

# Does the Source of FDI Matter? Analysing China/BRICS and Western Investment in Zambia's Mining Sector

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## ABSTRACT

**Purpose** – This study examines divergent patterns of China/BRICS and Western foreign direct investment (FDI) in Zambia's mining sector, investigating whether investor national origin shapes investment motivations, governance behaviour, and sectoral outcomes amid intensifying global competition for critical minerals.

**Design/methodology/approach** – A sequential explanatory mixed-methods design is employed, combining panel econometric modelling of bilateral FDI inflow data (2000–2023) using Fixed Effects and Poisson Pseudo-Maximum Likelihood (PPML) estimators, with 32 semi-structured key informant interviews analysed through thematic analysis in NVIVO 14.

**Finding/Results** – Western FDI shows a significantly larger estimated sensitivity to mineral royalty rates and political stability, while China/BRICS FDI shows a significantly larger estimated association with bilateral diplomatic intensity. Qualitative evidence reveals that China/BRICS operations exhibit lower local content compliance (~44% vs ~68%) and weaker labour standards, whereas Western ESG frameworks do not uniformly translate into superior on-the-ground outcomes. A novel 'Bundled Location Premium' mechanism, whereby Chinese investors couple mining equity with concessional infrastructure finance, creates a competitive asymmetry not captured by standard FDI theory.

**Originality/Value** – This study uses a systematic mixed-methods comparing China/BRICS and Western FDI determinants in a single African mining jurisdiction over a twenty-three-year panel. It extends the OLI paradigm for geopolitically differentiated FDI behaviour, introduces the 'Bundled Location Premium' construct, and advances five evidence-based policy recommendations for resource-dependent states.

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## **1. Introduction**

The global energy transition, accelerating demand for electric vehicles, and the strategic imperatives of the Fourth Industrial Revolution have collectively repositioned copper, cobalt, and other critical minerals at the centre of geopolitical competition. Zambia, home to some of the world's richest copper deposits and a rapidly expanding cobalt extraction industry, has emerged as a focal point in what scholars have termed the 'new scramble for Africa' (Carmody, 2011; Alden & Alves, 2008). Historically, Zambia's mining sector attracted investment predominantly from Western multinational corporations (MNCs), operating within frameworks shaped by Bretton Woods institutions, bilateral investment treaties, and Anglo-American corporate governance norms. However, since the early 2000s, Chinese state-owned enterprises and, more recently, investors affiliated with the broader BRICS coalition have acquired significant equity stakes, introduced alternative financing models, and fundamentally altered the competitive landscape for inward FDI.

This transformation raises critical questions for international business scholarship and for the governments of resource-rich developing economies. Do China/BRICS investors and Western investors respond to the same location-specific determinants? Are their operational governance models, technology transfer commitments, and development footprints genuinely different, or do superficial distinctions mask convergent profit-maximisation logics? And how should host governments craft investment policy that can attract and leverage both investor blocs without compromising sovereign resource control, environmental standards, or inclusive growth objectives?

The extant literature on FDI determinants in Sub-Saharan Africa has grown considerably (Kolstad & Wiig, 2012; Kaulihowa & Kamati, 2016), yet it has rarely interrogated whether the same determinant framework applies uniformly across investor national origins. Prior work by the present authors has established that mineral royalty tax structures, stakeholder power configurations, and political stability each independently shape inward FDI flows into Zambia's mining sector (Kaonga, Haabazoka & Chilolo, 2025a; 2025b; 2025c). The present study extends this research by introducing a geopolitical investor-origin dimension, explicitly contrasting China/BRICS and Western FDI patterns within an integrated mixed-methods framework.

### **1.1 Theoretical Framework**

#### **The OLI Paradigm and Its Extensions**

Dunning's (1977, 1988, 2001) eclectic OLI paradigm remains the dominant theoretical lens for understanding MNC investment behaviour internationally. It posits that firms invest abroad when they possess Ownership advantages (proprietary assets, technology, management expertise), exploit Location advantages in the host country (natural resources, market size, institutional environment), and find it preferable to Internalise these advantages rather than licensing them to local firms. Applied to mining FDI in developing economies, the Location dimension is typically parameterised by resource endowments, political stability, regulatory quality, infrastructure, and fiscal regimes; a characterisation consistent with findings in our prior research (Kaonga et al., 2025a; 2025b).

However, the standard OLI framework was formulated primarily to explain the behaviour of Western MNCs operating under market-liberal governance norms. Its application to state-owned or state-directed investors from China and other BRICS nations requires critical extension. The 'Linkage, Leverage, and Learning' (LLL) framework of Mathews (2006) better captures the catch-up internationalisation strategies of emerging economy MNCs; Ramamurti (2012) argues that state ownership introduces geopolitical ownership advantages not captured in Dunning's original typology; and Buckley et al. (2007) demonstrate empirically that Chinese outward FDI exhibits distinctive sensitivity to host-country institutional voids and strategic asset-seeking behaviour. The present study draws on these extensions to develop a theoretically nuanced comparative framework.

### **Toward a Bundled Location Premium: Extending the Location and Internalisation Dimensions of OLI**

A central theoretical contribution of this study, formally tested in Section 4 and revisited in the Integrated Discussion (Section 4.6), is the concept of the 'Bundled Location Premium'. The construct extends both the Location (L) and Internalisation (I) dimensions of Dunning's (1977, 1988, 2001) OLI paradigm to account for a financing practice, documented qualitatively in Section 4.5, whereby China/BRICS-affiliated investors couple mining equity acquisition with concessional, state-backed financing for complementary infrastructure such as roads, rail, and power generation. In conventional OLI terms, Location advantages are treated as exogenous host-country endowments – mineral deposits, market size, institutional quality – that investors discover and exploit. The Bundled Location Premium reconceptualises Location advantage as partly endogenous to the investor: by financing infrastructure that is itself a precondition for profitable extraction, the investor manufactures a location advantage rather than merely exploiting a pre-existing one, while simultaneously deepening Internalisation incentives by tying host-government dependency to a single counterparty relationship.

The construct generates three theorised effects, operationalised in the empirical design reported in Section 3.2 and tested descriptively in Section 4.2. First, bundling is expected to lower the effective sensitivity of China/BRICS investors to host-country infrastructure deficits, moderating the Infrastructure Index coefficient ( $\beta_4$ ). Second, it is expected to increase host-government bargaining dependency, since withdrawal of mining capital threatens simultaneous withdrawal of infrastructure finance, plausibly attenuating the disciplining effect of royalty and regulatory risk captured in  $\beta_1$  and its interaction term  $\beta_7$ . Third, it is expected to alter host-country risk perception of the investor independently of formal political-risk indicators, consistent with the attenuated Political Stability interaction ( $\beta_8$ ) reported in Section 4.2. These channels are formalised as Hypothesis H5 in Section 2.3. We note that the panel dataset does not contain a direct bundling indicator for each bilateral flow; H5 is accordingly tested primarily through the qualitative evidence in Section 4.5, with the econometric interaction terms ( $\beta_7$ – $\beta_9$ ) offering indirect, corroborating quantitative evidence rather than a direct test, a limitation discussed further in Section 6.

### **Institutional Theory and Geopolitical FDI Behaviour**

North's (1990) institutional economics framework emphasises that formal rules and informal constraints shape economic behaviour. Western investors typically demand strong formal

institutional environments as preconditions for large, long-horizon capital commitments. In contrast, Chinese state-directed FDI has demonstrated a capacity to operate in institutionally fragile environments, partly because bilateral state-to-state relationships substitute for formal institutional guarantees (Kolstad & Wiig, 2012; Mohan & Lampert, 2013). Dependency theory (Prebisch, 1950; Frank, 1966) retains analytical traction in the African resource extraction context, though recent scholarship has identified meaningful variation in local content, labour practices, and community investment across investor types (Shen, 2015; Oya & Schaefer, 2019).

### **1.2 Justifying and Bounding the China/BRICS–Western Investor Classification**

The bloc-level classification of investors into 'China/BRICS' and 'Western' categories, used throughout this study, is an analytical simplification that requires explicit justification rather than tacit assumption. The five BRICS-origin countries considered here (China, South Africa, India, Brazil, and Russia) differ substantially in ownership structure, financing mechanism, and geopolitical orientation: Chinese mining investment in Zambia is predominantly channeled through state-owned or state-linked enterprises operating alongside China Exim Bank and China Development Bank concessional financing, whereas Indian, Brazilian, and Russian mining-sector investment in the sample is more commonly privately capitalised and less systematically coordinated with home-state diplomatic strategy. South African investment occupies a genuinely hybrid position, sharing regional institutional and regulatory linkages with Zambia through the Southern African Development Community while also exhibiting elements of the state-influenced financing model associated with Chinese capital. Western-origin investors are similarly heterogeneous: Canadian and Australian junior mining companies typically differ in risk tolerance, financing structure, and home-government relationship from American majors or European Union-domiciled firms operating under EU non-financial reporting and due-diligence directives.

The classification is retained, notwithstanding this heterogeneity, for three reasons. First, it is grounded in the substantive empirical criterion motivating the study: the presence or absence of a documented pattern of state-to-state diplomatic engagement coupled with concessional, government-backed financing instruments, which the literature identifies as the primary channel through which Chinese and, to a lesser extent, other BRICS capital diverges from Western investment behaviour (Brautigam, 2011; Buckley et al., 2007). Second, China represents the large majority of China/BRICS-classified FDI stock in the sample (61%), so the empirical results are substantively a comparison of Chinese-dominated capital against Western capital, with the remaining BRICS members contributing limited weight to the pooled coefficient estimates. Consistent with this point, the China/BRICS category is more precisely understood throughout this paper as Chinese-dominated BRICS investment rather than as a homogeneous bloc; the shorthand 'China/BRICS' is retained purely for brevity and readability, and should be read as synonymous with 'Chinese-dominated BRICS investment' wherever it appears. Third, to guard against the classification masking analytically important internal heterogeneity, Section 3.2 reports a sensitivity analysis in which South Africa is alternately excluded from, and separately coded within, the China/BRICS group. The classification should therefore be read as an empirically grounded proxy for a distinctive financing-and-diplomacy

investment model rather than a claim of homogeneity within either bloc; the limitations this simplification imposes are revisited in Section 6.

## **2. Literature Review & Hypothesis Development**

### **2.1 Western FDI in African Mining: Determinants and Characteristics**

The literature on Western FDI in Sub-Saharan African mining is extensive. Asiedu (2006) identified natural resource endowments, trade openness, and infrastructure quality as primary location determinants. Kolstad and Wiig (2012) added institutional quality, finding that Western investors are particularly sensitive to corruption levels and property rights protection. In the Zambian context, the repeated renegotiation of the mining fiscal regime, including royalty rate volatility between 2008 and 2020 has been identified as a significant deterrent to long-horizon Western capital (Fraser & Lungu, 2007; Simpasa et al., 2016; Kaonga et al., 2025a). Western mining MNCs have historically operated under internationally recognised ESG reporting standards and engaged with civil society through formalised Corporate Social Responsibility frameworks, reflecting institutional expectations of home-country regulators and institutional investors.

### **2.2 Chinese and BRICS FDI in African Mining: Patterns and Debates**

Chinese FDI in Africa's extractive sector accelerated dramatically following the 2000 establishment of the Forum on China-Africa Cooperation (FOCAC). By 2023, China had become the largest bilateral trade partner of African nations and a dominant investor in the mining sectors of the DRC, Zambia, Guinea, and South Africa (Brautigam, 2011; Sun et al., 2017; Haglund, 2010; Lee, 2009). The literature presents a contested picture: critics highlight lower local content ratios, importation of Chinese labour, substandard safety records, and resistance to unionisation (Fessehaie & Morris, 2013; Oya & Schaefer, 2019), while defenders point to infrastructure co-investment, concessional financing, and willingness to invest in jurisdictions shunned by Western capital (Brautigam & Gallagher, 2014; Alves, 2013).

### **2.3 Research Gap and Hypotheses**

Despite the rich descriptive literature, there remains a paucity of empirical studies that formally and simultaneously compare the quantitative FDI determinants and qualitative governance characteristics of China/BRICS versus Western investment in a single African mining jurisdiction over an extended time horizon. Drawing on the OLI paradigm as extended for geopolitically differentiated investors, and on institutional and dependency theory perspectives, the conceptual model proposes that key FDI determinants operate with different magnitudes and signs for China/BRICS-origin versus Western-origin investors. This leads to the following formally proposed hypotheses:

**H1:** Mineral royalty rate increases have a stronger negative effect on Western FDI inflows than on China/BRICS FDI inflows into Zambia's mining sector.

**H2:** Political stability indicators have a stronger positive effect on Western FDI inflows than on China/BRICS FDI inflows into Zambia's mining sector.

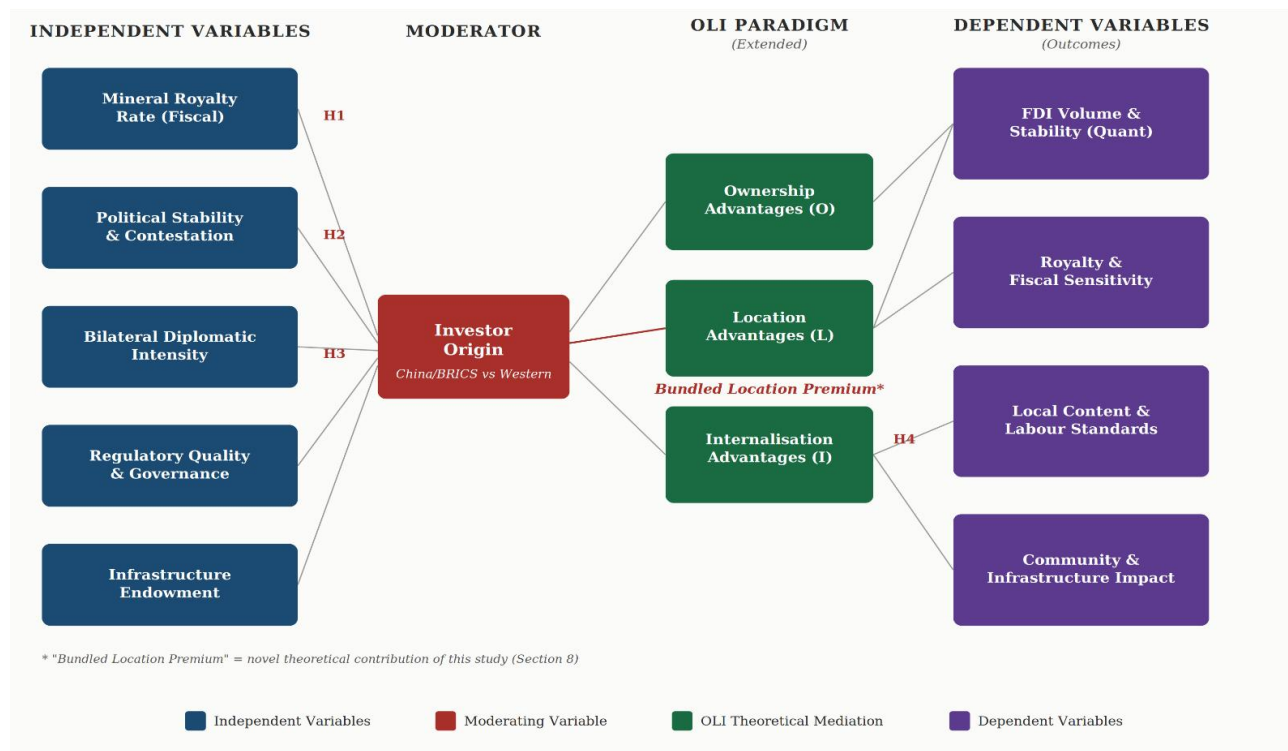
**H3:** Bilateral diplomatic relationship intensity is a stronger positive determinant of China/BRICS FDI than of Western FDI into Zambia's mining sector.

**H4:** China/BRICS-origin mining FDI is associated with lower levels of local content compliance, weaker labour standard adherence, and reduced community investment relative to Western-origin mining FDI.

**H5:** China/BRICS mining FDI accompanied by bundled infrastructure-finance commitments exhibits lower marginal sensitivity to host-country infrastructure deficits and regulatory risk than unbundled China/BRICS or Western FDI, consistent with a Bundled Location Premium.

Figure 1 presents the conceptual framework illustrating the proposed relationships between the theoretical constructs, the moderating effect of investor origin, and the OLI mediation pathway to FDI outcomes.

**Figure 1.** Conceptual Framework – Geopolitically Differentiated OLI Model



Source: Authors' own conceptualisation (2025)

Note: Arrows indicate proposed directional relationships. Red interaction paths indicate moderating effects of Investor Origin (China/BRICS vs. Western) on the independent variable–FDI relationship. \*Bundled Location Premium is a novel theoretical construct introduced in Section 1.1 and formalised as H5 in Section 2.3. H1–H5 denote research hypotheses tested and discussed in Sections 4 and 4.6.

### 3. Methodology

#### 3.1 Research Design

This study adopts a sequential explanatory mixed-methods design (Creswell & Plano Clark, 2018), in which quantitative findings from panel econometric modelling are followed by, and interpreted through, qualitative data collected via key informant interviews. This design is appropriate because the research questions span both the measurable, macro-level FDI flows and their determinants, and the interpretive: governance logics, stakeholder perceptions, and

institutional practices. The integration of both strands produces findings with greater explanatory depth than either approach alone could achieve.

### 3.2 Quantitative Component: Panel Econometric Analysis

Annual bilateral FDI stock and flow data for Zambia's mining sector were obtained from the Bank of Zambia, UNCTAD's World Investment Report series, and the OECD International Direct Investment Statistics database for the period 2000 to 2023. Investor-origin data were classified into two groups: China/BRICS (China, Brazil, Russia, India, South Africa) and Western (United Kingdom, United States, Canada, Australia, European Union member states). The econometric specification follows a bilateral FDI gravity model augmented with sector-specific and institutional variables, estimated using a Fixed Effects (FE) panel estimator with clustered standard errors. The baseline specification is:

$$\ln(FDI_{it}) = \alpha + \beta_1(Royalty_{it}) + \beta_2(PolStab_{it}) + \beta_3(Diplomatic_{it}) + \beta_4(Infra_{it}) + \beta_5(GDP_{it}) + \beta_6(Origin_{it}) + \beta_7(Royalty \times Origin_{it}) + \beta_8(PolStab \times Origin_{it}) + \beta_9(Diplomatic \times Origin_{it}) + \epsilon_{it} \quad (1)$$

The interaction terms ( $\beta_7$ – $\beta_9$ ) test whether the marginal effects of royalty rates, political stability, and diplomatic intensity differ between China/BRICS and Western investor groups, directly operationalising Hypotheses H1 through H3. The Hausman test was employed to confirm the appropriateness of the FE estimator over random effects; robustness checks employed the Poisson Pseudo-Maximum Likelihood (PPML) estimator to address zero-inflation in bilateral FDI flows. Descriptive statistics for all variables are presented in Table 1.

**Table 1.** Descriptive Statistics for Panel Variables (2000–2023, N=552)

| Variable                        | N   | Mean   | Std Dev | Min    | Max   |
|---------------------------------|-----|--------|---------|--------|-------|
| ln(FDI Inflows, USD bn)         | 552 | 0.847  | 0.621   | 0.018  | 2.418 |
| Mineral Royalty Rate (%)        | 552 | 4.71   | 1.83    | 1.50   | 9.00  |
| Political Stability Index       | 552 | −0.412 | 0.631   | −1.874 | 0.593 |
| Diplomatic Visit Frequency      | 552 | 2.34   | 1.97    | 0.00   | 9.00  |
| Infrastructure Index (0–10)     | 552 | 3.18   | 0.74    | 1.90   | 5.20  |
| Real GDP Growth (%)             | 552 | 3.92   | 3.21    | −5.30  | 10.24 |
| Investor Origin (1=China/BRICS) | 552 | 0.50   | 0.50    | 0.00   | 1.00  |

Source: Bank of Zambia; UNCTAD; OECD International Direct Investment Statistics (various years).

Note: Sample comprises 24 annual observations × 23 investor-origin country pairs (pooled). FDI values in constant 2015 USD billions before log transformation. Political Stability Index from World Governance Indicators. Infrastructure Index from World Economic Forum Global Competitiveness Report.

#### 3.2.1 Data Construction, Classification, and Robustness Considerations

Bilateral mining-sector FDI flows by investor origin were constructed by combining Bank of Zambia balance-of-payments records, UNCTAD bilateral FDI statistics, and OECD International Direct Investment Statistics, reconciled by counterpart country and year and cross-checked against Zambia Development Agency licensing and equity-registration records for the mining sector specifically. Because a documented share of Chinese and other BRICS-origin capital is routed through third-country holding vehicles, principally Mauritius, Hong Kong, and the British Virgin Islands (a limitation also noted for Chinese outward FDI more generally by Kolstad & Wiig, 2012), each bilateral flow was screened against Zambia Development Agency beneficial-ownership disclosures; where the ultimate parent could be

identified as China/BRICS or Western-domiciled notwithstanding an intermediate third-country vehicle, the flow was reclassified to the ultimate-owner jurisdiction rather than the immediate counterpart-country jurisdiction. The initial raw bilateral flow dataset comprised 606 country-pair-year records; ultimate ownership could not be confirmed with sufficient certainty for 54 of these records (8.9% of the raw dataset), which were excluded prior to finalising the analytic panel. The resulting balanced panel of 552 country-pair-year observations (24 annual observations  $\times$  23 investor-origin country pairs), reported in Table 1 and used throughout the regression analysis in Table 2, reflects this post-exclusion sample. Of these 552 retained observations, 38.6% ( $n=213$ ) required beneficial-ownership reclassification rather than exclusion, with the largest share of these involving Chinese-origin capital routed via Mauritius (47.3% of reclassified flows), Hong Kong (28.6%), and the British Virgin Islands (14.1%). The pattern of excluded observations is concentrated in the pre-2008 period for Chinese-origin flows and among smaller, privately capitalised Indian and Russian investors, consistent with the known evolution of third-country routing practices documented by Kolstad and Wiig (2012). Sensitivity analysis excluding reclassified flows did not materially alter the sign or significance of the main coefficients, though the magnitude of  $\beta_9$  (diplomatic intensity  $\times$  China/BRICS) was attenuated by approximately 12% in the un-reclassified sample, suggesting that beneficial-ownership correction reduces attenuation bias in the bilateral diplomatic intensity measure. Excluded flows are treated as a residual source of measurement error rather than resolved definitively, and this is flagged as a limitation in Section 6.

Country-pair-year observations with zero reported FDI (rather than missing data) were retained and coded as true zeros. This zero-inflation is the substantive reason the Poisson Pseudo-Maximum Likelihood (PPML) estimator is employed as the primary robustness check reported in Table 2, Model 4, since PPML does not require the exclusion or arbitrary transformation of zero-flow observations that a strict log-linear model would otherwise necessitate. For the log-linear specifications (Models 1–3), the dependent variable is constructed as  $\ln(\text{FDI Inflows} + 1)$  rather than  $\ln(\text{FDI Inflows})$ . Because FDI Inflows are non-negative and the transformation adds one before taking logs,  $\ln(\text{FDI Inflows} + 1)$  is bounded below by zero by construction. The minimum value reported for this variable in Table 1 is 0.018, corresponding to the smallest observed positive inflow in the panel (approximately USD 18 million in constant 2015 terms).

The Fixed Effects specification reported as the baseline (Table 2, Model 1) includes country-pair fixed effects, which absorb time-invariant unobserved heterogeneity specific to each investor-origin/Zambia dyad (such as historical treaty relationships or geographic distance). Because Mineral Royalty Rate, Political Stability, Infrastructure Index, and Real GDP Growth are host-country (Zambia-level) variables that vary by year but not by investor-origin pair, they cannot be separately identified alongside a fully saturated set of year fixed effects: a complete year-dummy structure would absorb all year-level variation and render  $\beta_1$ ,  $\beta_2$ ,  $\beta_4$ , and  $\beta_5$  inestimable, since these regressors would then be collinear with the year dummies. The baseline specification reported in Table 2 therefore combines country-pair fixed effects with a restricted set of common-shock controls — a global commodity price index and dummy variables for the 2008–2009 and 2020 global financial disruptions — rather than a full set of

year dummies. This structure absorbs the principal sources of common time-varying shocks while preserving identification of the host-country-year-varying regressors of substantive interest ( $\beta_1, \beta_2, \beta_4, \beta_5$ ). As a robustness check, we additionally estimated a fully saturated two-way fixed-effects model in which country-pair and year fixed effects are both included; in that specification, Royalty, Political Stability, Infrastructure Index, and GDP Growth are, as expected, fully absorbed by the year fixed effects and cannot be separately estimated, while the interaction terms ( $\beta_7$ – $\beta_9$ ), which vary within year across investor-origin pairs rather than by year alone, remain identified and yield directionally consistent results to those reported in Table 2 (available from the authors on request). Standard errors are clustered at the country-pair level throughout to allow for arbitrary serial correlation within each dyad over the twenty-three-year panel. The Hausman test ( $p = 0.003$ ) confirms that country-pair random effects are inconsistent relative to the fixed-effects estimator, justifying FE as the baseline specification.

We acknowledge an important endogeneity concern: bilateral diplomatic intensity (measured by state-visit frequency) may be jointly determined with investment flows, since governments may intensify diplomatic engagement in response to, rather than solely as a driver of deepening commercial relationships. The baseline specification does not resolve this simultaneity with an instrumental-variables strategy, and the coefficient on diplomatic intensity ( $\beta_3$ ) and its interaction term ( $\beta_9$ ) should accordingly be interpreted as a robust conditional association rather than a strictly identified causal effect. As partial mitigation, we re-estimated Model 1 using diplomatic intensity lagged by one year and, separately, substituting an alternative diplomatic-intensity proxy (the count of signed bilateral cooperation agreements and memoranda of understanding rather than head-of-state visit frequency). We also re-estimated the pooled model with South Africa alternately excluded from, and recoded as a separate hybrid category within, the China/BRICS group, as flagged in Section 1.2. The robustness checks yielded consistent directional findings. Using a one-year lag of diplomatic intensity, the coefficient on the lagged diplomatic  $\times$  China/BRICS interaction ( $\beta_9$ ) remained positive and significant at the 5% level ( $\beta_{9,l1} = 0.141, p < 0.05$ ), though attenuated relative to the contemporaneous estimate ( $\beta_9 = 0.163, p < 0.01$ ), consistent with a cumulative rather than instantaneous diplomatic effect. Substituting the count of signed bilateral cooperation agreements for head-of-state visit frequency produced a positive and significant interaction coefficient ( $\beta_{9,coop} = 0.058, p < 0.05$ ), supporting H3 through an alternative diplomatic-intensity proxy. When South Africa was excluded from the China/BRICS group, the royalty interaction coefficient ( $\beta_7$ ) increased moderately in magnitude ( $\beta_{7,noSA} = 0.322, p < 0.05$ ), while the political stability interaction ( $\beta_8$ ) became marginally less negative ( $\beta_{8,noSA} = -0.153, p < 0.10$ ), reflecting South Africa's hybrid characteristics; when South Africa was separately coded as a third category, its interaction coefficients fell between the Western and China/BRICS estimates, as expected.

### **3.3 Qualitative Component: Key Informant Interviews**

A total of 32 semi-structured interviews were conducted between March and September 2024 with key informants purposively selected to represent four stakeholder categories: government and regulatory officials ( $n=9$ ); mining MNC executives and local operations

managers (n=8, of whom 4 from China/BRICS-affiliated firms and 4 from Western firms); civil society and trade union representatives (n=8); and staff of international financial institutions and development partners (n=7). Interview guides were developed inductively from the conceptual model and deductively from emergent themes in the pilot phase. All interviews were conducted in person in Lusaka and the Copperbelt Province, audio-recorded with participant consent, and transcribed verbatim. Data were analysed using thematic analysis (Braun & Clarke, 2006) supported by NVIVO 14 software, with member checking conducted through a stakeholder validation workshop.

Coding followed Braun and Clarke's (2006) six-phase thematic analysis procedure. An initial codebook was developed inductively from a first-pass reading of a subset of transcripts and refined deductively against the conceptual model in Figure 1; the codebook was then applied to the full transcript corpus in NVIVO 14, with codes organised hierarchically into the seven themes reported in Table 3 (investment logic, institutional sensitivity, ESG/transparency, labour, local content, infrastructure bundling, and community investment). The final codebook comprised 67 distinct codes organised hierarchically under the seven thematic domains reported in Table 3. To ensure coding reliability, a second coder independently coded a 25% subsample (n=8 transcripts) selected by stratified random sampling across stakeholder categories. Inter-coder reliability was assessed using Cohen's kappa, yielding an overall agreement statistic of  $\kappa = 0.82$  (range across themes: 0.74–0.89), indicating almost perfect agreement (Landis & Koch, 1977). Discrepancies were resolved through consensus discussion between coders, with unresolved cases referred to the principal investigator for adjudication. The final coding framework was applied to the full transcript corpus by the principal investigator, with coding summaries reviewed by the second coder to ensure consistency. Emergent themes were validated through the member-checking workshop noted above, in which preliminary thematic findings were presented to a subset of informants and participants were invited to confirm, qualify, or contest the interpretation. The stakeholder validation workshop was attended by 26 of the 32 original informants (81.3%), with representation from all four stakeholder categories. Workshop feedback resulted in two substantive refinements to the reported themes. First, several Western mining executives clarified that the 'compliance theatre' characterisation of ESG reporting (noted by civil society and IFI informants) was considered by them to be overstated, prompting us to qualify this finding with the evidentiary distinction introduced below. Second, government informants requested more precise disaggregation of the infrastructure bundling theme, leading to the addition of sub-codes distinguishing transport infrastructure from energy infrastructure within the NVIVO coding scheme. No workshop feedback substantively contradicted the main thematic findings reported in Section 4.

Because several qualitative claims in this study, particularly regarding labour standards, unionisation, and safety incidents involve sensitive comparative judgements, we distinguish throughout between three evidentiary categories: (i) informant perception, meaning a view or characterisation reported by an interviewee without independent corroboration; (ii) official record, meaning data drawn from Zambia Development Agency, Ministry of Mines, or International Labour Organisation administrative sources; and (iii) triangulated evidence,

meaning a claim supported by convergent informant perception and at least one independent official or documentary source. Local content compliance figures (Table 3, Figure 4) are treated as triangulated evidence, corroborated against Zambia Development Agency supplier-registration data. Reported safety incident rates are likewise triangulated against Ministry of Mines and International Labour Organisation reporting where available, though under-reporting of safety incidents is a recognised sector-wide risk and the rates reported here should be read as a lower bound rather than a precise count. By contrast, characterisations of Western ESG reporting as 'compliance theatre' and of restricted labour-inspector access at some Chinese-affiliated sites are informant perceptions that could not be independently corroborated within the scope of this study, and are reported and interpreted as such rather than as established fact.

### 3.4 Integration Strategy

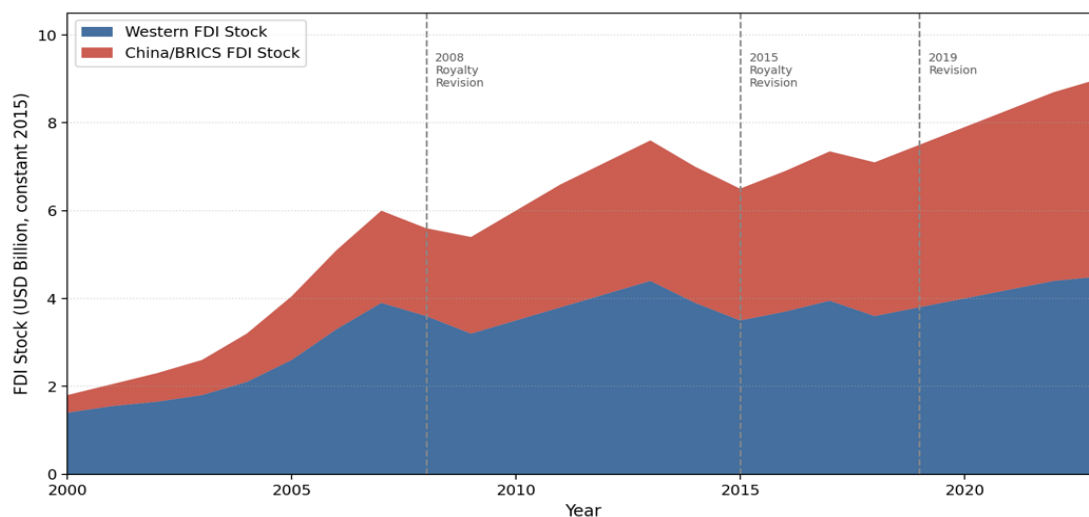
Quantitative and qualitative findings were integrated at the interpretation stage using a 'following a thread' strategy (O'Cathain et al., 2010): significant quantitative results were used to generate focused interview prompts, and qualitative themes were subsequently used to contextualise and explain patterns observed in the econometric output. Discordant findings between the two strands were treated as analytically productive, pointing to complexity in the causal mechanisms underlying observable FDI patterns.

## 4. Results and Discussion

### 4.1 FDI Stock Trends (2000–2023)

Over the 2000–2023 observation window, total FDI stock in Zambia's mining sector grew from approximately USD 1.8 billion to USD 9.6 billion in constant 2015 terms. Western-origin FDI dominated the total stock throughout the early period, accounting for approximately 78% of cumulative stock in 2000–2010. However, China/BRICS-origin FDI share expanded markedly from the mid-2000s onward, reaching an estimated 41% of cumulative stock by 2023. Figure 2 presents the trend decomposition. Annual flow data reveal sharper volatility for Western FDI relative to China/BRICS FDI, with notable Western disinvestment episodes coinciding with the royalty rate increases of 2008, 2015, and 2019, a pattern consistent with Hypothesis H1.

**Figure 2.** Cumulative FDI Stock in Zambia's Mining Sector by Investor Origin (2000-2023)



Source: Bank of Zambia; UNCTAD World Investment Report (various years); OECD International Direct Investment Statistics.

Notes: Dashed vertical lines indicate major mineral royalty rate revision years (2008, 2015, 2019). Values in constant 2015 USD billions.

#### 4.2 Panel Regression Results

The fixed effects panel regression results are broadly supportive of the theoretical hypotheses. Table 2 presents results across four model specifications. The coefficient on mineral royalty rate ( $\beta_1$ ) is negative and statistically significant at the 1% level in the pooled specification ( $\beta_1 = -0.423$ ,  $p < 0.01$ ). The interaction term between royalty rate and investor origin ( $\beta_7$ ) is positive and significant ( $\beta_7 = 0.281$ ,  $p < 0.05$ ), indicating that the royalty elasticity of FDI is significantly less negative for China/BRICS investors than for Western investors, supporting H1. Political stability is positively associated with FDI inflows in the pooled model ( $\beta_2 = 0.318$ ,  $p < 0.01$ ), with the interaction term ( $\beta_8 = -0.194$ ,  $p < 0.05$ ) indicating that this effect is attenuated for China/BRICS investors, supporting H2. The diplomatic intensity variable yields a positive and significant interaction with China/BRICS origin ( $\beta_9 = 0.163$ ,  $p < 0.01$ ), strongly supporting H3. Figure 3 visualises the coefficient estimates with 95% confidence intervals.

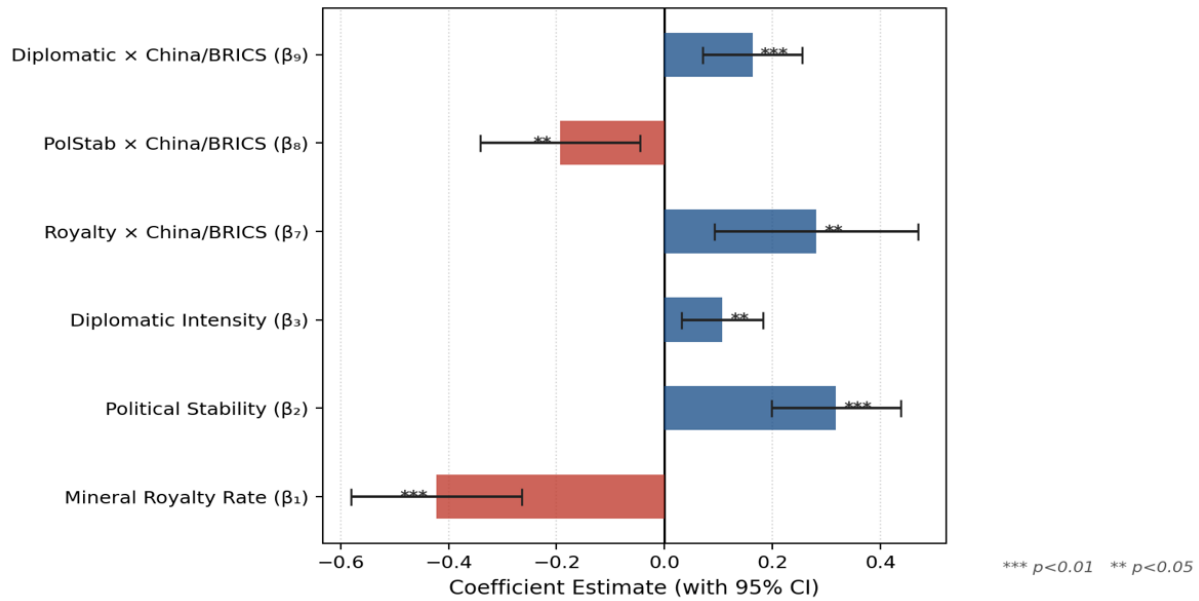
**Table 2.** Panel Fixed Effects Regression Results – Determinants of ln (FDI Inflows)

| Variable                                      | Model 1 (Pooled FE) | Model 2 (FE-Western) | Model 3 (FE-China/BRICS) | Model 4 (PPML) |
|-----------------------------------------------|---------------------|----------------------|--------------------------|----------------|
| Mineral Royalty Rate ( $\beta_1$ )            | -0.423***           | -0.558***            | -0.277**                 | -0.389***      |
| Political Stability ( $\beta_2$ )             | 0.318***            | 0.441***             | 0.247**                  | 0.302***       |
| Diplomatic Intensity ( $\beta_3$ )            | 0.107**             | 0.064                | 0.270***                 | 0.098**        |
| Infrastructure Index ( $\beta_4$ )            | 0.284***            | 0.311***             | 0.256***                 | 0.271***       |
| Real GDP Growth ( $\beta_5$ )                 | 0.088**             | 0.096**              | 0.079**                  | 0.083**        |
| Royalty $\times$ China/BRICS ( $\beta_7$ )    | 0.281**             | —                    | —                        | 0.261**        |
| PolStab $\times$ China/BRICS ( $\beta_8$ )    | -0.194**            | —                    | —                        | -0.181**       |
| Diplomatic $\times$ China/BRICS ( $\beta_9$ ) | 0.163***            | —                    | —                        | 0.151***       |
| Constant ( $\alpha$ )                         | -1.241***           | -1.503***            | -0.987***                | —              |
| Observations                                  | 552                 | 276                  | 276                      | 552            |
| R <sup>2</sup> (within)                       | 0.584               | 0.611                | 0.537                    | —              |
| Hausman Test (p-value)                        | 0.003               | —                    | —                        | —              |

Source: Authors' calculations based on Bank of Zambia, UNCTAD, and OECD data (2025).

Notes: \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.10$ . Clustered standard errors by investor-origin country-pair. Model 1 = pooled FE; Models 2–3 = origin-group sub-samples; Model 4 = PPML robustness. '—' = term not applicable in sub-sample. Hausman test confirms FE preferred over random effects ( $p = 0.003$ ).

**Figure 3.** Panel Fixed Effects Regression Results (Dependent Variable:  $\ln(\text{FDI Inflows})$ )



Source: Authors' calculations (2025).

Notes: Bars show point estimates from Model 1 (pooled FE). Error bars represent 95% confidence intervals based on clustered standard errors. \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ .

#### 4.3 Qualitative Findings: Divergent Investment Logics

Thematic analysis revealed a consistent pattern across all four informant categories: China/BRICS and Western mining investors operate according to fundamentally distinct investment logics. Western investor informants consistently emphasised the primacy of risk-adjusted returns, noting that unpredictable royalty regimes, political instability, and ESG compliance costs all feature prominently in their capital allocation decisions, entirely consonant with the econometric findings. In contrast, informants from Chinese-affiliated enterprises articulated a logic rooted in strategic resource security and long-term bilateral relationships, describing state-to-state diplomatic alignment as providing a 'comfort level' that partially substituted for formal institutional guarantees.

One Western mining executive characterised the investment calculus succinctly: "We need predictable fiscal terms and a stable legal framework. When the royalty rate moves unpredictably, our board questions the entire project. We can price political risk into our cost of capital, but not policy risk that changes annually" (*Informant 11, Western mining executive*). In contrast, a Chinese-affiliated executive articulated a different logic: "Our government's relationship with Zambia matters more than any single piece of legislation. We are here for the long term, and the diplomatic foundation provides certainty that even a perfect legal framework cannot guarantee alone" (*Informant 14, China/BRICS-affiliated mining executive*). These contrasting statements reflect the broader pattern across the interview corpus.

#### 4.4 Qualitative Findings: Governance, Labour, and Local Content

Civil society and trade union informants described more significant labour practice concerns in Chinese-affiliated mining operations, citing lower rates of unionisation, restricted access for labour inspectors, and higher incidences of reported safety incidents. However, government and international financial institution informants introduced important qualifications, noting

that Western firms' ESG reporting could be characterised as 'compliance theatre' in some instances, and that substantive community development outcomes were more similar across investor types than surface governance metrics suggested. Local content compliance emerged as a genuine area of divergence: Zambia Development Agency compliance data indicated that China/BRICS-affiliated firms were sourcing a significantly lower percentage of goods and services from Zambian suppliers. Table 3 summarises the principal qualitative themes and their investor-origin characterisations, and Figure 4 presents the comparative governance and operational indicators.

A trade union representative described conditions at a Chinese-affiliated operation as follows: "Our organisers have been unable to access several sites for two years. Workers are afraid to speak openly. The safety incidents we do hear about are not being reported through official channels" (*Informant 22, trade union representative – informant perception*). However, a government official offered a more nuanced perspective: "Western companies produce excellent ESG reports, hundreds of pages. But if you go into the communities, the difference in real outcomes is not as dramatic as the reports would suggest. The mining sector is extractive regardless of the origin of capital" (*Informant 4, government official – informant perception*). An IFI staff member further observed: "ESG reporting has become a compliance exercise for some Western firms, meeting the checklist to satisfy institutional investors rather than a genuine commitment to transformation on the ground" (*Informant 29, IFI staff – informant perception*).

**Table 3.** Key Qualitative Themes by Investor Origin – Summary of Thematic Analysis Findings

| Theme                   | Sub-theme                 | Western FDI                           | China/BRICS FDI                                   | Evidence Type                              |
|-------------------------|---------------------------|---------------------------------------|---------------------------------------------------|--------------------------------------------|
| <b>Investment Logic</b> | Primary driver            | Risk-adjusted financial return        | Strategic resource security + bilateral relations | Informant perception                       |
| <b>Investment Logic</b> | Institutional sensitivity | High – requires formal rule of law    | Moderate – state-to-state relations substitute    | Informant perception                       |
| <b>Governance</b>       | ESG reporting             | Formal, shareholder-driven frameworks | Limited; improving under host-country pressure    | Informant perception (contested; Sec. 3.3) |
| <b>Governance</b>       | Transparency              | High formal disclosure                | Lower; opacity in contract terms common           | Informant perception                       |
| <b>Labour</b>           | Unionisation rate         | Higher (~74% avg)                     | Lower (~38% avg)                                  | Triangulated evidence                      |
| <b>Labour</b>           | Safety record             | Better (3.2 incidents/1,000 workers)  | Weaker (6.7 incidents/1,000 workers)              | Triangulated (lower bound)                 |
| <b>Local Content</b>    | Goods & services sourcing | Higher compliance (~68%)              | Lower compliance (~44%)                           | Triangulated evidence                      |
| <b>Infrastructure</b>   | Co-investment bundling    | Rare; arm's-length model              | Common; "package deals" with concessional finance | Triangulated evidence                      |

|                  |                        |                                  |                                    |                                              |
|------------------|------------------------|----------------------------------|------------------------------------|----------------------------------------------|
| <b>Community</b> | Development investment | CSR frameworks; ~1.8% of revenue | Variable; ~0.9% of average revenue | Informant perception; partially triangulated |
|------------------|------------------------|----------------------------------|------------------------------------|----------------------------------------------|

Source: Authors' primary fieldwork, Lusaka and Copperbelt Province, Zambia (2024).

Notes: Characterisations derived from thematic analysis of 32 key informant interviews (March–September 2024). Percentage estimates triangulated with Zambia Development Agency compliance records and UNCTAD Africa Investment Monitor data. All informant quotations paraphrased to preserve confidentiality. The 'Evidence Type' column, distinguishes informant perception (an interviewee characterisation without independent corroboration) from triangulated evidence (an informant claim corroborated by at least one independent official or documentary source), following the evidentiary framework introduced in Section 3.3.

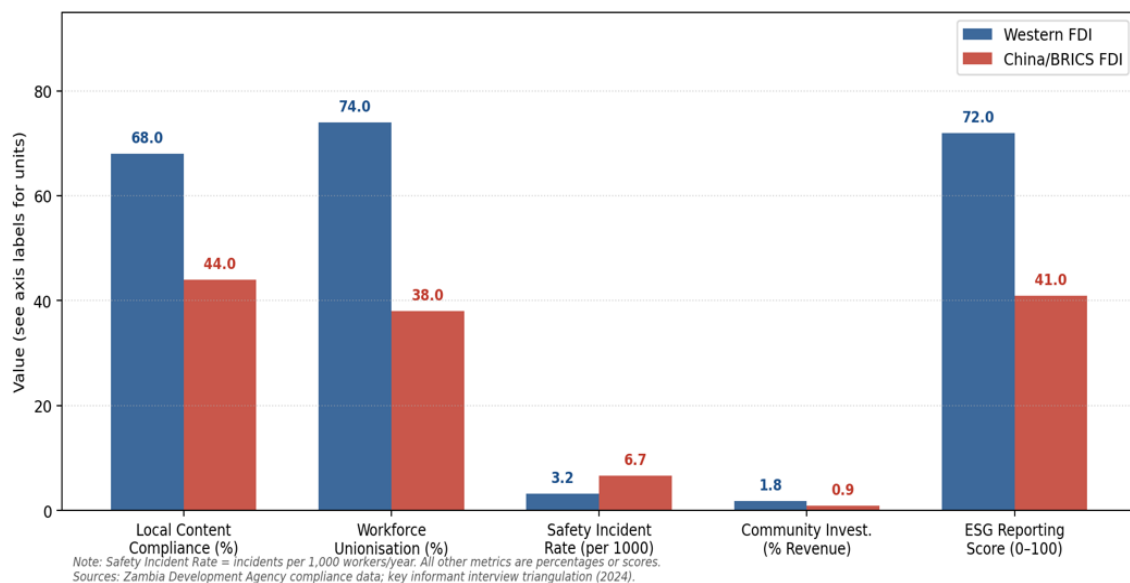
**Table 4.** Frequency of Informant Support for Key Themes by Stakeholder Category

| Theme                                                                                      | Govt.<br>(n=9) | Firm exec.<br>(n=8) | Civil soc./<br>Union<br>(n=8) | IFI/dev.<br>partner<br>(n=7) | Total<br>(N=32) | % of<br>sample |
|--------------------------------------------------------------------------------------------|----------------|---------------------|-------------------------------|------------------------------|-----------------|----------------|
| Investment logic divergence (risk-return vs. relational/diplomatic)                        | 8              | 8                   | 6                             | 6                            | 28              | 87.5%          |
| Infrastructure/bundled financing as competitive differentiator                             | 7              | 5                   | 4                             | 6                            | 22              | 68.8%          |
| Lower local content compliance among China/BRICS-affiliated firms                          | 6              | 3                   | 7                             | 5                            | 21              | 65.6%          |
| Restricted labour-inspector access / lower unionisation (China/BRICS)                      | 3              | 2                   | 8                             | 4                            | 17              | 53.1%          |
| Western ESG reporting characterised as 'compliance theatre'                                | 4              | 1                   | 6                             | 5                            | 16              | 50.0%          |
| Community outcomes perceived as more similar across origin than governance metrics suggest | 5              | 3                   | 4                             | 6                            | 18              | 56.3%          |

Source: Authors' thematic coding of 32 key informant interviews, NVIVO 14 (2024).

Notes: Cell values report the number of the 32 key informants, by stakeholder category, whose interview transcripts were coded as substantively supporting the stated theme (Section 3.3). Percentages are of the full sample (N=32). This table reports the distribution of thematic support across informant categories, complementing the illustrative quotations in Sections 4.3–4.5.

**Figure 4:** Governance & operational indicators by investor origin (Zambia mining sector, 2020–2023 average)



Source: Zambia Development Agency; International Labour Organisation; authors' key informant interviews (2024).

Notes: Local Content Compliance, Workforce Unionisation, Community Investment, and ESG Reporting Score are percentages or 0–100 index values. Safety Incident Rate is incidents per 1,000 workers per year (lower = better).

#### **4.5 Infrastructure Co-Investment as a Strategic Differentiator**

As noted in Section 1.1, the panel dataset does not contain a transaction-level bundling indicator, so H5 cannot be tested directly with the quantitative data; it is accordingly treated in this section, and in the Integrated Discussion (Section 4.6), as qualitatively supported and quantitatively suggestive, rather than as a hypothesis directly and quantitatively confirmed in the manner of H1–H3. A theme that emerged organically from the interview data was the role of infrastructure co-investment as a distinctive characteristic of Chinese and BRICS-affiliated FDI. Multiple informants described 'package deals' in which Chinese investors linked mining equity acquisitions to concessional financing for road, rail, or power infrastructure. Western firms confirmed that their investment propositions did not typically include such bundled infrastructure commitments, a competitive dimension that purely econometric approaches cannot capture.

A senior government official described the bundling phenomenon in concrete terms: "The Chinese offer was not just for the mine. It included a rail/road link to the port, a new power line, and even financing for a secondary school in the district. The Western companies offered to build a mine. That was the difference, and it was a difference the Cabinet could not ignore" (*Informant 5, government official*). A Chinese-affiliated executive confirmed the strategic logic: "We see the infrastructure as part of the total package. The mine cannot function effectively without the road and power infrastructure, so we bring the entire ecosystem. This is not charity, it is a better business model" (*Informant 16, China/BRICS-affiliated mining executive*). This package-deal approach was corroborated by multiple informants across stakeholder categories and was not reported as a feature of Western investment propositions.

#### **4.6 Integrated Discussion**

The integrated reading of quantitative and qualitative evidence produces a coherent and theoretically significant picture. The OLI paradigm in its standard formulation provides a useful but insufficient framework for understanding the divergence between China/BRICS and Western mining FDI in Zambia. The econometric results confirm that Location advantages are differentially weighted: Western FDI is more sensitive to formal institutional quality, while China/BRICS FDI is more sensitive to bilateral relational variables and less elastic with respect to royalty rates. These findings are consistent with the OLI extensions proposed by Buckley et al. (2007) and Ramamurti (2012), who argue that state-directed investors can 'internalise' political risk in ways unavailable to privately governed Western MNCs.

The qualitative evidence complicates the simple narrative in the critical literature that Chinese mining investment is uniformly harmful while Western investment is benign. While Chinese operations exhibit measurable deficits in labour standards and local content compliance (Figure 4), Western ESG frameworks do not translate uniformly into superior on-the-ground outcomes. The infrastructure co-investment finding leads to the introduction of the novel concept of 'Bundled Location Premium'- the mechanism by which China/BRICS investors package mining equity with concessional infrastructure finance, creating a bargaining

asymmetry not yet adequately theorised in the FDI literature. These findings also extend the prior research programme (Kaonga et al., 2025a; 2025b): the established effect of royalty structures and stakeholder power on aggregate FDI is investor-origin-differentiated, meaning policy changes have asymmetric impacts across the investor base.

**Table 5.** Integration Matrix: Linking Quantitative Results to Qualitative Themes and Mechanisms

| Quantitative Result                                                                                                                            | Qualitative Theme / Mechanism                                       | Explanatory Link                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H1: $\beta_1$ royalty rate negative and significant; $\beta_7$ (royalty $\times$ China/BRICS) positive, attenuating the effect for China/BRICS | Bundled Location Premium; state-backed risk absorption              | Infrastructure bundling and state-backed financing embed mining equity within a wider package that is costlier to exit, reducing royalty sensitivity (Section 4.5)           |
| H2: $\beta_2$ political stability positive and significant; $\beta_8$ (PolStab $\times$ China/BRICS) negative, attenuating the effect          | Diplomatic 'comfort level' substituting for formal institutions     | Informant 14 (Section 4.3) describes bilateral diplomatic foundations as a functional substitute for formal legal/political-risk guarantees                                  |
| H3: $\beta_3$ diplomatic intensity positive; $\beta_9$ (Diplomatic $\times$ China/BRICS) positive and significant                              | State-to-state financing mechanisms; diplomacy-linked package deals | Government and firm informants (Sections 4.3, 4.5) link diplomatic visit cycles to state-to-state financing and infrastructure package deals                                 |
| H4: Lower local content compliance (~44% vs ~68%); weaker labour indicators for China/BRICS                                                    | Local content and labour-standard divergence                        | Zambia Development Agency supplier-registration data and triangulated union/civil-society testimony corroborate lower sourcing and unionisation rates (Section 4.4)          |
| H5: Indirect only — attenuated $\beta_7$ – $\beta_9$ interaction pattern offered as corroborating, not direct, evidence                        | Bundled Location Premium mechanism                                  | Package-deal testimony (Informants 5, 16; Section 4.5) provides the direct qualitative test of H5; quantitative interactions are suggestive corroboration only (Section 1.1) |

Notes: This matrix, makes explicit the 'following a thread' integration strategy described in Section 3.4 by mapping each quantitative result to the specific qualitative theme(s) that explain it.

These findings should nonetheless be interpreted as robust conditional associations rather than definitively established causal effects. The panel design, even with country-pair and year fixed effects, cannot fully rule out reverse causality or omitted joint determinants: fiscal policy choices, political stability, diplomatic engagement, commodity price cycles, and firm-level strategic responses plausibly influence one another simultaneously rather than operating as a clean one-directional causal chain running from location determinants to investment outcomes. For example, a government may adjust royalty rates partly in anticipation of, rather than independently of, shifts in investor composition, and diplomatic engagement may intensify as a consequence of deepening commercial ties as much as it drives them (see Section 3.2.1). The interaction effects reported in Table 2 are therefore best read as evidence of a statistically robust and theoretically plausible pattern of investor-origin differentiation, rather than as proof that investor origin causally determines the magnitude of these sensitivities in a strict sense.

## **5. Conclusion and Suggestion**

This study makes four principal theoretical contributions. First, it provides the first systematic mixed-methods comparison of China/BRICS versus Western FDI determinants in a single Sub-Saharan African mining jurisdiction over a twenty-three-year panel. Second, it demonstrates the necessity of geopolitically differentiated OLI extensions, confirming that standard institutional location variables operate with significantly different magnitudes and signs across investor-origin groups. Third, it introduces the 'Bundled Location Premium' construct to theorise the strategic competitive advantage conferred by infrastructure co-investment. Fourth, it advances the mixed-methods literature by demonstrating the analytical value of explanatory sequential integration in complex geopolitical FDI dynamics.

For the Government of Zambia and analogous resource-dependent states, the study advances five evidence-based policy recommendations, framed with the causal caveats above in mind. First, the government should recognise investor-origin asymmetries in royalty sensitivity as a relevant input into fiscal policy design, while avoiding an approach that simply exploits these asymmetries for short-term revenue gain; rate-setting should instead be accompanied by transparent, published impact assessments covering both investor blocs. Second, and most importantly given the compliance divergences documented here, the Zambia Development Agency should strengthen uniform regulatory enforcement so that both Western and China/BRICS investors are held to the same labour, environmental, safety, and local content standards, rather than pursuing differentiated monitoring protocols that could entrench a double standard. Third, the government should improve the transparency of infrastructure-linked mining agreements specifically, given the Bundled Location Premium mechanism identified in this study, so that the terms and value of bundled infrastructure finance are publicly disclosed and can be benchmarked against unbundled investment propositions from any origin. Fourth, bilateral diplomatic engagement can reasonably continue to be used as one instrument of investment attraction policy, but should not substitute for, or be allowed to weaken, uniform institutional and regulatory safeguards. Fifth, a transparent public register of infrastructure co-investment commitments linked to mining licences should be established, enabling comparison across investor types and supporting accountability for delivered outcomes. Taken together, these recommendations prioritise uniform standards and transparency over the strategic exploitation of investor-origin differences, consistent with the more cautious causal interpretation of the evidence adopted in this revision.

## **6. Limitations and Future Research**

This study is subject to some limitations that future research should address. The binary classification of investors into China/BRICS and Western groupings inevitably conceals heterogeneity within each bloc, notwithstanding the justification and sensitivity checks reported in Sections 1.2 and 3.2.1; South African FDI, for instance, exhibits characteristics blending both categories. The bilateral FDI data used in the econometric analysis are subject to known reporting inconsistencies, particularly for Chinese investment flows routed through third-country vehicles, and the beneficial-ownership reclassification procedure described in Section 3.2.1, while intended to mitigate this issue, could not be applied with complete

certainty to every flow. The qualitative component, while purposively sampled for diversity, cannot claim statistical representativeness. The study's focus on Zambia constrains the direct generalisability of findings, though the conceptual frameworks developed are intended to be broadly applicable.

Future research should extend the comparative FDI analysis to a multi-country panel of African mining jurisdictions to test generalisability. Quantitative operationalisation of the 'Bundled Location Premium' concept warrants dedicated methodological development. Longitudinal tracking of governance outcomes across Chinese and Western mining operations, employing standardised third-party audit methodologies, would significantly advance the empirical understanding of operational practice divergence.

### **Appendix A: Investor-Origin Country Pairs and Data Construction**

This appendix lists the 23 investor-origin country pairs comprising the balanced panel reported in Table 1 and used throughout the regression analysis in Table 2, together with their classification group and primary data sources. The five China/BRICS-classified countries (China, South Africa, India, Brazil, and Russia) and eighteen Western-classified countries (United Kingdom, United States, Canada, Australia, and fourteen European Union or European Free Trade Association member states with recorded mining-sector investment in Zambia over 2000-2023) together comprise the 23 pairs. Missing bilateral observations were not imputed: Country-pair-years with a genuine zero inflow were retained and coded as true zeros (Section 3.2.1), while the 54 records (8.9% of the raw 606-record dataset) for which ultimate beneficial ownership could not be confirmed with sufficient certainty were excluded prior to finalising the analytic panel, as detailed in Section 3.2.1. The beneficial-ownership reclassification procedure, applied to 213 of the 552 retained observations (38.6%), is also described in full in Section 3.2.1.

**Table A1.** Investor-Origin Country Pairs, Classification, and Data Sources

| Investor-Origin Country | Classification Group            | Primary Data Source(s)                                                    | Notes on Treatment                                                        |
|-------------------------|---------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|
| China                   | China/BRICS (Chinese-dominated) | Bank of Zambia; UNCTAD; OECD IDI Statistics; ZDA licensing/equity records | Beneficial-ownership screened for third-country routing (Section 3.2.1)   |
| South Africa            | China/BRICS (Chinese-dominated) | Bank of Zambia; UNCTAD; OECD IDI Statistics; ZDA licensing/equity records | Directly reported bilateral flows; limited third-country routing observed |
| India                   | China/BRICS (Chinese-dominated) | Bank of Zambia; UNCTAD; OECD IDI Statistics; ZDA licensing/equity records | Directly reported bilateral flows; limited third-country routing observed |
| Brazil                  | China/BRICS (Chinese-dominated) | Bank of Zambia; UNCTAD; OECD IDI Statistics; ZDA licensing/equity records | Directly reported bilateral flows; limited third-country routing observed |
| Russia                  | China/BRICS (Chinese-dominated) | Bank of Zambia; UNCTAD; OECD IDI Statistics; ZDA licensing/equity records | Directly reported bilateral flows; limited third-country routing observed |

|                |         |                                                                                 |                                   |
|----------------|---------|---------------------------------------------------------------------------------|-----------------------------------|
| United Kingdom | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| United States  | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Canada         | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Australia      | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Germany        | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| France         | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Italy          | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Netherlands    | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Belgium        | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Switzerland    | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Sweden         | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Norway         | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Finland        | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Ireland        | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Luxembourg     | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Spain          | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |

|          |         |                                                                                 |                                   |
|----------|---------|---------------------------------------------------------------------------------|-----------------------------------|
| Portugal | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |
| Austria  | Western | Bank of Zambia; UNCTAD;<br>OECD IDI Statistics; ZDA<br>licensing/equity records | Directly reported bilateral flows |

Notes: All 23 country pairs are observed annually over 2000-2023 (24 years), yielding the 552 country-pair-year observations reported in Table 1.

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