Methodological Appendix

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A Methodology of the New Dataset

Compiling the dataset involves two stages: first, we identify potential green FDI projects from a pool of projects, and second, we verify details of these projects such as capital investment amount, date of completion, and type of technology, using publicly available data sources.

First, we obtain lists of producers or firm names from online directories and paid market-data service providers. These lists of firm names are based on production volumes and capture about seventy to eighty percent of the market share of each technology. We assume that only firms that are "big enough" to capture a portion of market share would expand abroad through FDI.[1] We then match these name lists with the fDi Markets database using a fuzzy matching algorithm. This initial step helps us narrow down our pool of potential investors and relevant projects and provides a starting point for verification and further gathering of projects. However, this dataset is not limited to the observations included in fDi Markets. Once we establish this initial pool, we expand our search in two ways. The first and simplest way is to include more projects by the firms already identified in fDi Markets (existing investors, missing projects). Additionally, we cross-check against our initial list of firms to recover any missing FDI projects by major producers not captured by fDi Markets (missing investors, missing projects).

Finally, we conduct a thorough and rigorous search of online resources such as announcements on company websites, news media, and other technology-specific periodic publications to verify each piece of information regarding an FDI project.[2] It is also worth noting that some projects, though verified as operational or as having been built (even where decommissioned within our period of analysis), do not publicly report initial investment values. We treat these values as missing, and we disregard the capital-investment figures reported by fDi Markets, as it employs an internal estimation methodology to impute this value when it is not reported.

We then train AI agents on the above pool of hand sourced entries and further source of projects and verify exiting information. To keep AI agent driven verification stage systematic and reproducible, source collection follows a fixed protocol rather than ad hoc web searches. Each project row is enriched with publicly citable source URLs drawn from a graded tier system: Tier A primary channels (company press releases and investor filings, official government permitting and investment-promotion notices) are preferred, with Tier B trade press used to corroborate. Tertiary or self-published summaries such as Wikipedia, social media, and PR-wire-only pickups are rejected even when they are the only available result, and each citation must be specific to or cover each of our information points per project (the named parent, city, and, where relevant, the joint-venture brand) rather than a generic "company expanding in country" notice. Where a verified source contradicts a field inherited from fDi Markets, the field is reconciled to the source, which is treated as accurate.[3]

Table MA1 summarizes the resulting dataset by technology, and Table MA3 lists the leading investor firms in each.

[1] Among the leading producers—the firms that account for roughly the top 80 percent of manufacturing capacity in each technology—about 36 percent of solar makers (28 of 78) and 33 percent of battery makers (28 of 84) undertook at least one outbound FDI project over the period of analysis, as did all of the leading wind-turbine OEMs (8 of 8). Producer rosters are drawn from BloombergNEF facility and market-share data and matched to the FDI dataset by normalized company name.

[2] Characteristics of FDI projects recorded in the dataset include: Parent Company, Parent Company HQ (country), Project Status, Destination Country, Destination City, Date Announced, Year Announced, Date Completed, Year Completed, Technology, Industry Activity, Capital Investment (US$m), Joint Venture (dummy), JV Local Partner (dummy), and JV Company Name.

[3] Capital investment is the most frequently reconciled field

B Econometric Methodology

B.1 PPML regressions

The empirical estimation uses a monadic structure rather than the dyadic (origin×destination) structure more typical of the global FDI-flows literature. Three factors motivate this choice. First, we consider only four technologies, compared with the wider range of industries covered in typical studies. Second, these are relatively newer technologies, which means there are fewer investors and destinations. Third, the resulting investor×destination×technology×year structure would populate less than half of one percent of the possible cells, making a well-identified dyadic estimation infeasible (see Table A1 for variable construction and the dyadic-sparsity note). We therefore aggregate to the monadic margin: the dependent variable is the count or capital amount of CMFDI projects aggregated at the destination–year level for the pull-side regressions, and at the investor–year level for the push-side regressions.

Because the dependent variable is a non-negative count (with a large mass of zeros) or a non-negative capital amount, we estimate the conditional mean by Poisson pseudo-maximum-likelihood (PPML), which is consistent under weak distributional assumptions, handles zeros without an ad hoc transformation, and is robust to heteroskedasticity in the multiplicative model (Santos Silva and Tenreyro, 2006). For the pull side, the baseline specification is

$$\mathbb{E}[Y_{jt}] \;=\; \exp\!\big(\mathbf{x}_{jt}'\boldsymbol{\beta} \;+\; \delta_t\big)\,, \tag{1}$$

where Y_{jt} is the outcome for destination j in year t, $\mathbf{x}_{jt}$ is the vector of (predetermined and lagged) pull covariates, and δ_t is a full set of year fixed effects. The push side is symmetric, with the unit indexed by investor country i and $\mathbf{x}_{it}$ the vector of push covariates. Standard errors are clustered by country. We estimate every specification twice: once with the project *count* as Y (the extensive/number margin) and once with the announced *capital* amount in US\$m as Y (the intensive/capital margin), and we report both throughout. We also re-estimate the same push and pull models disaggregated by technology (Tables A8 and A9).

B.2 Mundlak decomposition

Equation (1) with year fixed effects alone keeps the cross-country variation but mixes two distinct signals: the comparison *across* countries (why some kinds of countries attract or send more FDI than others) and the change *within* a country over time. The adding country fixed effects identifies the within-country signal cleanly, but it does so by absorbing every time-invariant country trait, which discards all cross-country variation. A country-fixed-effects model therefore cannot answer one of the two questions the paper asks: it is silent on *which kinds of countries* pull or push investment, because that information lives entirely in the between-country variation.

To recover both margins at once we apply a Mundlak (hybrid between/within) decomposition (Mundlak, 1978; Bell and Jones, 2015). Each covariate is split into its country mean $\bar{\mathbf{x}}_j$ (how a country compares with others) and its deviation from that mean $\mathbf{x}_{jt} - \bar{\mathbf{x}}_j$ (how the country moves over time), and both enter the model:

$$\mathbb{E}[Y_{jt}] \;=\; \exp\!\big(\bar{\mathbf{x}}_j'\boldsymbol{\beta}_B \;+\; (\mathbf{x}_{jt} - \bar{\mathbf{x}}_j)'\,\boldsymbol{\beta}_W \;+\; \delta_t\big)\,. \tag{2}$$

The within coefficient $\boldsymbol{\beta}_W$ is numerically equivalent to the country-fixed-effects estimate, so nothing is lost relative to the within estimator; the between coefficient $\boldsymbol{\beta}_B$ is the cross-country gradient that the fixed-effects model discards. The joint significance of the country-mean terms is, in addition, the Mundlak–Wooldridge test for correlated country effects (Wooldridge, 2010), so the specification also addresses the standard omitted-country-trait critique. We read $\boldsymbol{\beta}_W$ as carrying fixed-effects-grade identification and $\boldsymbol{\beta}_B$ as a descriptive cross-country association rather than a causal effect. This decomposition thus identifies whether it is between-country or within-country variation in a given regressor that pulls inbound FDI or pushes outbound FDI.

B.3 Local-projection impact assessment

Having characterized the determinants of CMFDI, we assess its downstream effects on host economies with a local-projections event study (Jordà, 2005). Local projections trace the dynamic response of an outcome to a CMFDI event by estimating a separate regression at each horizon h, rather than extrapolating the path from a single dynamic model; this accommodates the lag between a project's completion and the realization of economic and structural outcomes, and is robust to misspecification of that dynamic process. For each outcome y and horizon $h = 0, 1, \dots, H$ we estimate

$$y_{j,t+h} - y_{j,t-1} \;=\; \alpha_h \;+\; \theta_h \, D_{jt} \;+\; \mathbf{z}'_{jt}\gamma_h \;+\; \varepsilon_{j,t+h}, \tag{3}$$

where D_{jt} marks a CMFDI completion event in country j at time t, $\mathbf{z}_{jt}$ collects controls and fixed effects, and the sequence of estimates $\{\theta_h\}_{h=0}^{H}$ is the impulse response—the cumulative effect of the event on the outcome h years later. Our outcomes of interest are export generation and the deployment of the invested products in the host economy, which track the short-, medium-, and long-term channels set out at the start of the paper.

C Main Results

The results are generally in line with expectations, though some stand out. The estimates quoted below are standardized and, as PPML semi-elasticities, give the proportional change in expected FDI (count or capital amount) per one-standard-deviation increment in each covariate; the corresponding un-standardized coefficients are reported in the pull and push tables (Tables A3 and A4). For example, a destination country whose ore RCA is one standard deviation above the mean is associated with about 23 percent ($(\exp(0.21) - 1) \times 100$) more expected FDI projects and about 42 percent ($(\exp(0.35) - 1) \times 100$) more capital than an otherwise comparable country with the average ore RCA—see the between coefficient on resource-seeking ore RCA in the count and amount columns of Table A3. Likewise, a one-standard-deviation increase in installed capacity *within* a country is associated with about 56 percent ($(\exp(0.44) - 1) \times 100$) more expected FDI projects and about 148 percent ($(\exp(0.91) - 1) \times 100$) more expected capital than the same country at its average installed capacity—see the within coefficient on market-seeking installed capacity in Table A3.[4] Because the magnitudes are on a common standardized scale, effects are directly comparable across variables.

The results show that resource-seeking investors are attracted to countries that export mineral ores and that they tend to invest more capital in these countries. Market-seeking investors looking to expand their customer base invest in economies that have raised their installed capacity over time, signaling potential for market growth. However, when comparing installed capacity *across* countries, those with higher installed capacity appear to receive somewhat less capital (about 48 percent less), although this cross-country gradient is not statistically significant (Table A3). Such an aversion, if real, may reflect market saturation: once a market has been served, the yearly marginal increase in the consumer base does not attract further investment. Bigger economies attract more projects and even more capital (about 117 percent and 176 percent more than the average economy), while growth within economies also affects investor choice in the same direction, though at smaller magnitudes (about 28 percent and 92 percent more). Economies that are centrally connected through trade and investment agreements also attract more capital (about 85 percent more); this may indicate that these countries act as export platforms. Lower labor costs attract more efficiency-seeking FDI projects and comparatively more capital (about 16 percent and 41 percent more per standard-deviation reduction in unit labor costs), while a larger manufacturing base than that of an average destination is also a pull-side determinant (about 29 percent more projects and about 97 percent more capital). The capability breakdown of the industrial base shows a seemingly contradictory result: a higher downstream RCA *between* countries is not a point of attraction, whereas an increase in a country's own downstream RCA over time is. Also contrary to expectation, the joint-venture-proneness variable appears to repel FDI. This may be because investors prefer greater autonomy, or because the variable proxies for a more restrictive foreign-investment regime in the host country, where policy conditionalities such as localization requirements complicate establishment decisions. However, when the joint-venture variable is interacted with the GDP and ore-RCA variables, this relationship turns positive (Table A13, panels (a) and (b)). This indicates that countries can leverage their transition-mineral endowments and the size of their economies to establish joint ventures.

Overall, the pull-side results show that investors are most motivated by the size of the potential customer base (shown by the larger coefficients on the real-GDP variable), while mineral abundance, cheaper labour, and an above-average level of manufacturing capacity also play a role. Turning to the push-side counterpart, it is worth pointing out that the push-side results are better at explaining the number of outbound projects than the capital amount (most variables are insignificant on the capital margin). However, three results stand out and confirm the pull-side findings. First, the coefficient on the labor-cost variable is large and significant: investors are pushed out of their countries by high labor costs. An investor country whose unit labor cost is one standard deviation above the mean is associated with about 150 percent more outbound projects than a country with

[4] The rest of the analysis uses a shorthand for this interpretation to avoid clutter.

an average unit labor cost. This implies that investors are influenced more by their own high labor costs than they are attracted by lower labor costs abroad. Second, an investor endowed with mineral ores is much less likely to invest abroad (about 52 percent fewer projects than the average investor), which again confirms that mineral-ore endowments retain investment at home. Third, raising installed capacity at home pushes investors to undertake more projects and deploy more capital abroad (about 81 percent more projects and 169 percent more capital per standard-deviation increase in home renewable deployment), confirming the market-seeking motive demonstrated in the pull results. Finally, high final-good export competitiveness may encourage firms to break up the production process and outsource simpler tasks while retaining more technology- and capital-intensive tasks at home. The results (Table A6) show that this is a viable push-side determinant: high final-product-RCA values are associated with more outbound FDI projects and capital on both margins.

D Robustness Checks

Isolating the first investment project (per technology) into a country (Table A7) lets us examine the pull- and push-side determinants of first movers—that is, why a set of investments for a technology would leave or enter a country for the very first time. These results are also in line with the headline findings: high real income and labor costs drive first-time investors outward, while manufacturing capabilities and host-market size attract FDI. Similarly, the technology-wise breakdown of the push–pull framework (Tables A8 and A9) further reinforces the pooled headline result. A few results stand out in the by-technology regressions. On the pull side, ore RCA is strongly associated with more solar and EV FDI projects, while it is negatively associated with wind projects. Rising installed capacity *within* countries is negatively associated with solar FDI (signalling market saturation), whereas rising EV sales are positively associated with EV FDI (signalling a growing sector). Between countries, more installed wind capacity repels wind projects (a significant, saturation-like gradient), while the corresponding battery and EV gradients are weaker. In both EV and battery technologies, these results point to investor appetite for a younger, growing market. This reading is also supported by the positive association between GDP growth and FDI-project attraction for these two technologies. However, real GDP is strongly *negatively* associated with EV and battery FDI-project attraction over time. Keeping in mind the relative paucity of data points for both sectors, given their shorter period of analysis (2018–2025), this result is driven by early battery and EV investments in China that dropped off after COVID-19 and IRA-driven friendshoring.[5] Given this, the GDP pull-side determinant appears to work through wind investment projects, which are concentrated among high-income countries. Furthermore, there is an interesting symmetric result for unit labor costs across the push and pull sides: lower unit labor costs attract wind and battery projects on the pull side, and higher unit labor costs push battery investors out on the push side. Finally, the manufacturing-capability pull-side determinant appears to work through solar-project attraction.

There is a well-established theoretical and empirical literature demonstrating that higher tariffs trigger investors to locate FDI so as to circumvent those tariffs (see Horstmann and Markusen, 1992; Markusen and Venables, 1998; and Blonigen, 2001). It has been hypothesised that Chinese clean-technology FDI in part follows a similar pattern: faced with high tariff rates from the US and the EU, Chinese investors aim to reroute their production through countries that face lower tariff rates by virtue of bilateral trade agreements or, in the case of EU membership, the customs union. We address the question systematically. First, the pooled regression above shows a positive association between being centrally located in the trade-and-investment network and the capital amounts going into host countries; in other words, highly connected countries host bigger projects. The technology breakdown shows that this is mostly the case for solar projects and, to a lesser degree, EV and then battery projects. We then dissect this channel through a series of tests structured around political-economy events. We interact the third-market-access proxy, US free-trade-agreement (FTA) access, and EU-market-access variables with a set of regime-period dummies: 2000–08, 2009–15, 2016–21, and 2022–25. These breakpoints track the arc of the trading order—the pre-crisis heyday of globalisation, the post-global-financial-crisis expansion and China's rise, the protectionist turn from 2016, and the post-2022 era of the Inflation Reduction Act (IRA), the Carbon Border Adjustment Mechanism (CBAM), and friendshoring. The results (Table A10) show that centrality in this network mattered most during the heyday of globalisation: in the 2000–08 regime the third-market-access proxy is positive and significant, the EU-access term is positive though imprecise, and US-FTA access is significantly negative, flipping positive only in the 2022–25 regime.

Looking at the Chinese share of investment that went to US-FTA and EU-market-access destinations by era (here only three eras are examined, since there is no Chinese investment activity before 2009–15), both the number and the capital amount of Chinese projects going to these destinations have steadily risen (Table A11, panel (a)). The technology breakdown of these Chinese

[5] This creates the illusion in the data that China attracted more projects at a lower level of GDP and growth than when it was itself growing fastest.

projects shows that only about 12 percent of all Chinese FDI projects since 2009 have been located in a country with an FTA with the US, against a much higher share—about 41 percent—directed at EU-market-access countries (Table A11, panel (b)). The majority of Chinese FDI projects are directed at Vietnam, Indonesia, Thailand, Malaysia, Brazil, Hungary, Turkey, and India, none of which have FTAs with the US. Yet, when the access terms enter the regression analysis interacted with the regime dummies, the EU-access coefficient becomes a consistently negative pull-side determinant, while the US-access coefficient—which remains negative until 2022—turns positive, though not significant, in the 2022–25 regime (Table A11, panels (c) and (d)). When we further break down this relationship by introducing a triple interaction among US/EU market access, the post-2022 era, and battery and EV projects, the negative association with Chinese projects continues; however, countries with US FTAs are associated with more Chinese projects and capital post-2022 than in other periods, as the generic post-2022 US-access shift is large and significant on both margins, even though the battery/EV-specific triple-interaction term is not (Table A12, panel (a)). This result is mainly driven by Mexico, which received around fourteen EV projects, along with others in Morocco, Korea, and Oman. The parallel EU-access triple interaction is small and statistically insignificant on both margins (Table A12, panel (b)), so the post-2022 EU tilt toward Chinese battery and EV projects is at best weak. This EU-access result, combined with the consistently negative EU pull-side coefficient, indicates that Chinese projects are only somewhat motivated by tariff circumvention—and where they are, it is aimed at the US—while investment into the EU is mainly direct market-seeking.

Joint-venture proneness enters the baseline pull model with a negative coefficient, but its effect is conditional. When it is interacted with market size (real GDP) and mineral abundance (ore RCA), the relationship turns positive, and the level and interaction terms are jointly significant on both the project-count and capital margins (Table A13, panels (a) and (b)). Larger and more mineral-rich hosts thus appear able to leverage these endowments to attract joint-venture-based investment-and possibly the technology transfer it can carry rather than being deterred by joint-venture requirements.

Finally, because China is the single largest investor and the United States the largest destination in our sample, we confirm that neither drives the results. Dropping China as a destination and, separately, as an investor preserves the push-side findings and the core pull result that within-country growth in installed capacity attracts investment (Table A14, panels (a) and (b)); some cross-country pull gradients attenuate when China is removed from the investor pool, consistent with its weight in outbound flows. Dropping the United States as a destination leaves the pull results intact (Table A15, panels (a) and (b)).

Table MA1. Summary statistics for greenfield FDI in wind, solar, battery, and EV manufacturing, 2000–2025

	Wind	Solar	Battery	EV
Project counts				
Total projects	183	240	253	212
Projects with disclosed investment	169	212	208	196
Disclosure rate (%)	92	88	82	92
Investment size				
Total announced investment (US$m)	66,702	73,397	215,479	194,602
Average investment per project (US$m)[a]	394.7	346.2	1,036.0	992.9
Median investment per project (US$m)[a]	63.0	77.7	274.0	400.0
Avg. project size, 2000–2018 (US$m)[a]	407	192	350	1,234
Avg. project size, 2019–2025 (US$m)[a]	354	458	1,282	973
Geographic diversity				
Total unique investor countries	12	16	18	12
Total unique destination countries	32	47	34	40
Avg. unique investor countries per year	3.1	2.8	4.7	4.5
Avg. unique destination countries per year	4.9	6.1	6.6	8.4
Market structure & concentration				
China share of investment (%)	20	81	31	31
Share of investment post-2018 (%)	21	77	91	90
Cross-region share of investment (%)[b]	71	93	91	87
Top-3 destination share of investment (%)	39	46	58	38
HHI, destinations (0–1)[c]	0.08	0.11	0.19	0.08
HHI, investors (0–1)[c]	0.17	0.66	0.22	0.19
Joint-venture share of projects (%)	13	20	30	26
Expansion share of projects (%)	6	3	5	0
Median announcement year	2014	2022	2022	2023

Notes: Sample covers greenfield projects announced 2000–2025 that are built, under construction, or announced (canceled, paused, and closed projects excluded).

[a] Denominator/mean over projects with a disclosed capital investment amount.

[b] Share of disclosed investment where the investor's world region differs from the destination's.

[c] Herfindahl–Hirschman index of investment shares, 0–1 (1 = a single country).

Leading firms are reported in Table MA3; leading investors and destinations in Table MA2.

Table MA2. Summary statistics for greenfield FDI, 2000–2025 (*continued*): leading investors and destinations

	Wind	Solar	Battery	EV
Leading investor & destination, 2000–2025				
Top investor, by projects	Germany (48)	China (162)	China (104)	China (107)
Top investor, by investment (US$m)	Germany (16,000)	China (59,451)	China (66,631)	China (60,783)
Top destination, by projects	U.S. (25)	Vietnam (32)	U.S. (63)	Mexico (27)
Top destination, by investment (US$m)	Spain (11,275)	Indonesia (17,733)	U.S. (83,549)	China (30,875)
Leading investor & destination, post-2018 (2019–2025)				
Top investor, by projects	China (31)	China (119)	China (99)	China (100)
Top investor, by investment (US$m)	China (12,422)	China (50,156)	China (64,402)	China (58,359)
Top destination, by projects	Vietnam (5)	Vietnam (20)	U.S. (50)	Mexico (27)
Top destination, by investment (US$m)	U.K. (3,858)	Indonesia (17,733)	U.S. (78,831)	Brazil (22,015)

Notes: Continuation of Table MA1; same sample. Each cell reports the leading country with, in parentheses, its project count or its disclosed investment (US$m).

Table MA3. Leading investor firms by technology, 2000–2025 (top 20 by number of projects)

#	Wind	Solar	Battery	EV
1	Siemens (36; 8,281)	Trina Solar Limited (11; 8,182)	Samsung (19; 12,250)	Stellantis (16; 11,655)
2	Vestas Wind Systems (27; 7,732)	Longi Green Energy Technology (Xi'an LONGi Silicon Materials) (10; 3,055)	LG (10; 16,640)	BYD (15; 12,786)
3	LM Wind Power (LM Glasfiber) (14; 5,196)	JA Solar (7; 2,250)	Gotion (10; 9,815)	Volkswagen (8; 15,734)
4	Gamesa (14; 1,700)	Jinko Solar (6; 2,408)	CATL (8; 19,949)	Minth (7; 2,293)
5	CS Wind Corporation (Choong San Corporation) (9; 10,489)	Canadian Solar (6; 1,413)	SK Innovation (SK Energy) (7; 13,269)	Chery (7; 2,222)
6	Alstom (8; 5,537)	First Solar (5; 2,329)	Volkswagen (7; 5,805)	Toyota (6; 6,262)
7	Envision Energy (7; 901)	Kyocera (5; 1,102)	EVE Energy (7; 5,432)	Ford (5; 7,073)
8	Suzlon Energy (6; 2,293)	Gstar (5; 485)	Umicore (7; 1,742)	Hyundai (5; 1,718)
9	Nordex (6; 803)	Sanyo (5; 152)	Panasonic (Matsushita) (6; 4,959)	Yadea (5; 1,690)
10	Goldwind (5; 1,907)	Sharp (4; 413)	Ningbo Ronbay New Energy Technology Co., Ltd. (5; 6,361)	Renault (5; 1,649)
11	Acciona (5; 715)	Elite Solar (4; 263)	AESC (5; 6,348)	Honda (4; 12,486)
12	Shanghai Electric Wind Power Group (SWEPG) (3; 2,300)	China Sunergy (4; 144)	Bollore Group (5; 318)	GAC (4; 3,764)
13	Windey (3; 2,008)	Kibing Solar (3; 2,855)	Enchem (5; 153)	GM (4; 3,400)
14	Xinjiang Goldwind Science & Technology (Goldwind) (3; 69)	Astronergy (3; 1,732)	Toshiba (4; 877)	BMW Group (4; 3,160)
15	Enercon (2; 6,573)	Drinda (3; 1,560)	Kedali (4; 285)	Volvo (4; 1,700)
16	ABB (Asea Brown Boveri) (2; 2,524)	Runergy (3; 1,315)	Hyundai Motor Group (3; 10,400)	SAIC (4; 1,330)
17	Mingyang (2; 2,050)	Boviet Solar (3; 785)	LG Energy Solution (3; 7,212)	Geely (4; 245)
18	Sany (2; 1,600)	Jabil Circuit (3; 743)	Stellantis (3; 5,773)	Tesla (3; 12,080)
19	TPI Composites (2; 282)	Seraphim Solar System (3; 181)	Yunnan Energy New Material (3; 2,016)	VinFast (3; 5,500)
20	SANY RE (2; 128)	Arctech (3; 133)	LG Chem (3; 580)	TAILG (3; 5,130)

Each cell reports the firm followed by, in parentheses, its number of projects and its total disclosed announced investment (US$m). Firms are ranked within each technology by number of projects, ties broken by investment. Sample as in Table MA1; investment sums only projects with a disclosed capital amount ("–" = none disclosed).

Table A1. Variable definitions and sources

Variable	Measurement	Transform	Lag	Source	Coverage/notes
Dependent variables					
Project count	No. of greenfield LCT projects (country×tech×year; zeros kept)	count (PPML)	–	Author compilation	Baseline count margin.
Capital amount	Announced capex, US\$m (no announced capex = NaN, not 0)	level (PPML)	–	Author compilation	Intensive (capital) margin.
Explanatory variables — main pull/push specifications					
Ore RCA	Balassa RCA in ore exports	log	$t-2$	CEPII BACI (HS02)	Resource seeking (both sides).
Installed capacity	Solar/wind = deployed GW; battery/EV = EV sales	log1p	$t-1$	Ember + IEA Global EV Data 2024	Pull market seeking; battery proxied by EV sales in the main spec.
RE deployment	Home renewable capacity, GW	log1p	$t-1$	Ember	Push market seeking; aggregate installed renewables.
Real GDP	Real GDP	log	contemp.	WDI (constant-2015 US\$)	Market seeking (both sides).
GDP growth	Real GDP growth, trailing 5-yr MA	level	contemp. (MA)	WDI	Market seeking (both sides).
Third-market access (TIP)	z-scored betweenness in the UNCTAD trade-treaty network	z-score	contemp.	UNCTAD TIP (author)	Pull only; EU members inherit the EU hub.
Unit labour cost	Manufacturing wage ÷ industry value-added-per-worker	log	contemp.	ILOSTAT (wages); WB + BEA/FRED (productivity)	Efficiency seeking (both sides). US VA-per-worker backfilled: WB national accounts 2000–21, BEA/FRED chained 2022–24 (WB ends 2021).
Manufacturing VA	Manufacturing value added, % of GDP	log	contemp.	WDI (NV.IND.MANF.ZS); US 2022–24 BEA/FRED	Efficiency seeking (both sides). US 2022–24 backfilled from FRED VAPGDPMA (WB series ends 2021).
Midstream RCA	Value-chain RCA, midstream segment	log	$t-4$ s/w, $t-1$ bat/EV	NZIPL	Pull efficiency seeking; graded lag for the short HS17 series.
Downstream RCA	Value-chain RCA, downstream segment	log	$t-4$ s/w, $t-1$ bat/EV	NZIPL	Pull efficiency seeking.
Final-product RCA	Value-chain RCA, final-product segment	log	pull: $t-4$ s/w, $t-1$ bat/EV; push: $t-1$	CEPII BACI	Pull efficiency seeking; push = capabilities (robustness).

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Variable	Measurement	Transform	Lag	Source	Coverage/notes
JV-proneness	EB-shrunk cumulative JV share of prior projects	per 10pp	$t{-}1$	Author compilation	Pull strategic-asset seeking.
Trade openness	Trade (exports + imports) as % of GDP	level	contemp.	WDI	Control.
Capital-account openness	Chinn-Ito index, $[0, 1]$	level	contemp.	Chinn-Ito	Control.
No prior FDI (1/0)	1 if the unit never received an LCT project through $t{-}1$	0/1	$t{-}1$	Author compilation	Extensive-margin control / stratifier.
Additional variables — extension exhibits					
Chinese-investor share	Prior-year inbound LCT FDI from Chinese investors	per 10pp	$t{-}1$	Author compilation	IRA/CBAM-break and entry exhibits.
US-market access (US FTA)	1 if US market access via an FTA	0/1	contemp.	CEPII Gravity	Regime / circumvention / IRA exhibits.
EU-market access (EU FTA)	1 if EU member or covered by an EU FTA/customs union	0/1	contemp.	CEPII Gravity	Regime / circumvention / IRA exhibits.
Chemicals RCA	Material-family supply-chain RCA, tech-conditional	log	$t{-}2$	NZIPL	Supply-chain robustness exhibit.
Electronics RCA	Material-family supply-chain RCA, tech-conditional	log	$t{-}2$	NZIPL	Supply-chain robustness exhibit.
Industrial-materials RCA	Material-family supply-chain RCA, tech-conditional	log	$t{-}2$	NZIPL	Supply-chain robustness exhibit.
Machinery RCA	Material-family supply-chain RCA, tech-conditional	log	$t{-}2$	NZIPL	Supply-chain robustness exhibit.
Metals RCA	Material-family supply-chain RCA, tech-conditional	log	$t{-}2$	NZIPL	Supply-chain robustness exhibit.

Notes. Variables, transforms, and lags are those used in the R14 estimation round. Unit labour cost and manufacturing VA carry US backfills for 2022–24 (see the respective rows). Taiwan, the UAE, Hong Kong, Norway, and Israel are excluded for want of consistent macro/wage controls (14 of 816 projects). log1p = log(1+x); RCA = Balassa revealed comparative advantage.

Table A2. Summary statistics

Variable	N	Mean	SD	Min	Median	Max
Panel A — Destinations						
Dependent variables						
Project count	6,500	0.13	0.62	0.00	0.00	16.00
Capital amount (US$m)	6,467	83.18	765.68	0.00	0.00	25,644.90
Explanatory variables (main)						
Ore RCA (ln)	5,688	-1.57	2.44	-16.30	-1.81	4.49
Installed capacity (log1p)	3,664	2.34	3.51	0.00	0.49	15.91
Real GDP (ln)	6,144	26.32	1.64	21.81	26.35	30.75
GDP growth	5,120	3.53	2.95	-4.48	3.00	21.57
Third-market access (TIP)	6,500	-0.00	1.00	-0.69	-0.61	3.13
Unit labour cost (ln)	5,148	-1.37	0.95	-9.21	-1.17	0.25
Manufacturing VA (ln)	5,960	2.62	0.42	1.23	2.67	3.60
Midstream RCA (ln)	3,624	-0.58	1.32	-13.21	-0.27	3.02
Downstream RCA (ln)	3,630	-1.01	1.57	-7.86	-0.48	2.92
Final-product RCA (ln)	3,167	-3.10	3.16	-16.32	-2.54	4.73
JV-proneness	6,500	2.47	0.68	0.17	2.49	8.59
Trade openness	6,184	86.80	52.42	17.40	75.49	437.33
Capital-account openness	6,300	0.64	0.36	0.00	0.70	1.00
No prior FDI (1/0)	6,500	0.82	0.39	0.00	1.00	1.00
Additional variables — extension exhibits						
Chinese-investor share	6,500	0.44	1.87	0.00	0.00	10.00
US-market access (US FTA)	6,500	0.11	0.32	0.00	0.00	1.00
EU-market access (EU FTA)	6,500	0.48	0.50	0.00	0.00	1.00
Chemicals RCA (ln)	4,572	-1.26	2.01	-16.26	-0.58	2.56
Electronics RCA (ln)	4,557	-1.65	2.27	-12.96	-1.01	3.61
Industrial-materials RCA (ln)	4,181	-2.06	3.10	-15.38	-1.59	5.48
Machinery RCA (ln)	4,602	-1.54	2.00	-11.19	-0.96	1.89
Metals RCA (ln)	4,585	-0.98	1.93	-14.17	-0.48	3.08
Panel B — Investors						
Dependent variables						
Project count	2,700	0.31	1.88	0.00	0.00	41.00
Capital amount (US$m)	2,692	199.81	1,407.14	0.00	0.00	23,876.20
Explanatory variables (main)						
Ore RCA (ln)	2,112	-1.62	1.92	-5.44	-2.09	3.15
RE deployment, aggregate (log1p)	2,592	2.98	1.52	0.00	3.14	7.50
Real GDP (ln)	2,496	27.68	1.13	25.32	27.72	30.75
GDP growth	2,080	2.63	2.27	-1.72	2.05	11.71
Unit labour cost (ln)	2,176	-0.97	0.56	-3.84	-0.85	0.05
Manufacturing VA (ln)	2,452	2.58	0.57	-0.09	2.65	3.47
Trade openness	2,592	96.56	85.31	19.28	66.95	442.62
Capital-account openness	2,600	0.83	0.30	0.16	1.00	1.00
No prior FDI (1/0)	2,700	0.76	0.43	0.00	1.00	1.00

Statistics over the non-missing observations of each variable in its own analysis panel; variables shown as they enter the model ((ln) natural log, (log1p) log(1+x), untagged in levels). See Table A1 for definitions.

Table A3. Pull determinants of CT-FDI (project count and amount)

	Count		Amount	
Variable	Btw	Wth	Btw	Wth
Resource seeking				
Ore RCA $_{t-2}$	0.096** (0.040)	0.158 (0.128)	0.162* (0.096)	0.109 (0.160)
Market seeking				
Installed capacity $_{t-1}$	-0.196* (0.104)	0.136*** (0.016)	-0.352 (0.218)	0.278*** (0.028)
Real GDP	0.515*** (0.114)	0.081 (1.291)	0.675*** (0.227)	0.715 (1.926)
GDP growth	0.128* (0.067)	0.172*** (0.062)	0.149 (0.173)	0.452*** (0.138)
Third-market access (z)	0.222 (0.140)	0.079 (0.454)	0.687* (0.353)	-0.672 (0.617)
Efficiency seeking				
Unit labour cost	-0.315* (0.163)	0.163 (0.237)	-0.921** (0.406)	0.054 (0.257)
Manufacturing VA	0.732*** (0.240)	0.712 (1.448)	1.918*** (0.687)	-0.687 (2.498)
Midstream RCA $_{t-k}$	0.008 (0.185)	0.057 (0.218)	0.662* (0.380)	-0.212 (0.198)
Downstream RCA $_{t-k}$	-0.391** (0.168)	0.295** (0.127)	-1.347*** (0.424)	0.677** (0.295)
Final-product RCA	0.034 (0.067)	0.074* (0.040)	0.199 (0.163)	0.046 (0.084)
Strategic-asset seeking				
JV-proneness $_{t-1}$	-0.909*** (0.246)	-0.056 (0.090)	-0.898* (0.521)	0.085 (0.105)
Controls				
Trade openness	0.005* (0.003)	-0.002 (0.009)	0.007 (0.004)	-0.017 (0.012)
Capital-account openness	-0.348 (0.332)	-0.021 (1.126)	0.334 (1.003)	-2.057 (2.551)
No prior FDI (1/0)	-2.380*** (0.279)	-1.101*** (0.310)	-2.537*** (0.612)	-1.525** (0.668)
Observations (N)	2,097		2,077	
Countries	56		56	
Pseudo R^2 (vs year-FE)	0.3104		0.5480	

PPML with year fixed effects (baseline 2015); SEs clustered by country. Coefficients Mundlak-decomposed into between-country (cross-country gradient) and within-country (over-time) components. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$; SEs in parentheses.

Table A4. Push determinants of CT-FDI (project count and amount)

Variable	Count: Btw	Count: Wth	Amount: Btw	Amount: Wth
Resource seeking				
Ore RCA $_{t-2}$	-0.385*** (0.119)	-0.059 (0.178)	0.045 (0.233)	-0.233 (0.274)
Market seeking				
RE deployment $_{t-1}$	0.168 (0.149)	1.140*** (0.376)	0.093 (0.164)	1.908*** (0.626)
Real GDP	-0.038 (0.197)	2.402*** (0.708)	0.163 (0.369)	2.339 (1.789)
GDP growth	0.132 (0.170)	-0.050 (0.105)	-0.079 (0.224)	-0.275* (0.159)
Efficiency seeking				
Unit labour cost	2.224** (0.958)	-0.541** (0.215)	0.857 (0.737)	-0.398 (0.332)
Manufacturing VA	-0.319 (0.587)	-2.532** (1.054)	1.771* (1.033)	-2.877 (2.423)
Controls				
Trade openness	-0.010 (0.006)	0.007 (0.012)	-0.004 (0.007)	0.017 (0.019)
Capital-account openness	-1.104 (1.905)	1.447 (0.955)	0.912 (2.267)	-0.632 (1.921)
No prior FDI (1/0)	-3.099*** (1.009)	-1.845*** (0.420)	-2.995*** (1.129)	-1.179* (0.628)
Observations (N)	1,808		1,802	
Countries	23		23	
Pseudo R^2 (vs year-FE)	0.5012		0.5170	

PPML with year fixed effects (baseline 2015); SEs clustered by country. Coefficients Mundlak-decomposed into between-country (cross-country gradient) and within-country (over-time) components. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$; SEs in parentheses.

Table A5. Pull determinants — robustness

Variable	(1) Battery=EV sales (main) Btw	(1) Battery=EV sales (main) Wth	(2) Battery=solar Btw	(2) Battery=solar Wth	(3) Aggregate RE Btw	(3) Aggregate RE Wth
Resource seeking						
Ore RCA $_{t-2}$	0.096** (0.040)	0.158 (0.128)	0.075 (0.046)	0.070 (0.121)	0.076 (0.072)	0.009 (0.115)
Market seeking						
Installed capacity $_{t-1}$	-0.196* (0.104)	0.136*** (0.016)	–	–	–	–
Real GDP	0.515*** (0.114)	0.081 (1.291)	0.559*** (0.109)	-0.441 (1.047)	0.529*** (0.107)	0.830 (0.913)
GDP growth	0.128* (0.067)	0.172*** (0.062)	0.109 (0.071)	0.168*** (0.056)	0.030 (0.075)	0.128*** (0.049)
Third-market access (z)	0.222 (0.140)	0.079 (0.454)	0.192 (0.141)	-0.122 (0.577)	0.101 (0.137)	-0.549 (0.633)
Installed cap. (solar-for-battery)	–	–	-0.265** (0.113)	0.049* (0.025)	–	–
RE deployment (aggregate) $_{t-1}$	–	–	–	–	-0.134 (0.104)	-1.170*** (0.312)
Efficiency seeking						
Unit labour cost	-0.315* (0.163)	0.163 (0.237)	-0.096 (0.198)	0.175 (0.217)	0.073 (0.239)	0.163 (0.171)
Manufacturing VA	0.732*** (0.240)	0.712 (1.448)	0.881*** (0.272)	-0.314 (1.268)	1.309*** (0.395)	-0.657 (1.290)
Midstream RCA $_{t-k}$	0.008 (0.185)	0.057 (0.218)	-0.169 (0.257)	0.102 (0.234)	-0.148 (0.237)	0.152 (0.209)
Downstream RCA $_{t-k}$	-0.391** (0.168)	0.295** (0.127)	-0.315 (0.198)	0.302* (0.166)	-0.523** (0.221)	0.313*** (0.120)
Final-product RCA	0.034 (0.067)	0.074* (0.040)	0.051 (0.066)	0.107** (0.044)	0.063 (0.098)	0.101*** (0.036)
Strategic-asset seeking						
JV-proneness $_{t-1}$	-0.909*** (0.246)	-0.056 (0.090)	-1.168*** (0.282)	0.125 (0.082)	-1.210*** (0.317)	0.144* (0.082)
Controls						
Trade openness	0.005* (0.003)	-0.002 (0.009)	0.004 (0.003)	0.004 (0.008)	0.004* (0.003)	0.010 (0.008)
Capital-account openness	-0.348 (0.332)	-0.021 (1.126)	-0.780** (0.382)	0.384 (0.924)	-0.970* (0.516)	1.271* (0.764)
No prior FDI (1/0)	-2.380*** (0.279)	-1.101*** (0.310)	-2.082*** (0.334)	-1.086*** (0.267)	-1.997*** (0.446)	-1.022*** (0.245)
Observations (N)	2,097		2,264		2,415	
Countries	56		56		56	
Pseudo R^2 (vs year-FE)	0.3104		0.2921		0.2895	

PPML with year fixed effects (baseline 2015); SEs clustered by country. Coefficients Mundlak-decomposed into between-country (cross-country gradient) and within-country (over-time) components. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$; SEs in parentheses.

Table A6. Push determinants — robustness

	(1) Aggregate RE (main)		(2) + Final-product RCA		(3) Tech-specific cap		(4) + Final-product RCA (capital)	
Variable	Btw	Wth	Btw	Wth	Btw	Wth	Btw	Wth
Resource seeking								
Ore RCA $_{\text{t-2}}$	-0.385*** (0.119)	-0.059 (0.178)	-0.131 (0.151)	-0.119 (0.139)	-0.170** (0.072)	0.085 (0.178)	0.280* (0.164)	-0.197 (0.241)
Market seeking								
RE deployment $_{\text{t-1}}$	0.168 (0.149)	1.140*** (0.376)	0.254 (0.161)	1.516*** (0.399)	–	–	-0.078 (0.195)	2.238** (0.894)
Real GDP	-0.038 (0.197)	2.402*** (0.708)	0.166 (0.216)	1.324** (0.640)	-0.757*** (0.232)	3.036*** (0.632)	0.491 (0.322)	0.912 (1.838)
GDP growth	0.132 (0.170)	-0.050 (0.105)	0.134 (0.181)	-0.051 (0.096)	0.092 (0.135)	-0.006 (0.100)	0.076 (0.228)	-0.174 (0.156)
Installed capacity $_{\text{t-1}}$	–	–	–	–	0.842*** (0.195)	0.070* (0.042)	–	–
Efficiency seeking								
Unit labour cost	2.224** (0.958)	-0.541** (0.215)	0.550 (0.593)	-0.400** (0.168)	0.094 (0.835)	-0.752*** (0.207)	0.523 (0.587)	-0.444 (0.300)
Manufacturing VA	-0.319 (0.587)	-2.532** (1.054)	0.463 (0.624)	-2.836*** (1.090)	0.170 (0.374)	-2.323** (1.098)	2.348*** (0.685)	-3.647 (2.526)
Controls								
Trade openness	-0.010 (0.006)	0.007 (0.012)	0.001 (0.004)	0.001 (0.009)	-0.007 (0.007)	-0.002 (0.011)	-0.000 (0.005)	0.010 (0.013)
Capital-account openness	-1.104 (1.905)	1.447 (0.955)	0.475 (1.755)	2.142** (1.070)	0.115 (0.929)	4.698*** (1.360)	1.750 (2.151)	-1.734 (2.436)
No prior FDI (1/0)	-3.099*** (1.009)	-1.845*** (0.420)	-2.012*** (0.678)	-0.985** (0.445)	-2.947*** (0.667)	-1.765*** (0.409)	-1.259** (0.590)	-0.512 (0.814)
Capabilities								
Final-product RCA $_{\text{t-1}}$	–	–	0.377*** (0.115)	0.320*** (0.060)	–	–	0.511*** (0.147)	0.402*** (0.129)
Observations (N)	1,808		1,212		1,447		1,209	
Countries	23		23		23		23	
Pseudo R^2 (vs year-FE)	0.5012		0.5508		0.5223		0.5718	

PPML with year fixed effects (baseline 2015); SEs clustered by country. Coefficients Mundlak-decomposed into between-country (cross-country gradient) and within-country (over-time) components. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$; SEs in parentheses. Columns (1)–(3) report the project-count margin; column (4) re-estimates the final-product-RCA spec (2) on the capital-amount margin (US$m), where the capabilities effect also holds.

Table A7. CT-FDI first-mover entry — destinations and investors

Variable	Pull (destination)	Push (investor)
Resource seeking		
Ore RCA $_{t\text{-}2}$	0.041 (0.052)	0.130 (0.156)
Market seeking		
Real GDP $_{t\text{-}1}$	0.505*** (0.119)	1.204*** (0.170)
GDP growth (5-yr MA)	0.078** (0.038)	-0.026 (0.076)
Efficiency seeking		
Unit labour cost $_{t\text{-}1}$	-0.004 (0.145)	1.457*** (0.350)
Manufacturing VA	0.809** (0.349)	1.661* (0.869)
Controls		
Trade openness	0.000 (0.002)	0.007** (0.003)
Capital-account openness	-0.196 (0.366)	-0.205 (0.920)
Entry events	112	44
Unit-years at risk	2,672	1,061
Countries	56	23
Log-likelihood	-412.9	-160.1

Discrete-time complementary log-log hazard; unit = country×technology, outcome = 1 in the year of first (in/out)bound project. SEs clustered by country. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$.

Table A8. Pull determinants of CT-FDI (project count), by technology

Variable	Solar		Wind		Battery		EV	
	Btw	Wth	Btw	Wth	Btw	Wth	Btw	Wth
Resource seeking								
Ore RCA $_{t-2}$	0.262*** (0.088)	-0.067 (0.155)	-0.229*** (0.085)	0.584** (0.241)	0.053 (0.148)	0.210 (0.559)	0.581** (0.232)	0.079 (0.538)
Market seeking								
Installed capacity $_{t-1}$	0.150 (0.237)	-0.463*** (0.156)	-0.614*** (0.207)	-0.485 (0.439)	0.129 (0.112)	0.266 (0.424)	-0.448** (0.220)	0.708* (0.372)
Real GDP	0.438*** (0.160)	1.749 (1.394)	1.246*** (0.208)	3.219* (1.851)	0.210 (0.239)	-19.398*** (4.351)	0.658 (0.518)	-16.800*** (5.996)
GDP growth	0.276** (0.132)	0.094 (0.091)	-0.475*** (0.139)	-0.146 (0.132)	0.310* (0.173)	1.679*** (0.416)	0.358** (0.169)	0.801** (0.353)
Third-market access (z)	0.135 (0.260)	-0.696 (1.000)	0.001 (0.153)	0.414 (0.678)	0.681** (0.320)	-0.631 (0.883)	-0.093 (0.529)	0.299 (1.075)
Efficiency seeking								
Unit labour cost	-0.043 (0.404)	0.155 (0.128)	-2.200*** (0.545)	0.171 (0.337)	-1.765** (0.837)	-0.136 (0.720)	0.153 (0.509)	0.168 (0.507)
Manufacturing VA	2.015*** (0.725)	2.170 (1.577)	-2.830*** (0.606)	0.384 (1.907)	-0.382 (0.720)	6.296 (5.107)	1.167 (1.112)	0.227 (4.158)
Midstream RCA $_{t-k}$	0.171 (0.298)	0.847*** (0.307)	-0.383 (0.455)	0.161 (1.074)	0.106 (0.455)	1.785 (1.353)	1.134 (1.027)	-1.328 (1.984)
Downstream RCA $_{t-k}$	-0.254 (0.161)	-0.002 (0.217)	-0.163 (0.305)	-1.745** (0.754)	0.307 (0.346)	1.794 (1.513)	0.625 (0.804)	2.568 (2.132)
Final-product RCA	-0.135 (0.095)	-0.034 (0.124)	0.298*** (0.072)	0.035 (0.077)	-0.345 (0.334)	0.856** (0.427)	0.170 (0.206)	0.107 (0.193)
Strategic-asset seeking								
JV-proneness $_{t-1}$	-2.085*** (0.559)	-0.122 (0.406)	-0.060 (0.197)	0.079 (0.453)	-0.640*** (0.248)	0.868 (0.555)	0.423 (0.338)	0.021 (0.317)
Controls								
Trade openness	0.008* (0.004)	-0.004 (0.011)	0.014* (0.008)	0.038* (0.021)	0.010 (0.008)	-0.087** (0.040)	0.001 (0.018)	0.018 (0.031)
Capital-account openness	-0.227 (0.793)	-2.853** (1.199)	-4.749*** (0.993)	2.152 (1.510)	0.245 (1.597)	-13.367** (6.778)	2.979 (2.068)	3.840 (4.939)
No prior FDI (1/0)	-1.398*** (0.436)	-0.921* (0.490)	-3.320*** (0.593)	-1.546** (0.622)	-3.148*** (0.486)	1.663 (1.053)	-3.500*** (0.635)	1.346** (0.617)
Observations (N)	972		729		199		197	
Countries	56		47		29		29	
Pseudo R^2 (vs year-FE)	0.3373		0.3495		0.5433		0.4580	

PPML with year fixed effects (baseline 2015); SEs clustered by country. Coefficients Mundlak-decomposed into between-country (cross-country gradient) and within-country (over-time) components. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$; SEs in parentheses.

Table A9. Push determinants of CT-FDI (project count), by technology

	Solar		Wind		Battery		EV	
Variable	Btw	Wth	Btw	Wth	Btw	Wth	Btw	Wth
Resource seeking								
Ore RCA $_{t-2}$	-0.115 (0.250)	-0.164 (0.418)	-0.640*** (0.162)	0.691 (0.556)	0.047 (0.152)	-0.269 (0.279)	0.235** (0.104)	-0.340 (0.231)
Market seeking								
RE deployment $_{t-1}$	0.757** (0.335)	-1.393 (1.175)	0.922* (0.550)	0.668 (0.742)	-0.476* (0.275)	0.572 (1.079)	1.175* (0.615)	0.135 (0.562)
Real GDP	-0.064 (0.456)	6.253*** (2.238)	-0.590 (0.552)	6.762** (2.935)	0.602 (0.481)	6.524*** (1.800)	-0.668 (0.488)	2.102 (1.747)
GDP growth	0.634** (0.294)	-0.208 (0.167)	-0.210 (0.391)	-0.276 (0.188)	-0.059 (0.200)	-0.284 (0.206)	-0.619*** (0.228)	0.311* (0.184)
Efficiency seeking								
Unit labour cost	-0.389 (0.846)	-0.784 (0.845)	4.126 (2.951)	0.129 (0.645)	1.296** (0.644)	-0.413 (0.373)	-0.270 (1.058)	-0.488 (0.320)
Manufacturing VA	0.564 (1.424)	1.694 (4.186)	-0.672 (1.104)	1.607 (4.238)	1.559 (0.951)	-3.039 (2.355)	1.645** (0.745)	-0.024 (3.859)
Controls								
Trade openness	-0.008 (0.011)	-0.037 (0.042)	-0.015 (0.021)	0.001 (0.068)	-0.007 (0.007)	0.028** (0.013)	0.002 (0.010)	0.022* (0.012)
Capital-account openness	4.727 (3.575)	-2.054 (2.002)	-4.375*** (1.524)	4.909 (5.459)	-0.148 (2.019)	1.464 (2.101)	-1.133 (1.934)	11.904** (5.991)
No prior FDI (1/0)	-2.441*** (0.897)	0.080 (0.736)	-4.173*** (0.675)	1.291 (1.425)	-2.663** (1.049)	0.641 (0.745)	-11.232*** (2.943)	0.067 (0.607)
Observations (N)	452		452		452		452	
Countries	23		23		23		23	
Pseudo R^2 (vs year-FE)	0.7400		0.5081		0.6223		0.6544	

PPML with year fixed effects (baseline 2015); SEs clustered by country. Coefficients Mundlak-decomposed into between-country (cross-country gradient) and within-country (over-time) components. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$; SEs in parentheses.

Table A10. Regime analysis: third-market access by era

	Pull			Push		
Regime	Third-market access (z)	US FTA access	EU market access	Third-market access (z)	US FTA access	EU market access
2000-08	0.737*** (0.194)	-1.879** (0.757)	0.811 (0.505)	0.712*** (0.208)	-19.978*** (1.082)	0.517 (0.427)
2009-15	0.342 (0.275)	-0.501 (0.494)	0.763 (0.464)	-0.070 (0.238)	0.667 (0.442)	-0.012 (0.396)
2016-21	0.022 (0.210)	-0.697* (0.374)	0.106 (0.343)	0.339 (0.304)	0.614 (0.748)	0.530 (0.386)
2022-25	0.098 (0.192)	0.421* (0.240)	0.041 (0.368)	0.385 (0.381)	-0.266 (0.737)	-0.102 (0.478)
Observations (N)	2,097	2,097	2,097	1,808	1,808	1,808

Pooled PPML with year FE; SEs clustered by country. Each cell is the access variable interacted with a regime dummy (main effects absorbed by year FE). $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$.

Table A11. Tariff circumvention: access shares and access × era effects

Panel (a). Unconditional access shares

	Chinese		Rest of world	
Regime	% of projects	% of capital	% of projects	% of capital
2009-15	27%	18%	41%	25%
2016-21	36%	40%	49%	34%
2022-25	42%	42%	46%	41%

Panel (b). Chinese projects by technology and access

Tech	Total projects	US-FTA dest	% to US-FTA	EU-access dest	% to EU
Solar	143	10	7%	42	29%
Wind	31	4	13%	12	39%
Battery	91	13	14%	51	56%
EV	103	17	17%	45	44%
All	368	44	12.0%	150	40.8%

Panel (c). Access × era on project count

	Chinese			Rest of world		
Regime	Third-market access (z)	US FTA access	EU market access	Third-market access (z)	US FTA access	EU market access
2009-15	-0.157 (0.420)	-1.482** (0.628)	-0.891* (0.540)	-0.111 (0.328)	-0.370 (0.447)	-0.120 (0.477)
2016-21	-0.053 (0.228)	-2.390*** (0.568)	-1.121*** (0.318)	-0.074 (0.302)	-0.023 (0.453)	-0.465 (0.327)
2022-25	-0.133 (0.346)	0.251 (0.556)	-1.128*** (0.379)	0.115 (0.383)	0.458 (0.874)	-0.867* (0.511)
Observations (N)	2,298			2,298		

Panel (d). Access × era on capital

	Chinese			Rest of world		
Regime	Third-market access (z)	US FTA access	EU market access	Third-market access (z)	US FTA access	EU market access
2009-15	-0.178 (0.564)	-3.248*** (0.849)	-1.702* (0.924)	-0.745 (0.539)	-0.213 (1.024)	-1.054 (0.865)
2016-21	-0.247 (0.375)	-3.094*** (0.673)	-1.225** (0.519)	0.362 (0.353)	-0.298 (0.626)	-0.960** (0.460)
2022-25	0.237 (0.365)	-0.030 (0.693)	-1.326*** (0.481)	0.077 (0.452)	0.119 (1.014)	-1.067** (0.445)
Observations (N)	2,298			2,298		

Panels (a)–(b): shares of Chinese vs. rest-of-world LCT projects and capital by destination access and era. Panels (c)–(d): PPML, destination×tech×year, 2009–2025 (China excluded as destination); SEs clustered by destination; access interacted with regime dummies; year and technology FE. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$.

Table A12. Tariff-circumvention break tests: access × post-2022 × battery/EV

Panel (a). IRA test — US market access

	All origins		Chinese	
Term	count	capital	count	capital
Access × post-2022 × battery/EV (the IRA effect)	0.039 (0.784)	-1.264 (1.614)	0.147 (0.809)	-2.376* (1.371)
Access × post-2022 (generic post-2022 access shift)	0.766 (0.514)	1.689 (1.087)	2.138** (1.009)	4.533*** (1.256)
Access × battery/EV (generic access–tech tilt)	0.036 (0.455)	0.275 (0.942)	0.249 (0.393)	1.155* (0.598)
battery/EV × post-2022 (the general EV/battery boom)	0.448 (0.385)	0.684 (0.651)	-0.210 (0.333)	0.885 (0.575)
Access (level)	-0.552 (0.355)	-0.929 (0.707)	-1.962*** (0.671)	-3.660*** (0.856)
Observations (N)	2,298	2,298	2,298	2,298

Panel (b). CBAM test — EU market access

	All origins		Chinese	
Term	count	capital	count	capital
Access × post-2022 × battery/EV (the CBAM effect)	-0.576 (0.653)	-0.188 (1.072)	-0.263 (0.884)	-0.931 (0.975)
Access × post-2022 (generic post-2022 access shift)	-0.218 (0.638)	0.057 (0.903)	0.164 (0.627)	0.450 (0.663)
Access × battery/EV (generic access–tech tilt)	0.224 (0.485)	0.730 (0.858)	0.967 (0.629)	2.929*** (0.944)
battery/EV × post-2022 (the general EV/battery boom)	0.798** (0.352)	0.531 (0.747)	-0.159 (0.624)	0.948 (0.737)
Access (level)	-0.589* (0.343)	-1.764*** (0.415)	-1.179*** (0.435)	-2.210*** (0.586)
Observations (N)	2,298	2,298	2,298	2,298

PPML, destination×tech×year, 2009–2025 (China excluded as destination); SEs clustered by destination. Access interacted with the post-2022 regime and a battery/EV dummy; year and technology FE. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$.

Table A13. JV-proneness interactions

Panel (a). Project count

	(1) Main		(2) + JV × Real GDP		(3) + JV × Ore RCA	
Variable	Btw	Wth	Btw	Wth	Btw	Wth
JV-proneness $_{t-1}$	-0.881*** (0.256)	-0.046 (0.091)	-0.742* (0.379)	-0.387* (0.202)	-0.862*** (0.179)	-0.077 (0.076)
JV-proneness × Real GDP	–	–	-0.055 (0.119)	0.114* (0.059)	–	–
JV-proneness × Ore RCA	–	–	–	–	0.294*** (0.107)	-0.068*** (0.025)
Real GDP	0.531*** (0.118)	0.141 (1.285)	0.637*** (0.240)	-0.322 (1.318)	0.576*** (0.094)	0.026 (1.327)
Ore RCA $_{t-2}$	0.097** (0.040)	0.159 (0.127)	0.091* (0.048)	0.167 (0.133)	-0.546** (0.249)	0.331** (0.142)
Observations (N)	2,097		2,097		2,097	
Countries	56		56		56	
Pseudo R^2 (vs year-FE)	0.3113		0.3155		0.3158	
Joint Wald p (level + interaction, btw)	–		0.000		0.000	

Panel (b). Capital amount

	(1) Main		(2) + JV × Real GDP		(3) + JV × Ore RCA	
Variable	Btw	Wth	Btw	Wth	Btw	Wth
JV-proneness $_{t-1}$	-0.537 (0.524)	0.096 (0.092)	-1.718*** (0.569)	-0.341 (0.215)	-0.619 (0.456)	0.057 (0.130)
JV-proneness × Real GDP	–	–	0.682*** (0.197)	0.128** (0.061)	–	–
JV-proneness × Ore RCA	–	–	–	–	-0.071 (0.268)	-0.065 (0.058)
Real GDP	0.794*** (0.234)	1.073 (1.768)	-0.183 (0.278)	0.996 (1.759)	0.766*** (0.205)	1.264 (1.868)
Ore RCA $_{t-2}$	0.209** (0.094)	0.094 (0.151)	0.385*** (0.105)	0.073 (0.175)	0.369 (0.618)	0.285 (0.197)
Observations (N)	2,079		2,079		2,079	
Countries	56		56		56	
Pseudo R^2 (vs year-FE)	0.5508		0.5742		0.5544	
Joint Wald p (level + interaction, btw)	–		0.000		0.042	

PPML with year fixed effects; SEs clustered by country in parentheses. Between = cross-country, Within = over-time (Mundlak). Full R14 controls included, not shown. Moderators mean-centered. The joint Wald p tests that the moderator's between level and its between interaction are both zero; GDP's column-2 SE reflects near-collinearity with its own interaction (r = 0.98), so its level and moderation are jointly significant though neither is individually. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$.

Table A14. Main determinants with China excluded

Panel (a). Pull (project count)

	(1) Main		(2) Excl. China (dest)		(3) Excl. China investor	
Variable	Btw	Wth	Btw	Wth	Btw	Wth
Resource seeking						
Ore RCA $_{t-2}$	0.096** (0.040)	0.158 (0.128)	0.095** (0.047)	0.223 (0.147)	0.081 (0.059)	0.299 (0.186)
Market seeking						
Installed capacity $_{t-1}$	-0.196* (0.104)	0.136*** (0.016)	-0.163 (0.134)	0.148*** (0.016)	0.306** (0.135)	0.239*** (0.018)
Real GDP	0.515*** (0.114)	0.081 (1.291)	0.496*** (0.125)	2.474** (1.179)	0.177 (0.137)	-0.507 (1.051)
GDP growth	0.128* (0.067)	0.172*** (0.062)	0.077 (0.082)	0.064 (0.079)	0.001 (0.055)	0.060 (0.073)
Third-market access (z)	0.222 (0.140)	0.079 (0.454)	0.223 (0.162)	0.021 (0.490)	0.045 (0.151)	-0.074 (0.543)
Efficiency seeking						
Unit labour cost	-0.315* (0.163)	0.163 (0.237)	-0.351** (0.161)	0.022 (0.080)	-0.204 (0.214)	0.397 (0.271)
Manufacturing VA	0.732*** (0.240)	0.712 (1.448)	0.763*** (0.243)	0.486 (1.624)	0.177 (0.239)	-1.021 (1.724)
Midstream RCA $_{t-k}$	0.008 (0.185)	0.057 (0.218)	0.077 (0.183)	0.048 (0.227)	-0.188 (0.217)	-0.067 (0.240)
Downstream RCA $_{t-k}$	-0.391** (0.168)	0.295** (0.127)	-0.404** (0.173)	0.360** (0.161)	0.226 (0.197)	0.222 (0.193)
Final-product RCA	0.034 (0.067)	0.074* (0.040)	0.030 (0.067)	0.110*** (0.035)	-0.149* (0.082)	0.029 (0.043)
Strategic-asset seeking						
JV-proneness $_{t-1}$	-0.909*** (0.246)	-0.056 (0.090)	-0.857*** (0.251)	-0.108 (0.117)	-1.086*** (0.271)	-0.090 (0.105)
Controls						
Trade openness	0.005* (0.003)	-0.002 (0.009)	0.005* (0.003)	-0.010 (0.008)	0.005 (0.004)	0.011 (0.012)
Capital-account openness	-0.348 (0.332)	-0.021 (1.126)	-0.409 (0.335)	-0.457 (1.175)	-1.595*** (0.430)	0.765 (1.313)
No prior FDI (1/0)	-2.380*** (0.279)	-1.101*** (0.310)	-2.395*** (0.297)	-0.835*** (0.271)	-2.723*** (0.442)	-1.045*** (0.272)
Observations (N)	2,097		2,045		2,097	
Countries	56		55		56	
Pseudo R^2 (vs year-FE)	0.3104		0.3211		0.3533	

Panel (b). Push (project count)

	(1) Main		(2) Excl. China investor	
Variable	Btw	Wth	Btw	Wth
Resource seeking				
Ore RCA $_{t-2}$	-0.385*** (0.119)	-0.059 (0.178)	-0.288* (0.149)	0.087 (0.230)
Market seeking				
RE deployment $_{t-1}$	0.168 (0.149)	1.140*** (0.376)	0.060 (0.159)	1.159*** (0.365)
Real GDP	-0.038 (0.197)	2.402*** (0.708)	-0.115 (0.215)	1.667 (1.277)
GDP growth	0.132 (0.170)	-0.050 (0.105)	-0.029 (0.203)	-0.143 (0.101)
Efficiency seeking				
Unit labour cost	2.224** (0.958)	-0.541** (0.215)	1.923* (1.073)	0.024 (0.306)
Manufacturing VA	-0.319 (0.587)	-2.532** (1.054)	-0.326 (0.567)	-1.939 (1.369)
Controls				
Trade openness	-0.010 (0.006)	0.007 (0.012)	-0.011 (0.007)	0.004 (0.014)
Capital-account openness	-1.104 (1.905)	1.447 (0.955)	-1.229 (1.901)	1.289 (1.266)
No prior FDI (1/0)	-3.099*** (1.009)	-1.845*** (0.420)	-3.672*** (1.118)	-1.873*** (0.432)
Observations (N)	1,808		1,728	
Countries	23		22	
Pseudo R^2 (vs year-FE)	0.5012		0.3239	

PPML with year fixed effects (baseline 2015); SEs clustered by country. Coefficients Mundlak-decomposed into between-country (cross-country gradient) and within-country (over-time) components. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$; SEs in parentheses.

Table A15. Pull determinants with the US dropped

Panel (a). Project count

Variable	(1) Main Btw	(1) Main Wth	(2) Excl. US (dest) Btw	(2) Excl. US (dest) Wth
Resource seeking				
Ore RCA $_{t-2}$	0.096** (0.040)	0.158 (0.128)	0.096** (0.042)	0.113 (0.125)
Market seeking				
Installed capacity $_{t-1}$	-0.196* (0.104)	0.136*** (0.016)	-0.203** (0.101)	0.137*** (0.024)
Real GDP	0.515*** (0.114)	0.081 (1.291)	0.544*** (0.141)	-0.119 (1.344)
GDP growth	0.128* (0.067)	0.172*** (0.062)	0.139** (0.067)	0.147** (0.068)
Third-market access (z)	0.222 (0.140)	0.079 (0.454)	0.265 (0.185)	0.594** (0.279)
Efficiency seeking				
Unit labour cost	-0.315* (0.163)	0.163 (0.237)	-0.309* (0.167)	0.154 (0.222)
Manufacturing VA	0.732*** (0.240)	0.712 (1.448)	0.685*** (0.228)	0.753 (1.383)
Midstream RCA $_{t-k}$	0.008 (0.185)	0.057 (0.218)	-0.004 (0.205)	0.128 (0.229)
Downstream RCA $_{t-k}$	-0.391** (0.168)	0.295** (0.127)	-0.365** (0.173)	0.276** (0.126)
Final-product RCA	0.034 (0.067)	0.074* (0.040)	0.026 (0.068)	0.093** (0.040)
Strategic-asset seeking				
JV-proneness $_{t-1}$	-0.909*** (0.246)	-0.056 (0.090)	-0.943*** (0.279)	-0.101 (0.102)
Controls				
Trade openness	0.005* (0.003)	-0.002 (0.009)	0.005* (0.003)	0.001 (0.008)
Capital-account openness	-0.348 (0.332)	-0.021 (1.126)	-0.371 (0.324)	-0.119 (1.129)
No prior FDI (1/0)	-2.380*** (0.279)	-1.101*** (0.310)	-2.357*** (0.286)	-1.067*** (0.309)
Observations (N)	2,097		2,045	
Countries	56		55	
Pseudo R^2 (vs year-FE)	0.3104		0.2615	

Panel (b). Capital amount

Variable	(1) Main Btw	(1) Main Wth	(2) Excl. US (dest) Btw	(2) Excl. US (dest) Wth
Resource seeking				
Ore RCA $_{t-2}$	0.162* (0.096)	0.109 (0.160)	0.200** (0.089)	0.156 (0.184)
Market seeking				
Installed capacity $_{t-1}$	-0.352 (0.218)	0.278*** (0.028)	-0.387** (0.173)	0.286*** (0.038)
Real GDP	0.675*** (0.227)	0.715 (1.926)	1.214*** (0.305)	1.364 (1.890)
GDP growth	0.149 (0.173)	0.452*** (0.138)	0.399** (0.155)	0.431*** (0.144)
Third-market access (z)	0.687* (0.353)	-0.672 (0.617)	1.113*** (0.387)	-0.625 (0.399)
Efficiency seeking				
Unit labour cost	-0.921** (0.406)	0.054 (0.257)	-0.949*** (0.364)	0.105 (0.354)
Manufacturing VA	1.918*** (0.687)	-0.687 (2.498)	1.890*** (0.568)	-0.639 (2.503)
Midstream RCA $_{t-k}$	0.662* (0.380)	-0.212 (0.198)	0.481 (0.500)	-0.201 (0.194)
Downstream RCA $_{t-k}$	-1.347*** (0.424)	0.677** (0.295)	-1.173*** (0.414)	0.562** (0.277)
Final-product RCA	0.199 (0.163)	0.046 (0.084)	0.061 (0.141)	0.063 (0.077)
Strategic-asset seeking				
JV-proneness $_{t-1}$	-0.898* (0.521)	0.085 (0.105)	-2.122*** (0.529)	-0.032 (0.090)
Controls				
Trade openness	0.007 (0.004)	-0.017 (0.012)	0.010** (0.004)	-0.011 (0.012)
Capital-account openness	0.334 (1.003)	-2.057 (2.551)	0.890 (1.034)	-1.936 (2.727)
No prior FDI (1/0)	-2.537*** (0.612)	-1.525** (0.668)	-2.367*** (0.678)	-1.399** (0.650)
Observations (N)	2,077		2,027	
Countries	56		55	
Pseudo R^2 (vs year-FE)	0.5480		0.4451	

PPML with year fixed effects (baseline 2015); SEs clustered by country. Coefficients Mundlak-decomposed into between-country (cross-country gradient) and within-country (over-time) components. $^{***}p<.01$, $^{**}p<.05$, $^{*}p<.10$; SEs in parentheses.