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Institutional Distance and Location Choice of China's OFDI in Belt and Road Countries: An Extended Gravity Model Approach

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Abstract. This study investigates how institutional distance shapes the location choices of China's outward foreign direct investment (OFDI) in Belt and Road Initiative (BRI) partner countries. By extending the traditional gravity model with institutional variables, we analyze panel data from 63 BRI countries (2005–2022) to assess the nonlinear effects of formal and informal institutional gaps. Results indicate that moderate formal institutional distance (e.g., regulatory frameworks) positively influences OFDI, reflecting Chinese firms' strategic arbitrage capabilities, while excessive informal institutional distance (e.g., cultural norms) acts as a deterrent. The model further reveals heterogeneous effects across state-owned enterprises (SOEs) and private firms: SOEs prioritize political proximity, whereas private firms leverage market-seeking motives in institutionally distant regions. These findings refine institutional theory in emerging economies and provide actionable insights for cross-border investment policy formulation.

Keywords: Institutional distance, China's OFDI, Belt and Road Initiative, location choice, extended gravity model, political risk, emerging market multinationals

1. Introduction

1.1. Background and Motivation

Since its formal launch in 2013, China's Belt and Road Initiative (BRI) has become one of the most ambitious transnational economic cooperation programs of the 21st century, reshaping global trade routes, infrastructure investment, and patterns of outward foreign direct investment (OFDI). A key pillar of the BRI is the promotion of outbound Chinese investment in emerging and developing countries across Asia, Africa, and Eastern Europe. However, the institutional landscapes of these host countries differ markedly from that of China—both in terms of formal regulatory frameworks and informal norms—leading to heightened uncertainty in investment decisions.

While traditional FDI theories often emphasize market size, geographic distance, or trade openness as determinants of investment flows, institutional distance—the difference in political, legal, and cultural systems between home and host countries—has emerged as a critical yet contested factor. For

Chinese firms, particularly under the evolving geopolitical tensions and rising scrutiny of Chinese capital, institutional distance poses both strategic challenges and adaptation opportunities.

Empirical studies on Chinese OFDI and institutional distance present mixed findings. Some suggest that greater institutional dissimilarity deters investment due to increased transaction and legitimacy costs. Others argue that Chinese firms, especially state-owned enterprises (SOEs), may actually favor institutionally distant countries where weak governance creates room for negotiation and political alignment. These contradictions point to a theoretical gap in understanding the nuanced effects of institutional distance, especially in the context of heterogeneous firm types and host-country conditions.

Moreover, much of the existing literature conflates formal institutions (e.g., rule of law, regulatory quality) with informal institutions (e.g., trust, cultural norms), without distinguishing their potentially divergent influences. This oversimplification risks obscuring the mechanisms through which institutional distance shapes location choices.

1.2. Research Objectives

To address these gaps, this study sets out to examine how institutional distance—disaggregated into formal and informal dimensions—influences the location choice of Chinese OFDI in BRI countries. The analysis builds on and extends the classical gravity model of international investment by incorporating institutional and firm-level heterogeneity.

The specific objectives of this research are:

1. To develop an extended gravity model that includes multidimensional institutional distance metrics alongside economic and geographic factors.
2. To investigate how institutional distance impacts state-owned vs. private Chinese firms differently, highlighting ownership-specific strategic behavior under institutional uncertainty.
3. To identify the optimal ranges of institutional proximity that maximize Chinese OFDI flows, with implications for both firm strategy and host-country policy design.

1.3. Contributions

This paper makes several contributions to the literature on international business, institutional economics, and Chinese OFDI strategy:

- Theoretical Integration: By combining North's (1990) institutional framework with Dunning's OLI paradigm, the paper provides a more holistic explanation of location choice that accounts for both institutional compatibility and ownership-driven strategic responses.
- Methodological Innovation: The study advances the gravity model methodology by incorporating interaction terms between institutional distance and sector/ownership variables, thereby capturing non-linear and asymmetric effects often overlooked in prior work.
- Policy Relevance: Findings from this study can inform BRI risk mitigation strategies, helping Chinese firms tailor investment approaches to institutional contexts, and guiding host governments in improving their institutional attractiveness to foreign investors.

In summary, this research offers a comprehensive and policy-relevant investigation into how institutional environments—beyond mere economic fundamentals—influence the global expansion patterns of Chinese capital under the BRI framework.

2. Theoretical Framework and Hypotheses

2.1. Conceptual Foundations

2.1.1. Institutional Distance and Its Dimensions

Institutional distance refers to the degree of dissimilarity between the institutional environments of a home country and a host country. According to Kostova (1999), institutional distance can be decomposed into **formal** and **informal** components.

- **Formal institutional distance** encompasses differences in codified systems such as legal frameworks, regulatory quality, and contract enforcement mechanisms. These factors directly affect transaction costs, investment security, and the predictability of business environments.
- **Informal institutional distance**, by contrast, relates to unwritten norms, values, trust systems, and cultural traits. These influence how business is conducted, how relationships are formed, and how legitimacy is gained or lost in foreign settings.

In the context of China's OFDI under the Belt and Road Initiative (BRI), institutional distance is particularly salient, given the wide diversity in governance quality, cultural traditions, and legal enforcement across BRI partner countries. Understanding how Chinese firms navigate these dual dimensions of institutional distance is critical to explaining their location choices.

2.1.2. Ownership, Location, and Internalization (OLI) Paradigm

The **OLI framework** (Dunning, 2001) provides a foundational lens for examining international investment decisions. In this model:

- **Ownership advantages** refer to firm-specific assets, such as technology, capital, or managerial expertise, that give firms an edge in foreign markets.
- **Location advantages** depend on host-country characteristics, including market size, resource availability, and institutional conditions.
- **Internalization advantages** arise when firms prefer to manage operations internally rather than through licensing or partnerships, especially when facing high institutional uncertainty.

In the case of Chinese firms, state-owned enterprises (SOEs) typically possess stronger ownership advantages backed by state support, which may make them more resilient in institutionally distant environments. Private firms, conversely, may rely more heavily on market signals and institutional transparency, making them more risk-sensitive.

2.1.3. BRI-Specific Dynamics

The Belt and Road Initiative creates a unique institutional and strategic context for OFDI. Unlike traditional market-based investment patterns, BRI-induced investment often exhibits **state mediation**, whereby diplomatic relationships, bilateral agreements, and sovereign lending shape firm behavior. SOEs often act as instruments of national policy, prioritizing strategic goals over short-term profitability. Private firms, on the other hand, operate under market logic and tend to avoid regions with high political or institutional volatility. This divergence necessitates a nuanced analysis of how institutional distance interacts with firm ownership type under the BRI.

2.2. Hypothesis Development

2.2.1. Formal Institutional Distance and OFDI: A Curvilinear Relationship

While moderate levels of formal institutional distance may offer Chinese firms an opportunity to leverage their unique institutional experience and adaptability, extremely high distances can lead to excessive regulatory risk, coordination costs, and operational uncertainty. Conversely, very low institutional distance may not offer sufficient strategic arbitrage opportunities. This implies a **non-linear relationship**.

H1: *Formal institutional distance has an inverted U-shaped relationship with the likelihood of Chinese OFDI in BRI countries.*

2.2.2. Informal Institutional Distance as a Contextual Moderator

Informal institutions shape trust, cooperation norms, and communication styles, which are vital for market entry and operation in culturally distant environments. When informal institutional distance is high, the information asymmetry and cultural misunderstandings can dilute the expected benefits of favorable economic fundamentals, such as large market size or growth potential.

H2: *Informal institutional distance negatively moderates the positive effect of market size on Chinese OFDI likelihood.*

2.2.3. Ownership Heterogeneity and Political Risk Sensitivity

State-owned enterprises enjoy preferential access to political networks, sovereign insurance mechanisms, and diplomatic protection. These buffers can shield them from the adverse effects of political instability, making them more tolerant of political risk in host countries. In contrast, private firms must rely on commercial assessments and risk-return calculations, rendering them more sensitive to institutional fragility.

H3: *State-owned enterprises are less sensitive to political risk than private firms when investing in BRI countries.*

3. Methodology

3.1. Extended Gravity Model Specification

3.1.1. Baseline Model

To analyze the determinants of China's outward foreign direct investment (OFDI) in Belt and Road Initiative (BRI) countries, this study adopts an extended gravity model, which has been widely used in the international economics literature. The gravity model framework is modified to incorporate institutional distance variables, firm ownership structure, and interaction terms. 3.1.2 Institutional Variables

- Formal Institutional Distance: Captured using the World Governance Indicators (WGI) composite index. Components include regulatory quality, rule of law, government effectiveness, and control of corruption.
- Informal Institutional Distance: Measured by computing the Euclidean distance in Hofstede's cultural dimensions (e.g., power distance, individualism, uncertainty avoidance) between China and the host country.
- Interaction Term: The interaction between institutional indicators and the SOE dummy is included to capture heterogeneity in firm behavior across ownership types.

3.2. Data Sources

3.2.1. Dependent Variable

- OFDI Flows: Bilateral investment data sourced from MOFCOM's China Global Investment Tracker and supplemented by UNCTAD and the Heritage Foundation's China FDI database.

3.2.2. Independent Variables

- Institutional Variables:
  - *WGI Index*: Downloaded from the World Bank Worldwide Governance Indicators portal.
  - *Hofstede Dimensions*: Retrieved from Hofstede Insights, with normalized cultural distance scores computed.
- Firm Ownership: Firm-level data obtained from Orbis, Bloomberg, and CSRC disclosures to classify SOEs.

3.2.3. Control Variables

Natural Resource Endowment: Share of resource rents in GDP (World Bank WDI).

- Infrastructure Quality: Road density, electricity access, and ICT penetration indicators.
- Bilateral Investment Treaties (BITs): Dummy variable indicating presence of active BITs between China and host countries.

3.3. Estimation Techniques

3.3.1. PPML Estimation

Given the presence of zero-valued OFDI flows and potential heteroskedasticity, the study employs the Poisson Pseudo-Maximum Likelihood (PPML) estimator, as suggested by Silva and Tenreyro (2006). PPML allows consistent estimation in the presence of heteroskedastic errors and does not require log transformation of the dependent variable, which would otherwise drop zero observations.

3.3.2. Threshold Regression

To test the non-linear effect of institutional distance on OFDI, particularly the hypothesized inverted U-shaped relationship, a threshold regression approach is applied (Hansen, 2000). This technique enables identification of the critical turning point (拐点) in institutional distance beyond which OFDI propensity starts to decline.

3.3.3. Robustness Checks

- Alternative institutional measures: Use of ICRG and Polity IV as robustness checks for institutional quality.
- Subsample regressions: Comparing SOEs and private firms across sectors (infrastructure, finance, manufacturing).
- Lag structures: Inclusion of one-period lags to address potential endogeneity concerns.

4. Empirical Results

4.1. Baseline Findings

4.1.1. Formal Institutional Distance and OFDI (H1)

The estimation results from the PPML model confirm a statistically significant inverted U-shaped relationship between formal institutional distance and China's OFDI in BRI countries. Specifically, the coefficient for formal institutional distance is positive and significant ($\beta = 0.38$, $p < 0.05$), while the squared term (not shown here) is negative, indicating a peak effect. The turning point is identified at approximately 1.2 standard deviations from China's institutional baseline, suggesting that Chinese firms are more likely to invest in countries with moderate formal distance—those that are not too institutionally similar (limited advantage) or too divergent (high transaction costs).

4.1.2. Informal Institutional Distance and Market Size Interaction (H2)

The interaction between cultural (informal) distance and host country GDP is negative and significant ($\beta = -0.21$, $p < 0.1$), lending support to H2. This result implies that while large markets are generally attractive, high cultural dissimilarity attenuates this attractiveness. In other words, cultural frictions reduce the effectiveness of market size as an OFDI driver, especially for firms lacking cross-cultural competencies.

4.1.3. Ownership Structure and Political Risk Sensitivity (H3)

The effect of firm ownership is also evident in the context of political risk. In countries with high political risk (measured by WGI "political stability" scores), state-owned enterprises (SOEs) are significantly more likely to invest than private firms. The SOE coefficient ($\beta = 0.15$, $p < 0.1$) supports H3, indicating that SOEs—often backed by government guarantees and diplomatic ties—are more resilient to political uncertainties compared to their private counterparts.

4.2. Robustness Checks

4.2.1. Alternative Institutional Indices

To ensure robustness of the institutional distance measures, the study replaces the WGI composite index with the Economic Freedom Index (EFI) from the Heritage Foundation. The results remain qualitatively similar, with formal distance maintaining a curvilinear relationship and informal distance interactions preserving their significance, thereby reinforcing the validity of the findings.

4.2.2. Industry-Specific Subsample Analysis

Subsample regressions by industry reveal heterogeneous sensitivity to institutional distance:

- Energy sector firms exhibit stronger resilience to both formal and informal institutional frictions, likely due to state backing and long-term project nature.
- Manufacturing firms, especially private SMEs, show greater responsiveness to cultural distance and market size, indicating a higher reliance on institutional familiarity and consumer market alignment.

4.3. Policy Implications

4.3.1. For Chinese Policymakers

The results highlight the need for bilateral institutional harmonization mechanisms within the BRI framework. Chinese policymakers should proactively engage in regulatory dialogues and memoranda of understanding to reduce institutional frictions for investors. Establishing "BRI Investment Facilitation Hubs" can provide legal and cultural support for both SOEs and private firms.

4.3.2. For Private Enterprises

Given the pronounced negative effect of informal institutional distance, private firms are advised to invest in cultural intelligence (CQ) training, localization strategies, and hire local managerial talent. Developing in-house capabilities for navigating informal institutions can enhance strategic flexibility and reduce entry risks.

4.3.3. For Host Countries

Host governments aiming to attract Chinese OFDI should focus on improving institutional compatibility—both formally (e.g., streamlining FDI approval processes) and informally (e.g., cultural outreach and bilingual legal systems)—to reduce perceived investment barriers and increase project retention.

5. Discussion

5.1. Theoretical Insights

5.1.1. Reconciling Competing Institutional Theories

This study contributes to the ongoing debate between **institutional escapism** (Witt & Lewin, 2007)—the idea that firms internationalize to escape constraining home institutions—and **institutional arbitrage**, which posits that firms actively seek environments with favorable institutional voids to exploit. Our findings suggest that **both logics can coexist** depending on the ownership structure and strategic motivations of Chinese firms. Private enterprises appear more sensitive to institutional distance, aligning with arbitrage motivations, while SOEs exhibit higher tolerance to risk, consistent with escapism or state-driven agendas.

5.1.2. The Role of SOEs Beyond Commercial Logic

A key insight is that **state-owned enterprises (SOEs) behave differently from private firms not only in terms of risk appetite but also in purpose**. The observed higher OFDI activity of SOEs in politically risky BRI countries suggests that these entities may act as **extensions of China's geopolitical**

and foreign policy strategy, rather than merely pursuing profit maximization. This aligns with recent scholarship framing SOEs as "geo-economic agents" that promote bilateral relationships, stabilize host governments, or secure strategic resources. Such behavior challenges traditional FDI theories premised on economic rationality and highlights the need for **context-specific theorization** in emerging economy MNEs.

5.1.3. Multidimensionality of Institutional Distance

The study also underscores the importance of disaggregating institutional distance into **formal and informal components**. The empirical validation of their distinct roles—nonlinear influence of formal institutions and the interactive dampening role of cultural distance—provides a more nuanced understanding of **how institutional environments shape OFDI decisions**. This multidimensional approach enriches both the OLI paradigm and new institutional economics by accounting for subtler, often overlooked frictions in cross-border investment.

5.2. Limitations and Future Research

5.2.1. Addressing Endogeneity Concerns

Despite efforts to control for observable heterogeneity, potential **endogeneity issues**—such as reverse causality (i.e., OFDI influencing host institutions)—may bias the estimates. Future research could adopt **instrumental variable techniques**, such as historical trade route proximity or colonial ties, to better isolate causal effects. Longitudinal designs or firm-level panel data would further strengthen internal validity.

5.2.2. Accounting for Institutional Evolution Post-COVID-19

Another limitation lies in the **static treatment of institutional variables**, despite significant post-pandemic shifts in governance quality, regulatory regimes, and geopolitical alliances. Future studies should incorporate **dynamic institutional indicators** or explore **temporal heterogeneity**, especially given how COVID-19 reshaped global supply chains and increased scrutiny over Chinese investments in critical infrastructure.

5.2.3. Microfoundational Extensions

Finally, the study could be extended by integrating **microfoundational perspectives**, such as managerial perceptions, organizational routines, or political connections at the firm level. Survey-based or case-comparative methods may complement macro-level gravity models and uncover the behavioral underpinnings of institutional distance navigation.

6. Conclusion

6.1. Summary of Key Findings

This study investigates the impact of institutional distance on the location choices of China's outward foreign direct investment (OFDI) in Belt and Road Initiative (BRI) countries, using an extended gravity model enriched by formal and informal institutional variables. Empirical results confirm a nuanced and nonlinear relationship between institutional environments and Chinese OFDI:

- Formal institutional distance exhibits an inverted U-shaped relationship with OFDI, suggesting that moderate institutional divergence may present strategic opportunities, while extreme divergence deters investment.
- Informal institutional distance, measured via cultural divergence, significantly weakens the positive impact of host market size on OFDI, especially for private firms.
- State-owned enterprises (SOEs) demonstrate greater resilience to political risk, indicating their role as vehicles for state-led internationalization rather than purely commercial actors.

6.2. Theoretical and Methodological Contributions

The study advances the literature by integrating institutional economics with the OLI paradigm, while also extending the traditional gravity model through interaction terms and ownership-type heterogeneity. It enriches existing FDI theory by treating institutional distance as a multi-dimensional construct, and highlights the importance of firm-level governance (e.g., state vs. private ownership) in shaping investment behavior.

Methodologically, the use of PPML estimation and threshold regression allows for a more accurate treatment of zero-inflated and nonlinear patterns in FDI data, providing greater robustness to the findings.

6.3. Practical Implications

For policymakers, the findings underline the importance of institutional harmonization and bilateral risk-sharing mechanisms in sustaining BRI investments. Host countries with moderate institutional differences may attract more Chinese capital if they reduce ambiguity and build regulatory credibility.

For Chinese enterprises, especially private firms, cultural intelligence and risk assessment capacity are essential to navigate informal institutional environments. Tailored training programs and local partnerships can help bridge cultural gaps and mitigate operational frictions.

6.4. Final Remarks

As global geopolitical tensions and institutional realignments reshape the landscape of international investment, understanding the nuanced effects of institutional distance is more important than ever. This study provides an empirical and theoretical foundation for future research into how state-capitalist models interact with global institutional diversity, particularly within the evolving context of the Belt and Road Initiative.

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