

ORIGINAL RESEARCH ARTICLE

Gender inequality: policy responses to employment and education in BRICS countries

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Abstract

This study assesses gender inequality in education and employment in BRICS (Brazil, Russia, India, China, and South Africa) countries between the 2000 and 2021, using data from the World Bank database. A descriptive data analysis was carried out as well as graphical representations to compare among countries. The results showed that that female education achieved significant success, especially at secondary and tertiary levels, through specific policies including financial support and affirmative actions. Brazil and Russia maintained an increasingly higher enrollment at the secondary level of education. In contrast, China recorded very rapid growth in tertiary enrollments, reaching over 92% enrolment of females. History, poverty, and social pressures were identified as systemic barriers in the enrollment of girls to school in India and South Africa. This study indicate that even when gains are achieved on the educational front, translating them into gains in terms of equality in employment proves difficult. Secondly, the unemployment rates among females in countries such as Brazil and South Africa are higher, reflecting more significant socio-economic problems. This calls for more vigorous policy responses toward gender inequality within the labour market through labour reforms, job creation policies, and specific support to women's employment in the informal sector in the BRICS countries. (*Afr J Reprod Health 2024; 28 [12]: 88-96*)

Keywords: tertiary enrollments; female education; employment, BRICS

Résumé

Cette étude évalue les inégalités entre les sexes dans l'éducation et l'emploi dans les pays BRICS (Brésil, Russie, Inde, Chine et Afrique du Sud) entre 2000 et 2021, à l'aide des données de la base de données de la Banque mondiale. Une analyse descriptive des données a été réalisée ainsi que des représentations graphiques pour comparer les pays. Les résultats ont montré que l'éducation des femmes a obtenu des succès significatifs, en particulier aux niveaux secondaire et supérieur, grâce à des politiques spécifiques comprenant un soutien financier et des actions positives. Le Brésil et la Russie ont maintenu un taux de scolarisation de plus en plus élevé dans l'enseignement secondaire. En revanche, la Chine a enregistré une croissance très rapide des inscriptions dans l'enseignement supérieur, atteignant plus de 92 % d'inscriptions de femmes. L'histoire, la pauvreté et les pressions sociales ont été identifiées comme des obstacles systémiques à la scolarisation des filles en Inde et en Afrique du Sud. Cette étude indique que même lorsque des progrès sont réalisés sur le plan éducatif, il s'avère difficile de les traduire en gains en termes d'égalité dans l'emploi. Deuxièmement, les taux de chômage des femmes dans des pays comme le Brésil et l'Afrique du Sud sont plus élevés, ce qui reflète des problèmes socio-économiques plus importants. Cela nécessite des réponses politiques plus vigoureuses à l'inégalité entre les sexes sur le marché du travail à travers des réformes du travail, des politiques de création d'emplois et un soutien spécifique à l'emploi des femmes dans le secteur informel dans les pays BRICS. (*Afr J Reprod Health 2024; 28 [12]: 88-96*).

Mots-clés: inscriptions dans l'enseignement supérieur, éducation des femmes, employ; BRICS

Introduction

Gender inequality one of the most persistent global problems, and its repercussions on general development go up to the level of individual wellbeing. Inequality in gender is not only a matter of simple fairness but also a basic issue of justice and equity. Accordingly, the United Nations Department

of Economic and Social Affairs has noted that in every society, power structures are unequal, with certain groups, especially major ones like women, being kept at the margin in terms of opportunities and resources¹. This imbalance is not only morally unjust but is also a barrier to the general development of societies, since gender inequality reduces human potential, lowers the well-being of

individuals, and hampers sustainable growth^{2,3}. Among the most developed and implemented leading frameworks that have been put in place to address gender inequalities are the United Nations sustainable development goals (SDGs), especially SDG 5, which is on attaining gender equality and empowering all women and girls. Despite being a global priority, the journey towards gender equality, especially in the realms of employment and education, is far from complete. It remains one of the most challenging goals to achieve, requiring innovative and context-specific approaches to ensure the inclusion of women in all dimensions of sustainable development³⁻⁵. The empowerment of women, defined as the process where women enhance their capacity to make choices, take control of their lives, and influence decisions, is central to this effort^{4,6}.

In the modern workforce, women play increasingly important roles in shaping organizational cultures, driving innovation, and contributing to team dynamics. Their contributions are irreplaceable, and their inclusion in decision-making processes is crucial to the success of businesses and economies. Yet, gender inequality in employment remains a significant barrier in many countries, including those in the BRICS bloc (Brazil, Russia, India, China, and South Africa⁷). These emerging economies similarly face a kind of challenge in closing the gender gap, especially in employment and education, due to deep-seated obstacles in cultural, economic, and policy-related spheres.

The Gender Inequality Index (GII) serves as an extremely useful indicator of inequalities that exist in the spheres of reproductive health, empowerment, and labor market participation. In 2020, it was reported that all five BRICS countries had always ranked low on this index.. Russia, the most successful among them in combating gender discrimination, ranks 52nd, while Brazil follows at 84th, China at 85th, South Africa at 114th, and India at 131st out of 189 countries^{8, 9}. These rankings reflect the complex and multifaceted nature of gender inequality in these nations, highlighting the importance of policies and interventions targeted at promoting gender parity. While some progress has been made, particularly in terms of women's access

to education and employment, the status of women in BRICS countries has seen both positive and negative trends in recent years¹⁰. For instance, female participation in the workforce has increased in some countries, yet gender-based wage gaps and underrepresentation in leadership roles continue to undermine the broader goal of equality. Educational disparities also persist, limiting women's access to higher-paying jobs and career advancement opportunities.

Despite the significance of gender equality in shaping inclusive and sustainable development, there remains a noticeable gap in academic research focusing on the comparative study of gender inequality within the BRICS nations, particularly in the areas of employment and education.

This paper, therefore, is designed to bridge this gap by checking on the state of gender inequality in education and employment in the BRICS countries. In this direction, it will give a very exhaustive overview of disparities between men and women in these two fundamental areas, using graphical illustrations and descriptive statistics. By shedding light on the current situation and identifying trends, the research will offer valuable insights into the progress made and the challenges that remain in the pursuit of gender equality in BRICS countries.

Birkelund *et al.*¹¹ examined gender discrimination in hiring across six countries using data from a harmonized comparative field experiment. The study found no indication of female gender discrimination in any of the countries, despite their varying institutional, economic, and cultural contexts. However, the study found evidence of discrimination against the male gender in Germany, the Netherlands, Spain, and the UK but not in Norway or the United States. Overall, the gender gradient showed little variation across countries. Employers generally perceived female applicants as more suitable for female-dominated occupations, while no preference for male applicants was evident anywhere.

Baten *et al.*¹² have used census data along with a cohort approach to study the gender gaps in education across sub-Saharan African countries. They observed that while initially Africa had a smaller educational gender gap compared to other developing regions, it made the least progress in

closing it. The gender gaps did increase during the colonial era from 1880 to 1960 but declined after independence at different rates. The study also identified an "educational gender Kuznets curve," where the gap initially widened with men's education before declining. Urbanization, railroads, and Christian missions contributed to lower gender gaps in education.

Pandey and Sergeeva⁴ explored the part of women in BRICS countries' economic development, emphasizing that despite women accounting for nearly half of the world's population, their economic contributions remained limited due to significant gender inequality. The study used the UN Gender Inequality Index and World Bank data to assess women's economic, educational, social, and political empowerment. The findings revealed that BRICS countries were lagging in achieving gender justice, with China and Russia making the most progress, while countries like India and South Africa faced deep-seated challenges that hindered advancement in gender equality and economic growth.

Sezgin¹³ explored the relationship between gender inequality and achieving sustainable development goals in the BRICS countries. The study concluded that gender inequality, especially its impact on women's poverty, hindered progress towards sustainable development. By adopting the Emirmahmutoglu and Kose¹⁴ test for causality, the study revealed bidirectional causality for the entire panel of BRICS countries. For individual countries, unidirectional causality was observed from Sustainable Development Index to Gender Inequality Index in India and China. In contrast, Brazil, Russia, and South Africa showed bidirectional causality between SDI and GII. The findings underscored the need to remove barriers that prevent women's contributions to sustainability efforts.

Mosakova¹⁵ showed how the pandemic (COVID-19) affected gender dissimilarity and fertility in BRICS countries. The study found that digitalization and remote work during the pandemic helped women balance professional and family responsibilities, promoting gender equality in the labour market. Additionally, the study highlighted that in economies with a more advanced tertiary

sector, remote employment grew faster, further supporting gender equality. The study further demonstrated a direct relationship between higher female employment and increased birth rates in BRICS countries, noting that greater gender equality in the economy correlated with higher fertility and a later age for women having their first child.

Xu *et al.*¹⁶ assessed the contribution of inclusive finance and other indicators in finance to engendering inequality in 41 African countries from the year 2000 to 2020 using the IV regression of the 2SLS. The study identified thresholds where gender inequality negated the positive effects of financial inclusion on GNI per capita.

These brinks were 0.353 for CPIA gender inequality, 0.098 for secondary education disparity, and 0.091 for tertiary education disparity. The findings highlighted the need for policies to reduce financial participation costs and improve access, especially for women and low-income groups, to promote inclusive growth.

Love *et al.*¹⁷ studied the well-being of women entrepreneurs through the World Values Survey data in 80 countries show that in low- and middle-income countries, women entrepreneurs exhibit a lower level of well-being compared to men, but in high-income countries, they show higher well-being scores. This further investigates these factors: institutional contexts at the macro level, gender roles, and at the micro level, individual characteristics. Well-being was found to have a greater gender gap in countries with more gender inequality, low financial development, and also those with strong traditional gender roles. The study also identified policy mechanisms to improve women's entrepreneurial well-being.

Methods

Data Presentation

This study used a comparative analysis to investigate gender inequality in employment and education within BRICS countries. The analysis relied on data from the World Bank's World Development Indicators¹⁸, covering the years 2000 to 2021. This timeframe was chosen based on the availability of relevant data for the research. The variables chosen to proxy gender inequality were female secondary

education, female tertiary education, female labour, female unemployment, female in parliament and gender inequality index. Female secondary education was measured with School enrollment, secondary, female (% gross), female tertiary education was measured using School enrollment, tertiary, female (% gross), while female labour and female unemployment were measured using the rate of female labor force participation (% of female population ages 15+) and female unemployment (% of female labor force) respectively. Also, female in parliament was captured as seats held by women in national parliaments (%). Finally, gender inequality index measured from 0 to 1 higher disparity. Table 1

Estimation procedures

A graphical and descriptive analysis was carried out to examine and compare gender inequality in employment and education across the BRICS nations. This study utilized insights from existing literature, including works by Madhavi¹⁰, da Luz Scherf et al.¹⁹, Aderemi²⁰, Altuzarra et al.²¹, Pandey and Sergeeva⁴, and Chen and Zhu⁷, to assess gender disparities²²⁻²⁶. Apart from key indicators on the share of female students in secondary and tertiary education, female labor force participation, and women's representation in national parliaments, a comparative analysis was provided. Through the graphs and descriptive statistics, this study gave full-scale methods of comprehending gender inequality across BRICS countries.

It undertakes a comparative research design using graphs and descriptive statistics. Graphs show how assessment and determination of patterns, trends, and changes that have taken place overtime can be made through the data; hence, it would be easier to conceptualize and visualize the subject matter comprehensively. Descriptive statistics supplement this with descriptions of the distribution and behavior of the variables.

Ethical approval: this is not required in this work because the study did use human or animal subjects.

Results

A comparative study of the BRICS nations was done on female secondary and tertiary education, female unemployment, the percentage of females in parliament, and female labour force participation

between 2000 and 2021. The data describes the progress and disparities in the socio-economic inclusion of females across the BRICS.

Figure 1 represents the female secondary education in the BRICS. From the chart, all BRICS countries have shown tremendous improvement over the years, though at different starting points and rates. Brazil represents consistently high female secondary education, from 110.3 in the year 2000 to a stabilized rate of 106.3 in the year 2021. Such a high percentage rate would mean that Brazil has long emphasized access to secondary education for women, though slight declines hint at potential challenges in sustaining these levels. In contrast, Russia had a more modest starting point, 62.9%, in 2000 and reached an impressive growth of 86.6% by 2021, truly reflecting the steadfast effort by the government to uplift girls' education. The growth of India starts with just 37.3% in the year 2000, it has reached a high of 75.3% in 2020. China's path has been steady, progressing from 88.5% in 2000 to over 102% in 2021. South Africa, however, presents the most dramatic change, increasing from 85.5% in 2000 to 105.3% in 2021.

The chart in figure 2 below shows the pattern in female tertiary education in BRICS which further illuminates the educational advancements among BRICS nations. Here, China stands out with a massive increase, particularly from 2000 to 2021, where tertiary enrollment jumped from 69.8% to over 92%. This dramatic growth reflects China's aggressive investment in higher education as a core element of its economic modernization efforts. Russia follows a similar upward trajectory, with female tertiary enrollment increasing from 23.3% to 59.8% over the same period, showcasing Russia's long-standing emphasis on education as a pillar of its skilled labor force. India's growth, though slower, is notable. It started with a mere 7.5% female enrollment in tertiary education in 2000, reaching 30.2% in 2021, reflecting efforts to close gender gaps in higher education. Brazil and South Africa display more moderate increases, with South Africa's female tertiary enrollment remaining largely stagnant after reaching the mid-20% range, suggesting structural issues in accessibility or affordability of higher education for women.

Table 1: Measurement of variables

Variable	Code	Measurement	Source
Female secondary education	FSE	School enrollment, secondary, female (% gross)	WDI
Female tertiary education	FTE	School enrollment, tertiary, female (% gross)	WDI
Female labour	FL	Labour force participation rate, female (% of female population ages 15+) (modeled ILO estimate)	WDI
Female unemployment		Unemployment, female (% of female labor force) (modeled ILO)	UN (QoG-BD)
Female in parliament	FP	Proportion of seats held by women in national parliaments (%)	UN (QoG-BD)
Gender inequality index	GII	Gender Inequality Index (0 to 1 higher disparity)	UN (QoG-BD)

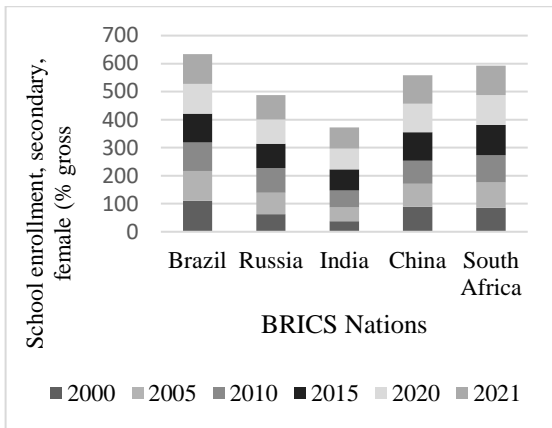


Figure 1: Female secondary school education in BRICS

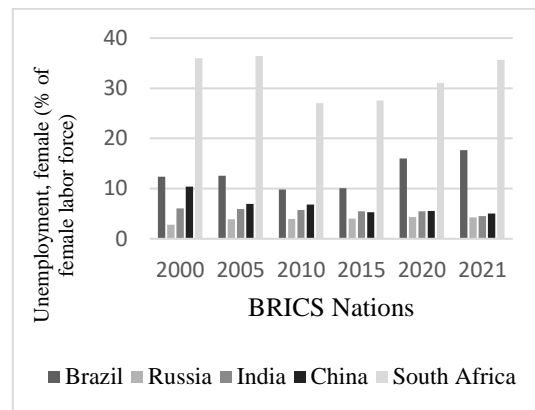


Figure 3: Female unemployment in BRICS

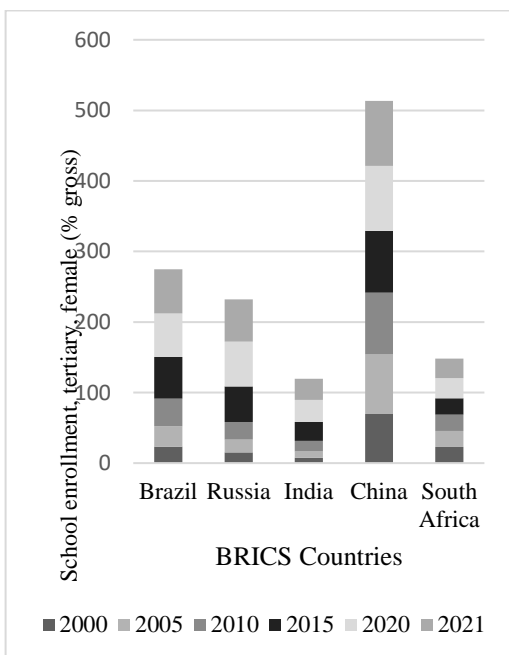


Figure 2: Female tertiary education in BRICS

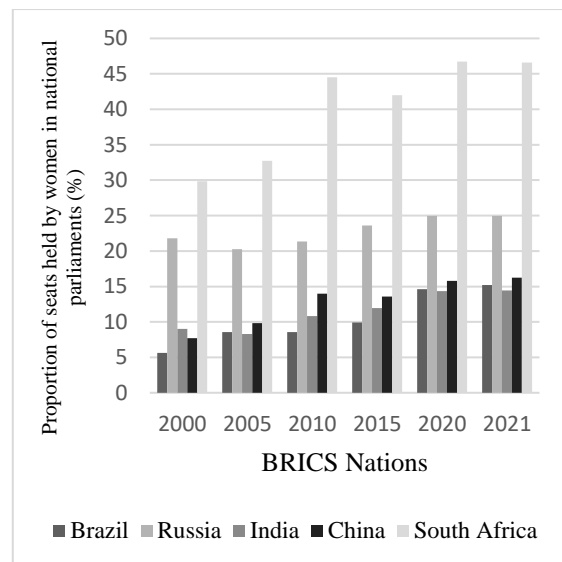


Figure 4: Female in parliament in BRICS from 2000 to 2021

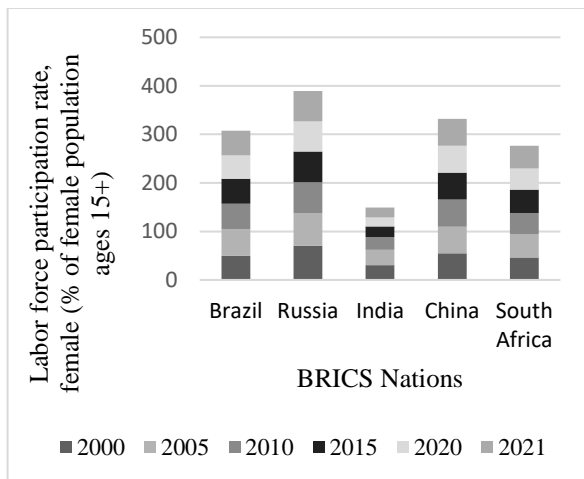


Figure 5: Female labour participation in BRICS from 2000 to 2021

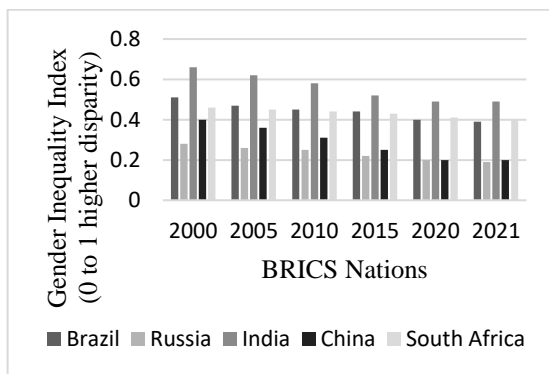


Figure 6: Gender inequality in BRICS from 2000 to 2021

Figure 3 depicts female unemployment trends in BRICS countries and provides a complex picture of how these advances have translated into economic opportunities. In the case of Brazil, for example, there was a very fluctuating but constantly high rate of female unemployment, which started at 12.5% in 2005 and ended at 17.7% in 2021, reflecting the economic volatility of that country and the disproportionate impact on women. In contrast, unemployment rates for women in Russia have been quite low, never higher than 4.3%, and reflect more stable labour market conditions for women. India and China are closer to the average, but very different in their trends: While it was a gradual decline from 6% in 2005 to 4.5% in 2021 in India,

the rate has been erratic in China, in fact, going down from 10.3% in 2005 to 5% in 2021. The female unemployment rate remains among the highest in the world in South Africa. This staggering figure underscores the deep structural challenges in South Africa’s labor market, especially for women, despite educational improvements.

Figure 4 reveals the proportion of female in parliament BRICS nations show differing levels of commitment to gender inclusivity in governance. South Africa leads the way, with women holding an impressive 46.6% of parliamentary seats in 2021, a result of the country’s strong affirmative action policies post-apartheid. Brazil, on the other hand, remains a laggard, with only 15.2% female representation in parliament in 2021, reflecting deeper gender imbalances in political participation. Russia and India both exhibit modest increases, with Russia’s female parliamentary representation growing from 21.8% in 2000 to 24.9% in 2021, and India’s increasing from 9% to 14.4% over the same period. China, while experiencing growth in female parliamentary representation, remains below 20%, indicating the need for more structural reforms to enhance gender equity in politics.

Figure 5 shows the data on female labor force participation. It reveals ongoing challenges in translating educational gains into equitable labour market outcomes. While Russia has consistently had high female labor participation rates, starting at 70.5% in 2000 and maintaining 62.6% in 2021, India struggles significantly, with female labour participation declining from 30.5% in 2000 to just 20.1% in 2021. This sharp decline underscores the cultural, social, and economic barriers that continue to impede women’s full integration into India’s labor market. In contrast, Brazil, China, and South Africa display relatively stable trends, though all countries saw minor declines in recent years, reflecting broader global trends of declining labor force participation.

Figure 6 presents data on the Gender Inequality Index across BRICS countries. Russia shows the lowest and most stable levels of gender inequality, decreasing from just under 0.3 in 2000 to below 0.2 by 2021. South Africa saw a modest decline of only about 0.05 over the same period, from roughly 0.45 to 0.4. India reported the highest inequality levels,

beginning at approximately 0.66 in 2000 and slowly dropping to 0.49 by 2021. Brazil's decline was gradual as well, from just over 0.5 in 2000 to slightly under 0.4 by 2021. China, meanwhile, achieved the sharpest reduction, falling from about 0.4 to around 0.2, marking a significant improvement though still slightly above Russia.

Discussion

The findings from the comparative study of female education, employment and gender inequality across BRICS nations between the year 2000 and 2021 flag issues that are mostly hooked onto policy responses in the same areas. While BRICS nations have successfully advanced on the front of female education, converting these educational gains into equitable employment opportunities remains a challenge and calls for more stringent policy frameworks in both sectors.

All countries have significantly widened women's access to education, especially at the secondary and tertiary levels. Such examples include Brazil and Russia maintaining high levels of secondary education enrollment, while China has invested in higher levels of tertiary education, with over 92% female enrollment by 2021. The improvements probably emanated from a set of relevant policies related to education, which encompass expanding infrastructure, providing financial support, and focusing on gender equality in terms of access to schooling. With improvements in enrollment rates for both secondary and tertiary levels, even countries like India and South Africa have seen full participation kept at bay by systemic barriers such as poverty, gender norms, and gaps in infrastructure. Consequently, BRICS has used policies such as conditional cash transfers and school feeding programs with affirmative actions to bridge these gaps. Although educational attainment has improved, turning these into gains in the labor market has proved quite difficult, and unemployment amongst females remains high in countries such as Brazil and South Africa.

The seesawing female unemployment rate of Brazil reflects its economic volatility, reaching a high of 17.7% in 2021. While there are some policies related

to labor market reforms and incentivizing women in the workforce, these have not overcome structural gender inequalities, especially within the informal sector. In South Africa, the persistently high female unemployment rate of 35.7% reflects deeper socio-economic challenges. While being two key drivers for better female labor market inclusion, the Employment Equity Act, together with the B-BBEE, so far has only been partially successful in the broader effort to address economic disparities and high youth unemployment-most strongly felt among women. Second, Russia and China have maintained low levels of unemployment among women, given more stable economic policies and targeted measures, such as maternal benefits and protection in the labor market for women. Low unemployment among females in Russia was 4.3% in 2021, indicative of post-Soviet labor policies that have remained supporting female participation, even as wage gaps and career progression remain points of concern.

India remains the only country with a precipitous decline in labor participation-from 30.5% in 2000 to 20.1% in 2021-despite improvement in female education-due to changeable social norms, acute dearth of safe work environments, and lack of sufficient policy focus on female employment. Recent initiatives such as Skill India and Startup India have tried to bridge this gap, but there is definitely a scope for further policy reforms, particularly relating to flexibility in labour laws and workplace safety for women.

Strengths and limitations

The strength of the study lies in its two-decade scope (2000-2021) and use of World Bank data, which reinforce its reliability. However, relying solely on descriptive analysis limits its ability to reveal causal factors or regional disparities, potentially oversimplifying complex inequalities. The study suggests BRICS nations need stronger labour market interventions to bridge the gap between educational achievements and employment opportunities for women, particularly through job creation and support in the informal sector.

Conclusion

From this perspective, this paper analyzes the trend of gender inequality in BRICS countries, characterized by certain advances with the persistence of many challenges regarding education, labor, and political participation. In this regard, female secondary education has presented a generally strong performance of overall access, although disparities persist, with most BRICS countries providing broad access to education. Still, more comparative female tertiary education shows significant gaps in access for women, especially in India and South Africa, in comparison to the stronger performance observed for China. Looking at female unemployment, the outstanding differences are that Brazilian and South African unemployment rates are very high, while increased schooling is translated into employment opportunity far from being realized.

The female labor force participation also speaks to their incomplete integration into labor, with stronger records in Russia and China but far more meager levels of participation in India. The female political representation data captures the progress made in South Africa, but underlines women's underrepresentation in politics across much of the BRICS countries, notably in Brazil and India. Generally, even though BRICS countries have indeed made commendable advances in the field of female education, especially at the secondary level, there lingers a gap in turning those gains into workforce participation and political inclusion. Targeted policies to reduce such disparities are called for, particularly in the aspects concerning jobs and governance. Last but not least, all the BRICS countries improved their position in terms of gender inequality over the years. However, there is a scope for further increase in reducing the said inequality.

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