Do Coups d'état matter in Women's Political Empowerment?

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Abstract

Inspired by the current political instability in the world, this article analyses the effect of coups d'état on Women's Political Empowerment (WPE). Several channels are identified to highlight this effect, namely the human capital channel through education and the institutional channel through the environment and institutional arrangements. With several empirical approaches on a panel of countries, this effect remains robust to the income level of the countries, decomposing the WPE index according to different typologies of coups and institutions, even controlling for potential endogeneity. This article thus contributes to the literature by showing that, in order to increase WPE, this requires a good political environment.

Keywords: Coups d'état, Successful coups, failed coups, Women's Political Empowerment (WPE).

1. Introduction

The occurrence of coups d'état is a recurrent phenomenon in developing countries. Bjørnskov and Pfaff (2021) state that there were nearly 84 coups in the 1970s. This phenomenon still seems to be relevant today, as there are nearly 27 cases of coups in the 2010s. For example, we can mention the case of Thailand in 2006 and, more specifically, the coup against Prime Minister Thaksin Shinawatra on 19 September. Another example is the failed coup attempt in Turkey in July 2016. In Africa, recent years have been characterised by many coups. On 21 March 2012, low-ranking officers organised a coup to oust President Amadou Toumani Toure in Mali. In Burkina Faso, Blaise Compaoré was ousted from power through a coup in 2015. Robert Mugabe in Zimbabwe also faced the same situation in 2017. In April 2019, Sudanese President Omar al-Bashir was overthrown by a coup, and in Gabon, Ali Bongo faced a failed coup. More recently, the coup in Mali in 2020 was followed by the reversal of the transitional government in 2021. The occurrence of the coup in Guinea-Conakry in 2021, the failed attempt in Niger in 2022 and the soldiers' mutiny that led to the eviction of Roch Marc Kabore in Burkina Faso illustrate the importance of the matter for developing countries. As can be surmised, coups have important socio-economic consequences especially they can affect women's political empowerment (WPE).

Marshall and Marshall (2014) understand coups as the forcible seizure of power by a dissident or oppositional faction within the country's ruling or political elite. This led to a substantial change in the executive leadership and policies of the previous regime. WPE refers to a process of women's empowerment that leads to greater agency and participation in decision-making in society. It also has three dimensions: choice, action, and participation (Sundström et al., 2017).

In the economic literature, several empirical studies highlight the effect of gender equality on the preservation of armed conflict within a nation (Frankel et al., 1991; Tickner, 2001) and on the peaceful relationship between states (Caprioli, 2005, 2016; Caprioli and Boyer, 2016). This literature provides an understanding of the extent to which women in politics can influence issues of war and peace in countries. Several arguments are put forward to justify the ability of women's political participation to reduce conflict. These arguments fall into two approaches. The first approach focuses on essentialist arguments and the second on constructivist arguments. These arguments are challenged by many other authors (Collins, 2002; Caprioli, 2005; Tickner, 2005; Wibben, 2010; Dill and Kohlman, 2012; Harris, 2018; Wood and Fixmer-Oraiz, 2018).

While the literature discusses the role of women in peacekeeping, it is silent on the effects of coups d'état on WPE. Given the relevance of the phenomenon of coups d'état and the issue of gender equality in many areas of economic life, it is interesting to explore this relationship. Countries with frequent and regular coups d'état also have a lower level of WPE. When we look at the Sundström's et al. (2017) and Bjørnskov and Rode's (2020) datasets, countries like the Comoros and Chad, with a frequency of 10 coups d'état between 1990 and 2020, have a political empowerment index of 0.49 and 0.47, respectively.

The main objective of this article is to analyse the role of coups in WPE in developed and developing countries. The economic literature on the effects of coups is not abundant. However, in recent years, several authors have investigated the effects of coups on numerous economic phenomena. For instance, it has been demonstrated that coups can have negative consequences on economic growth and investment (Levine and Renelt, 1992; Alesina et al., 1996; Sala-i-Martin, 1997a, 1997b). Masaki (2016) shows, for example, that international donors penalize coups by

reducing their aid. Balima (2020) argues that coups significantly increase the cost of debt. More recently, Bennett et al. (2021) suggest that successful coups, particularly those by the military, are associated with institutional degradation. Bjørnskov and Pfaff (2021) analyse the effect of coups on repression by questioning the role of coups to deal with in the respect of the right to physical integrity. These authors show that the impact of coups on repression varies according to the type of regime, as this determines the relative costs of repression.

WPE has received renewed interest from the academic community in recent years as it encompasses the most important features of women's ability to make choices in life situations, political participation, and agency relationships (Sundström et al., 2017). Several studies identify various factors affecting women's empowerment. Recently, Awoa et al. (2022) show that natural resources influence the level of WPE. Likewise, several authors suggest that other factors explain WPE. For example, education and culture can determine WPE (Brown et al., 2019). Many papers also show that access to income-generating activities increases women's empowerment (Kabeer, 2010). Other works have focused on the determinants in different areas. These include microfinance (Weber and Ahmad, 2014; Masood and Javaria, 2020); domestic violence (Eswaran and Malhotra, 2011; Bulte and Lensink, 2019); nutrition (Gupta et al., 2019; Narayanan et al., 2019); conflict (Bakken and Buhaug, 2021); and employment and welfare (Kabeer and Natali, 2013).

This article extends the work of Bennett et al. (2021), which highlights the effect of coups on the deterioration of democratic institutions. More specifically, this article investigates the role of coups in women's ability to exert political power. This paper goes beyond parliamentary representation, such as in the work of Dollar et al. (2001) and Swamy et al. (2001), to take into account the composite index of WPE constructed by Sundström et al. (2017).

In many countries, coups lead to dictatorship and particularly to the oppression of women. During periods of political instability, such as coups, women's political and civil rights are restricted (Melander, 2005; Hughes, 2009; Tripp, 2015). Moreover, in countries that have experienced coups, there is some evidence that women's political freedom has been constrained. For instance, in Afghanistan in 2021, women were banned from government positions. In Egypt too, women's political freedoms have been limited. Given the scarcity of theoretical and empirical evidence on the issue, it is not surprising that we know much less about the channels through which the occurrence of coups can affect WPE. However, we assume in section two below that the effect of coups on WPE is mediated through human capital via the effect of conflict on education (Blattman and Annan, 2010; Justino, 2011); the degradation or disruption of the democratic process (Miller, 2012; Bennett et al., 2021); and the failure of civil society to play its proper role (Alesina and Perotti, 1996).

To assess the effect of coups on WPE, we use the recent databases of Sundström et al. (2017) on WPE (participation in civil society organizations, women's political participation, and women's civil liberties) and different types of coups (successful or failed, military, civilian, or royal) and Bjørnskov and Rode (2020) on coups. The main estimates are performed using the fixed-effects estimator with corrected standard deviations of Driscoll and Kraay (1998). This estimator has the advantage over the traditional fixed-effects estimator of correcting for heteroscedasticity and autocorrelation of residuals, but above all, it takes into account the interdependence of individuals when the period of study is long. Furthermore, the analyses are carried out from a comparative perspective between developed and developing countries, especially because women's conditions are not similar between developed and developing countries. This is explained by the influence of culture and

traditions (Field et al., 2010; Alesina et al., 2013; Hansen et al., 2015; Jayachandran, 2021). In the robustness analysis, we also pay attention to the democratic framework, as the literature highlights differential effects of coups depending on the institutional framework (Bjørnskov and Pfaff, 2021). Following Awoa et al. (2022), a dynamic specification of the model is estimated using the System Generalized Moment Method (S-GMM) developed by Blundell and Bond (1998) to take into account possible endogeneity issues. Finally, we empirically test the transmission channels. Overall, the results show that WPE declines when there are coups.

The remainder of the paper is organized as follows. Section 2 presents the theoretical rationale behind the analysis of the effects of coups on women's empowerment. In Section 3, we describe the methodological framework and present the data. Section 4 presents the results of the empirical evaluations. The last part of the paper lays out the main findings and recommendations that follow.

2. Theoretical arguments for the effect of coups on WPE

Two main mechanisms are privileged in explaining the effect of coups on the level of WPE, namely the human capital channel through education and the institutional channel via the environment and institutional arrangements.

2.1. The effect of coups on WPE through education

Since the pioneering work of North (1990), the quality of institutions explains a large part of the economic performance of countries. From this perspective, political governance has a significant influence on the level of education in different countries. More precisely, the political regime, or political rivalries, which are the source of political stability and the absence of violence, has a strong influence on human capital through education. Civil wars or state costs have a lasting effect on the level of and access to education of civilian populations and warring groups affected by violence (Justino, 2011). For example, in times of armed conflict or coup d'état, learners are forced to stop attending school. This can be explained by the phenomenon of child soldiers, the loss of financial autonomy for farmers (which prevents them from financing the schooling of their offspring), the fear that political insecurity induced by state costs targets schools and teachers, or migratory movements due to coups d'état (which do not favour the sedentarisation of populations in school). For example, young girls, women, and school-age children are used by rebel groups to increase the number of fighters, improve their logistical support, spread fear, and reduce resistance among the local population. Young girls or women are more often used as fighters or cooks, and they are often forced to provide sexual services. Blattman and Annan (2010) and Walter (2004) argue that boys and girls exposed to conflict can also suffer severe psychological trauma lasting beyond the end of the war and impacting their academic performance.

Coups affect the distribution of returns to education across social groups and genders. The trade-off is to invest more in the education of boys than girls, as boys are more likely to find better-paid jobs (Chamarbagwala and Morán, 2011; Shemyakina, 2011). Similarly, in times of coups, fear plays an important role in explaining the withdrawal of children from schools during violent conflicts. Rape and other sexual violence are strategies used by fighting groups. Girls may not be able to go to school if they are afraid of being physically or sexually assaulted.

Targeted attacks on school infrastructure, educational staff, and students can also destroy any effort to build human capital. Indeed, in conflict situations, access to quality education is seriously threatened, not only by the direct effects of fighting but also because school infrastructure, education staff, and learners are often the targets of violent attacks. These types of attacks can include burning, bombing, and occupation of schools by armed forces; killing, torture, abduction, and rape of education staff or learners by armed groups; and forced recruitment of child soldiers (O'Malley, 2010).

Forced displacement and migration as a result of coups d'état also affect human capital and specifically education. Displaced children are deprived not only of education but also of the support provided by educational structures in difficult environments (Mooney and French, 2005). Several other types of arguments are put forward by several other authors (Collier, 1999; Hoeffler and Reynal-Querol, 2003). According to these authors, civil war means taking resources away from private businesses and public goods like educational infrastructure and using them for war.

Another strand of the literature shows that there is a relationship between the level of education in developing countries and women's political empowerment. For Samarakoon and Parinduri (2012), education not only produces skilled workers and informed voters but also improves women's political, economic, and even social decision-making power. It is also recognised that education is a factor that can influence women's political empowerment (Ross, 2006; Iversen and Rosenbluth, 2008). Moreover, education increases women's bargaining power within their households as it equips them with knowledge, skills, and resources to make life choices that improve their political well-being (Pollak and Watkins, 1993; Lundberg and Pollak, 2007). Empirical work points to the fact that education influences women's empowerment. For example, Osili and Long (2008) find that education reduces women's fertility in Nigeria and Indonesia. This fertility is often an obstacle to the political development of the female gender. In the same vein, Breierova and Duflo (2004) show the effects of education on fertility and infant mortality in Indonesia. Several authors examine the effects of education on various measures of women's empowerment, such as fertility, contraceptive use, reproductive health practices, decision-making power, and community participation (Mocan and Cannonier, 2012; Samarakoon and Parinduri, 2012). From this perspective, education increases women's bargaining power and ensures greater political empowerment for women.

2.2. The effect of coups on women's political empowerment through the institutional environment

The relationship between coups and the institutional environment presents controversial literature. For some authors, coups are a source of degradation of institutional arrangements (Miller, 2012), while for others, coups are a factor in improving the institutional environment (Derpanopoulos et al., 2016; Thyne and Powell, 2016). Without ignoring and questioning the analysis of the second approach, the remainder of this analysis focuses on an approach where coups can degrade the institutional environment necessary for the development of WPE. In this example, the negative effects of coups on institutional arrangements are shown through democracy and civil society involvement in the way institutions work.

Although Collier and Rohner (2008) work has mounted a counter-attack against the widespread policies of condemning coups, arguing that coups are probably the best approach used in removing authoritarian dictators from power, given the fact that coups provide a window of opportunity for democracy promotion, Miller (2012) has shown that violent regime changes pave the way for a major change in the political system with a risk of institutional degradation. While Thyne and Powell (2016) subsequently found that coups against dictators roughly double the prospects for the democratization of their state, he similarly recognizes that there is uncertainty about the improvement of the institutional environment as losers of political power may at any time seek to regain power through military or revolutionary counter-offensive methods that promote political instability.

Other works beyond democracy question the effect of coups on civil liberties through the participation of civil society in the functioning of countries. Ayittey's (1998) analysis provides empirical evidence of the link between the occurrence of coups and the restriction of rights. Earlier, (Olson, 1982) argued that in populist regimes, interest groups have a natural tendency to expropriate wealth and limit freedoms. These actions threaten the private property of the business and landed elite, which generates social rigidities and increases the potential for political turbulence. From another perspective, Alesina and Perotti (1996) also show that when the participation of civil society in political decision-making is threatened in a State, this can trigger political instability in various forms, including coups. Similarly, coups have as a consequence, in many cases, the reduction of civil society action.

In alternative literature, the institutional environment is a catalyst for WPE (Waylen, 1994; Paxton et al., 2010, 2006; Fallon et al., 2012; Wand et al., 2017). If we consider democracy as a meta-institution following Rodrik (2000) and Acemoglu et al. (2005), democratic development is seen as a key driver for WPE. In other words, greater democratic empowerment contributes to improved institutional quality through greater political empowerment of women (Wyndow et al., 2013). Fish's (2002) analysis highlights the deficit of WPE in Muslim regions through a low level of democratization. Following this, Donno and Russet (2004) test the causal link between women's status and democracy. Many studies also show that women's political power improves the quality of institutions by reducing corruption (Dollar et al., 2001; Jha and Sarangi, 2018). Corruption and women's empowerment may be closely related in that women may be both subjects and objects of behavioural practices. More recently, some authors have highlighted the role of democratic transitions on women's civil liberties through their engagement in politics (Wand et al., 2017).

Through this analysis, it follows that the coups – through their impact on democracy and civil society – influence women's contemporary political empowerment through the resulting institutional environment.

3. Model specification and data

This section describes data and the empirical strategy used to evaluate the impact of coups on WPE.

3.1. Model specification

To examine the relationship between Coups and WPE, we set up the following econometric model:

$$WPEI_{it} = \alpha + \beta Coups_{it} + \gamma X_{it} + \eta_i + \nu_t + \xi_{it} \quad (1)$$

Where WPEI represents an index of WPE. Coups' variable is a measure of coups d'état and β captures the hypothesized effect of coups on WPE. X is a set of control variables that includes some determinants of WPE. η and ν indicate unobserved individual effects and temporal effects, respectively, while ξ is the error term. To estimate equation 1, we rely on the fixed-effect estimator with the Driscoll and Kraay (1998) panel-corrected standard errors to isolate the cross-temporal drivers of WPE. A fixed-effects estimator with the Driscoll and Kraay (1998) model seems to be better than the traditional fixed-effects estimator because it accounts for problems related to heteroskedastic residuals and autocorrelation, as well as cross-sectional and temporal dependence when the time dimension becomes large. Furthermore, to avoid reverse causality, all of the control variables are set up with a one-year lag.

3.2. Data and preliminary analysis

To test the hypotheses, we constructed a country-year dataset covering 157 countries, as reported in Table A1 (in the appendix), between 1980 and 2020. The temporal domain and the number of countries are determined by the availability of the data, and the same sample is used in all the main models to facilitate a direct comparison of results.

3.2.1. Measuring WPE

The overall women's political empowerment index (WPEI) proposed by Sundström et al. (2017) is used as our benchmark measure of WPE. They define WPE as "a process of increasing capacity for women, leading to greater choice, agency, and participation in societal decision-making." The advantage of this indicator is that it reflects both women's basic civil liberties, women's open discussion of political issues and participation in civil society organizations, and women's descriptive representation in formal political positions. To construct this indicator, Sundström et al. (2017) use nine indicators collected by the V-Dem project through assessments of more than 2,600 local and international experts to measure (i) women's ability to make meaningful decisions in key areas of their daily lives, (ii) agency, and (iii) women's political participation.

To measure women's ability to make meaningful decisions in key areas of their daily lives, they developed a Women's Civil Liberties Index (WCLI), which combines four elements: women's freedom of domestic movement; the absence of forced labour; property rights; and access to justice. The "women's domestic freedom of movement" component measures the extent to which women enjoy the freedom of movement within the country. The indicator "freedom from forced labour for women" assesses whether adult women are free from servitude and other types of forced labour. "Women's property rights" measures the extent to which women enjoy the right to private property. The variable "women's access to justice" measures the extent to which women have equal, secure, and effective access to justice.

On the agency dimension, they construct an index of women's participation in civil society to measure the ability of women to engage freely in public debate. This indicator incorporates

women's freedom of discussion, participation in civil society organisations (CSOs) and representation in the ranks of journalists. "Women's freedom of discussion" refers to the extent to which women can engage in private discussions, including on political issues, in private homes and public spaces without fear of harassment by other members of the polity or by public authorities. "Women's participation in civil society organisations" is a measure of whether women are prevented from participating in civil society organisations and whether those organisations that represent women's interests are prevented from participating in community life. The variable "women journalists" indicates the percentage of women journalists in the print and broadcast media.

Finally, for the participation dimension, they construct an index of women's political participation that measures the extent to which women are descriptively represented in official political positions, which combines women's legislative presence and the distribution of political power by gender. Therefore, the WPEI takes into account more information on political empowerment than the indicators typically used in the literature, such as the proportion of parliamentary women, the Gender-Related Development Index (GDI), the Gender Inequality Index (GII), and the Gender Empowerment Measure (GEM). This indicator has the advantage of covering a large number of countries over a relatively long period. Furthermore, the WPEI allows a more precise measurement of women's political empowerment compared to the previous one Sundström et al. (2017), as it deals with measurement error and noise.

3.2.2. Measuring coups d'état

Our variable Coups captures coups d'état. Following Thyne and Powell (2016), coups d'état are understood as events that can take a week at most and in which a group attempts to depose the incumbent government and take over executive power of a country by unlawful means. The relevant data come from the Bjørnskov and Rode (2020) coup d'état dataset, which combines extensive coup data and information on regime type categorization for 192 sovereign nations and 16 self-governing territories from 1950 to 2020. The Bjørnskov and Rode (2020) database has an advantage over alternatives because it not only offers more information on coup leaders than most other databases, but it also provides the same information for failed and successful coups. In addition, this dataset categorizes coups in which the main coup leaders have military ranks or positions as military coups, while those in which the leaders were civilians are categorized as civilian coups. It also provides data on royal coups in which the main coup leader is a member of the royal family.

3.2.3. The control variables

In equation (1), we control for several other factors in our analysis by including some variables that are common in the literature on WPE. We first control for development level using log-transformed real Gross Domestic Product (GDP) per capita in constant 2005 US dollars, available from World Development Indicators (WDI), given that economic development is linked to increased gender equality through improvements in education, job opportunities, and welfare (Dollar et al., 2001; Kabeer and Natali, 2013). We further control for female labour force participation and the female population size, also retrieved from WDI. Larger female populations, as well as higher female labour participation, are considered to increase the pressure on governments for more female representation in certain political decision-making processes or more female participation in civil society (Ross, 2008; Awoa et al., 2022). However, a higher female

population or female labour participation could be associated with lower women's political empowerment because it can also be seen as a rival group in a patriarchal society (Liou and Musgrave, 2016). We also include natural resource rents measured as the ratio of total natural resource rents to GDP, in line with the findings of Awoa et al. (2022). They precisely show that resource rent has a strong negative impact on WPE as it reduces female employment in the manufacturing and exchangeable service sectors, increases gender inequality in primary and secondary education, and increases the female fertility rate. We final control for conflicts using immediate post-conflict and ongoing conflict proxies, in line with the conclusions of Bakken and Buhaug (2021). They show that post-conflicts, as well as ongoing conflicts, lead to changes in women's political standing. In particular, they provide strong evidence of post-conflict improvements in female empowerment and decline, as well as the decline of women's political representation and women's civil liberties with the occurrence of conflicts. To measure the immediate post-conflict, we rely on the Bakken and Buhaug (2021) approach. To construct the immediate post-conflict variable, they specify a decay function that acts as a variable weight that reduces the influence of the conflict-specific variables as time passes. This decay function is defined as $x = 2^{-\left(\frac{t}{\alpha}\right)}$, where t is the time in years since the last year of conflict activity and is the designated half-life parameter set to two years. In addition, all countries are assigned a value of 0 until they experience their first post-conflict phase, and the decay is reset to 1 in the initial year of the next post-conflict phase. The ongoing conflict proxy is a dummy that takes 1 when a conflict occurs and 0 otherwise. Data on conflicts used to construct these variables are taken from the UCDP/PRIO Armed Conflict Dataset v.19.1 (Gleditsch et al., 2002; Pettersson et al., 2019).

An overview of the data indicates that the level is quite different among countries and regions. As displayed in Figure 1, the regions where women are less politically empowered are Northern Africa (0.46) and Western Asia (0.50). Conversely, Northern America (0.90), Northern and Western Europe (0.92 and 0.91, respectively), as well as Oceania (0.91), are the regions with the highest WPE index. These regions are also among those that have not experienced coups over the 1980–2020 period. Meanwhile, countries that have not experienced coups like Australia, Canada, France, Spain, Sweden, Switzerland, and the United States all have a higher WPE index, whereas countries that have experienced the most coups like Chad, Comoros, Libya, the Republic of Laos, and Guinea-Bissau tend to have the weakest WPE index.

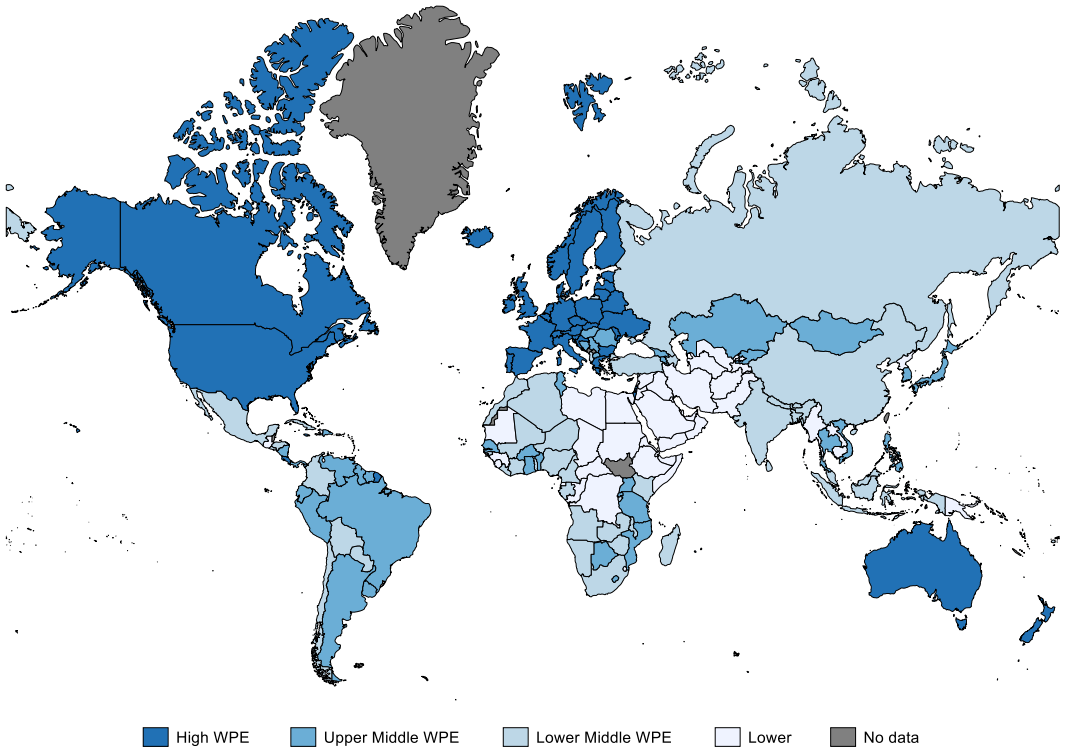


Figure 1. Women's political empowerment around the world over the 1980-2020 period

Next, we pursue the investigation by examining graphically the relationship between the WPE index and coup proxies. Precisely, we compute and depict in Figure 2 the average of WPEI by distinguishing successful coup events from failed ones, as well as multiple-yearly coups and single-yearly coups. On the whole, Figure 2 shows that the WPE index is higher in countries that do not experience coups than in those where coups occur, suggesting a reduction in WPE with coup events. This feature is also observed in both failed and successful coups. When dealing with multi-yearly coups, we can observe that countries that do not experience multi-yearly coups have a higher WPE index than those experiencing multiple coups in a year, especially if they are failed ones. Paradoxically, countries experiencing multiple coups in a year have a better WPE index than others. Although the graphical analysis provided some intuition about the nature of the relationship understudy, it reflects a mere correlation and may be biased by econometric issues such as reverse causality or the existence of confounding factors that affect the coups-WPE relationship. Therefore, we need to build a more robust conclusion on the econometric analysis.

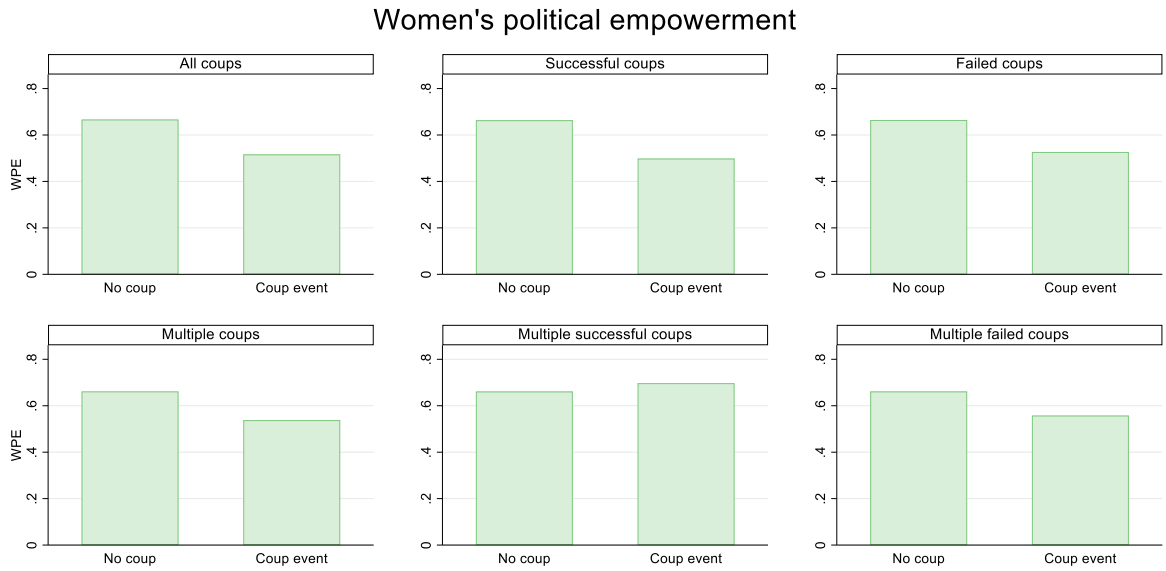


Figure 2. Women's political empowerment and coups

4. Results

To verify our main hypothesis that coups reduce WPE, we start with a baseline analysis. After that, we run some robustness tests to make sure our findings are true, and we look at the transmission mechanisms.

4.1. Baseline

Table 1 presents our basic findings for coups d'état on WPE. We first regress the coup's event on WPE [columns (1) – (3)]. Secondly, we estimate the effect of yearly multiple coups on WPE [columns (4) – (6)]. For the classification of coups, we distinguish between all successful and failed ones. When looking at the estimates of the effect of coup events on WPE, all coup variables enter the regression significantly at the 1% level (column (1)). This suggests that when a coup happens, women have less ability to make a greater choice, more agency, and participate in societal decision-making. However, the results show precisely that only successful coups reduce WPE. Indeed, the parameter associated with our successful coup indicators is negative and significant at 1% (column (2)). By contrast, failed coups seem to have no meaningful impact on WPE since its associated coefficient is not significant (column (3)). We obtain similar results when turning to the role of multiple coups. Indeed, the results presented in column (4) show that all multiple-year coups significantly reduce WPE as well as successful ones, while failed coups do not influence WPE. Overall, these results are consistent with our theoretical expectations as they suggest that coups – especially successful ones – deter WPE. As stated in Section 2 of the theoretical fundaments of the paper, WPE deteriorates with coups through the weakening of democratic institutions as well as civil society participation (Miller, 2012; Easton and Siverson, 2018) and female education (Blattman and Annan, 2010; Chamarbagwala and Morán, 2011; Shemyakina, 2011).

Table 1. Baseline results

	Coup (Event)			Coups (Multiple)		
	(1)	(2)	(3)	(4)	(5)	(6)
All coups	-0.029***			-0.026***		
	(0.006)			(0.005)		
Successful coups		-0.052***			-0.051***	
		(0.011)			(0.010)	
Failed coups			-0.012			-0.010
			(0.007)			(0.007)
Lag GDP per capita (log)	0.048***	0.048***	0.048***	0.048***	0.048***	0.048***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Lag Total natural resources rents (% of GDP)	-0.037	-0.035	-0.038	-0.037	-0.035	-0.038
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Lag Female population ages 15-64	0.974***	0.977***	0.981***	0.974***	0.977***	0.981***
	(0.126)	(0.128)	(0.128)	(0.126)	(0.127)	(0.128)
Lag Female labour force participation rate	0.088***	0.091***	0.088***	0.089***	0.091***	0.088***
	(0.017)	(0.017)	(0.016)	(0.017)	(0.017)	(0.016)
Lag Conflict ending	0.018***	0.018***	0.017***	0.018***	0.018***	0.017***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Lag Ongoing conflict	-0.021***	-0.022***	-0.023***	-0.021***	-0.021***	-0.023***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.323***	-0.328***	-0.327***	-0.324***	-0.328***	-0.327***
	(0.057)	(0.058)	(0.057)	(0.057)	(0.058)	(0.057)
Observations	4307	4307	4307	4306	4306	4306
Number of countries	157	157	157	157	157	157
Fisher test p-value	0.000	0.000	0.000	0.000	0.000	0.000
R square	0.314	0.317	0.309	0.314	0.316	0.309

Note. ***, **, **, * indicate significance at the 1%, 5% and 10% levels of confidence. The numbers in parentheses represent Diskroll-Kraay robust standard errors. All the control variables are specified with a one-year lag.

The control variables in Table 1 behave mostly as expected. In particular, we find that the increase in GDP per capita has a positive and meaningful effect on WPE, in line with the conclusion of Dollar (2004) as well as Kabeer and Natali (2013), meaning that a higher level of economic development leads to greater WPE. In line with the results of Ross (2008), we also find that the female population, as well as female labour force participation, have a significant and positive effect on WPE, suggesting that a higher female population and increasing female labour participation induce a higher demand for female representation in the political decision-making process. Moreover, considering the sign of the coefficients for conflict endings, the immediate aftermath of civil war is associated with a statistically significant improvement in WPE. Conversely, ongoing conflicts have a consistently negative effect on WPE, reflecting a tightening of state security measures that often infringe on WPE during the height of the war, as demonstrated by Bakken and Buhaug (2021). Most importantly, the results of table 1 do not validate the hypothesis of the natural resources curse in the case of WPE as suggested by Awoa et al. (2022) since in all estimates the parameter of total natural resources rents is not significant.

4.2. Robustness analysis

The main empirical findings in Table 1 provide the support that the occurrence of coups d'état yields to a lower level of WPE. However, to assess whether these empirical findings are robust, several sensitivity tests are performed based on alternative measures of WPE, types of coups, income level, regional specificities, political regime types and potential endogeneity issues.

4.2.1. Dealing with disaggregated measures of WPE

In our basic results, we find that only successful coups d'état influence WPE. However, since WPE reflects a process of increasing capacity for women, leading to greater choice, agency, and

participation in societal decision-making (Sundström et *al.*, 2017), we examine this relationship by disaggregating women's political empowerment into its three main subindexes, which capture the most important aspects of women's empowerment, namely: women's civil liberties; women's participation in civil society organization; and women's political participation. The results obtained when estimating the effects of coups on these subindexes are reported in table 2. We mainly focus on both successful and failed coups d'état (events as well as multiple). Three key lessons emerge from this table.

First, when a coup d'état is successfully carried out, the women's political empowerment index decreases regardless of the selected subindex. Indeed, in both regressions, the coefficient of successful coup d'état is negative and at least significant at 5%. Secondly, successful coups have a larger and more consistent negative effect on women's political participation than on civil liberties or participation in civil society organizations. When we look at the results, we can see that the coefficient associated with the successful coup in women's political participation estimate is almost three times as high as the one for civil liberties and four times higher than for civil society participation. Indeed, incumbents in power after a successful coup need to consolidate their power to reduce the likelihood of future coup attempts. One way of doing this is to consolidate the political positions of faithful collaborators (generally men) to make it easier to retain power (Bachrach and Baratz, 1962) so that after successful coups, the political positions of women tend to decline in favour of men. Moreover, it is demonstrated that episodes of political instability, including coups d'état, contribute to accentuating gender inequalities (Lehmijoki and Palokangas, 2006). We also reach similar findings when turning to the role of multiple successful coups. Thirdly, failed coups (events) only influence women's civil liberties. Multiple failed coups do not have a meaningful effect on WPEI regardless of the selected subindex. When a coup d'état fails, those in power tend to take restrictive measures on civil liberties and liberties to limit the possibility of a future coup attempt (Easton and Siverson, 2018).

Table 2 also provides interesting results concerning the effect of some control variables on women's political empowerment subindex. For instance, the results show that GDP per capita has a positive and significant impact on the different subindices of WPE as well as the female population. This implies that with a higher level of development and a larger percentage of the female population, women are more represented in the political sphere, participate more in civil society, and have more civil liberties. Most importantly, the coefficient of the conflicts' ending is positive and significant in all the estimates concerning women's civil society index and women's political participation, meaning that the immediate aftermath of war is associated with a meaningful rise in women's civil society index as well as women's political participation. Conversely, conflict ending does not influence women's civil liberties. In addition, the coefficient of the ongoing conflict dummy is significant and positive in regressions with the women's civil liberties index and the women's civil society index, suggesting that ongoing conflicts are associated with a decline in women's civil liberties and women's participation in civil society.

Table 2. Effect of coups on alternative measures of WPE

	WCLI				WCSI				WPPI			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Successful coups (event)	-0.036***				-0.024**				-0.100***			
	(0.013)				(0.009)				(0.022)			
Failed coups (event)		-0.014*				-0.004				-0.022		
		(0.007)				(0.005)				(0.014)		
Successful coups (Multiple)			-0.035***				-0.023***				-0.098***	
			(0.012)				(0.008)				(0.021)	
Failed coups (Multiple)				-0.011				-0.002				-0.019
				(0.006)				(0.005)				(0.014)
Lag GDP per capita (log)	0.016***	0.016***	0.016***	0.016***	0.024***	0.024***	0.024***	0.024***	0.105***	0.104***	0.105***	0.104***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.014)	(0.014)	(0.014)	(0.014)
Lag Total natural resources rents (% of GDP)	-0.033	-0.035	-0.033	-0.035	0.011	0.010	0.011	0.010	-0.074	-0.081	-0.074	-0.080
	(0.022)	(0.022)	(0.022)	(0.022)	(0.027)	(0.027)	(0.027)	(0.027)	(0.069)	(0.070)	(0.069)	(0.069)
Lag Female population ages 15-64	0.362***	0.364***	0.362***	0.364***	0.818***	0.820***	0.819***	0.821***	1.814***	1.820***	1.812***	1.820***
	(0.129)	(0.129)	(0.128)	(0.129)	(0.135)	(0.135)	(0.135)	(0.135)	(0.125)	(0.124)	(0.124)	(0.124)
Lag Female labor force participation rate	-0.050***	-0.052***	-0.050***	-0.052***	0.032	0.031	0.033	0.032	0.288***	0.283***	0.288***	0.282***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.037)	(0.037)	(0.037)	(0.037)	(0.028)	(0.028)	(0.027)	(0.028)
Lag Conflict ending	-0.013	-0.013	-0.013	-0.013	0.014**	0.013**	0.014**	0.013**	0.051***	0.049***	0.051***	0.049***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.006)	(0.006)	(0.006)	(0.006)	(0.012)	(0.012)	(0.012)	(0.012)
Lag Ongoing conflict	-0.049***	-0.050***	-0.049***	-0.050***	-0.010**	-0.011**	-0.010**	-0.011**	-0.008	-0.011	-0.007	-0.011
	(0.007)	(0.007)	(0.007)	(0.007)	(0.004)	(0.004)	(0.004)	(0.004)	(0.009)	(0.010)	(0.009)	(0.010)
Constant	0.375***	0.377***	0.376***	0.377***	-0.032	-0.032	-0.033	-0.033	-1.349***	-1.348***	-1.349***	-1.347***
	(0.072)	(0.072)	(0.073)	(0.072)	(0.065)	(0.065)	(0.065)	(0.065)	(0.091)	(0.090)	(0.091)	(0.089)
Observations	4336	4336	4335	4335	4336	4336	4335	4335	4307	4307	4306	4306
Number of countries	157	157	157	157	157	157	157	157	157	157	157	157
Fisher test p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R square	0.088	0.084	0.088	0.084	0.172	0.170	0.172	0.171	0.351	0.343	0.351	0.342

Note. ***, **, **, * indicate significance at the 1%, 5% and 10% levels of confidence. The numbers in parentheses represent Diskroll-Kraay robust standard errors. All the control variables are specified with a one-year lag.

4.2.2. Dealing with the types of coups

Our results thus far suggest that coups, especially successful ones, are associated with a decline in WPE. Since some recent contributions (Bennett et al., 2021) highlight that coups have different effects depending on their types, we re-estimate equation (1) using three coup-type variables representing military, civilian, and royal coups. We present these results in Table 3.

When dealing with successful coups, our new findings indicate that military ones are negatively and significantly correlated with WPE, as our military coup dummy enters the equation negatively and statistically significant at the 1 per cent level in models (1). We also find a negative and significant correlation between royal coups and WPE. Although the civil coup dummy also enters the equation negatively, it is not statistically significant. When looking at the failed coup, the results show that only royal ones deter WPE. Even if military and civil coups do not influence WPE, their associated parameters are not statistically significant, even if they are negative. Relying on these findings, it appears that WPE declines with royal coups regardless of whether they succeed or fail and with successful military coups.

By definition, successful military and royal coups involve an authoritarian takeover whereby the new leaders tend to severely restrict the rights of workers (especially women) through legislation or force (Bennett et al., 2021; Bjørnskov and Pfaff, 2021). As a result, women are displaced from decision-making spheres because of increased violence and repression by the state when a successful military or royal coup occurs. This displacement is exacerbated by the propensity of the leaders behind coups to ensure that leadership succession occurs from within their ranks. However, when military coups fail, the incumbents are harsher as they increase the punishment of detractors to raise the cost of future coup attempts and preserve their power (Bachrach and Baratz, 1962), but the changes in women's political participation are less dramatic because their institutions are already in place (Bennett et al., 2021). By contrast, when a royal coup fails, the surviving leaders tend to purge the decision-making sphere and restrict the rights of citizens—which leads to the eviction of women from the decision-making sphere—to ensure the continuity of their reign.

Table 3. Effect of coups types on WPE

	Successful			Failed		
	(1)	(2)	(3)	(4)	(5)	(6)
Military coup	-0.067***			-0.005		
	(0.013)			(0.008)		
Civil coup		-0.020			-0.009	
		(0.012)			(0.017)	
Royal coup			-0.051***			-0.046***
			(0.018)			(0.017)
Lag GDP per capita (log)	0.048***	0.048***	0.048***	0.048***	0.048***	0.048***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Lag Total natural resources rents (% of GDP)	-0.034	-0.037	-0.038	-0.038	-0.037	-0.038
	(0.027)	(0.027)	(0.027)	(0.027)	(0.028)	(0.027)
Lag Female population ages 15-64	0.979***	0.983***	0.982***	0.983***	0.982***	0.982***
	(0.125)	(0.129)	(0.129)	(0.129)	(0.126)	(0.128)
Lag Female labour force participation rate	0.091***	0.088***	0.089***	0.088***	0.089***	0.090***
	(0.016)	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)
Lag Conflict ending	0.018***	0.017***	0.017***	0.017***	0.017***	0.017***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Lag Ongoing conflict	-0.022***	-0.023***	-0.024***	-0.024***	-0.023***	-0.023***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.329***	-0.328***	-0.329***	-0.328***	-0.328***	-0.329***
	(0.058)	(0.058)	(0.058)	(0.059)	(0.058)	(0.058)
Observations	4307	4307	4307	4307	4307	4307
Number of countries	157	157	157	157	157	157

Fisher test p-value	0.000	0.000	0.000	0.000	0.000	0.000
R square	0.317	0.309	0.309	0.309	0.309	0.309

Note. ***, **, **, * indicate significance at the 1%, 5% and 10% levels of confidence. The numbers in parentheses represent Diskroll-Kraay robust standard errors. All the control variables are specified with a one-year lag.

4.2.3. Dealing with the development level

To check the robustness of previous conclusions, we re-assessed the effect of coups, considering two sub-samples relatively homogeneous. We distinguish between developed countries and developing countries, given that most coups occur in developing countries that have weaker WPEI than developed ones. Most importantly, it should be noted that the conditions of women are not similar in developed and developing countries, given the role of traditions and culture in constraining or popularizing women's empowerment as well as women's freedom in developing countries (Jayachandran, 2021). Indeed, several works underline the influence of traditions and culture in constraining women's freedom in developing countries (Alesina et al., 2013; Bahrami-Rad, 2021; Jayachandran, 2021). Table 4 reports the corresponding results. As we can observe, all the coefficients of coups' variables are negative and significant by at least 5% in developing countries. In the case of developed countries, coups only influence WPE when they are successful. As we emphasised earlier, the status of women tends to decline after a coup because the incumbents in power tend to consolidate their power to reduce the likelihood of future coup attempts by favouring men in the political decision sphere. This effect is particularly amplified in developing countries given that the patriarchal tradition and culture are less favourable to female education and tend to relegate women to household duties (Cooray and Potrafke, 2011; Rammohan and Vu, 2018).

Table 4. Coup d'état and WPE by level of development

	Developing countries				Developed countries			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Successful coups (event)	-0.052***				-0.048***			
	(0.011)				(0.012)			
Failed coups (event)		-0.015**				-0.003		
		(0.007)				(0.014)		
Successful coups			-0.052***				-0.044***	
			(0.011)				(0.010)	
Failed coups				-0.014**				0.006
				(0.007)				(0.014)
Lag GDP per capita (log)	0.085***	0.084***	0.085***	0.084***	0.031***	0.031***	0.031***	0.031***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Lag Total natural resources rents (% of GDP)	0.023	0.018	0.023	0.018	-0.085***	-0.086***	-0.085***	-0.085***
	(0.039)	(0.039)	(0.039)	(0.039)	(0.029)	(0.029)	(0.029)	(0.029)
Lag Female population ages 15-64	0.906***	0.916***	0.906***	0.917***	0.845***	0.843***	0.844***	0.843***
	(0.151)	(0.150)	(0.151)	(0.150)	(0.115)	(0.116)	(0.115)	(0.116)
Lag Female labour force participation rate	-0.045	-0.056	-0.045	-0.056	0.237***	0.240***	0.237***	0.240***
	(0.065)	(0.068)	(0.065)	(0.068)	(0.026)	(0.025)	(0.026)	(0.025)
Lag Conflict ending	0.017**	0.016**	0.017**	0.016**	0.007	0.007	0.007	0.006
	(0.006)	(0.007)	(0.006)	(0.007)	(0.022)	(0.023)	(0.022)	(0.023)
Lag Ongoing conflict	-0.025***	-0.027***	-0.025***	-0.027***	-0.010	-0.011	-0.009	-0.012
	(0.005)	(0.004)	(0.005)	(0.004)	(0.011)	(0.012)	(0.011)	(0.012)
Constant	-0.450***	-0.442***	-0.450***	-0.442***	-0.174**	-0.173**	-0.174**	-0.173**
	(0.038)	(0.039)	(0.038)	(0.039)	(0.074)	(0.073)	(0.074)	(0.073)
Observations	1823	1823	1823	1823	2310	2310	2309	2309
Number of countries	66.000	66.000	66.000	66.000	85.000	85.000	85.000	85.000
Fisher test p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R square	0.343	0.334	0.343	0.334	0.326	0.323	0.326	0.323

Note. ***, **, **, * indicate significance at the 1%, 5% and 10% levels of confidence. The numbers in parentheses represent Diskroll-Kraay robust standard errors. All the control variables are specified with a one-year lag.

4.2.4. Dealing with the role of the institutional framework

Turning to the role of the institutional framework, we check the robustness of our baseline result for the political regime. This investigation is of paramount importance since (Bjørnskov and Pfaff, 2021) underline that differences in regime types do matter in the research of coups d'état. Precisely, they show that when non-democratic regimes take power from democratic regimes through coups d'état, respect for physical integrity rights (including women's ones) decreases because of the rise of repression. To do that, we assess the effect of coups on WPE by considering autocratic and democratic regimes. Using the normalized polity2 index of the Polity V database as a measure of democracy, we considered autocratic regimes those that have a score ranging from 0 to 0.5, while democratic regimes are those with a score between 0.5 and 1. The results presented in the table 5 show that in autocratic regimes, only successful coups deter WPE, while in democratic regimes, WPE declines when both failed and successful coups occur. This result is not surprising since the seizure of power in democratic regimes leads to political and government instability. In this context, the incumbent tends to modify the allocation of resources between repressive measures – such as extrajudicial killings and torture – and buying political support in such a way that he increases his survival probability in office (Bjørnskov and Pfaff, 2021).

Table 5. Coup d'état and WPE by level of institutions

	Autocratic regime				Democratic regime			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Successful coups (event)	-0.045***				-0.040***			
	(0.014)				(0.010)			
Failed coups (event)		-0.010				-0.022**		
		(0.012)				(0.010)		
Successful coups (multiple-yearly)			-0.045***				-0.039***	
			(0.014)				(0.009)	
Failed coups (multiple-yearly)				-0.001				-0.021**
				(0.011)				(0.009)
Lag GDP per capita (log)	0.013*	0.012*	0.013*	0.012*	0.066***	0.066***	0.066***	0.066***
	(0.007)	(0.006)	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
Lag Total natural resources rents (% of GDP)	-0.066*	-0.068*	-0.066*	-0.067*	0.102	0.103	0.103	0.103
	(0.034)	(0.035)	(0.034)	(0.035)	(0.063)	(0.063)	(0.064)	(0.063)
Lag Female population ages 15-64	0.930***	0.946***	0.930***	0.948***	0.920***	0.913***	0.919***	0.913***
	(0.038)	(0.038)	(0.038)	(0.038)	(0.147)	(0.145)	(0.146)	(0.145)
Lag Female labour force participation rate	0.448***	0.444***	0.448***	0.440***	0.010	0.009	0.010	0.008
	(0.073)	(0.073)	(0.073)	(0.073)	(0.014)	(0.014)	(0.014)	(0.014)
Lag Conflict ending	0.023***	0.023**	0.023***	0.022**	0.011**	0.010**	0.011**	0.010**
	(0.008)	(0.009)	(0.008)	(0.009)	(0.005)	(0.005)	(0.005)	(0.005)
Lag Ongoing conflict	-0.020*	-0.021*	-0.020*	-0.021*	-0.023***	-0.023***	-0.022***	-0.023***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.316***	-0.321***	-0.316***	-0.321***	-0.374***	-0.369***	-0.374***	-0.369***
	(0.087)	(0.087)	(0.087)	(0.087)	(0.080)	(0.079)	(0.080)	(0.079)
Observations	678	678	678	678	3629	3629	3628	3628
Number of countries	50.000	50.000	50.000	50.000	149.000	149.000	149.000	149.000
Fisher test p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R square	0.338	0.330	0.338	0.329	0.342	0.340	0.342	0.339

Note. ***, **, **, * indicate significance at the 1%, 5% and 10% levels of confidence. The numbers in parentheses represent Diskroll-Kraay robust standard errors. All the control variables are specified with a one-year lag.

4.2.5. Dealing with endogeneity

In the previous finding, all the control variables were introduced in estimates with a one-year lag to minimize the influence of reverse causality. However, this strategy doesn't fully address the endogeneity issue. Although reverse causality is a major source of endogeneity, the introduction of

lagged control variables doesn't correct the bias related to simultaneity and the omitted variables issues. Most importantly, given that WPE is a dynamic process that depends on the point of departure, it is important to take this inertia into account. However, with the introduction of the lag of WPE as a control variable, the results obtained with traditional estimators (including the FE estimator) will suffer from Nickell (1981) bias, since the lag of WPE could be correlated with the error term. Building on the need to deal with the inertia of WPE and endogeneity issues, we rely on the system generalized method of moments (S-GMM) estimator of Blundell and Bond (1998), which allows the correction of the endogeneity bias through double instrumentation. The first one consists of instrumenting the first difference of the equation to be estimated (which eliminates the unobservable, individual, and time-invariant characteristics) by at least one period-lagged variable (in level). The second instrumentation uses lagged variables (in differences) by one period (or more) to instrument variables in level. Because the S-GMM procedure has a problem with too many instruments, we used the method that Roodman (2009) came up with. This method involves limiting the number of certain lags and collapsing the instruments by having separate moments for each lag instead of one moment for each lag and time.

Table 6. Results when dealing with endogeneity

	(1)	(2)	(3)	(4)
Successful coups (event)	-0.014**			
	(0.007)			
Failed coups (event)		0.002		
		(0.004)		
Successful coups (Multiple)			-0.014**	
			(0.007)	
Failed coups (Multiple)				0.002
				(0.004)
Lag Women political empowerment index	0.972***	0.972***	0.972***	0.972***
	(0.006)	(0.006)	(0.006)	(0.006)
GDP per capita (in log)	0.001	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)
Natural resources rents (% of GDP)	-0.018**	-0.017**	-0.018**	-0.018**
	(0.007)	(0.007)	(0.007)	(0.007)
Female population (% of total population)	0.001	0.001	0.001	0.001
	(0.009)	(0.009)	(0.009)	(0.009)
Women Labour force participation	0.007*	0.006*	0.007*	0.006*
	(0.004)	(0.004)	(0.004)	(0.004)
Conflict ending	0.012**	0.011**	0.012**	0.011**
	(0.005)	(0.005)	(0.005)	(0.005)
Ongoing conflict	-0.003*	-0.003*	-0.003*	-0.003*
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.018***	0.017***	0.018***	0.017***
	(0.006)	(0.006)	(0.006)	(0.006)
Observations	3741	3741	3741	3741
Countries	155	155	155	155
Instruments	53	53	53	53
Wald test p-value	0.000	0.000	0.000	0.000
Hansen J test p-value	0.172	0.177	0.172	0.232
AR (1)	0.000	0.000	0.000	0.000
AR (2)	0.475	0.452	0.475	0.442

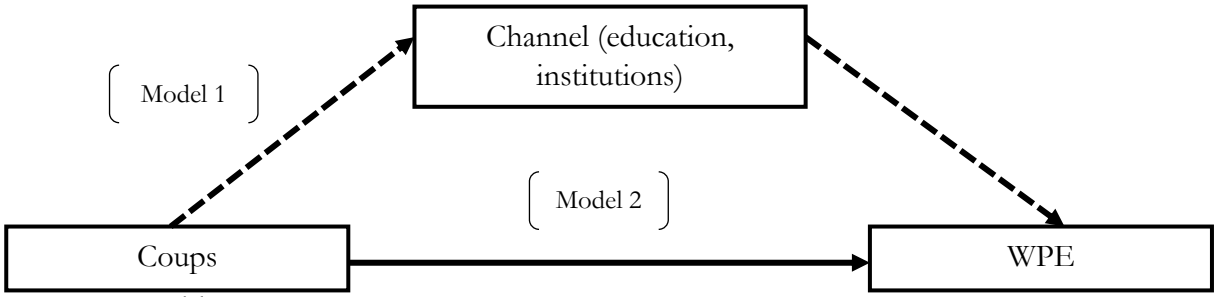
Note. ***, **, **, * indicate significance at the 1%, 5% and 10% levels of confidence. The numbers in parentheses represent robust standard errors.

The results of estimates obtained using S-GMM are presented in Table 6. This table also reported the results of Hansen's over-identification J-test and Arellano and Bond's (1991) autocorrelation tests that are fundamental to validating the instrumentation method. On the whole, the results of these validation tests are conclusive as the null hypothesis of instrument validity in the Hansen test is not rejected in all regressions. Moreover, Arellano and Bond's (1991) autocorrelation test shows that there is a first-order correlation in the model, while there is no second-order correlation. Most

importantly, the number of instruments used for estimates is lower than the number of countries, as suggested by Roodman (2009), indicating that results do not suffer from the instrument proliferation issue. Concerning the effect of coups, the new results corroborate our previous findings. WPE is reduced only when successful coups occur, while failed coups do not influence WPE.

4.3. Transmission mechanisms assessment

The results so far support the conclusion that coups influence WPE. However, the core idea of this paper is that the effect of coups on WPE is mediated by female education, civil society participation, and the level of democracy. To fully address this aim, we analyse in this section the transmission mechanism of the effect of coups on WPE. The approach considered here involves the estimation of structural equation models (SEM) describing the transmission mechanisms, as illustrated in Figure 3. The main advantage of this method is that it allows path analysis by specifying a set of linear equations representing hypothesized relations among latent and non-latent variables. Precisely, the SEM specifies causal relations between variables and describes their direct and indirect effects using a path diagram. Building on this methodology, we first assess the effects of coups d'état (β_1) on the mediators, namely female education, civil society participation, and democracy as specified in Model 1. Next, the direct effect (β_2) is estimated by regressing the WPE index on coups d'état while controlling for the mediators (β_3) in Model 2. Therefore, the indirect effect is given by the product of β_1 and β_3. This term also reflects the size of the mediation, which essentially depends upon the extent to which coups influence the mediators and the extent to which the mediators affect WPE (β_3). Female education is measured as the mean number of years of schooling for women aged twenty to twenty-four, expressed in years. Since this variable is taken from the Wittgenstein Centre Data Explorer and comes in five-year intervals, we linearly interpolate between observation points. The Variety Democracy Database is used to retrieve data on civil society participation (Pemstein et al., 2021). We used the polity2 indicator from the Polity V dataset to measure the level of democracy.



Note. In model 1: $channel_i = \alpha_1 + \beta_1 Coups_i + \upsilon_i$

In model 2: $WPE_i = \alpha_2 + \beta_2 channel_i + \beta_3 Coups_i + \nu_i$

Thus, Direct effect = total effect = β_3; indirect effect = $\beta_1 * \beta_2$ and total effect = $\beta_1 * \beta_2 + \beta_3$

Figure 3. Modelling the transmission channel of coups' effect on WPE

The results of SEM estimations are reported in Table 7. The first part of the table presents the results of Model 1 estimates, and the second part depicts the results of Model 2 regressions. All the models include country dummies to isolate the cross-temporal drivers of military spending specific to each country. On the whole, the results suggest first that coups (successful and failed ones, as well as single events and multiple events) affect both mediators, and that these effects are statistically significant at least at the 5% level (see the results of Model 1). Precisely, the results of

the model 1 assessment show that all coups deter female education, in line with the conclusions of Justino (2011), Blattman and Annan, 2010 as well as Walter, 2004. The results also show that coups limit civil society participation and alter democracy. These results corroborate, on the one hand, the findings of Ayittey (1998) as well as Olson (1982), which demonstrate that when coups occur, incumbents tend to put in place rights and liberty restrictions. On the other hand, they reinforce the conclusion of Miller (2012) and Bennett et al. (2020) concerning the deterioration of the democratic framework. Secondly, both mediators have a significant separate effect on WPE (see the results of Model 2). Taken together, these findings suggest that some of the effects of a coup on WPE may have been mediated through female education, civil society participation, and democracy.

Table 7. Results of SEM estimations

	Female education				**Civil society participation**				**Democracy**			
	Coup's event		Multiple coups		Coup's event		Multiple coups		Coup's event		Multiple coups	
	Successful	*Failed*	*Successful*	*Failed*	*Successful*	*Failed*	*Successful*	*Failed*	*Successful*	*Failed*	*Successful*	*Failed*
	(1a)	(1b)	(1c)	(1d)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(3c)	(3d)
Model 1 (dependent variable: the channel)												
coup	-2.114***	-1.624***	-2.114***	-1.485***	-0.062**	-0.051***	-0.062***	-0.044**	-3.541***	-1.471***	-3.414***	-1.386***
	(0.296)	(0.228)	(0.300)	(0.213)	(0.024)	(0.020)	(0.024)	(0.018)	(0.487)	(0.490)	(0.487)	(0.443)
Constant	4.946***	4.955***	4.946***	4.954***	0.558***	0.559***	0.558***	0.559***	-0.783***	-0.816***	-0.786***	-0.815***
	(0.070)	(0.070)	(0.070)	(0.070)	(0.006)	(0.006)	(0.005)	(0.005)	(0.132)	(0.134)	(0.132)	(0.134)
Model 2 (Dependent variable: WPEI)												
Channel	0.031***	0.031***	0.031***	0.031***	0.542***	0.542***	0.542***	0.543***	0.019***	0.019***	0.019***	0.019***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.006)	(0.006)	(0.006)	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)
Successful coups (event)	-0.059***	-0.022	-0.059***	-0.019	-0.080***	-0.053***	-0.075***	-0.049***	-0.041**	-0.050***	-0.039**	-0.043***
	(0.016)	(0.014)	(0.017)	(0.013)	(0.013)	(0.009)	(0.014)	(0.009)	(0.017)	(0.012)	(0.017)	(0.011)
Constant	0.437***	0.435***	0.437***	0.435***	0.277***	0.277***	0.277***	0.277***	0.586***	0.587***	0.586***	0.587***
	(0.005)	(0.006)	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Observations	5527	5527	5527	5527	6748	6748	6746	6746	5913	5913	5913	5913
RMSEA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TLI	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
CFI	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
SRMR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note. ***, **, **, * indicate significance at the 1%, 5% and 10% levels of confidence. The numbers in parentheses represent robust standard errors.

The formal analysis of the mediation effect is provided in Table 8 using several approaches. We consider several mediation tests to investigate the relevance of the indirect effect of coups WPE via influencing female education, civil society participation, and democracy. We particularly rely on the mediation tests based on SEM, Baron and Kenny (1986), Sobel (1987) and Zhao et al. (2010) approaches. Two main lessons emerge from Table 8. First, when considering the different mediation effects of female education, civil society participation, and democracy, the SEM test statistic is significant at least 5%. Thus, the null hypothesis of no mediation is rejected at least at the 5% level of significance. Tests based on the Baron and Kenny (1986), Sobel (1987) and Zhao et al. (2010) approaches get very similar results when they are used instead.

Secondly, we find that in all mediation analyses, the indirect effect of successful coups is negative and quite material when dealing with the different mediators. For instance, WPE gets reduced by 0.065 through the mediation of female education when successful coup events and multi-year coups occur. On the same note, the coup's event and multiple induce a reduction of WPE by 0.050 and 0.045 respectively. The results show that when a coup succeeds or fails, it causes an indirect decrease in WPE of 0.034 and 0.028. Concerning multiple coups, their indirect effect through civil society participation is around 0.033 and 0.024 when they respectively succeed or fail. The results also provide clear evidence supporting the intuition that the effect of coups on WPE is partially mediated by democracy. As it can be observed, successful coup events and failed ones reduce WPE by 0.067 and 0.028 respectively through democracy. Similar mediated effects of democracy are obtained when dealing with multiple coups.

Although these findings validate our intuitions on the transmission mechanisms of coups' effect on WPE, they also indicate that the indirect role of mediators is statistically and economically smaller than its direct counterpart in some cases, suggesting that the effect of coups could be direct. For instance, the results show that the mediating effect of civil society participation only accounts for less than 35% of the total effect, while the direct one accounts for 65%, at least irrespective of the coup type. On the same note, the mediating effect of democracy only represents 36% and 38% of the total effect of both failed coup events and failed multiple coups, respectively. By contrast, the mediating effect of democracy is higher than the direct effect of both successful coups, irrespective of their type. Precisely, the indirect effect through democracy represents respectively 163% and 167% of the total effect of the successful coup and successful multiple coups.

Table 8. Analysis of mediation tests

	Mediating the effect of female education				Mediating the effect of civil society participation				Mediating the effect of democracy			
	Coup's event		*Multiple coups*		*Coup's event*		*Multiple coups*		*Coup's event*		*Multiple coups*	
	Successful	*Failed*	*Successful*	*Failed*	*Successful*	*Failed*	*Successful*	*Failed*	*Successful*	*Failed*	*Successful*	*Failed*
Mediation test												
SEM	-0.065***	-0.050***	-0.065***	-0.045***	-0.034***	-0.028***	-0.033***	-0.024***	-0.067**	-0.028***	-0.065***	-0.026***
	(0.010)	(0.007)	(0.009)	(0.007)	(0.013)	(0.011)	(0.014)	(0.010)	(0.010)	(0.028)	(0.010)	(0.008)
Baron and Kenny	-0.065***	-0.050***	-0.065***	-0.045***	-0.034***	-0.028***	-0.033***	-0.024***	-0.067**	-0.028***	-0.065***	-0.026***
	(0.010)	(0.007)	(0.009)	(0.007)	(0.013)	(0.011)	(0.014)	(0.010)	(0.010)	(0.028)	(0.010)	(0.008)
Sobel	-0.065***	-0.050***	-0.065***	-0.045***	-0.034***	-0.028***	-0.033***	-0.024***	-0.067**	-0.028***	-0.065***	-0.026***
	(0.010)	(0.007)	(0.009)	(0.007)	(0.013)	(0.011)	(0.014)	(0.010)	(0.010)	(0.028)	(0.010)	(0.008)
Zhao et *al.*	-0.065***	-0.050***	-0.065***	-0.045***	-0.034***	-0.028***	-0.033***	-0.024***	-0.067**	-0.028***	-0.065***	-0.026***
	(0.010)	(0.007)	(0.009)	(0.007)	(0.013)	(0.011)	(0.014)	(0.010)	(0.010)	(0.028)	(0.010)	(0.008)
Composition effects												
Indirect effect (SEM)	-0.065***	-0.050***	-0.065***	-0.045***	-0.034***	-0.028***	-0.033***	-0.024***	-0.067**	-0.028***	-0.065***	-0.026***
	(0.010)	(0.007)	(0.009)	(0.007)	(0.013)	(0.011)	(0.014)	(0.010)	(0.010)	(0.028)	(0.010)	(0.008)
Direct effect	-0.059**	-0.022	-0.059***	-0.018	-0.080***	-0.053***	0.054***	-0.049***	0.041**	-0.050***	0.039**	-0.043***
	(0.016)	(0.014)	(0.016)	(0.012)	(0.013)	(0.009)	(0.008)	(0.009)	(0.017)	(0.012)	(0.017)	(0.011)
Total effect	-0.124***	0.072***	-0.124***	-0.064***	-0.114***	-0.081***	0.109***	-0.073***	0.108***	-0.077***	0.103***	-0.069***
	(0.019)	(0.016)	(0.013)	(0.015)	(0.019)	(0.014)	(0.012)	(0.014)	(0.019)	(0.015)	(0.019)	(0.013)
% of total effect mediated	52.1%	69.2%	52.1%	70.8%	29.7%	34.5%	30.7%	32.9%	61.9%	36.0%	62.6%	38.1%

Note. ***, **, **, * indicate significance at the 1%, 5% and 10% levels of confidence. The numbers in parentheses represent standard errors. SEM, Baron and Kenny (2007), Sobel as well as Zhao et al. (2010) methods test the null hypothesis that there is no indirect effect from Coup to WPE via the channels considered.

Conclusion

The paper aimed to analyse the effect of coups on WPE using a sample of 157 developed and developing countries over the 1980-2020 period. We contribute to the literature by highlighting the role of coups on WPE through education, civil society participation and democracy. In particular, we argue that coups constrain WPE by reducing female education, civil society participation as well as democracy tear. To achieve our aim, we rely on the Fixed-effect model with Driscoll and Kraay (1998) panel-corrected standard errors that deals with heteroskedastic residuals and autocorrelation, as well as cross-sectional and temporal dependence. The key finding of the paper is that WPE gets reduced with the occurrence of coups. This result holds when dealing with several robustness tests considering the main component of WPE or the types of coups, dealing with the development level and the institutional framework as well as endogeneity issues. Importantly, the robustness analyses reveal that coups have a greater impact on women's civil liberty, in developing countries, and when they succeed.

The implication in terms of the economic policy of our findings is that coups should be averted because they lead to the tear of female education, civil society participation and democracy framework.

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Appendixes

Table A. Countries list

Afghanistan	Comoros	Honduras	Moldova	Slovak Republic
Albania	Congo, Rep.	Hungary	Mongolia	Slovenia
Algeria	Costa Rica	Iceland	Morocco	Solomon Islands
Angola	Cote d'Ivoire	India	Mozambique	South Africa
Argentina	Croatia	Indonesia	Myanmar	Spain
Armenia	Cuba	Iran, Islamic Rep.	Namibia	Sri Lanka
Australia	Cyprus	Iraq	Nepal	Sudan
Austria	Czech Republic	Ireland	Netherlands	Suriname
Azerbaijan	Denmark	Israel	New Zealand	Sweden
Bahrain	Djibouti	Italy	Nicaragua	Switzerland
Bangladesh	Dominican Republic	Jamaica	Niger	Tajikistan
Barbados	Ecuador	Japan	Nigeria	Tanzania
Belarus	Egypt, Arab Rep.	Jordan	North Macedonia	Thailand
Belgium	El Salvador	Kazakhstan	Norway	Timor-Leste
Benin	Equatorial Guinea	Kenya	Oman	Togo
Bhutan	Estonia	Kuwait	Pakistan	Trinidad and Tobago
Bolivia	Eswatini	Kyrgyz Republic	Panama	Tunisia
Bosnia and Herzegovina	Ethiopia	Lao PDR	Papua New Guinea	Turkey
Botswana	Fiji	Latvia	Paraguay	Turkmenistan
Brazil	Finland	Lebanon	Peru	Uganda
Bulgaria	France	Lesotho	Philippines	Ukraine
Burkina Faso	Gabon	Liberia	Poland	United Arab Emirates
Burundi	Gambia, The	Libya	Portugal	United Kingdom
Cabo Verde	Georgia	Lithuania	Qatar	United States
Cambodia	Germany	Madagascar	Romania	Uruguay
Cameroon	Ghana	Malawi	Russian Federation	Uzbekistan
Canada	Greece	Malaysia	Rwanda	Yemen, Rep.
Central African Republic	Guatemala	Maldives	Saudi Arabia	Zambia
Chad	Guinea	Mali	Senegal	Zimbabwe
Chile	Guinea-Bissau	Mauritania	Serbia	
China	Guyana	Mauritius	Sierra Leone	
Colombia	Haiti	Mexico	Singapore	