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Shifting Sources and Drivers of Greenfield FDI in Southeast Asia

Two decades of project-level evidence on where new productive capacity comes from — and where it lands

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ROADMAP

Five questions, in order

1	**What is happening?**	Southeast Asia now leads the developing world in FDI — but the evidence on greenfield projects is thin.
2	**Why does it matter?**	Misreading FDI's anatomy has fiscal costs (incentive bidding) and strategic costs (great-power exposure).
3	**How do we study it?**	21,159 project records, 2003–2026, read through a gravity benchmark — estimated separately by destination, sector and period.
4	**What do we find?**	A two-tier region; sector-specific determinants; China below its benchmark but converging; a new US premium.
5	**What should policy do?**	Four recommendations, each tied to an estimate — from success metrics to incentive restraint.

QUESTION 1 · THE ECONOMIC PROBLEM

A trillion-dollar competition run on thin evidence

- Southeast Asia is now the developing world's leading FDI destination — annual inflows above USD 200 bn, overtaking China.
- Greenfield projects — wholly new facilities — add capacity, embed technology and create jobs. They are the central target of promotion agencies.
- **Yet the evidence base is thin:**
  - Balance-of-payments aggregates record how much arrives — not which sectors, corridors, functions or jobs.
  - Aggregates are dominated by Singapore's entrepôt role, M&A and financial flows.
  - The literature covers global aggregates or single countries — variation within the region is unexploited.

THE TWO QUESTIONS

1. What has greenfield FDI into Southeast Asia looked like over two decades?
2. What determines where it goes — and how do the determinants differ by destination, sector and period?

>USD 200 bn
annual BoP inflows, mid-2020s

USD 1.34 tn
announced greenfield capital, 2003–2026

QUESTION 2 · WHY THIS MATTERS FOR POLICY

Misreading FDI's anatomy has fiscal and strategic costs

Incentive competition is intensifying

Members bid tax holidays for the same industries — without knowing whether they compete with a neighbour or with the world.

Capital has decoupled from jobs

2014 peak: 418,000 announced jobs. The record 2025 capital year: only ~320,000. Headline capex is a misleading success metric.

Great-power exposure is re-sorting

Chinese and American capital are converging on different hosts — concentrated, asymmetric exposure to each power's policy cycle.

WHAT THE PAPER ADDS

The first project-level anatomy of greenfield FDI across all eleven Southeast Asian destinations, and gravity benchmarks by destination, sector and period.

QUESTION 3 · APPROACH — DATA

21,159 project records, handled with measurement care

THE DATA

- Orbis Crossborder Investment (Bureau van Dijk): announced greenfield projects into all 11 economies, Mar 2003 – Jun 2026.
- Estimation window 2013–2025: 14,408 cross-border projects from 101 origins → an origin × destination × year panel (13,338 cells, ~82% zeros).
- CEPII gravity covariates; GDP from CEPII plus IMF WEO actuals for 2022–25.

MEASUREMENT CHOICES

- 1,227 same-country "self-dyad" records excluded (artificial short-distance cells).
- ~90% of capex is provider-modelled → project counts are the primary outcome.
- Announcements ≠ realisations: counts measure location decisions.
- Benchmark vs BoP: cross-section of host means correlates 0.79 (in logs).

USD 1.34 tn
announced capital, 11 members, 2003–2026

4.37 million
announced jobs

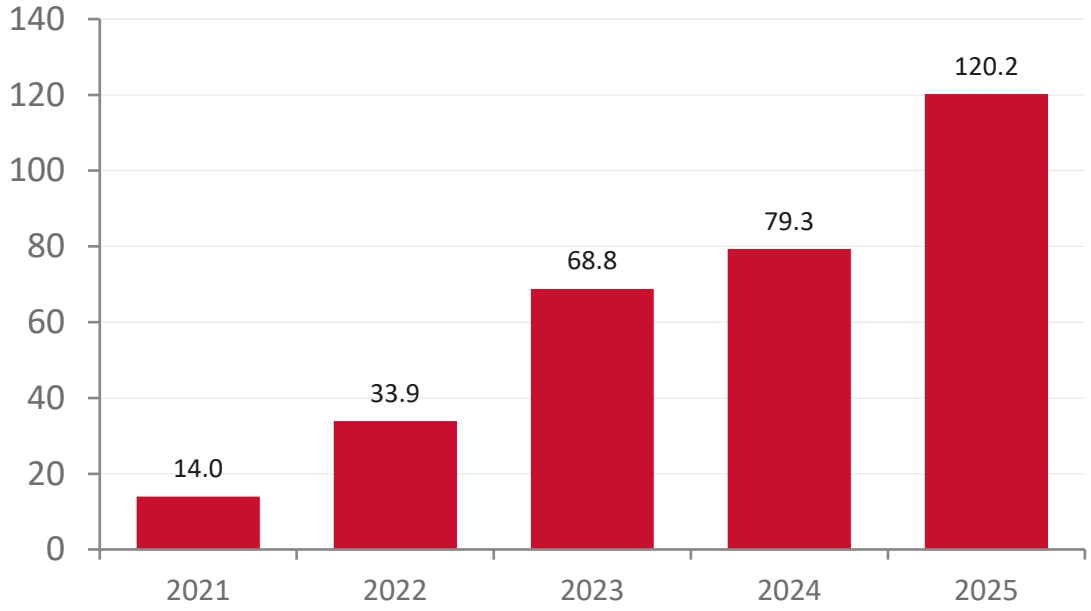
82% zeros
in the estimation panel → PPML, not log-OLS

11 · 101
destination economies · origin economies

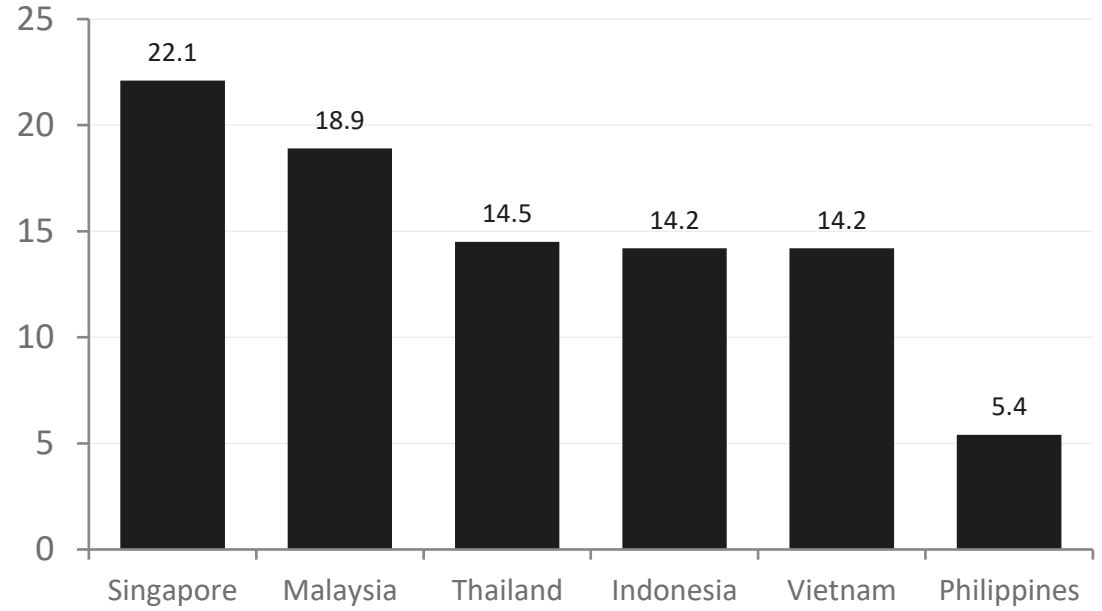
DESCRIPTIVE ANATOMY · (FROM THE PAPER'S FIGURES 1 AND 5)

Collapse, then record recovery — led by the digital hosts

Announced greenfield capital, USD bn



2023–26 recovery by host, USD bn per year



2025 sets a record after the 79% pandemic collapse of 2020–21 (2014 peak: USD 101.5 bn; 2026 H1 already: USD 47.7 bn).

Singapore and Malaysia lead — the two principal beneficiaries of the data-centre and semiconductor wave. Myanmar collapsed to ~USD 0.1 bn/yr after the 2021 coup.

QUESTION 3 · APPROACH — CONCEPTUAL FRAMEWORK

A gravity benchmark first — then let heterogeneity speak

FUNDAMENTALS

Origin & destination GDP
Bilateral distance
Common language
Colonial ties

GRAVITY BENCHMARK

PPML on project counts
$E[N_{ijt}] = \exp(X'\beta + \delta_t)$
Handles 82% zeros & lumpy tail

SOURCE-COUNTRY DEVIATIONS

China & US dummies = the gap between actual projects and what size + proximity predict

Same equation, estimated separately across three cuts — the coefficient comparison carries the argument

8 DESTINATIONS

Singapore … Cambodia
(≥ 200 projects each)

6 SECTORS

Electronics, chemicals, transport, software, metals, textiles

2 SUB-PERIODS

2013–2019 vs 2020–2025
+ fully interacted Δ tests

Comparative reading + disciplined inference → interpretation & policy implications

QUESTION 3 · APPROACH — ESTIMATION & INFERENCE

Deliberately simple gravity, deliberately careful inference

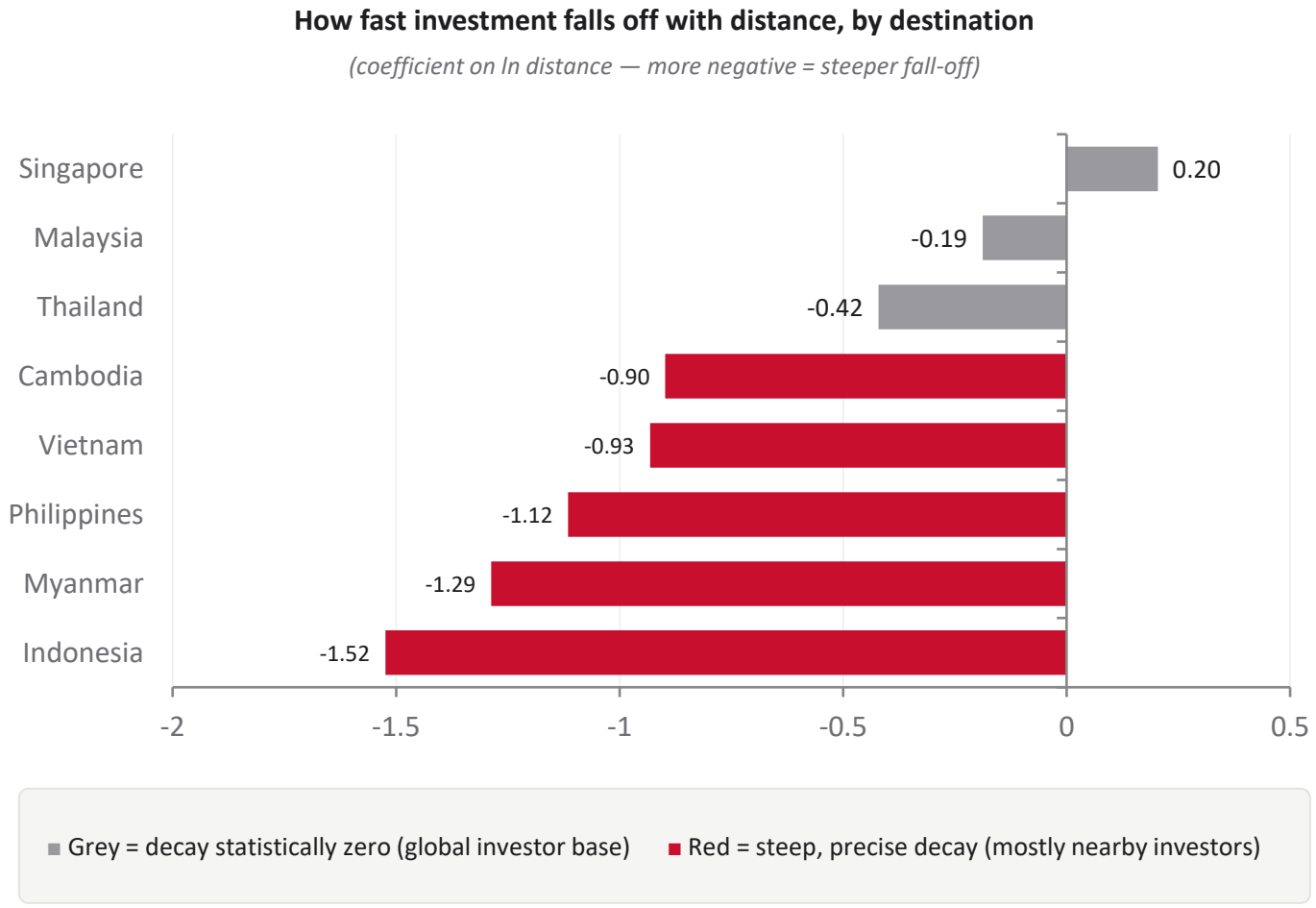
DESIGN CHOICES

- "Naive" gravity, not saturated fixed effects: GDP and distance coefficients are the objects of comparison, so they are estimated directly.
- The cost, stated plainly: no multilateral-resistance controls → read coefficients comparatively across sub-samples, not structurally.
- Sub-sample estimation beats dummy saturation when heterogeneity is the object of interest.
- Sub-period changes tested via fully interacted models — every slope and year effect allowed to shift after 2019.

INFERENCE DISCIPLINE

- China/US dummies span one origin cluster → clustered SEs unreliable; read as descriptive, backed by randomisation inference (92 placebos).
- Separation in thin sub-samples detected mechanically; offending regressors dropped and marked.
- 100+ tests → only patterns recurring across sub-samples and margins are interpreted; headline results survive Bonferroni.
- Estimator validated against independent likelihood maximisation (agreement to 5×10^{-5}).

“ASEAN” is not one destination: it is a two-tier region



Globally contested tier — Singapore, Malaysia, Thailand: distance decay statistically zero; they draw on global investor bases.

Regionally fed tier — steep, precisely estimated decay (−0.9 to −1.5); investors come predominantly from nearby. Origin-size elasticity runs 0.5 (PHL) to 1.2 (THA), who invests differs as much as how far they come.

SO WHAT?

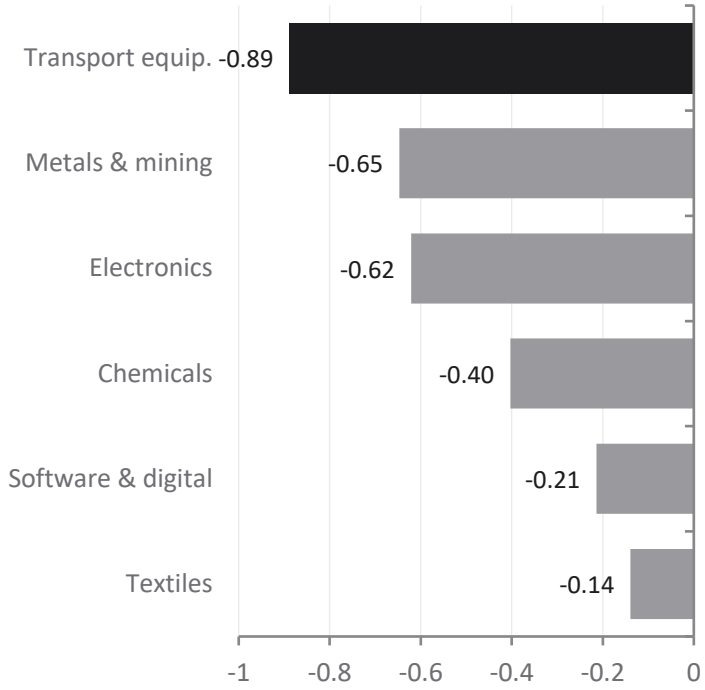
A tax holiday in Singapore competes with Dublin and Dubai. One in Cambodia competes with Vietnam.

Source: Table 9 / Figure 6 of the paper.

Determinants are sector-specific — hosts inherit them

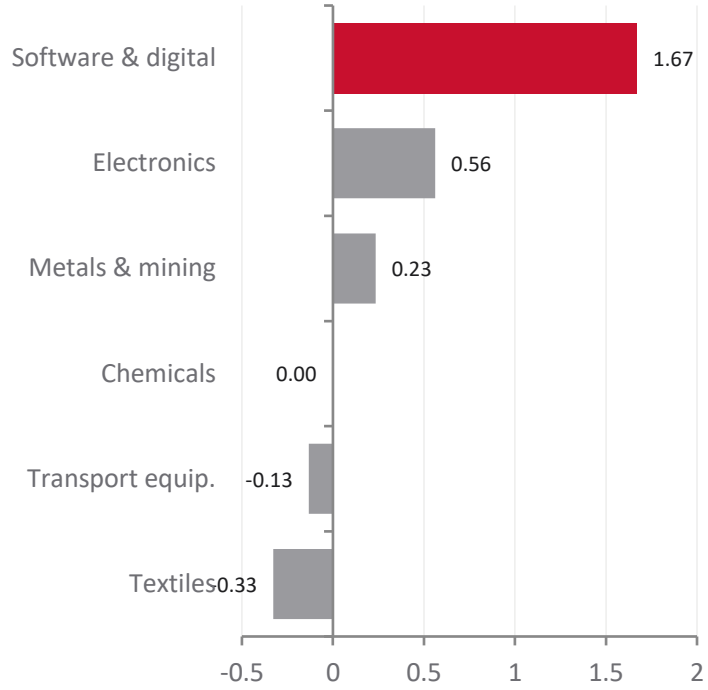
Distance decay by sector

(more negative = steeper)



Common-language premium by sector

(higher = language matters more)



Manufacturing follows distance; digital follows language.

Transport equipment: steepest gravity — distance −0.89, origin-GDP elasticity 1.82. Dominated by Japan, Korea, Germany.

Software & digital: zero distance decay, but the paper's largest language premium (×5.3). It crosses oceans, not language barriers.

This explains the host pattern: the zero-decay hosts (SGP, MYS) are the digital-heavy hosts of the post-2022 wave.

SO WHAT?

Jobs per USD m: 1.9 in software vs 2.2–7.5 in manufacturing — the new wave is employment-light.

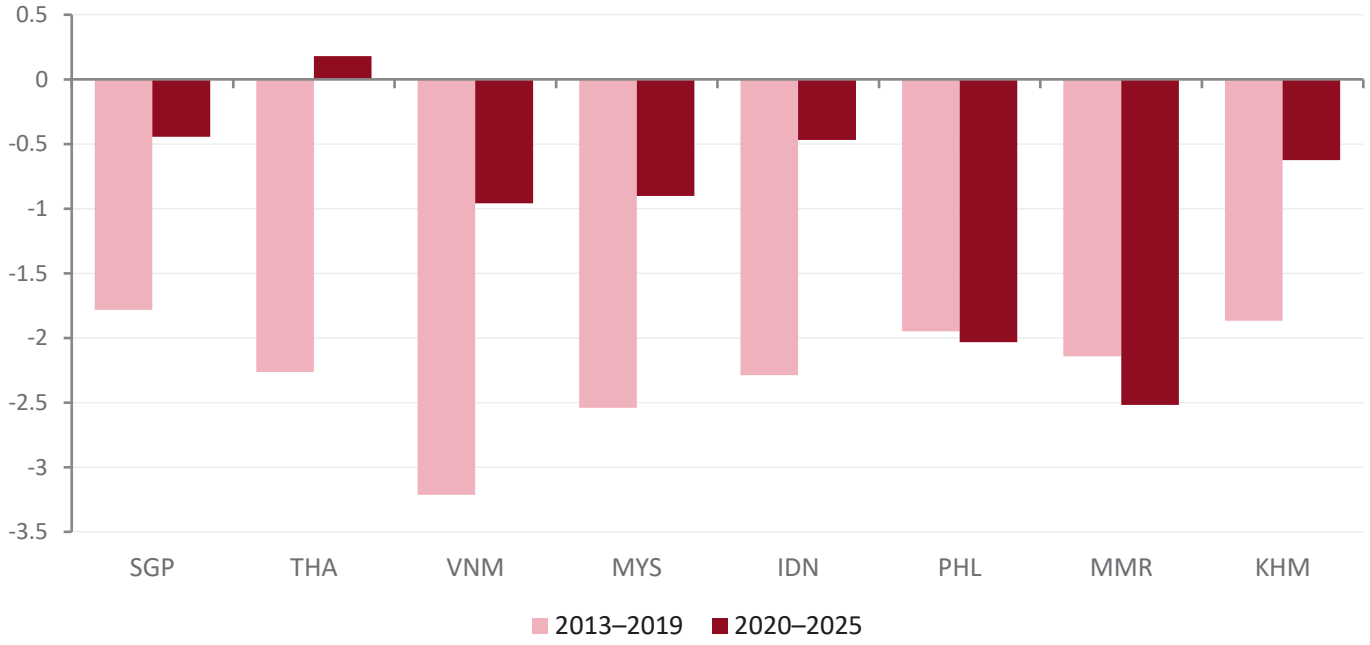
Source: Table 10 / Figure 7 of the paper.

QUESTION 4 · KEY FINDINGS — 3 OF 4

China: rising shares, yet still below its gravity potential

China-origin coefficient by host and sub-period

(0 = the projects that country size and proximity alone would predict)



HOW TO READ THIS CHART Bars below 0 = fewer projects than the benchmark predicts. When the dark bar (2020–25) is closer to zero than the light bar (2013–19), China is catching up to its potential.

Raw shares surged after 2019: 4.2% → 8.7% of projects; 8% → 19% of capital.

Yet conditional on size and proximity, China supplied roughly 70–80% fewer projects than benchmark over 2013–25 (Greater China: −69%).

The shortfall compressed sharply after 2020 in six of eight hosts — reaching parity in Indonesia (nickel & batteries) and Thailand (EVs).

Exceptions: the Philippines never moved; Myanmar deepened after the coup.

SO WHAT?

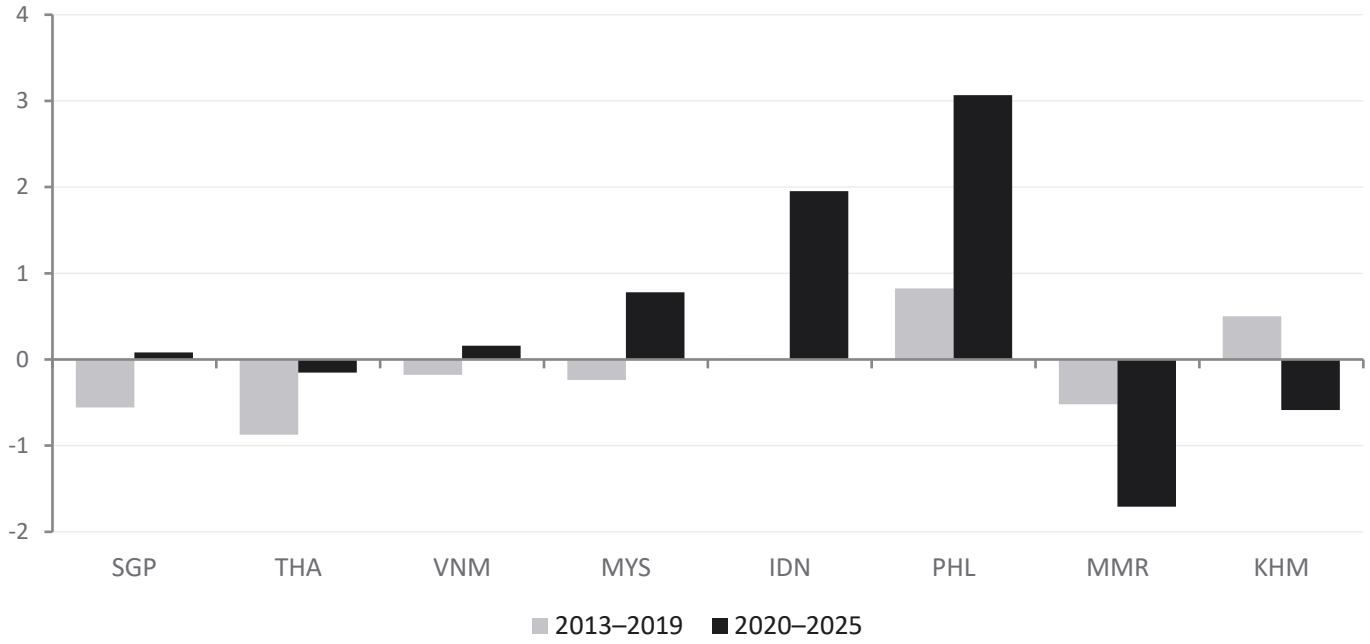
There is no general Chinese "flood": project counts sit at or below gravity levels everywhere.

Source: Table 11 / Figure 8 of the paper. Dark bars closer to zero than light bars = the gap to benchmark is closing.

A mirror-image US premium — in different hosts

US-origin coefficient by host and sub-period

(0 = the projects that country size and proximity alone would predict)



HOW TO READ THIS CHART Bars above 0 = more projects than country size and proximity predict. Dark bars (2020–25) above zero show where a US premium has emerged.

Pooled, the US sits at benchmark pre-2020 — then acquires a significant premium (Δ = +1.07, p = 0.002).

The premium is concentrated in Indonesia (+1.95) and the Philippines (+3.07) — a services-and-digital premium, not manufacturing.

Neither "China in, US out" nor its opposite: both powers rose fastest, relative to fundamentals, in different hosts — and in Indonesia, the same one.

SO WHAT?

Members attach to different great-power supply chains → asymmetric exposure to tariff and export-control shocks.

Source: Table 11 / Figure 8 of the paper.

QUESTION 4 · KEY FINDINGS — 4 OF 4

The patterns are robust — with one instructive nuance

Lumpy flows	3-year moving averages: every coefficient within a few hundredths of baseline.
Offshore routing	“Greater China” (+HK, Macao): shortfall −80% → −69%; the post-2020 narrowing survives both.
Self-dyads	492 same-country records excluded; including them flattens distance decay.
Intensive margin	Capex and jobs as outcomes: gravity stronger, language weaker; all signs agree.
GDP measurement	2022–25 WEO actuals used — extrapolated Chinese GDP would overstate the post-2020 shortfall.

THE NUANCE: “FEW BUT LARGE”

China participates in fewer corridors than gravity predicts — but with roughly double-sized projects:

USD 119 m

average announced Chinese project, 2020–25

vs USD 55 m

sample average — so the shortfall is smaller in capital (−1.22) than in counts (−1.59); most pronounced in Indonesia.

QUESTION 4 · GAPS THE PAPER IDENTIFIES

Stated limits — and the research agenda they define

WHAT THE DATA CANNOT SUPPORT

- Announcements, not realisations: ~25% of window projects unconfirmed at export.
- ~90% of capital values provider-modelled: intensive-margin results corroborate counts, no more.
- Origins are immediate investors: BVI (786 projects) and Cayman routings unattributable; the ultimate owner is unrecorded.
- Within-region benchmark only: cannot separate “China invests little in ASEAN” from “low outward propensity everywhere”.

The comparative architecture is protected: sub-samples share the same measurement properties, so common error differences out.

NEXT STEPS THE DESIGN POINTS TO

1. Link announcements to realisation records → measure completed capacity
2. Merge bilateral trade flows → test FDI-then-exports sequencing (2–3 yr lags)
3. Recover ultimate ownership → see through offshore routing

QUESTION 5 · POLICY RECOMMENDATIONS

Four recommendations, each tied to an estimate

1 Measure success in jobs and completions, not announced capital

Headline capex is ~90% modelled and decoupled from employment. Publish announced jobs, completion rates and job-quality indicators (e.g., average salaries).

2 Compete where the elasticities say competition happens

Digital investment is contested globally → restraint on fiscal incentives; compete on power, connectivity, skills. Automotive and electronics are contested among close neighbours → coordinated incentive ceilings worth exploring (conjecture).

3 Treat source diversification as a portfolio problem

Track the origin mix against gravity benchmarks — an “expected portfolio”. Hosts where one power converges while others recede (IDN, THA for China; PHL for the US) accumulate policy-cycle exposure.

4 Mind the frontier gap

Cambodia, Laos and Myanmar load on steep distance decay and regional sources only, and sit out the post-2022 wave. Address energy, logistics and institutions — Myanmar shows what political risk costs.

CONCLUSION

“FDI into ASEAN” is an aggregate over regimes so different that pooled coefficients mislead

- The region's investment story is now several stories — sorted by destination, by sector, and increasingly by source.
- A trillion-dollar manufacturing accumulation is being layered with a capital-intensive, employment-light digital wave.
- China converged toward its gravity benchmark in six of eight hosts (reaching it in Indonesia and Thailand); the US rose above it in Indonesia and the Philippines; everyone retreated from Myanmar.
- Sample-construction details in announcement-level data are not hygiene — they are first-order determinants of results.



Thank you.

APPENDIX

Methodology detail and full estimation tables

APPENDIX A1

Pooled PPML gravity estimates (Table 7)

	(1) Counts 2013–25	(2) 2013–19	(3) 2020–25	(4) 3-yr MA	(5) Capex	(6) Jobs
ln GDP origin	0.862*** (0.086)	1.003*** (0.074)	0.642*** (0.105)	0.864*** (0.084)	1.037*** (0.110)	1.041*** (0.108)
ln GDP destination	0.682*** (0.060)	0.581*** (0.038)	0.871*** (0.142)	0.658*** (0.049)	0.693*** (0.054)	0.632*** (0.043)
ln distance	−0.652*** (0.112)	−0.610*** (0.103)	−0.733*** (0.176)	−0.610*** (0.111)	−0.860*** (0.121)	−0.931*** (0.127)
Contiguity	0.648 (0.567)	−0.052 (0.326)	1.133 (0.786)	0.487 (0.494)	0.136 (0.346)	0.029 (0.444)
Common language	0.798*** (0.212)	0.891*** (0.240)	0.693*** (0.218)	0.808*** (0.216)	0.592** (0.299)	0.246 (0.185)
Common coloniser	−0.340 (0.301)	−0.113 (0.253)	−0.579 (0.475)	−0.254 (0.291)	−0.992** (0.447)	−0.956*** (0.350)
China origin	−1.591*** (0.318)	−2.172*** (0.293)	−0.721* (0.406)	−1.675*** (0.316)	−1.224*** (0.463)	−1.243*** (0.418)
United States origin	0.183 (0.343)	−0.188 (0.322)	0.887** (0.417)	0.111 (0.347)	−0.026 (0.374)	−0.018 (0.330)
Observations	13,338	7,182	6,156	11,286	13,338	13,338

*PPML; year fixed effects; SEs clustered by origin–destination pair. *** p<0.01, ** p<0.05, * p<0.1. Single-treated-cluster caveat applies to the China/US rows (Section 3.3).*

APPENDIX A2

Gravity by destination country, 2013–2025 (Table 9)

	SGP	THA	VNM	MYS	IDN	PHL	MMR	KHM
ln GDP origin	0.833***	1.194***	1.059***	0.896***	0.923***	0.511***	1.153***	0.908***
ln distance	0.204	−0.421	−0.932***	−0.188	−1.524***	−1.115***	−1.287***	−0.898***
Common language	0.829**	n.v.	n.v.	1.232***	n.v.	−0.195	n.v.	n.v.
Common coloniser	0.026	n.v.	sep.	0.374	n.v.	n.v.	−0.592	−1.861***
China origin	−1.267**	−1.339*	−2.070***	−1.883**	−1.694***	−2.095***	−2.235***	−1.171***
US origin	−0.344	−0.726	−0.107	0.093	0.695	2.047**	−0.538	0.237
Observations	1,209	1,209	1,209	1,209	1,209	1,209	1,116	1,222

Year fixed effects; destination GDP absorbed; contiguity excluded (separation-prone). SEs clustered by origin. n.v. = no variation; sep. = quasi-complete separation. Laos, Brunei, Timor-Leste excluded (<200 projects). Stars on single-origin dummies are indicative.

APPENDIX A3

Gravity by sector of the investing company (Table 10)

	Electronics & machinery	Chemicals & plastics	Transport equipment	Software & digital	Metals & mining	Textiles & clothing
ln GDP origin	1.191***	1.157***	1.815***	0.713***	1.100***	1.102***
ln GDP destination	0.652***	0.676***	0.754***	0.712***	0.602***	0.578***
ln distance	−0.621***	−0.403***	−0.888***	−0.214	−0.647***	−0.139
Common language	0.561**	−0.003	−0.133	1.671***	0.234	−0.328*
China origin	−1.330***	−1.706***	−2.304***	−0.649	−1.104**	−2.191***
US origin	−0.773*	−0.862**	−2.176***	0.620	−1.098**	−0.446
Cells with ≥1 project	583	485	294	762	225	400

Each sector model runs on the full dyad-year panel (13,338 obs); 'cells with ≥1 project' is the effective informative sample. Year fixed effects; SEs clustered by origin–destination pair. Contiguity and common-coloniser rows omitted for space; see Table 10.

APPENDIX A4

Formal tests of post-2020 change by destination (Table 11)

Destination	China 2013–19	China 2020–25	Δ China (s.e.)	US 2013–19	US 2020–25	Δ US (s.e.)
Singapore	−1.783***	−0.443	+1.340*** (0.397)	−0.558	0.083	+0.641** (0.322)
Thailand	−2.264***	0.180	+2.444*** (0.564)	−0.872*	−0.152	+0.720 (0.561)
Vietnam	−3.214***	−0.959	+2.255*** (0.288)	−0.178	0.159	+0.338 (0.373)
Malaysia	−2.541***	−0.902	+1.639** (0.642)	−0.236	0.780	+1.015* (0.557)
Indonesia	−2.288***	−0.469	+1.819*** (0.460)	0.009	1.952**	+1.943*** (0.709)
Philippines	−1.949***	−2.034***	−0.085 (0.735)	0.825*	3.065***	+2.240** (1.131)
Myanmar	−2.143***	−2.518***	−0.375 (0.621)	−0.518	−1.709*	−1.191* (0.721)
Cambodia	−1.866***	−0.625	+1.242** (0.559)	0.501	−0.588	−1.088 (0.662)

Δ columns: origin-dummy × post-2020 interaction from a fully interacted model, supplying a clustered SE and formal test. Single-treated-cluster caveat applies. Myanmar's comparison excludes the common-coloniser control and rests on nine positive post-2020 observations.

APPENDIX A5

Measurement properties and BoP benchmarking

MEASUREMENT (SECTION 3.2.3)

- 89.9% of window capex provider-modelled (3.6% official); officially reported projects are larger (median USD 30.8 m vs 4.7 m).
- 83.0% of window job values modelled.
- ~25% of window projects unconfirmed complete at export.
- 2013 coverage break → estimation starts 2013.
- Micro aggregate ≈ 23% of BoP inflows (2021–24): consistent with excluding M&A, reinvested earnings, intercompany loans.

BENCHMARK VS BALANCE OF PAYMENTS (TABLE 6)

	Corr. (levels)	Corr. (logs)
Pooled host-years (83)	0.33	0.50
Cross-section of host means (7)	0.54	0.79
Within-host range (logs)	—	−0.4 to +0.3

READING

Cross-host structure lines up well; year-to-year timing does not — announcements lead realised flows by 1–3 years, and BoP data are dominated by M&A and financial flows the micro data exclude. Estimates are about location patterns, not annual capital timing.