

Advancing Environmental Sustainability in the UAE: The Interplay of Women's Empowerment, Financial Development, and Natural Resource Management

(Executive Summary)

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1. Introduction

Women's empowerment and environmental sustainability are among the foremost priorities for governments globally. The connection between women and the environment has its roots in ecofeminism theory, which emerged in the 1970s. Recently, this relationship has garnered renewed attention in academic and policy debates, particularly in the context of sustainable development goals (SDGs), which has spurred extensive research into the women-environment nexus.

Contemporary scholarship on this topic can be categorized into two main areas: research on the impact of women's empowerment on the environment and analyses of the gender-specific consequences of climate change and environmental hazards. Within the first research strand, which is the focus of this study, scholars have explored various gender dimensions—such as political and economic empowerment and gender inequality—for their positive environmental effects. However, investigations into the indirect effects (i.e., the pathways through which women influence the environment) and the role of women's socioeconomic empowerment remain relatively underexplored.

Thus, this study aims to enrich the academic discourse by investigating the environmental implications of the interplay between women's socioeconomic empowerment and financial development and between women's socioeconomic empowerment and natural resource rents in the UAE, an ideal case to study these

dynamics. This approach further addresses a critical gap in the literature regarding the fragmented analysis of financial development and natural resource effects on both the environment and women's empowerment.

2. Research Question(s)

The central research question is: How do the interactions between financial development and women's empowerment and between natural resource rents and women's empowerment influence environmental sustainability in the UAE?

3. Research Methods

The baseline equation for this study is as follows:

$$ECO = f(WBL, NRR, FD, GDP, FDI \text{ and } URB) \quad \text{Eq. (1)}$$

ECO denotes the ecological footprint, which is a broad measure of environmental sustainability. WBL represents the Women, Business, and the Law index (a proxy for women's empowerment), while NRR (natural resource rents) and FD (financial development) are policy variables serving as moderators. The control variables are GDP (gross domestic product), FDI (foreign direct investment), and URB (urbanization). ECO is sourced from the Global Footprint Network, while other variables are obtained from the World Bank.

The study adopts the Autoregressive Distributed Lag (ARDL) bounds testing approach to explore both short- and long-run relationships among the variables. The ARDL method is preferred due to its suitability for small samples, its ability to handle I(0) and I(1) variables, its capacity to address endogeneity, and its integration of short- and long-run dynamics through an unrestricted error correction model (UECM).

The Vector Auto-Regressive (VAR) lag order selection criteria determine the appropriate lag length for the first-differenced regression. The ARDL bounds test evaluates cointegration by comparing the computed F-statistic with critical bounds. Cointegration is confirmed if the F-statistic exceeds the upper critical bound (UCB). No cointegration is found if it falls below the lower critical bound (LCB). If it lies between the bounds, the result is inconclusive. To ensure model stability, the study applies the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests, which track changes in model coefficients over time and confirm the robustness of the empirical findings.

4. Key Findings

The ARDL long-run results support the first hypothesis, showing that women's empowerment positively contributes to environmental sustainability. This reinforces eco-feminism theory and the broader literature recognizing women's environmentally beneficial roles. Additionally, the study finds that financial development enhances environmental sustainability, while natural resource rents exhibit a positive but statistically insignificant effect.

The analysis also reveals a negative interaction between women's empowerment and the two moderating variables, suggesting that a developed financial sector and effectively managed natural resources enhance women's capacity to improve environmental sustainability. This finding supports the study's second hypothesis, emphasizing that women's empowerment, financial development, and natural resource management are complementary in promoting environmental goals in the UAE.

5. Implications

Based on these findings, this research calls on UAE policymakers to enhance women's participation in environmental management and sustainability decision-making. Key recommendations include improving women's access to education and training in environmental sciences, sustainable business practices, and green technologies. It also advises the development of gendered green finance policies that prioritize access to financial resources for women, support female-led businesses, and incentivize women's participation in environmentally friendly initiatives. Moreover, the study advocates for greater representation of women in decision-making processes related to natural resource extraction, conservation, and sustainability.

6. Conclusion

The study findings offer valuable insights into the pathways through which women's empowerment influences environmental sustainability, providing a strong foundation for future research. Subsequent studies could explore this relationship across different regional contexts and varying levels of development. Additionally, future research might investigate the interplay between women's empowerment and other macroeconomic factors to deepen understanding of this multifaceted relationship.