

OPEN PEER REVIEW

Asymmetric and Dynamic Nexus between Gender Inequality and Green Finance

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1. Round 1

1.1. Reviewer 1

Reviewer:

The statement that “approximately 7.6% of men and 5.3% of women had access to credit capital in 2017” requires substantial clarification. The authors should specify the exact indicator used, the population covered, the number and type of countries included, and whether the percentages refer to borrowing specifically for starting or expanding a business rather than general access to credit. The sentence currently generalizes a narrowly defined indicator as overall “access to credit capital,” which may misrepresent the underlying data. The figure source, indicator definition, retrieval date, and methodological note should be provided in the figure caption, and the text should explain why a 2017 indicator is used in a study covering 2001–2019.

In the paragraph beginning “Gender inequality leads to widespread problems,” several distinct outcomes—including violence, mental health, education, policymaking, domestic labor, and economic performance—are combined without a structured conceptual framework. The authors should distinguish between the causes, manifestations, and consequences of gender inequality. For example, unequal access to education and financial resources may function as dimensions or mechanisms of inequality, whereas mental-health consequences and restricted economic growth are outcomes. A more precise classification would improve conceptual clarity and prevent the analysis from treating gender inequality as an undifferentiated social condition.

The paragraph stating that “green financing can create employment and economic opportunities for women” presents the beneficial effects of green finance as broadly established, yet it does not acknowledge the conditions under which these benefits may or may not materialize. The authors should discuss potential mediators and moderators, including women’s property rights, educational attainment, digital access, labor-market regulations, financial literacy, social norms, and the design of green-finance instruments. Without such qualifications, the discussion risks assuming that increases in aggregate green-finance flows

automatically reach women or generate gender-responsive outcomes. The distinction between gender-neutral, gender-aware, and gender-responsive green finance should also be introduced.

The measurement of gender inequality also requires greater precision. The manuscript states that the index is based on “reproductive health, empowerment, and economic status,” but the standard Gender Inequality Index includes specific indicators such as maternal mortality, adolescent birth rates, parliamentary representation, educational attainment, and labor-force participation. The authors should identify the exact data provider, version, calculation method, annual coverage, and any interpolation used for missing observations. They should also discuss whether this index is appropriate for high-income OECD countries, where its distribution may be highly compressed and where alternative gender-gap measures might offer greater variation.

The stationarity analysis reported in Table 2 is not sufficiently documented. The text identifies the procedure only as the “Pesaran (2003) test,” but the authors should specify whether this is the Cross-Sectionally Augmented Dickey–Fuller test, the CIPS statistic, or another test. The deterministic specification—intercept only or intercept and trend—the lag-selection procedure, and the critical values must be reported. In addition, concluding that “both variables were stationary” based solely on p-values of 0.040 and 0.048 is fragile. Robustness should be assessed using alternative second-generation panel unit-root tests, and the integration order should be established at both levels and first differences.

Authors revised the manuscript and uploaded the document.

1.2. Reviewer 2

Reviewer:

The paragraph beginning “Viewed from another perspective, women have limited participation in green finance as investors and decision-makers” conflates several analytically distinct phenomena: women’s access to credit, participation in investment, representation in financial institutions, and involvement in environmental decision-making. These should be separated and operationally defined. The empirical dependent variable is a broad Gender Inequality Index, whereas the theoretical discussion focuses heavily on women’s participation in green-finance governance. The authors should explain how the selected index captures the particular mechanisms described in the literature review or acknowledge that the index may not directly measure women’s participation in green-finance institutions.

The sentence “Although these two issues may initially appear unrelated, there is an important relationship between them” understates the extensive theoretical literature connecting finance, gender, environmental policy, and sustainable development. Rather than presenting the relationship as unexpectedly emerging, the authors should construct a formal conceptual framework that specifies the anticipated bidirectional pathways. A diagram would be useful to distinguish the long-run pathway from green finance to gender inequality and the short-run pathway from gender inequality to green finance. The framework should also identify confounding factors, such as income per capita, institutional quality, education, energy structure, labor-force participation, and financial development.

The claim that “only a limited number of studies have examined the relationship between green financing and gender inequality in a unidirectional manner” should be supported through a transparent literature-search strategy. The manuscript currently reads partly as a narrative review but does not describe how studies were identified, screened, or classified. The authors should state the databases searched, search terms, publication period, inclusion criteria, and the basis for determining that the literature is limited. This is particularly important because the novelty claim rests heavily on the alleged absence of bidirectional and threshold analyses.

The paragraph asserting that “existing research has also frequently relied on static and linear models” needs more direct evidence. The authors should identify which previous empirical studies used static models, which used linear specifications, and how those methodological choices affected inference. In addition, the claim that the proposed VECM “allows for the incorporation of nonlinear effects” is technically inaccurate unless nonlinearity is introduced explicitly. A conventional VECM is linear; the nonlinear component in this manuscript arises from the separate Panel Threshold Regression model. The

methodological contribution should therefore be described as the combined use of a linear dynamic cointegration framework and a nonlinear threshold framework.

The data subsection states that the study covers “selected OECD countries” but does not identify the countries, the number of cross-sectional units, or the selection criteria. A complete list of countries must be provided, preferably in a table or appendix. The authors should also explain what “purposive sample” means in this context, why particular OECD members were included or excluded, and whether the final panel is balanced or unbalanced. Without this information, the study cannot be replicated, and readers cannot assess whether the sample is systematically biased toward countries with stronger institutions, better environmental reporting, or more developed green-finance markets.

The operationalization of green finance is insufficiently described in the sentence “Data were extracted from the OECD Subnational Government Climate Finance Database.” The authors should define the exact variable, unit of measurement, level of aggregation, currency, price base, and whether the measure represents expenditure, investment, lending, commitments, disbursements, or another financial flow. It should also be clarified whether subnational values were aggregated to the national level and whether the data were converted into per-capita values, percentages of GDP, or logarithms. Using absolute monetary values across OECD countries of very different sizes would produce severe scale effects and could drive the results mechanically.

Authors revised the manuscript and uploaded the document.

2. Revised

Editor’s decision: Accepted.

Editor in Chief’s decision: Accepted.