

An Empirical Study on Restrictive Laws and Regulations Affecting Women's Economic Participation

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The global emphasis on women's economic participation has grown significantly due to its vital role in promoting macroeconomic stability and advancing financial inclusion. Involving women in economic activities is essential for achieving Sustainable Development Goals, such as poverty alleviation and closing gender gaps. However, a range of regulatory, cultural, and structural barriers continue to hinder women's ability to participate in the mainstream economy. This study aims to examine the impact of restrictive laws and regulations on women's economic participation within the BRICS bloc. Women's economic participation has been examined through three key dimensions: paid employment, political representation, and entrepreneurship. The findings suggest that the removal of restrictive laws and regulations is associated with increased levels of women's economic participation. It is important to acknowledge that while BRICS countries have made significant strides in dismantling legal barriers affecting women, substantial obstacles remain from both legal and regulatory perspectives that hinder women's engagement in economic activities. Therefore, the study recommends that BRICS nations prioritize the complete removal of restrictive laws and regulations impacting various aspects of women's lives, including mobility, pay, marriage, and entrepreneurship. Furthermore, ensuring a gender-equitable distribution of resources should be a central focus in policymaking to ensure that no one is left behind in the development agenda, particularly women and children.

Keywords: Font: gender gap, economic participation, women empowerment

JEL Classifications: K11, K38, M21, O11, P2

1 Introduction

The concept of women's economic empowerment has gained traction in the global economy due to its significance in macroeconomic stability and financial inclusion (Agbalajobi, 2010). Involving women in productive economic activities such as employment, production, and investment presents numerous advantages, apart from mitigating gender imbalances. These benefits encompass reducing the gender wage gap, enhancing financial sector outcomes, and boosting productivity and competitiveness. According to the latest World Bank report "Women,

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Business and the Law," considerable progress has been achieved from 1960 to 2010 in implementing legal reforms aimed at addressing gender inequality (World Bank, 2023). Despite the significant headway, there are still various barriers to women's economic participation worldwide in the form of restrictive laws and regulations that impede the ability of women to exercise their socio-economic rights. The Constitutional Court of South Africa (n.d.) defines socio-economic rights as those rights that give people access to productive resources, opportunities and services needed to lead a dignified life such as food, shelter, health care, social welfare etc. Other barriers are regulatory while others remain driven by dominant belief systems and cultural norms (Luka, 2011). The global coronavirus pandemic (COVID-19) has likewise reversed decades of progress made in reducing gender imbalances given its disproportionate impact on women and children (Mathebula & Naape, 2023). The vast majority of women are employed in the informal sector which is not covered by labour laws while those employed in the formal sector are subjected to roles that require face-to-face interactions. Moreover, the Covid-19-induced lockdown meant that the scope of unpaid household work performed by women increased substantially, limiting their ability to engage in paid work.

Christopherson et al., (2022) argue that there are no innate barriers preventing women from playing the same roles as males, and although history, cultural norms and dominant belief systems have created an uneven playground, eliminating restrictive laws and regulations is a good starting point to levelling the playground. This can be achieved through legal reform and institutional policies that encourage women to partake in productive economic activities such as occupying traditionally male-dominated positions. Rajeshwari (2015) adds that women's economic participation has the potential to unlock needed resources and lessen the risk of workforce deterioration in developing countries.

Recent data from the World Bank (2022) has shown that in nearly 55 countries, women still face restrictions concerning physical mobility. This includes decisions about where to live and to travel outside of the home at their own will. In some 69 countries, women's ability to choose their career path and receive protection against sexual harassment and workplace discrimination remains limited. As if that were not enough, the gender wage gap remains exacerbated by gender biases in the workplace including the lack of laws promoting equal pay amongst men and women for work of equal value. In the household, women are prone to gender-based violence and extensive caregiving responsibilities which negatively affects their mental health and ability to participate in the labour force (Amin & Islam, 2015). The unwillingness of governments to implement laws that recognise women's nonmonetary contributions to a household remains a major drawback, especially during the dissolution of marriage.

Against this backdrop, the central aim of this study is to investigate the impact of restrictive laws and regulations on the rate of women's economic participation within the BRICS bloc.

The release of the Women, Business and Law report (2023) has made it possible to examine progress made on the elimination of restrictive laws and regulations that impede women's ability to exercise their socio-economic rights. By exercising their socio-economic rights, women can engage in economic activities such as employment, entrepreneurship and investment. The proposed study is unique in that it observes the concept of women's economic participation from a holistic view. Several measures of economic participation are considered including female employment, political leadership and entrepreneurship. Additionally, the study uses novel statistical techniques to conduct an empirical assessment of legal barriers to women's economic participation. It is important to note that this study does not account for the informal sector, which constitutes a significant portion of the informal economy in the BRICS countries. The following sections outline the structure of the study: Section 1 introduces the study and delineates the research problem and contribution. Section 2 provides an overview of the literature on various theories underpinning the concept of women's economic empowerment as well as empirical studies that have scrutinized the concept of women's economic participation. Section 3 provides a brief global overview of the Women, Business and the Law (WBL) trends. Section 4 discusses the methodology used to establish the relationship between regulatory barriers and measures of women's economic participation. Section 5 presents the study's findings, and Section 6 concludes the study.

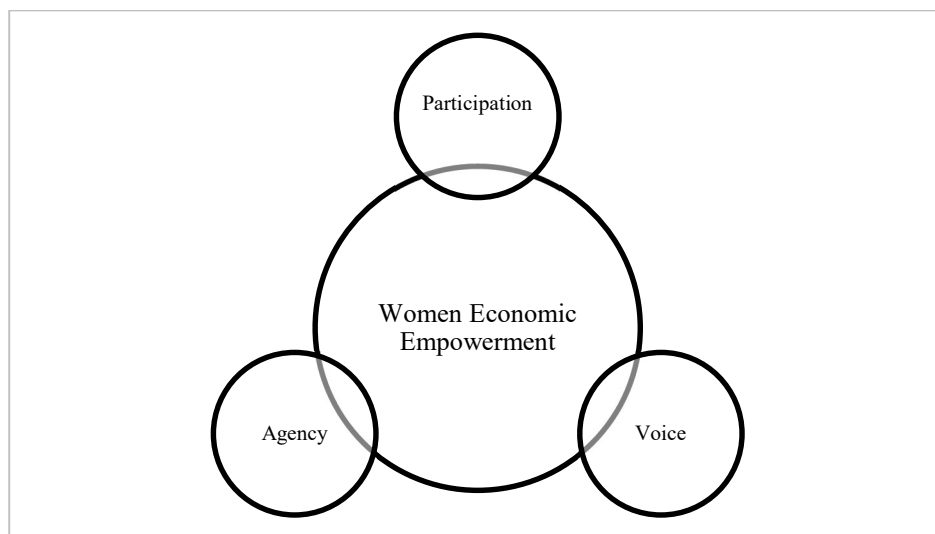
2 Literature review

This section provides an overview of the literature on various theories underpinning the concept of women's economic participation. This section also reviews empirical studies that have scrutinized the concept of women's economic participation.

2.1 Theoretical framework

Williams et al., (2022) define women's economic empowerment as the ability of women to independently make decisions about their lives and priorities as well as their ability to own and control resources and contribute to society. Central to the concept of women's economic empowerment is equality of economic opportunities in various aspects of life including education, health care, employment, recreation and entrepreneurship, among others (Klasen, 2006). The concept of women's economic empowerment rests on three pillars, namely; voice, agency and participation. Voice may be defined as the ability of women to speak up and be heard in various social groups. This includes, without limitation, their ability to make decisions about the use of their personal resources and assets as well as the ease through which they can take part in social, political and economic activities (Khan et al., 2017).

Figure 1: A Framework of Women's Economic Empowerment



Source: adapted from Gammage et al., (2016)

Agency, which is closely related to voice, refers to the ability of women to take advantage of economic opportunities using their endowments (e.g., physical assets, education and health). This further includes their ability to make decisions and achieve desired outcomes regarding their lives. Participation, often referred to as economic advancement, is characterised by several elements, including the ability of women to access and control resources, freedom of movement and risk from violence as well as the ability to influence decisions regarding family formation and public policy. It is sufficient to note that “ability” is largely driven by power, particularly power imbued in women through a bottom-up approach rather than one that is imposed (Hasin et al., 2018). To progress economically, women need a set of skills and productive resources that would enable them to compete fairly in markets.

Furthermore, women need the power and agency to compete for economic opportunities under favourable terms as their male counterparts (Aldashev et al., 2012). Government institutions also have a role to play, by redefining societal norms and perceptions and ensuring equal access to economic institutions (Naape, 2023). Restrictive laws and regulations impede women’s ability to exercise their socio-economic rights and consequently, participation in the mainstream economy. The World Bank (2021) found that, on average, women possess only three-quarters of the legal rights granted to men. Additionally, in nearly 55 countries, women encounter restrictions regarding their physical mobility, including limitations on where they can reside and their ability to travel freely outside the home. These restrictions significantly impact their capacity to exercise socio-economic rights, including the right to choose where to work or run a business.

Moreover, in approximately 69 countries, women's options to select their career paths and to receive protection against sexual harassment and workplace discrimination remain severely limited (World Bank, 2021). Within households, women are often subjected to gender-based violence and bear extensive caregiving responsibilities, which adversely affect their mental health and hinder their participation in the labour force (Amin & Islam, 2015). Eliminating discriminatory laws would enable women to fully exercise their socio-economic rights and participate in the mainstream economy. Some of the benefits of economically empowering women include increased bargaining power and self-efficacy, increased financial dependence and control and ownership of productive resources and ultimately improved livelihoods. Women play a vital role in the economy through their involvement in entrepreneurship and decision-making positions. Additionally, women are instrumental in fostering peaceful and stable communities. Restrictive laws and regulations significantly impede women's participation in the economy. Participation can be assessed through the outcomes of this study, which include employment, political engagement, and entrepreneurship. The existence of prohibitive laws such as those governing physical mobility, career choice, and business ownership significantly impedes women's ability to engage in the mainstream economy. For example, limitations on where women can live and their freedom to choose career paths drastically narrow their professional opportunities and career progression. Additionally, these constraints limit the size and types of businesses they can establish, given the geographical restrictions in place.

2.2 Empirical literature

Some of the empirical studies that have investigated the impediments to women's economic participation are documented in this section. Nwabunkeonye (2014) investigated the factors hindering women's participation in politics and governance in Nigeria. The study argued that poor participation by women in politics has become an issue of concern and that, despite efforts made to influence the trend, the rate at which women partake in political activities has been growing at a deteriorating rate. The study revealed that several factors hinder women's participation in politics including discriminatory socio-cultural and religious practices, political instability, under-representation of women in governance and lack of finances, amongst others. A similar study by Adebimpe (2012) examined gender-related barriers towards women entrepreneurs in Nigeria. The study made use of a mixed methods approach comprising self-structured questionnaires and interviews targeted at female entrepreneurs. The findings revealed that female entrepreneurs in Nigeria encounter a number of challenges in establishing and operating their businesses ranging from limited access to funding, high cost of borrowing, inadequate infrastructure and weak institutions. The study further revealed that cultural norms

largely influence the extent to which women are afforded economic opportunities relative to their male counterparts.

Kassa (2015) scrutinized the challenges encountered by women in occupying political roles in Ethiopia. The study was qualitative and revealed that various economic, social, cultural and religious factors hindered the ability of women to occupy political positions in Ethiopia. The study argued that the inability of women to occupy political positions is particularly concerning given that it is a necessary pre-condition for their interests to be taken into account. A study by Singh (2012) noted that women entrepreneurs play a significant role in the economy of India through job creation and need satisfaction. The study argued that various factors hinder the ability of female entrepreneurs to expand to larger markets and these factors include limited access to funding due to lack of collateral, high levels of female illiteracy rates, limited access to raw material and necessary inputs, family ties and highly concentrated markets.

Narayanan & Selvanathan (2017) investigated some of the challenges confronting government bodies and non-governmental organisations (NGOs) in providing women with equal economic opportunities in Malaysia. The study adopted a mixed methods approach, consisting of self-structured questionnaires, interviews and secondary data. The findings indicated that women experience significant workplace discrimination with respect to promotions and allocation of duties. Furthermore, the findings revealed that women fall short of their male counterparts in respect of pay scale and compensation. Shastri & Sinha (2010) argued that women make up nearly 50% of the total population in India yet they remain under-represented in industry and other entrepreneurial activities. The study further revealed that the majority of women who have ventured into entrepreneurship have a strong educational background with little to no formal work experience. This is largely a result of unpaid household work performed by women. The study concluded that with proper managerial training, and financial and technical support from the government, women entrepreneurs in India are bound to succeed.

A study by Idris (2018) revealed some of the factors hindering women's economic participation in Tanzania. The study identified gender disparities in education, traditional gender roles as well as limited access to financial services as some of the factors hindering women's economic participation in Tanzania. The study argued that women spend the bulk of their time engaged in unpaid household work which limits their ability to indulge in formal economic activities. This raises great concern as it widens the gender pay gap and productivity rates. A similar study by Rawlings (2014) revealed that women in the Republic of Ghana are confronted with several challenges in advancing their role in the economy. Some of the

challenges include the exclusion of women in formal banking systems, deficiencies in property rights regulations as well as the under-representation of women in the education system.

A study by the Organisation for Economic Co-operation and Development (2020) presented a case study on legislative and institutional reforms undertaken by governments in Jordan, Egypt, Tunisia and Morocco to promote women's economic participation. Generally, the study established that significant progress has been made to date in the selected countries to empower women economically. The study found that women in the selected countries are more educated than before, and labour market conditions have also been adjusted to ensure that women have equal rights to work. This includes measures targeted at equal pay, flexible work conditions and addressing sexual harassment. Female entrepreneurship has also been encouraged by ensuring that women have fair and equal access to physical and financial resources, market information and support structures.

3 A global overview of the WBL trends

In this section, we provide an overview of WBL trends across the BRICS countries. The BRICS bloc is an economic alliance consisting of Brazil, Russia, India, China, and South Africa, which is set to reshape the global landscape. The primary objectives of BRICS are to foster economic growth, development, and cooperation among its member nations. Additionally, they seek to reform the international financial and political systems to better reflect the interests of emerging economies. Recently, several countries, including Egypt, Ethiopia, Iran, and the United Arab Emirates, have joined the BRICS bloc.

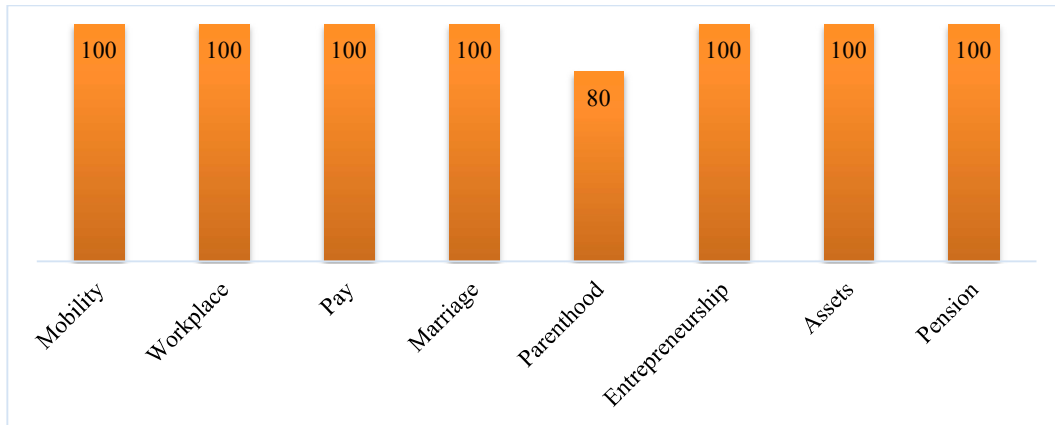
a) South Africa

In recent decades, South Africa has made notable progress in eliminating restrictive laws and regulations that hinder women's ability to exercise their socio-economic rights. This progress is reflected in the country's commendable global ranking of 88 out of 100 in the latest Women, Business and the Law report. Notably, South Africa achieved a perfect score of 100 points in most WBL components, including mobility, workplace, pay, marriage, entrepreneurship, and assets. This reflects the fact that women in South Africa enjoy the freedom of movement, possess the autonomy to make individual employment choices and receive equitable pay compared to men for comparable work, among other factors. However, concerns persist regarding laws related to women's pension benefits. Additionally, there is still considerable room for improvement in addressing issues related to gender-based violence, which remains prevalent in South Africa.

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¹ The source for figures 1-5 is Women, Business and the Law database (2024)

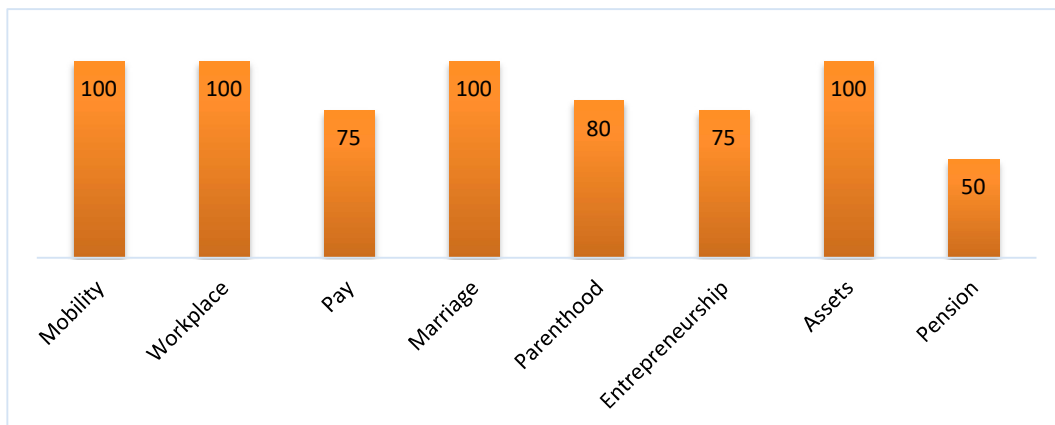
Figure 1: WBL trends in South Africa



b) Brazil

In Brazil, women face numerous obstacles in the form of restrictive laws and regulations, particularly in areas such as wages, motherhood, entrepreneurship, and retirement benefits. In other words, several legal frameworks hinder women's ability to receive equal pay for work of equal value compared to their male counterparts. Additionally, women often lack the same opportunities as men in relation to starting and managing businesses. Despite these challenges, Brazil achieved a score of 85 out of 100 in the recent 2024 Women, Business and the Law report, reflecting significant progress in addressing laws related to women's freedom of movement, marriage choices, workplace decision-making, and reducing gender disparities in property and inheritance rights.

Figure 2: WBL trends in Brazil



c) China

In the latest 2024 Women, Business and the Law report, China scored an overall 78 out of 100, falling behind other BRICS nations like South Africa and Brazil. However, China achieved a perfect score of 100 in several WBL components, including mobility, workplace, marriage, parenthood, and asset ownership. Notably, scoring full points in parenthood is a significant feat for China, especially in light of the challenges that women in countries like Brazil and South Africa still face in balancing work and motherhood. In China, women enjoy the freedom to travel independently and make individual decisions about work, marriage, and asset management. Nonetheless, there is still room for improvement in areas such as laws concerning women's pensions and their ability to start and manage businesses. Of particular concern is China's inadequate performance in laws related to equal pay for equal work, especially given that women globally earn only 77 cents for every dollar earned by men, as reported by the United Nations in 2023.

d) Russia

In the most recent 2024 Women, Business and the Law report, Russia ranked the lowest among BRICS countries, achieving an overall score of 73 out of 100. The country's scores across most components of the WBL index are significantly below 100, reflecting minimal progress in eliminating restrictive laws and regulations related to the living and working conditions of women over the past few decades. This is particularly apparent in laws that affect women's autonomy in making work-related decisions and their ability to start and manage businesses on equal footing with men, as well as issues surrounding the gender pay gap. Russia has made notable advances in removing restrictive laws and regulations concerning mobility and asset ownership.

Figure 3: WBL trends in China

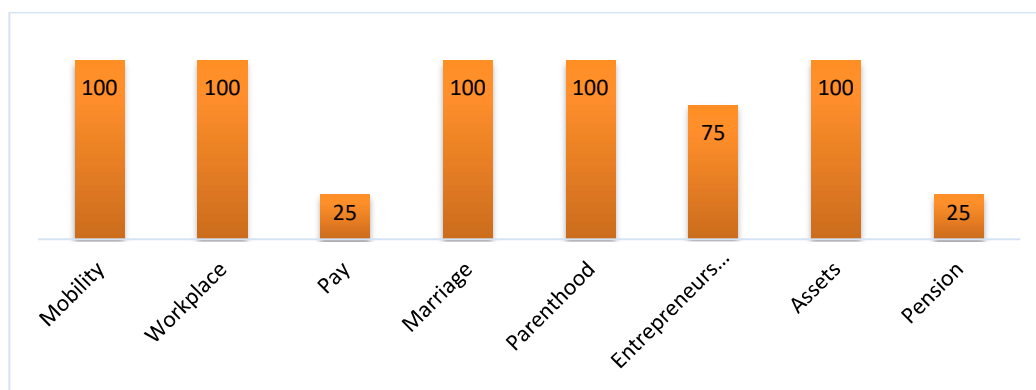
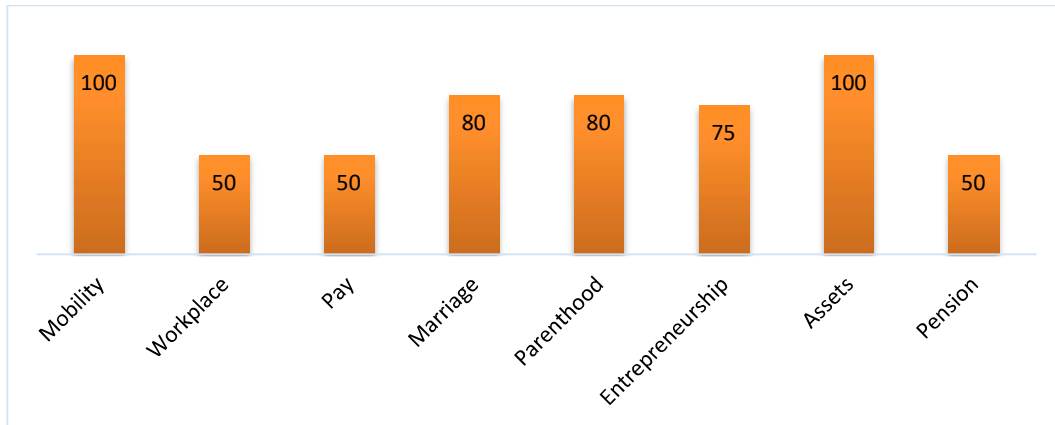


Figure 4: WBL trends in Russia

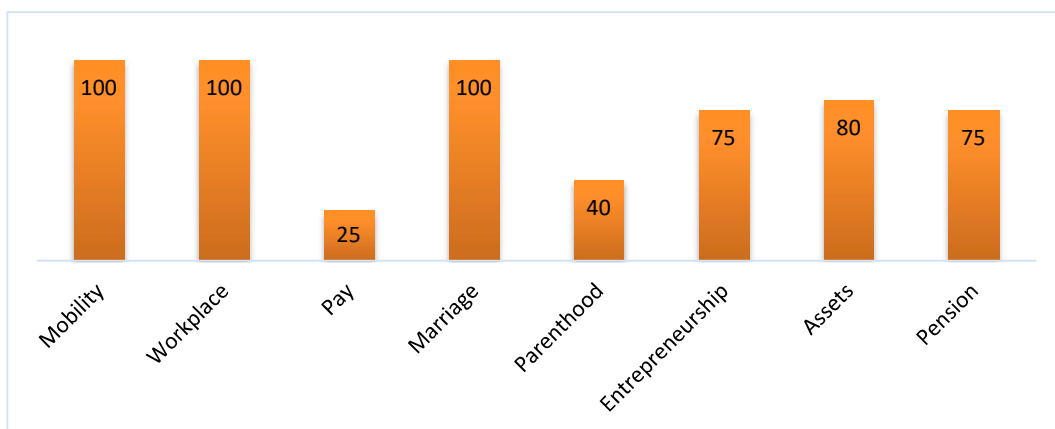


e) India

India boasts an overall WBL score of 74, surpassing the regional average of 63 in South Asia. Nonetheless, women in India continue to face numerous restrictive laws and regulations that impact their remuneration, parental rights, property ownership, and entrepreneurial opportunities. This situation indicates that women do not receive equal pay for comparable work as men, and they encounter significant challenges in establishing and managing businesses on an equal footing with their male counterparts. Furthermore, balancing paid work and parenthood presents additional difficulties for women, and there are pronounced gender disparities in laws related to property rights and inheritance.

However, it is worth noting that India has made significant progress in abolishing restrictive laws concerning freedom of movement, as well as women's choices in work and marriage.

Figure 5: WBL trends in India



4 Methodology

This section provides a brief overview of the methodology used to investigate the effects of restrictive laws and regulations on women's economic participation. It includes the data collection process, estimation techniques, and a thorough description of the variables.

4.1 Data collection

The study utilized panel data covering the period from 1994 to 2021. Information regarding restrictive laws and regulations impacting women's economic empowerment was sourced from the World Bank's flagship report, "Women, Business and the Law" (WBL). This report analyses domestic laws and regulations that affect women's socio-economic rights across 190 countries. Key indicators included in the WBL report encompass aspects such as pay, mobility, parenthood, asset ownership, workplace conditions, marriage, pensions, and entrepreneurship. A comprehensive description of the variables and their measurements can be found in section 4.4. The selection of indicators was based on their alignment with international legal frameworks that promote the elimination of gender imbalances. The indicators are measured on a scale ranging from 0 to 100, where 0 denotes a high prevalence of restrictive laws and regulations, and 100 indicates a substantial elimination of such barriers for women. Additionally, data on variables reflecting women's economic participation - including the share of waged and salaried employees, the share of female political representatives, and the share of female entrepreneurs - was gathered from the World Bank Gender Data Portal.

4.2 Model specification

The study's proposed model is expressed mathematically below and was informed by the theoretical framework and empirical literature.

$$Y_{it} = \alpha_i + \beta X_{it} + \eta_i + \varepsilon_{it} \quad (1)$$

where Y_{it} is the dependent variable for entity i at time t . Given that the concept of women's economic participation is observed from three angles, the dependent variables comprised of the share of waged and salaried female employees (WSE), the share of women occupying political seats (POL) and the share of female entrepreneurs (FE). α_i is the unknown intercept for each entity, X_{it} is a vector of predictors represented by all indicators that measure restrictive laws and regulations in relation to pay, mobility, parenthood, assets, workplace, marriage, pension and entrepreneurship. η accounts for unobserved heterogeneity and ε_{it} is the overall error term.

4.3 Estimation techniques

A series of econometric tests were conducted to assess the impact of restrictive laws and regulations on women's economic participation. This analysis included descriptive statistics, unit root testing, and regression analysis. The unit root analysis was performed using the IPS unit root test. For regression analysis, various econometric techniques were considered; however, the random and fixed effects models were employed to address the unobserved heterogeneity among the BRICS countries. A key distinction between the fixed effects and random effects models is that the fixed effects model controls for time-invariant differences between individuals, whereas the random effects model assumes that the entity's error term is not correlated with the predictors. This assumption allows time-invariant variables to serve as explanatory factors. The fixed effects equation is given by:

$$Y_{it} = \alpha_i + \beta X_{it} + \mu_i + \varepsilon_{it} \quad (2)$$

where Y_{it} is the outcome variable for entity i at time t , α is the unknown intercept for each entity, X is a vector of predictors, β represents a common effect across entities controlling for individual heterogeneity, μ represents an unobserved, time-invariant individual-specific effect that is treated as fixed for each unit and ε is the overall error term. The random effects equation on the other hand, is given by:

$$Y_{it} = \alpha_i + \beta X_{it} + \gamma Z_i + \varepsilon_{it} \quad (3)$$

In this case, γZ is a random variable representing the between entity errors that are uncorrelated with the regressors. The decision between the random effects and fixed effects hinges on the outcome of the Hausman test (Hausman, 1978). The Hausman test is a statistical procedure designed to determine whether a fixed-effects (FE) or random-effects (RE) model is more appropriate for a given regression analysis. This test evaluates the outcomes of a fixed-effects model against those of a random-effects model to ascertain the superior approach. The null hypothesis posits that the random disturbance term is uncorrelated with the regressors. In essence, if the null hypothesis is rejected, the fixed effects model is favoured; if not, the random effects model provides better estimators.

In this context, the Hausman test revealed that the random effects technique was a superior estimator (p-value = 100.00) compared to the fixed effects technique. Consequently, the random effects method was utilized to examine the influence of restrictive laws and regulations on women's economic participation. In addition, the Panel Causality Test, developed by Dumitrescu & Hurlin (2012), was employed to assess whether the WBL index and the dependent variables are jointly determined. Özdemir & Kayhan (2021) suggest that the Dumitrescu-Hurlin Panel Granger Causality test offers a significant advantage over other panel

causality tests due to its capacity to exclude the relationship between time and cross-sections. The Dumitrescu–Hurlin test can be expressed mathematically as:

$$y_{i,t} = \alpha_i + \sum_{k=1}^K \gamma_{ik} y_{i,t-k} + \sum_{k=1}^K \beta_{ik} x_{i,t-k} + \varepsilon_{i,t} \quad (4)$$

where $x_{i,t}$ and $y_{i,t}$ are the observations of two stationary variables for individual i in period t . Coefficients are allowed to differ across individuals but are assumed to be time-invariant. Essentially, if past values of x are significant predictors of the current value of y even when past values of y have been included in the model, then x exerts a causal influence on y . It is important to note that the panel causality test identifies predictive relationships rather than true cause-and-effect dynamics. Additionally, this test assumes linear relationships and stationary time series data, and it is sensitive to the selected lag length and model specification.

4.4 Discussion of variables

The World Bank's Women, Business and the Law report uses eight indicators to assess gender inequality, namely; pay, mobility, parenthood, assets, workplace, marriage, pension, and entrepreneurship. Mobility measures restrictions on women's right to movement, while pay assesses laws and regulations related to women's remuneration. Parenthood examines rules impacting women's employment after having children, and assets considers gender disparities in inheritance and property. Workplace looks at rules influencing women's employment decisions, marriage examines regulatory impediments associated with marriage, and entrepreneurship studies restrictive laws and regulations in relation to a woman's ability to establish and operate a business. Lastly, pension evaluates laws and regulations that influence the size of a woman's pension. The World Bank's methodology includes several assumptions: the woman in question lives in the main business city, is of legal age, is in good health, has no criminal record, is capable of making independent decisions and is a lawful citizen. She works as a cashier in a supermarket with 60 employees, identifies as a cisgender heterosexual in a registered monogamous first marriage with a husband of the same religion, and participates in the common marital property regime. She is not part of a union unless it is mandatory, which applies when collective agreements cover over 50% of the food retail workforce. As regards maternity, paternity, and parental leave, it is assumed that both parents must have been employed long enough to qualify for parental benefits. The full set of questions is provided in the Appendix.

The share of female entrepreneurs comprises individuals who are self-employed and continuously employ other women. Wage and salaried workers are those who work for employers in the public or private sector and receive compensation in forms of salary, wage or commission.

Table 1: Description of variables

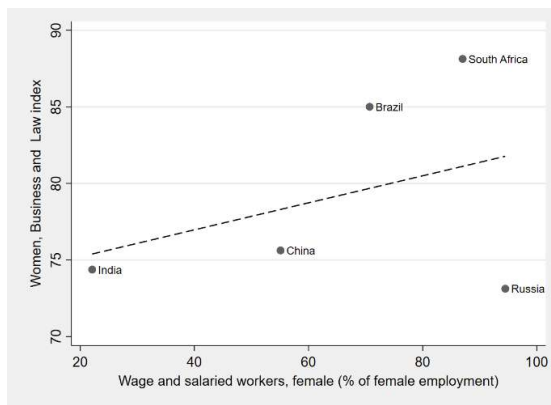
Variable	Abbreviation	Measurement
Pay	Pay	Scale (0-100)
Mobility	Mobility	Scale (0-100)
Parenthood	Parenthood	Scale (0-100)
Assets	Assets	Scale (0-100)
Workplace	Workplace	Scale (0-100)
Marriage	Marriage	Scale (0-100)
Pension	Pension	Scale (0-100)
Entrepreneurship	Entrepreneurship	Scale (0-100)
Women, Business and Law Index	WBL index	Scale (0-100)
Female employers	FE	Percentage
Wage and salaried employees	WSE	Percentage
The proportion of seats held by women in national parliaments	POL	Percentage

Source: World Development Indicators

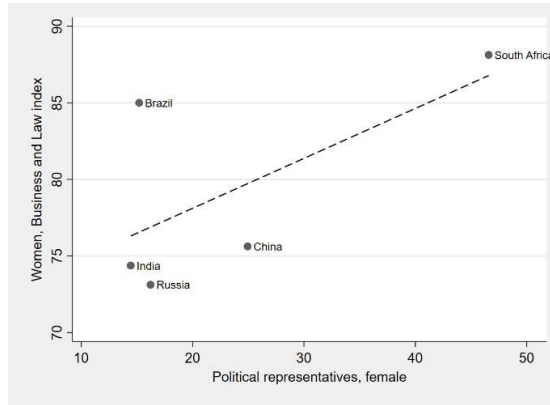
Preliminary analysis

The diagrams below depict potential relationships between the independent and dependent variables. The data has been averaged over the period 1994 to 2021. Panel A clearly shows that South Africa has surpassed other BRICS nations in fostering a favourable environment for waged and salaried female employees by cutting down on restrictive laws and regulations. Additionally, panel B highlights the significant progress South Africa has made in increasing the representation of women in national parliamentary seats.

Panel A

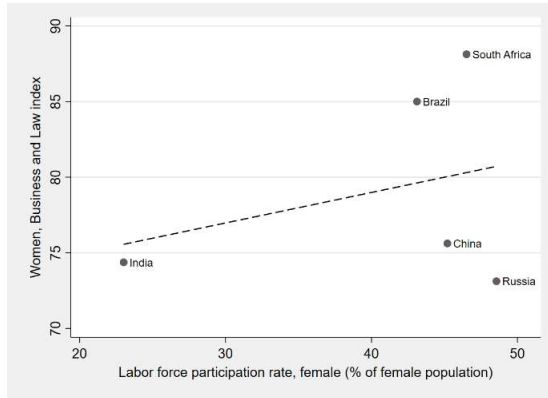


Panel B

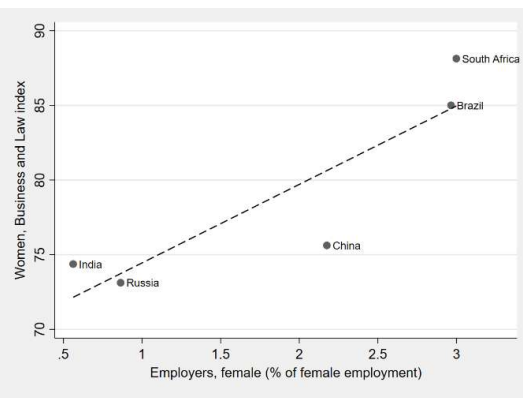


BANENG NAAPE Restrictive Laws and Women's Economic Participation

Panel C



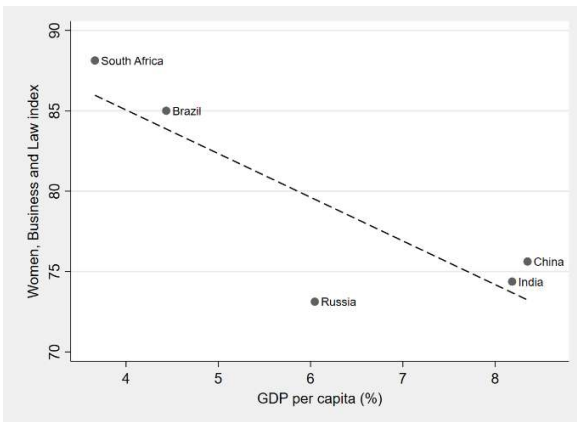
Panel D



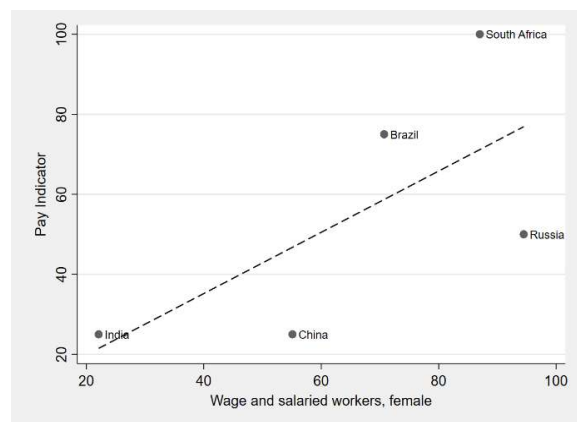
Several BRICS countries, including South Africa, China, Brazil, and Russia, have made significant progress in increasing the participation of women in the workforce. This progress has been achieved through the removal of various restrictive laws and regulations that impede the ability of women to exercise their socio-economic rights in relation to employment. India has the lowest female labour force participation rate, estimated at 24% (World Development Indicators, 2024). Analysis of the data also suggests a potential linear relationship between the WBL index and the female labour force participation rate, as well as between the WBL index and the number of female employers.

The data in panel E suggests a potential negative correlation between the WBL index and GDP per capita. This implies that countries with higher WBL scores tend to have lower GDP per capita values.

Panel E



Panel F



It is important to consider that numerous internal and external factors can impact national income levels. Nonetheless, observations from panel F indicate that the pay indicator, which evaluates restrictive legislation related to women's compensation, is associated with higher rates of waged and salaried female employees, particularly in South Africa, Brazil, and Russia. This suggests that by relaxing restrictive laws and regulations governing women's pay, there is likely to be an increase in the number of women participating in paid employment, as they would receive equal remuneration to their male counterparts for comparable work.

5 Findings and discussions

In this section, we document results from various estimation tests performed to examine the impact of restrictive laws and regulations on pillars of women's economic participation.

5.1 Descriptive analysis

Descriptive statistics were computed to observe the individual characteristics of the data. This analysis included the mean, median, standard deviation, minimum and maximum values. The results are summarized in Table 2 below. The proportion of female employees in waged and salaried roles averaged 44.9%, while the average percentage of female political representatives stood at 18.3%. Furthermore, the standard deviations for several variables, including pay, pension, and workplace indicators, were relatively high, suggesting that the data points are widely dispersed around the mean.

Table 2: Descriptive statistics

	Mean	Median	Max	Min	Std. Dev.	Sum
ASSETS	92.71429	100.000	100.000	40.0000	13.40261	12980.00
WSE	44.87401	45.8305	70.2790	18.9520	13.11588	6282.362
FE	2.122913	2.19697	6.51362	0.15255	1.624405	297.2078
ENTREPRENEURSHIP	76.60714	75.0000	100.000	0.00000	13.14375	10725.00
MARRIAGE	86.57143	80.0000	100.000	40.0000	15.81236	12120.00
MOBILITY	98.39286	100.000	100.000	75.0000	6.153547	13775.00
PARENTHOOD	58.42857	80.0000	80.0000	0.00000	32.89992	8180.000
POL	18.26219	14.0000	46.7500	5.65302	11.28894	2264.512
PAY	43.03571	50.0000	100.000	0.00000	32.16804	6025.000
PENSION	41.78571	50.0000	75.0000	0.00000	21.08625	5850.000
WBL Index	70.78571	72.8125	88.1250	41.8750	9.464166	9910.000
WORKPLACE	68.75000	50.0000	100.000	0.00000	28.15122	9625.000

Note: N=140

In contrast, the standard deviations of the WBL index, as well as the entrepreneurship and mobility indicators, were relatively lower, suggesting that the data points are clustered around the mean. The total number of observations for each variable was 140, except for the share of female political representatives, which had a total of 124 observations.

5.2 Unit Root analysis

Table 3 presents a summary of the findings from the unit root analysis, which comprised of the IPS unit root test. Overall, the results indicate that both the WBL index and the entrepreneurship indicator are stationary at level, suggesting that no transformation is necessary to achieve stationarity.

In contrast, several variables including the asset, marriage, mobility, parenthood, and pension indicators, among others, were stationary after first differencing. This implies that statistical transformation is required for these variables to attain stationarity. However, it is important to note that unit root analysis is not a formal prerequisite in panel data analysis.

5.3 Regression analysis

Table 4 below summarizes the findings derived from the random effects technique. In the context of model 1, where the dependent variable is the share of waged and salaried female employees, the results indicate that laws and regulations governing a woman's choices regarding work, pay, parenthood, assets, pension and marriage have a positive impact on the proportion of women engaged in paid employment.

Table 3: Unit root output

Variable	Level		1 st Difference		Decision
	u	ut	u	ut	
ASSETS	0.08830	0.71484	-3.98768*	-3.48750*	I(1)
WSE	1.41781	1.05695	-10.5585*	-8.30097*	I(1)
FE	-1.21343	1.78703	-4.62964*	-7.21798*	I(1)
ENTREPRENEURSHIP	-7.76439*	-5.63225*			I(0)
MARRIAGE	-0.74880	-0.16671	-9.18066*	-8.12009*	I(1)
MOBILITY	0.08830	0.71484	-3.98768*	-3.48750*	I(1)
PARENTHOOD	0.40963	1.16709	-4.18715*	-3.71083*	I(1)
POL	2.60033	-0.12933	-8.40884*	-7.41458*	I(1)
PAY	-0.00029	0.30463	-5.81812*	-5.06391*	I(1)
PENSION	0.94152	0.28180	-4.63517*	-3.58533*	I(1)
WBL Index	-1.54789***	-0.23802			I(0)
WORKPLACE	0.14651	0.52008	-6.02738*	-7.15494*	I(1)

Note: *, **, *** denote statistical significance at the 1%, 5% and 10%, respectively.

The evidence suggests that the removal of restrictive laws and regulations fosters a conducive environment for women to participate in paid employment. Additionally, the positive coefficient associated with the pay indicator indicates that laws and regulations promoting equal pay for women and men encourage women to enter the workforce. Likewise, regulations that protect women from workplace abuse, such as sexual harassment, as well as those that address parenthood issues, such as maternity leave provisions, further motivate women to engage in paid employment. A similar trend is evident regarding the indicators for assets and pensions; specifically, laws and regulations that affirm women's rights to pensions and inheritance significantly increase the likelihood of women participating in the labour market. By actively engaging in paid employment, women can accumulate assets and achieve economic independence. . The findings further reveal that the marriage indicator positively influences the likelihood of women participating in paid employment. When women possess autonomy in their marriage choices and enjoy equal bargaining power within the marriage, they are more likely to engage in paid work rather than being primarily confined to household responsibilities, which often restricts their ability to actively seek employment. These results are consistent with earlier studies. For instance, research by Yount et al. (2022) highlighted that married women are often vulnerable to domestic violence, which adversely affects their health and work performance.

Additionally, a study by Gonzales et al., (2015) found that limitations on women's bargaining power within households can result in regressive effects on their legal rights and economic independence, subsequently influencing their representation in the workforce. The study by Gonzales et al., (2015) revealed that restrictions on the ability of women to choose their career path are negatively correlated with their prospect to obtain formal work. As regards marriage, evidence (see Branisa et al., 2013) shows that married women are subjected to fulfilling household duties, limiting their ability to actively search for work or engage in paid work. The disproportionate caregiving obligations that women are subjected to also have serious implications for the gender wage gap. .

In regard to model 2, where the share of female political representation serves as the dependent variable, the findings indicate that laws and regulations governing women's choices around mobility adversely affect the likelihood of women participating in formal political activities.

These findings are inconsistent with the work of Milazzo & Goldstein (2019), who argued that restricting a woman's freedom of movement can hinder her ability to engage in the political arena. Nonetheless, the findings further indicate that laws granting women autonomy over their marriage choices, as well as the ability to build assets and engage in entrepreneurial activities, positively influence their participation in political activities

Table 4: Random Effects output

Variable	Model 1 (WSE)	Model 2 (POL)	Model 3 (FE)
C	63.2780 (61.120)	67.3884 (27.450)**	-1.01469 (3.3053)
WORKPLACE	0.31759 (0.0428)*	0.06956 (0.0454)	0.04840 (0.0067)*
PENSION	0.19270 (0.1036)***		
PAY	0.22857 (0.1283)*	0.06080 (0.0928)	0.08559 (0.0070)*
PARENTHOOD	0.38534 (0.1283)*	-0.03760 (0.0678)	0.04055 (0.0066)*
MOBILITY	-0.22366 (1.3171)	-1.69656 (0.6264)*	0.13563 (0.0595)**
MARRIAGE	0.28262 (0.1194)**	0.26473 (0.0503)*	0.08993 (0.0123)*
ASSETS	1.36801 (0.5445)**	0.73358 (0.1628)*	0.06285 (0.0120)*
ENTREPRENEURSHIP		0.97624 (0.1177)*	0.06655 (0.0180)*
WBL Index	-2.96675 (0.5551)*	-0.76713 (0.5130)	-0.54084 (0.0557)*
R-squared	0.69954	0.80075	0.70724

WSE – share of waged and salaried female employees

POL – share of female political representation

FE – share of female entrepreneurs

Note: *, **, *** denote statistical significance at the 1%, 5% and 10%, respectively.

Research by Behari (2021) has also shown that the lack of protective legislation related to women's biological roles, such as regulations on paid leave and protections against unfair dismissal due to pregnancy, negatively impacts their ability to participate in both political and economic spheres.

In model 3, where the share of female entrepreneurs serves as the dependent variable, the findings indicate that the laws and regulations affecting women's choices related to work, marriage, mobility, remuneration, entrepreneurship, and parenthood positively influence the proportion of female entrepreneurs in BRICS countries. Several key observations can be drawn from these findings. Firstly, the results indicate that a supportive and flexible working

environment may encourage women to explore additional income opportunities, such as starting a small business. Secondly, the findings suggest that the existence of protective laws and regulations safeguarding women's autonomy over marriage and parenthood can motivate women to engage in entrepreneurial activities. This is particularly significant in households where responsibilities are evenly distributed and there is equal bargaining power. Furthermore, when women receive equal pay compared to their male counterparts, they are better positioned to save money to invest in entrepreneurial ventures.

Mobility on the other hand, can empower women to establish and run businesses in locations of their choice, which are conveniently close to reliable suppliers and their target market. Lastly, the positive coefficient associated with the entrepreneurship indicator suggests that laws and regulations promoting equal access to funding, suppliers, and markets can further encourage women to pursue entrepreneurial endeavours. Female-owned businesses play a vital role in fostering innovation and job creation while promoting social equity by empowering women financially and enabling them to reinvest in their communities. . O'Sullivan (2017) highlighted that women's ownership, control, and utilization of resources are vital for their economic agency and overall output. The overall WBL index was observed to have a negative impact on the share of female entrepreneurs. This indicates that while certain specific indicators within the WBL index may promote women's participation in starting and running businesses, women, on a broader scale, continue to face restrictive laws and regulations that hinder their capacity to engage in entrepreneurial activities.

5.4 Causality analysis

Further to the above, we estimated the bivariate relationship between the WBL index and various components of women's economic participation and the results are summarised in Table 5 above.

Table 5: Dumitrescu–Hurlin test

Null Hypothesis:	W-Stat.	Zbar-Stat.	Prob.
WBL index does not homogeneously cause WSE	2.5428	1.96233	0.0497**
WSE does not homogeneously cause WBL index	2.7859	2.29093	0.0220**
WBL index does not homogeneously cause POL	3.2823	2.86404	0.004*
POL does not homogeneously cause WBL index	1.0633	-0.05669	0.9548
WBL index does not homogeneously cause FE	1.5969	0.68395	0.4940
FE does not homogeneously cause WBL index	2.1771	1.46812	0.1421

Note: *, **, *** denote statistical significance at the 1%, 5% and 10%, respectively.

The results of the Dumitrescu–Hurlin causality test indicate a bi-directional causality between the WBL index and the share of waged and salaried employees, significant at the 5% level. This suggests that the WBL index contains past values that are useful for predicting future trends in the share of waged and salaried female employees, and vice versa. Furthermore, the results demonstrate a uni-directional causal relationship from the WBL index to the share of female political representation, significant at the 1% level. This implies that the WBL index contains past values that are valuable for predicting future trends in the share of female political representation.

6 Conclusion

The focus of this study was to examine the impact of restrictive laws and regulations on the rate of women's economic participation. Utilizing annual panel data from 1994 to 2021, the study employed a range of novel panel econometric techniques such as the random effects method and Dumitrescu-Hurlin Panel Granger Causality test. Women's economic participation was analysed through three key dimensions: the share of waged and salaried female employees, the share of female entrepreneurs, and the share of women in political representation. The findings indicate that removing restrictive laws and regulations related to women's mobility, pay, workplace conditions, and parenthood is vital for enhancing women's economic participation, especially in terms of paid employment, political representation, and entrepreneurship. However, it is important to recognize that although BRICS countries have made significant progress in abolishing restrictive legal frameworks affecting women, barriers still persist from both legal and regulatory standpoints... Therefore, the study recommends that BRICS nations should prioritize the complete removal of restrictive laws and regulations affecting women in relation to career opportunities, marriage, parenthood and entrepreneurship among others. Additionally, ensuring a gender-equitable distribution of resources should be a central focus of policymaking to ensure that no one is left behind in the development agenda, particularly women and children.

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