enhancing women's empowerment in every area is essential. Female empowerment ensures equal access to economic, social, and political networks, which

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† Corresponding author: Jinhwan Oh
E-mail: joh@ewha.ac.kr

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leads to economic development and the well-being of families and communities (Gressel et al., 2020). Additionally, developing good governance equates to an inclusive, transparent, and accountable society with well-functioning institutions. Therefore, it would be natural to conjecture a positive association between the two; when women actively participate in decision-making it can lead to better understanding on supporting laws that manage their needs as well as the needs of their communities (Markham, 2013), or female empowerment often creates improved governance outcomes, generating a positive cycle where empowered women bring positive changes and strengthen the inclusivity and effectiveness of their governance. Examining the positive relations between the two would provide a comprehensive understanding of broader social, economic, and political progress within nations.

To empirically measure a country's governance level, this study uses corruption, which is officially defined as "the misuse of public office for personal benefit, which includes bribery and extortion" (Gray & Daniel, 1998). Corruption impedes national growth and social development, particularly in the developing world that faces more challenges, given its direct impacts on the quality of social services and its budget by raising uncertainty in economic and public policies, which leads to less investment in human capital, high inequality in income distribution, and weakened effectiveness (Mauro, 1996; Robinson, 2012; Tanzi & Hamid, 2002), Moreover, from the gender aspect, systematic corruption restricts political opportunities for women (Dutta, 2018), resulting in a lack of policies and laws to protect females. For example, African nations with less effective governance systems have more possibilities to face gender inequalities than other nations with more stable and credible governments (Al-Khaldi, 2014).

Numerous studies have been conducted to emphasize the significance of promoting women's empowerment across various sectors. Shin et al. (2022) found that empowering women in the economic and political sectors improves children's health and education in developing countries. Cornwell (2016) mentioned that women's economic empowerment can help women gain income, social resources, and more motivation to plan and act through collectivization and movement-building. Dollar et al. (2001) emphasized the correlation between female political empowerment and levels of corruption, followed by specific case studies (Chhoeun et al., 2008; Johnson et al., 2013; Stockemer, 2011). In addition, Carranceja (2021) suggested that increased political participation, literacy rate, and labor force participation among females are deeply related to lower levels of perceived corruption, while Bauhr et al. (2024) found that a notable rise in female representatives significantly decreases the occurrence of bribery in public service provision. Furthermore, Forgues-Puccio and Lauw (2021) investigated the positive effect of women's participation on both corruption and economic development. These studies highlight the importance of analyzing women's roles in building a reliable and effective government, thereby fostering balanced economic development.

However, very few studies analyze the matter empirically. This study considers both women's economic and political empowerment, while corruption is used as a proxy for governance. A panel regression with control variables is then conducted to find meaningful results. We are particularly interested in Mongolia, given the country's low level of women's economic and political empowerment despite high educational levels. For example, Mongolia faces a persistent challenge with consecutively declining labor force participation rates among women, decreasing from 63.7% in 2004 to 50.2% in 2023 (National Statistics Office of Mongolia, 2023). Also, the 2023 Corruption Perceptions Index shows that Mongolia ranked 121st among 180 countries, with a low score of 33 out of 100 (Transparency International, 2024).

To state the conclusion upfront, the research shows that increasing women's empowerment, both through economic participation and parliamentary representation, generally enhances income levels, with the effect being stronger where female employment and labor force participation are high. Importantly, female empowerment also affects controlling corruption in

countries with low income. This effect is more pronounced in smaller populations and varies depending on the level of female representation, where female employers and parliamentary representation can complement each other in controlling corruption. For Mongolia, political empowerment does not significantly affect income levels, whereas economic empowerment through female employers does have an effect. However, this impact becomes weaker when it is combined with political empowerment.

The structure of this research is as follows: the next section explains the data and research methodologies, followed by the results section and the conclusion as the final section.

II. Data, Methods, and Hypothesis

This study collects data from 114 developing countries covering from 2003 to 2022. Special attention is paid to 26 low-income countries to focus on the importance of governance structure and sustainable development in those countries.

The main dependent variable is corruption control, originally provided by the Worldwide Governance Indicators, and included in the World Bank's World Development Indicators. It illustrates "perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the [capture] of the state by elites and private interests" (World Bank, 2024b). The estimated score ranges from -2.5 to 2.5. Besides this dependent variable, this study also uses Gross Domestic Product (GDP) per capita (measured in constant 2015 US dollars) to quickly check the economic influence of women's empowerment, as an interim dependent variable.

To estimate the impact of female empowerment, data on the percentage of female employers (female employment rate) and rate of female politicians in parliament were collected as the main independent variables. Economic empowerment refers to "female workers who work on their own account or with one or a few partners, holding jobs defined as [self-employment jobs]" (World Bank, 2024b). The category also contains subcategories. Conversely, political empowerment refers to "the number of seats held by women members in single or lower chambers of national parliaments, expressed as the percentage of all occupied seats" (World Bank, 2024b) and for the estimation of the *economic* impact, the female labor force participation rate was also considered as an independent variable.

For control variables, this study considers economic, social, and political factors. GDP per capita, GDP growth (annual %), and Foreign Direct Investment (FDI) (net inflows, % of GDP) were used to estimate the economic status of low-income countries. For social indicators, total population, urban population residing in the largest city, and primary school enrollment (percentage gross) were considered. Free and fair elections and free political parties determine the country's score, which ranges from 0 to 1. Free and fair elections signify existing constraints on the fairness of the elections, while free political parties indicate political parties being free to establish and engage in political campaigns (World Bank, 2024a). Moreover, the gender equality indices, namely the Gender Development Index (GDI) and Gender Inequality Index (GII), were also considered to strengthen the gender aspect. While both indices range from 0 to 1, the interpretation of their values is inverted. In the GDI, higher values indicate greater gender equality, whereas in the GII, lower values signify greater gender equality. Net official development assistance (ODA) received, control of corruption, government effectiveness, and government expenditure in education and health were also used. The fixed effect analyses were adopted based on the result from the Hausman Test where there exist systematic differences between the random effect and fixed effect.

This study begins with the following regression, using GDP per capita to capture the relationship between women's empowerment and national income.

$$Ln\ GDP\ per\ capita_{it} = \beta_0 + \beta_1\ empowerment_{it} + \beta_2\ gender\ indices_{it} + \beta_3\ Ln\ population_{it-1} + \beta_4\ Ln\ oda_{it-1} + \beta_5\ governance_{it} + \beta_6\ expenditure_{it} + \epsilon_{it} \quad (1)$$

where *empowerment* includes five variables—female employers (%), women in national parliament (%), labor force participation rate (%), and two interaction terms (Women in parliament × Female employers and Women in parliament × Female labor force). *Gender indices* refers to two variables—the GDI and GII, *population* represents the total population and population in urban areas, *oda* denotes net ODA received, *governance* indicates two variables (corruption control and government effectiveness), and, lastly, expenditure refers to two variables (government *expenditure* in education and health).

Then, the study examines the equation below. It measures how does women's empowerment affect good governance, with corruption control as the dependent variable.

$$corruption\ control_{it} = \beta_0 + \beta_1\ empowerment_{it} + \beta_2\ \text{Ln}\ GDP\ per\ capita_{it-1} + \beta_3\ \text{Ln}\ population_{it-1} + \beta_4\ economic_{it-1} + \beta_5\ social_{it} + \beta_6\ interactions_{it} + \epsilon_{it} \quad (2)$$

where *empowerment* includes female employers (%) and women in national parliament (%), *GDP per capita* is self-explanatory and used as an explanatory variable, and *population* represents the same variables as in Equation (1). In addition, *economic* refers to two variables—GDP growth rate (%) and FDI (as a percent of GDP), and *social* indicates three variables —primary school enrollment (%), free and fair elections, and free political parties. Lastly, *interactions* refer to several interaction terms focused on women's empowerment.

With this framework, we propose three general hypotheses as follows: (1) Women's empowerment variables including female employers (%), women in national parliament (%), and labor force participation rate (%) show a positive correlation with GDP per capita, considering all control variables; (2) Variables of female employers (%) and women in national parliament (%) have a positive coefficient with the level of corruption control, considering all control variables; (3) Women's empowerment variables positively impact on GDP per capita in Mongolia, considering all control variables.

III. Result

Table 1 provides empirical results of the economic impact of women's empowerment. In Columns (1)-(4), increased women's empowerment correlates positively with higher income levels. The presence of women in parliament demonstrates a positive influence on a country's income level, as evidenced in Columns (1) and (2). Societies do benefit economically when women are fully integrated into societal structures (Reinermann, 2024) and a greater number of women in parliament often results in increased attention to women's issues (UN Women, 2018).

The interaction terms are both significantly positive (Column (3)), revealing that women's empowerment is conditionally effective, particularly in countries with a high portion of female employers and labor force participation. The percentage of female employers appears ineffective, and labor force participation negatively affects GDP per capita with significance. However, when these variables interact with the percentage of female politicians in national parliament, the coefficients become significantly positive, implying that the presence of women politicians in parliament can positively influence the impact of female employers and labor force participation on GDP per capita; the two empowerment variables complement each other rather than substituting. In this regard, policy makers should consider promoting policies that increase women's participation.

The GDI coefficients are significantly positive, while the GII coefficients are significantly negative. The positive results for GDI suggest that

improvements in women's empowerment, as measured by factors such as education, health, and economic resources, are correlated to higher GDP per capita levels. Conversely, the negative results for GII indicate that higher levels of gender inequality hinder countries' economies, highlighting the necessity of addressing gender disparities and supporting the empowerment of women.

Regarding other variables, population size consistently shows a positive relationship with GDP per capita across all models, while the significance of urban population diminishes in Column (4) with the inclusion of macroeconomic factors and governance-related variables. Government expenditure on education negatively correlates with GDP per capita, and current health expenditure shows no significant effect in Column (4). However, government effectiveness and control of corruption are positively correlated with income levels, underscoring the critical role of good governance in fostering economic prosperity. Notably, while net ODA consistently shows negative impact on GDP per capita (Columns (1)-(4)), it becomes significantly positive when the governance factors are controlled.

Table 1. Economic impact of women's empowerment

VARIABLES	(1)	(2)	(3)	(4)
Female employers (%)	0.022***	0.014**	-0.009	-0.028**
	(0.007)	(0.007)	(0.011)	(0.011)
Women in parliament (%)	0.003***	0.003***	-0.004*	-0.002
	(0.001)	(0.001)	(0.002)	(0.002)
Female labor force (%)	-0.009***	-0.006***	-0.008***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Gender Development Index	2.231***	2.340***	2.369***	0.953***
	(0.160)	(0.183)	(0.183)	(0.233)
Gender Inequality Index	-1.361***	-1.112***	-1.213***	-1.368***
	(0.119)	(0.138)	(0.140)	(0.151)
Women in parliament (%) × Female employers (%)			0.001***	0.001
			(0.000)	(0.000)
Women in parliament (%) × Female labor force (%)			0.000***	0.000
			(0.000)	(0.000)
Population (log, lag)		0.120***	0.100**	0.406***
		(0.045)	(0.045)	(0.056)
Urban population (log, lag)		0.171**	0.175***	0.070
		(0.067)	(0.067)	(0.076)
Net ODA received (log, lag)		-0.014**	-0.015***	0.021***
		(0.006)	(0.006)	(0.007)
Control of corruption				0.077***
				(0.023)
Government effectiveness				0.211***
				(0.022)
Government expenditure on education (% of GDP)				-0.012***
				(0.005)
Current health expenditure (% of GDP)				-0.001
				(0.003)
Constant	6.613***	3.930***	4.421***	0.417
	(0.185)	(0.849)	(0.856)	(0.987)

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; panel data with fixed effect. There is no systematic difference between the fixed and random effect verified by the Hausman test. Standard errors are in parentheses. Variables denoted by (Log) undergo log transformation, while those indicated with (Lag) are lagged by one year to prevent endogeneity problems.

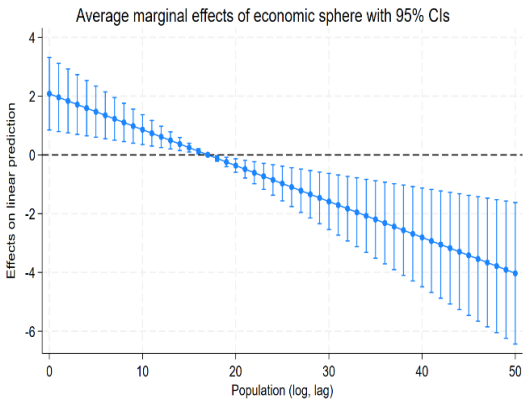
Table 2 displays how women's empowerment affects governance level, measured by control of corruption. In Columns (1)-(4), women's *economic* empowerment turns out to be positively associated with control of corruption; three out of four columns show positive coefficients with Column (2) being significant at a 99% level. Control variables show mixed signs, with GDP per capita and primary school enrollment showing positive, while FDI, (urban) population, and free political parties have negative coefficients. A country's income level and education level turn out to be effectively controlling corruption.

For deeper analyses, this interacts *empowerment* with some other variables. Focusing on Column (2), the positive coefficient for female employers and a negative one for the *Empowerment* × *Population* (all significant) indicate that women's economic empowerment effectively controls corruptions in smaller countries with less population. This result can be algebraically summarized by the following equation (left side of Figure 1).

Table 2. Impact of women's empowerment on governance (control of corruption)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Female employers (%)				Women in parliament (%)			
Empowerment	1.066	2.229***	-0.136	0.059	0.041	0.174***	0.002	-0.000
	(0.763)	(0.623)	(0.107)	(0.049)	(0.034)	(0.054)	(0.009)	(0.003)
GDP per capita ($) (log, lag)	0.774***	0.676***	0.698***	0.656***	0.828***	0.834***	0.666***	0.637***
	(0.132)	(0.108)	(0.112)	(0.113)	(0.171)	(0.122)	(0.113)	(0.114)
Population (log, lag)	-0.740***	-0.615***	-0.755***	-0.681***	-0.646***	-0.470***	-0.655***	-0.665***
	(0.118)	(0.116)	(0.120)	(0.120)	(0.123)	(0.131)	(0.126)	(0.125)
Urban population (log)	-1.180***	-0.841***	-1.095***	-1.055***	-0.996***	-0.780**	-1.122***	-1.188***
	(0.303)	(0.296)	(0.296)	(0.298)	(0.301)	(0.300)	(0.301)	(0.306)
GDP growth (%) (lag)	-0.003	-0.003	-0.002	-0.002	-0.003	-0.003	-0.003	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
FDI (lag)	-0.003**	-0.002**	-0.002**	-0.002**	-0.002**	-0.001	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
School enrollment (%)	0.003**	0.003**	0.001	0.002*	0.002**	0.003**	0.003	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Free and fair elections	-0.019	-0.019	-0.036	0.041	-0.057	-0.088	-0.033	0.075
	(0.060)	(0.058)	(0.060)	(0.083)	(0.065)	(0.064)	(0.066)	(0.122)
Free political parties	-0.890*	-0.859*	-0.762*	-0.785*	-0.682	-0.562	-0.782*	-0.774*
	(0.456)	(0.437)	(0.450)	(0.450)	(0.459)	(0.443)	(0.454)	(0.449)
Empowerment × GDP per capita ($)	-0.139				-0.005			
	(0.100)				(0.00450)			
Empowerment × Population		-0.131***				-0.010***		
		(0.036)				(0.00320)		
Empowerment × School enrollment (%)			0.001				-0.000	
			(0.000)				(0.000)	
Empowerment × Free and fair elections				-0.0971				-0.006
				(0.080)				(0.005)
Constant	10.13***	7.499***	10.76***	9.531***	7.500***	3.642	9.298***	9.948***
	(2.239)	(2.291)	(2.288)	(2.289)	(2.615)	(2.804)	(2.323)	(2.407)
R-squared	0.334	0.373	0.335	0.333	0.320	0.354	0.315	0.319

Note: *** p < 0.01, ** p < 0.05, * p < 0.1; panel data with fixed effect. There is a systematic difference between the fixed and random effect verified by the Hausman test. Standard errors are in parentheses. Variables denoted by (Log) undergo log transformation, while those indicated with (Lag) are lagged by one year to prevent endogeneity problems.



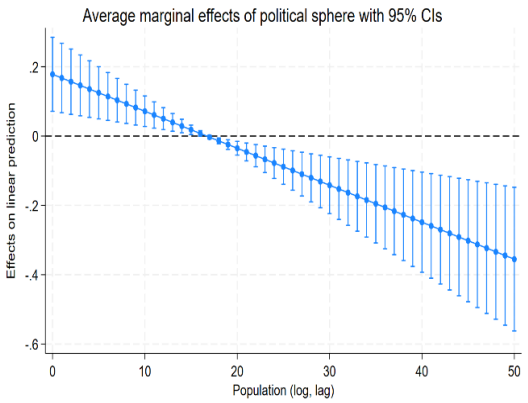


Figure 1. The marginal effects of female empowerments on the control of corruption, when population is attached as a string

$$\frac{\partial\, control\ \ of\ \ corruption_{it}}{\partial\, economic\ \ empowerment_{it}} = \alpha + \beta\ \mathrm{Ln}\ total\ population_{it-1} \quad (\alpha > 0,\ \beta < 0) \tag{3}$$

$$\frac{\partial\, control\ \ of\ \ corruption_{it}}{\partial\, political\ \ empowerment_{it}} = \alpha + \beta\ \mathrm{Ln}\ total\ population_{it-1} \quad (\alpha > 0,\ \beta < 0) \tag{4}$$

In the graph, the association between *empowerment* and *control of corruption* changes at a certain threshold of 17.1, which is exponentially converted to 26,695,351 in terms of total population. Thus, raising the percentage of female employment can help improve the control of corruption in countries whose population level is less than the threshold.

In Columns (5)-(8), women's *political* empowerment also shows a positive association with control of corruption, consistent with Columns (1)-(4). For the control variables, GDP per capita and school enrollment show positive associations, while FDI, (urban) population, and free political parties show negative signs. For the interaction term, Column (6) shows a 99% level of significance with the coefficient. Like with economic empowerment, the positive association for women in national parliaments (%) and a negative one for the *Empowerment* × *Population* (all significant) show that political empowerment helps more effectively control corruption in countries with small populations. This result can also be adgebraically summarized by the following equation (right side of Figure 1).

The graph shows the marginal effects of the percentage of female national parliament on the control of corruption, as estimated by Column (6) in Table 2.

The graph illustrates how the relationship between female empowerment in political sector and control of corruption changes at a certain threshold of 16.8, which is exponentially converted to the total population is 19,776,403. Thus, increasing the portion of female politicians helps improving the control of corruption in low-income countries with relatively low populations, less than the estimated threshold.

Then, would the economic and political variables serve as complements or substitutes for each other? To answer this, this study considers another interaction between the two empowerment variables (Table 3).

Columns (1)-(4) indicate the estimation when the control variables are added. In all four columns, women's economic empowerment significantly affects the control of corruption only in Column (4), while the control variables significantly affect corruption control in most cases. Only GDP per capita has a

Table 3. Interaction effects of female empowerment

VARIABLES	(1)	(2)	(3)	(4)
Female employers (%)	0.033 (0.039)	0.035 (0.048)	0.107 (0.0657)	0.362*** (0.079)
Women in parliament (%)	-0.003 (0.003)	-0.004* (0.002)	-0.000 (0.002)	0.003 (0.002)
Female employers (%) × Women in parliament (%)	-0.001 (0.001)	-0.002 (0.001)	-0.005** (0.002)	-0.012*** (0.002)
GDP per capita ($) (log, lag)		0.419*** (0.093)	0.570*** (0.098)	0.636*** (0.106)
GDP growth (%) (lag)		-0.001 (0.002)	-0.002 (0.002)	-0.003 (0.002)
FDI (lag)		0.000 (0.001)	-0.002** (0.001)	-0.003*** (0.001)
Population (log, lag)			-0.603*** (0.120)	-0.761*** (0.123)
Urban population (log)			-1.399*** (0.242)	-1.020*** (0.290)
School enrollment (%)			0.000 (0.001)	0.001 (0.001)
Free and fair elections				-0.087 (0.063)
Free political parties				-0.873** (0.425)
Constant	-0.941*** (0.069)	-3.828*** (0.661)	9.959*** (2.293)	10.95*** (2.215)
R-squared	0.010	0.097	0.307	0.393

Note: *** p < 0.01, ** p < 0.05, * p < 0.1; panel data with fixed effect. There is a systematic difference between the fixed and random effect verified by the Hausman test. Standard errors are in parentheses. Variables denoted by (Log) undergo log transformation, while those indicated with (Lag) are lagged by one year to prevent endogeneity problems.

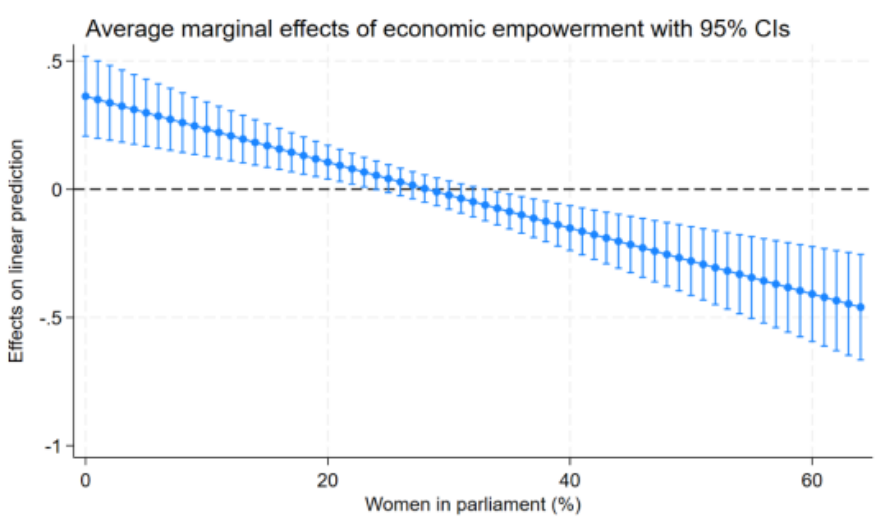


Figure 2. The marginal effects of the female economic empowerment on the control of corruption

positive effect. As previously shown, income level is an important indicator of effectively controlling corruption.

The interacted variables (*Female employers* × *Women in parliament*) are consistently negative, although each variable is generally positive on its own. The two turn out to be substitutes for each other, given that economic empowerment effectively controls where political empowerment is weak, and vice versa. Equation (5) shows the marginal effects of female employers when the value of women in national parliament changes. The positive coefficient for female employers and the negative one for the interaction term indicate that women's economic empowerment effectively controls corruption where political empowerment is weaker, and vice versa.

$$\frac{\partial\, control\ of\ corruption_{it}}{\partial\, female\ employers_{it}} = \alpha + \beta\ women\ in\ parliament_{it} \quad (\alpha > 0,\ \beta < 0) \tag{5}$$

Figure 2 provides a visual illustration; the association between female empowerment in economic sector and control of corruption changes at a certain threshold, where the proportion of women politicians in national parliament is approximately 29%. Thus, increasing the percentage of women employers can help improve the control of corruption when the percentage of female representatives is relatively low.

IV. Case Study: Mongolia

Mongolia has experienced a significant economic transformation since its democratic revolution in the 90s, and this transition has seen the nation's economy shift from a centrally planned to market-based. Mongolia has experienced significant urbanization, with urbanization rates increasing by more than 10%. Real GDP per capita grew an average of 5.4% per year (Betcherman et al., 2022). In 2023, it became one of the most rapidly growing countries with the rate at 7%, and GDP per capita reaching at 5,875 USD (National Statistics Office of Mongolia, 2023). Despite notable advancements, poverty continues persisting, with around 27.1% of people still remaining below the poverty line (National Statistics Office of Mongolia, 2023).

The Women's Empowerment Index (UNDP, 2023) assesses capacity and freedom of women to make own decisions and take opportunities across 114 countries, revealing persistent restrictions on these aspects for women globally, and Mongolia achieved a score of 0.670, higher than the global average of 0.607, yet still categorized as a lower middle group. Also, the GII (UNDP, 2023) ranks Mongolia 72nd out of 166 countries, with a score of 0.297. Similarly, the Global Gender Gap Report (2024) places Mongolia 7th among 18 countries in the East Asia and Pacific region and 85th out of 146 countries globally. These rankings highlight notable disparities, particularly in economic participation and political empowerment.

Although Mongolia's government is taking certain development policies and programs to support women's empowerment, there are remaining challenges such as the decreasing number of women's labor participation, gender wage gap, job segregation, gender discrimination in the workplace, societal norms, political environment shortcomings, and insufficient government support services. Mongolia faces a persistent challenge in its labor force dynamics, marked by comparatively low and declining participation rates, particularly among women (Betcherman et al., 2022). Despite an overall decline in the labor force participation rate by 5.3% points since 2000, the female rate experienced a drop of 10.8% points while increasing by 2.1% for men (National Statistics Office of Mongolia, 2023). This indicates that gender norms surrounding occupational choices and industrial sectors significantly influence career decisions for women and girls. From a gender perspective, Mongolia ranks 75th in labor force participation rate and 68th in equal wages for comparable work (World

Economic Forum, 2023).

Regarding political empowerment, Mongolia ranked 120th among 146 countries (Pal et al., 2024). Although the number of female legislators rose from 3 to 13, for two decades, Mongolia did not meet the 2015 MDG objective of having 30% of women in politics and decision-making roles (UNDP Mongolia, 2023). Similarly, the percentage of women elected to the State Great Khural (Parliament) reached a historic high of 17.1%, but this figure remains below the global average of 27% in 2023 (UNDP Mongolia, 2023). Besides, while women comprise 51% of the electorate and actively participate in elections, their involvement in political decision-making remains inadequate as women have not held any of the top three political offices at either the national or subnational levels (UN Women and UNDP, 2023). Moreover, the Gender Social Norms Index (2023) revealed that 74.1% of people in Mongolia agree that men create better political leaders compared to women. This result also shows gender bias.

Within this context, the data was collected covering from 2003 to 2022, to examine whether women's empowerment positively impact Mongolia's GDP per capita (Table 4).

The regression analysis reveals several key insights into how female empowerment has effects on Mongolia's income levels. *Political* empowerment, estimated by the proportion of female representatives in national parliament, turns out to be ineffective, as shown by its insignificant result. *Economic* empowerment, estimated by the percentage of female employers, is relatively effective and even significantly positive (Column 3). However, this positive result fades away when the two variables are interacted (Column 3). This finding implies that female entrepreneurship could be a potential driver of economic improvement, but political empowerment

Table 4. The economic impact of women's empowerment in Mongolia

	(1)	(2)	(3)
Women in parliament (%)	-0.010 (0.025)	0.002 (0.011)	-0.010 (0.025)
Female employers (%)	0.054 (0.052)	0.050 (0.037)	0.644* (0.302)
Female labor force (%)	-0.037*** (0.009)	0.002 (0.006)	-0.020 (0.014)
Gender Development Index	-7.592 (5.318)	-7.531*** (2.014)	-5.767** (2.071)
Gender Inequality Index	-3.554 (3.497)	-1.040 (1.455)	-0.441 (1.283)
Women in parliament (%) × Female employers (%)			-0.037* (0.018)
Women in parliament (%) × Female labor force			0.002 (0.001)
Population (log, lag)		-2.392*** (0.736)	-1.076 (0.894)
Urban population (log, lag)		5.184*** (0.756)	3.843*** (1.000)
Net ODA received (log, lag)		0.039 (0.030)	0.043 (0.026)
Constant	6.613*** (0.185)	3.930*** (0.849)	4.421*** (0.856)

Notes: *** p < 0.01, ** p < 0.05, * p < 0.1; panel data with fixed effect. There is no systematic difference between the fixed and random effect verified by the Hausman test. Standard errors are in parentheses. Variables denoted by (Log) undergo log transformation, while those indicated with (Lag) are lagged by one year to prevent endogeneity problems.

is not yet mature enough. The interaction term between women in parliament and the female labor force is non-significant, indicating no clear combined impact on income levels. Additionally, the significantly positive impacts of the urban population in Columns (2) and (3) underscores the economic benefits of urbanization and its role in supporting income growth due to better access to jobs and services.

V. Conclusion and Suggestion

This study provides valuable understandings of how women's empowerment in developing countries impacts on income level and good governance in complex ways. Despite some progress, the empowerment of women and elimination of gender inequality remain stagnant worldwide. Persistent gender gaps and constrained empowerment hinder women and girls from realizing their full potential across societies. Achieving true equality between women and men is crucial for redistributing power and enabling women to claim their rights and opportunities. While resources—economic, social, and political—are critical for women's empowerment, they are not always sufficient.

The study's findings confirm our hypothesis that greater women's empowerment positively influences income levels alongside governance. The significant positive interaction terms highlight that the impact of women in parliament on a country's income level is enhanced when accompanied by high levels of female employers and labor force participation. As for income levels, women's empowerment in various aspects serve as complements to each other. Policies must therefore strive for gender equality in the workforce but also ensure women's substantial engagement in decision-making roles. This integrated approach is a pivotal point for strengthening a robust and inclusive economy. Also, gender inequality negatively impacts GDP, while higher levels of gender development correlate positively. These findings emphasize the importance of targeted interventions across education, healthcare, and economic sectors to foster equal rights for women and their empowerment.

Regarding the impact of female empowerment in the economic and political sectors on corruption control in low-income countries, both empowerment variables have a significant positive impact controlling corruption. Their interactions with population turn out to be negative, implying that women's empowerment is more effective in controlling corruption in relatively smaller countries (populations lower than approximately 20-27 million). On the other hand, when both economic and political empowerment interact, they serve as substitutes for each other, such that the marginal effects of female employers on corruption control were positive only in countries where the proportion of female representatives was lower than about 29%. In countries where the proportion of women politicians in parliament exceeds 29% promoting women's economic engagement may not be successful in controlling corruption.

The regression analysis of women's empowerment on income levels in Mongolia reveals that political empowerment is ineffective. Economic empowerment shows some positive impact, but this effect diminishes when combined with political empowerment. However, it suggests that female entrepreneurship could drive economic improvement, while political empowerment is not developed enough to act as a catalyst. Additionally, urban population positively impact on income with significance, highlighting the economic benefits of urbanization.

For a robustness reason, it should be desirable to consider other variables than control of corruption as a proxy for governance. Furthermore, additional developing or underdeveloped countries in Latin America, Africa, or Asia could be taken into consideration to check whether countries with low corruption also limit women's role in politics. All of these remain major caveats and reserved for further studies.

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