

Tough Love for Industrial Policy

What Fifty Years of Indonesian Trade
Policy Teach About Making
It Work

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Firms, Trade, and Development Conference,
EGC and IGC
Yale University, Sept 11, 2026

AUGUST 2013: A CABINET MEETING

2

Protection creates rents. Rents create defenders. The quota fell only when another policy made the price of beef the government's problem

The episode	August 2013 — the beef quota, from inside the cabinet
The trigger	The June fuel-price increase pushes inflation up, and food is the transmission channel the poor carry. Beef past Rp 100,000/kg, from Rp 75–80,000. Soybean up
The proposal	Ease the pressure directly: end the beef quota, move to a price trigger, cut the soybean tariff to zero
The debate	Two camps: keep the quota and fix implementation, or move to tariffs and price triggers
The decision	Yudhoyono ends the quota : price trigger at Rp 76,000/kg, soybean tariff to zero
The result	Imports resumed. Inflation comes off its August peak of 8.8% and ends 2013 at 8.4%
The lesson	Normal politics defended the quota for years. Protection was removed because someone needed the price down, not because the case against it improved.

Notes: I proposed removing the quota to take pressure off food prices after the June 2013 fuel-price increase, and to protect the poor. The taper tantrum was the macro backdrop and moved the rupiah, but it is not why the quota went. Quotas were replaced by a price-preferential system — permits issue once the domestic price reaches Rp 76,000/kg, further imports at 15% above it, permits withheld 5% below. Part of the broader 2013 stabilisation package.

Source: Basri (2016)

THE WRONG QUESTION: SHOULD WE DO INDUSTRIAL POLICY?

3

The problem is that both sides tend to select the cases that prove their prior. We study the survivors and conclude industrial policy works; or we study the failures and conclude that it doesn't.

A BETTER QUESTION

Does the intervention bring investment?

Does that investment create capability?

And can the government withdraw the rent when performance fails?

Export Ban: same ban, twice. Nickel: two-thirds of world ore. Bauxite: 3%. Opposite results.

- The question is not whether industrial policy creates rents, it will.
- The question is whether those rents buy investment and capability, and whether the state can withdraw them when they don't.

THREE CLAIMS

4

- 1 Protection went to whoever had the power to ask for it , not to the industries the economy needed.
- 2 Nickel made the buyer adjust. With bauxite, Indonesia adjusted instead. Same instrument, different market power.
- 3 The investment came. Whether it leaves anything lasting behind, we still do not know.

One is history. Two is the condition. Three is the open question.

PROTECTION WAS A POLITICAL MARKET, NOT AN ABSTRACTION

5

Applying the Grossman–Helpman model, I found that trade protection was concentrated in industries dominated by crony capitalists.

SOEHARTO FAMILY

FAMILY VEHICLES

- Humpuss Group — Tommy Soeharto (incl. Sempati Air)
- Bimantara Group — Bambang Trihatmodjo
- Citra Lamtoro Gung — Siti Hardijanti (Tutut)
- Hanurata Group — Sigit Harjojudanto
- Sudwikatmono — step-brother
- Mertju Buana — Probosutedjo, step-brother

ALLIED CONGLOMERATES

- Salim Group — Liem Sioe Liong (262 firms)
- Eka Tjipta Widjaja — cooking oil, pulp and paper
- Bob Hasan — timber
- Prajogo Pangestu — Barito Pacific, Chandra Asri, Tripolyta
- Kedaung Group — Agus Nursalim
- Bank Central Asia and Indomobil — direct family stakes

Where they dominated, protection behaved as Grossman–Helpman predicts.

Notes: “262 firms” denotes firms in which the group holds a control stake above the 20% threshold. The original figure maps the ownership and control chains in detail; this slide summarises its structure.

Source: estimated on the Grossman–Helpman (1994) specification for 1975, 1987 and 1995; crony groups, crony industries and estimates from Basri (2001); the 262-firm count from Claessens, Djankov and Lang (2000)

WHICH MODEL FITS BEST?

Protection may have begun as national policy, and then, over time, the system was captured by the beneficiaries it created.

	1975 · Oil boom	1987 · Post-oil boom	1995 · Reform era
National Policy	Best fit	Fails	Fails, signs reversed
Crony capture	Small	Strong , fit improves sharply	Persists in the ERP

So the problem may not be that industrial policy begins with capture. The problem is that successful protection creates rents, and those rents can eventually capture the policy.

Notes: the three models are, in the order shown, the national-policy model, the interest-group variant, and the Grossman–Helpman crony specification in Appendix A. Verdicts summarise the econometric results for the ERP. In 1975 basic industry, demand and wages are all significant under national design, while only the crony dummy is significant under organised interests; in 1987 the F-test rejects national design and the interest-group signs come in as hypothesised; by 1995 liberalisation had compressed both ERP levels and dispersion. Non-tariff barriers are on slide 8.

Source: Basri (2001)

WHY THE TECHNOCRATS COULD LIBERALISE IN 1985–90

7

Cronies were strongest in the mid-1980s, yet this is when Indonesia liberalised.

The relative price changed the politics of reform

THE RELATIVE PRICE, AND ITS SIGN

$$S = R(1 + t) \Rightarrow \frac{dt}{dR} < 0$$

Tariffs and the real exchange rate are substitutes in delivering the relative price the traded sector demands.

WHAT HAPPENED

1 • THE SHOCK

The oil price collapses. Oil was the government's main revenue and Indonesia's main export

2 • THE EXCHANGE RATE

The rupiah depreciates sharply, then is devalued a further 45% in September 1986 to defend the balance of payments

3 • THE SUBSTITUTION

The exchange rate now shields domestic producers — the job the tariff had been doing

- **Tariffs could come down because the exchange rate was doing part of the protecting instead.**
- **Protection is demanded when the traded sector is squeezed, and conceded when depreciation does the job instead.**

Notes: S is the switching ratio, the relative domestic price of tradables to non-tradables; R is the real exchange rate, so a rise in R is a depreciation. Differentiating $S = R(1+t)$ holding S constant gives $dt/dR = -(1+t)/R$. Demand for protection is therefore cyclical, and the proposition is testable: tariffs should track the terms of trade — Appendix E. The 1986 devaluation followed those of 1978 and 1983; liberalisation was genuinely unilateral, with no IMF or World Bank programme and no reciprocity condition, exporters placed on a free-trade footing first and customs bypassed via SGS in 1985. Assumption: the specific factor is capitalists, not labour unions had little bargaining power before 1998.

WHEN TARIFFS FELL, THE RENTS MOVED: THEY DID NOT DISAPPEAR

8

In 1986 non-tariff barriers were concentrated in crony-controlled sectors. By 1995 the crony pattern in NTBs had gone and aggregate coverage had fallen sharply, but firm-specific protection reappeared in non-tradables and licences

NTB coverage as a share of gross output

Crony-dominated sectors, 1986



All manufacturing



Notes: NTB coverage measured as a share of gross output. Sector figures are for 1986; the aggregate manufacturing coverage ratio is shown for 1986 and 1995. By 1995 the remaining barriers were concentrated in sectors designated “strategic”, such as rice and printing.

Source: Basri (2001); NTB coverage ratios from Fane (ANU)

THE 2005 RICE IMPORT BAN

9

October 2005: fuel subsidies near 30% of the budget. Fuel prices raised 126%, softened by cash transfers to 19 million poor households. Weeks later, a rice import ban “to protect farmers”. Pre-ban imports had averaged 1.9 million tons a year.

Cumulative price increase, February 2005 – March 2006

Rice paid by the poor

+33%

All other food

+16.5%

The 16.5-point gap opened after the ban. World rice prices were flat throughout.

Rice is a quarter of poor households' spending. More than three-quarters of the poor are net consumers.

World Bank: roughly 3.1 million pushed into poverty, national poverty 15.97% → 17.75%

In 2013 we brought food prices down by removing protection.

In 2005 the government pushed them up by adding it, and the ban took more from the poor than the cash transfers gave back.

Notes: rice prices from FAO border prices (Vietnam 25%) and Jakarta wholesale (IR 64 III, PIBC), Jan 2005 = 100. Domestic rice prices diverged sharply from stable international prices after the ban was imposed in late 2005.

Source: Policy memo 2005; Basri, “The Political Price of Fuel” (Harvard CID Student Seminar, 2025); World Bank estimates; BPS poverty statistics

INDUSTRIAL POLICY IS BACK — THE JUSTIFICATION IS REAL. SO IS THE HISTORY

10

Externalities and coordination failures justify intervention (Juhász, Lane & Rodrik 2023) — but justification becomes capture fast

Feature	Before 2015	After 2015
Policy focus	Broad manufacturing sectors	Critical minerals and commodities
Key instruments	Tariffs, quotas, SOEs, subsidies	Export bans, subsidies, local content requirements
Stated objectives	Self-sufficiency, domestic industry development	Value added, domestic industry development
Observed outcomes	Initial growth, limited competitiveness	Nickel boom, environmental issues, uneven sectoral success

Notes: cautionary record, Habibie-era strategic projects launched without exit plans or performance criteria; the national car; automotive protection that never produced a competitive sector ("priceless intervention", Rock 1999); electronics LCRs that localise cables and enclosures, not chipsets.
Source: Rezki & Basri (rev. draft)

WHAT THE ECOSYSTEM DELIVERED

11

Real and local: exports, investment, provincial income, and falling inequality where the estates were built

11.5×

value-added nickel
exports,
2014 → 2024

US\$71bn

FDI into base metals
since 2015;
27% of all FDI in 2025

296 vs 151

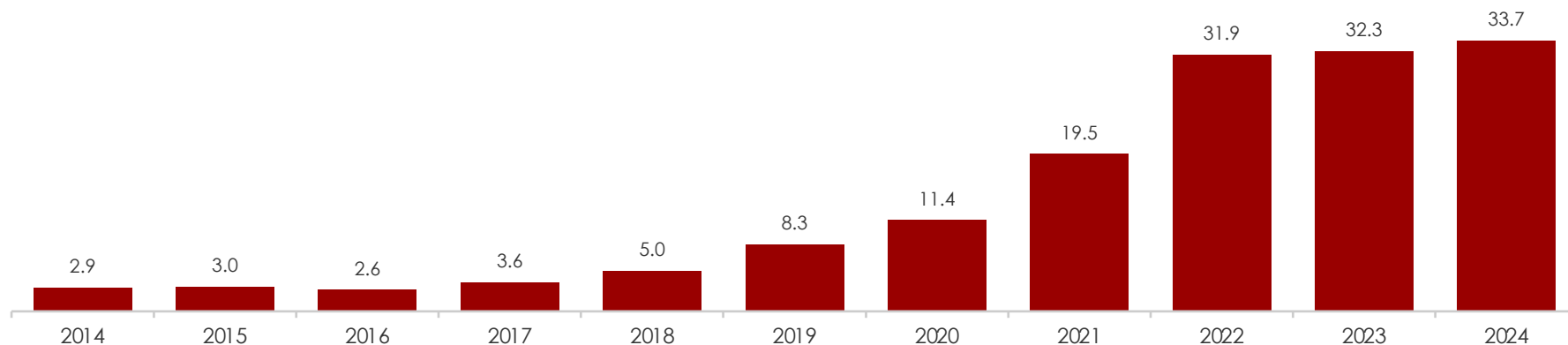
GRDP index 2024,
Central Sulawesi
vs Indonesia (2014 = 100)

~137,000

Local workers in IMIP and
IWIP —
about US\$0.5m of FDI per
job

Nickel value-added exports, US\$ billion

Preliminary 2025: the first fall since the
ban.



Inequality fell where the estates were built: Central Sulawesi's Gini 0.37 → 0.28.

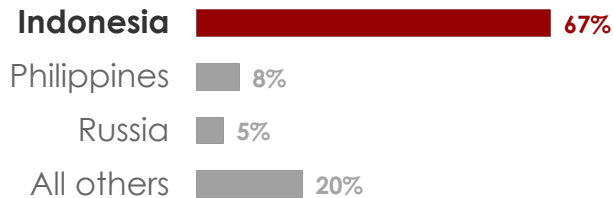
Notes: export series covers NPI/FeNi, iron and steel, nickel matte, MHP/MSP and battery-chain products; the chart ends at 2024; the 2025 figure reported in the source presentation may cover an incomplete year, verify before citing the fall. GRDP index 2014 = 100; Gini figures are the annual series 2015–2025, Central Sulawesi 0.374 → 0.279 against a national 0.408 → 0.375. Employment is company-reported local workers at PT IMIP and PT IWIP; against US\$71bn of FDI that is roughly US\$0.5m of investment per job, the capital intensity behind the “few jobs” finding in LPEM (2024).

Source: Septian Hario Seto (November 2025), drawing on BPS, Ministry of Investment and National Economic Council data

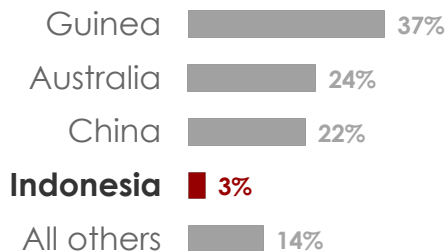
MARKET POWER MADE THE BAN BITE — USING IT SPENDS IT

A ban bites when buyers have few alternatives. But using market power can also erode the market power over time

NICKEL — share of world mine production, 2025



BAUXITE — share of world mine production, 2025



After the ban, mine output fell from about 21 Mt to about 10 Mt, refineries did come — later, and into a falling alumina price.

Nickel, the large-country condition:

China had no alternative feedstock, so China moved to Indonesia

Bauxite had no such leverage: about 5% of world output before the 2023 ban. China's bauxite imports rose 12.3% the following year, the buyer never had to adjust

Same instrument, different market structure; in nickel China adjusted; in bauxite Indonesia did. The ban did not change, the market did

- **Do not copy the instrument without the market structure;**
- **Do not assume the structure survives being used.**

EVEN WITH MARKET POWER, IS A BAN THE BEST INSTRUMENT?

13

The 2014 mineral export ban vs. a conditional export tax

Context & preferred design

- 2014 ban was a deadline set in the 2009 mining law. Not a new decision
- Preferred to keep exports open and impose an export tax
- Design: a legislated, declining, conditional export tax
- Start high (~30%); lower it as independently verified smelter milestones are met; zero once the smelter is complete
- Schedule legislated in advance, the default path requires no one's permission
- Relief is earned, not granted

Both create scarcity; who captures it differs

- Both instruments restrict exports and create a wedge between world and domestic prices.
- But the distribution of the rent is different.
- Under a ban the rent largely goes to smelter owners;
- Under a tax, the government captures part of that rent.
- And there is a deeper reason to worry about relying on a ban...

A ban gives away the rent to induce investment; a conditional tax shares the rent.

THE HIDDEN COST OF FORCING INVESTMENT ONSHORE

Not only who captures the rent — what industrial structure the rent creates.

14

OVERINVESTMENT	INNOVATION	PRODUCTION NETWORKS
Investment ≠ competitive capacity • Capacity expanded rapidly • LME nickel: ~\$26k/t (2022) → ~\$15–16k/t • Stocks ↑; 2026 ore quota 379 → 270 Mt The ban built capacity. Can it sustain it?	Investment ≠ technological capability Capital and plants moved to Indonesia • Operational learning occurred • Core metallurgy & R&D remain largely with foreign investors • LFP >55% of EV batteries → substitution risk Using market power can change the market itself.	Processing ≠ domestic capability • Industrialization is cross-border • Nickel alone is not enough for batteries • Capability requires technology, complementary inputs & global markets Capability requires production networks.

THE OBJECTIVE IS NOT MAXIMUM DOMESTIC PROCESSING — IT IS MAXIMUM DOMESTIC CAPABILITY

DISCIPLINE IS RARELY SELF-IMPOSED

15

This is not identification. It is a pattern that suggests a design principle: rents need a referee that the beneficiary cannot instruct.

WHEN THE REFEREE IS EXTERNAL

Korea, 1973–79 — support tied to export targets, and withdrawn when they were missed

Taiwan — state banks and SOEs, but SME exporters set the price

Chile — CODELCO, state-owned but bound by a fiscal rule

What mattered was that beneficiaries could lose support.

WHEN IT IS NOT

Brazil, Argentina — protection extended indefinitely; nothing closed

Venezuela, Algeria — PDVSA and Sonatrach — capable, financed by geology, never tested

Malaysia — Proton, judged by a market that could not say no

The common feature — nothing was withdrawn; protection became a political property right.

WHERE INDONESIA SITS

Nickel — there is a referee, but Indonesia did not create it

Discipline came with globally competitive Chinese investors operating at the cost frontier

Bauxite — same instrument, no referee, sector shrank

Allocation — quotas and tax holidays have no expiry date

So — discipline came with the investor, not with the instrument.

Indonesia has twice faced discipline from outside — by a depreciation in the 1980s, by Chinese smelters after 2020. Can Indonesia build that discipline domestically?

Notes: a framing regularity, not identified evidence — selection on the dependent variable is a live risk here, and the East Asian cases received land reform, near-universal basic schooling and Cold War market access at the same time. In the model in Appendix A, an external referee does not change a or α ; it caps what can be delivered at any price.

Source: Amsden (1989); Wade (1990); Evans (1995); Rodrik (2004); Indonesian cases as on slides 11–14

LEAN INDUSTRIAL POLICY: THREE TESTS

16

Neither referee was built here. These tests are how you stop waiting for one to arrive.

TEST	QUESTION EVERY INTERVENTION MUST PASS
Market failure	What externality or coordination failure justifies the intervention, not just which incumbent asks for help?
Discipline	What measurable target must be met, and who can withdraw support if it is missed?
Rent and capability incidence	Who captures the rent? What capability, innovation or production-network position does Indonesia acquire in return?

**Industrial policy may need to create rents.
But rents must buy capability and support must remain withdrawable.**

Notes: bauxite is not a case of no investment — alumina refining rose from about 1.4 Mt in 2021 to about 3.9 Mt in 2023, Indonesia became a net alumina exporter in 2024, and planned investment across the aluminium chain is put above US\$30bn, mostly Chinese. What differed from nickel is who bore the adjustment: mine output held at 12–15 Mt against 25–30 Mt of capacity, ore at US\$28–32/t against an HPM benchmark of US\$42. Verify against ESDM before citing. Preferred tools , horizontal investments; performance-based incentives tied to measurable outcomes; professionally managed SEZs under independent evaluation; activity-based local content.

Source: Rezki & Basri (rev. draft), Table 1

THE THROUGH-LINE, 1975–2025

- 1 Industrial policy necessarily creates rents. The question is whether those rents buy new capabilities.
- 2 Crisis windows open. Use them to build rules, not discretion.
- 3 Rent-seeking rebrands. It does not disappear when the instrument changes.

Fifty years of Indonesian economic policy taught me this:
Creating a rent is easy. Making it temporary is hard. The test of industrial policy is not whether investment comes. It is whether the rent leaves behind a capability when the protection is gone.

THANK YOU

APPENDIX A — GROSSMAN–HELPMAN SPECIFICATION FOR INDONESIA

19

Same equation. Only the indicator changes — and the sign reverses exactly as predicted

GROSSMAN–HELPMAN (1994)

$$\frac{t_i}{(t_i+1)} = \frac{(I_i - \alpha_L)}{(a + \alpha_L)} \cdot z_i / e_i$$

$I_i = 1$ if organised as a lobby

Proxied by US Political Action Committee contributions

MODIFIED FOR INDONESIA — SAME EQUATION

$$\frac{t_i}{(t_i+1)} = \frac{(I_i - \alpha_L)}{(a + \alpha_L)} \cdot z_i / e_i$$

$I_i = 1$ if crony-dominated

No PACs to measure. DC = 1 where a Soeharto firm was the largest producer or a monopolist, coded from ownership, never from outcomes

Estimated form, equation : $t_i / (1 + t_i) = \beta_0 + \beta_1 (z_i / e_i) + \beta_2 I_i (z_i / e_i) + \varepsilon$

z_i / e_i = inverse import penetration, scaled by the import demand elasticity. Full variable list in the notes below.

Predicted: $\beta_1 < 0$, $\alpha_2 > 0$, $\beta_1 + \beta_2 > 0$. Wald rejects $\beta_1 + \beta_2 \leq 0$ at 5% in 1975, 1987 and 1995

Horse race in the body, slide 6. DC coding protocol in Appendix B.

Notes: z_i = domestic output over imports of industry i ; e_i = import demand elasticity; α_L = share of the population engaged in lobbying; a = the government's valuation of welfare relative to contributions. Equation (13) writes the same relation as $\gamma (z_i / e_i) + \delta I_i (z_i / e_i)$, with $\gamma = -\alpha_L / (a + \alpha_L)$ for $I_i = 0$ and $\delta = 1 / (a + \alpha_L)$ for $I_i = 1$; since $a \geq 0$ and $0 < \alpha_L < 1$, $\gamma + \delta > 0$. Correlation consistent with the model, not causal identification.

Source: Grossman and Helpman (1994); Goldberg and Maggi (1999); Basri (2001)

APPENDIX B — CODING THE CRONY DUMMY (DC)

20

Ownership and market position, observed separately at each cross-section date — never coded from protection outcomes

Step	How DC is constructed
Crony set	Confined to Soeharto's family and their business groups and supplemented by fieldwork interviews
Criterion	DC = 1 where a crony firm owned the largest producer in the industry, or held an outright monopoly. A rank-and-ownership rule not a licence rule, and not a protection rule
Concordance	Protection is measured at I-O level, ownership observed at ISIC level. Where an I-O sector spans several ISIC codes, it is coded 1 only if the crony sub-industry is the dominant one by output share
Period-specific	Separate lists for 1975, 1987 and 1995 (five I-O sectors in 1975, Liem and Probosutedjo only, expanding as the family vehicles were founded through the 1980s)
Known limits	BPS suppresses firm names in the survey tapes, so exact crony output shares are unobservable and the qualitative record substitutes. A cross-sectional dummy cannot establish direction of causality

Not coded from protection outcomes. Not projected backward from a later ownership snapshot.

Notes: dominance shares in the appendix lists are typically overwhelming — wheat flour 81%, cooking oil 91%, dairy 93%, noodles 100% — so the rank rule and a share rule coincide in practice. Whether cronies begat protection or protection attracted cronies cannot be settled in the cross-section; this is what motivates the automotive case study in Chapter 8.

Source: Basri (2001)

APPENDIX C — STANDARD G–H MODEL, AS DERIVED

21

The specification that follows directly from the model in Appendix A: z/e interacted with the crony dummy, nothing else. t-ratios in parentheses

Independent variables	ERP — Effective Rate of Protection		
	1975	1987	1995
$a_1 \cdot z/e$	-0.001 (-3.16) ^a	-0.02 (-1.95) ^b	-0.009 (-4.0) ^a
$a_2 \cdot l \cdot z/e$	0.002 (5.59) ^a	0.06 (5.2) ^a	0.08 (3.4) ^a
Wald test: $a_1 + a_2 > 0$	32.9 ^a	29.7 ^a	9.1 ^a

Notes: a) significant at 5%; b) significant at 10%. t-ratios in parentheses. Coefficients of a_1 and a_2 multiplied by 100. z/e = ratio of domestic output to imports over import demand elasticity; l = dummy for crony capitalists (1 for a crony industry, 0 otherwise). Constant included but not reported.
Source: Basri (2001),

APPENDIX D — ROBUSTNESS: G–H WITH SECTORAL CONTROLS

22

α_1 and α_2 are essentially unchanged when sectoral controls are added. The extension is ad hoc, as the thesis reports it — the controls are not the object of interest

Independent variables	ERP — Effective Rate of Protection		
	1975	1987	1995
$\alpha_1 \cdot z/e$	-0.001 (-3.03) ^a	-0.02 (-2.9) ^a	-0.008 (-2.5) ^a
$\alpha_2 \cdot l \cdot z/e$	0.002 (6.07) ^a	0.05 (3.7) ^a	0.08 (3.6) ^a
HC	-0.038 (-0.88)	-0.17 (-3.1) ^a	-0.002 (-0.06)
IC	0.73 (2.77) ^a	0.37 (2.58) ^a	0.12 (0.82)
SHFV	0.45 (2.31) ^a	-4.21 (-3.5) ^a	0.42 (3.2) ^a
EXP	-0.05 (-0.18)	-0.34 (-1.54)	-0.38 (-3.2) ^a
AWPE	0.03 (1.40)	-0.002 (-0.56)	-0.002 (-2.5) ^a
Wald test: $\alpha_1 + \alpha_2 > 0$	33.2 ^a	6.74 ^a	10.24 ^a

Notes: a) significant at 5%; b) significant at 10%. t-ratios in parentheses. α_1 , α_2 multiplied by 100. HC = share of output sold to households; IC = share sold to other industries; SHFV = foreign share of value added; EXP = export share of output; AWPE = average wage per employee. Constant included but not reported.

Source: Basri (2001).

APPENDIX E — VAR/VECM EVIDENCE, SHORT VERSION

23

Quarterly, 1974Q2–1993Q4. Re-estimated in 2026 on the same data — the long-run relationship holds; the short-run tests do not

WHAT THE RE-ESTIMATION SAYS

The relationship holds — oil prices, the real exchange rate and tariffs move together in the long run.

The direction of evidence is consistent with terms-of-trade shocks moving protection, not the reverse.

Adjustment is fast — much of any deviation closes within a quarter.

What aged — the short-run tests, sensitive to the oil proxy. The long-run channel is the robust one.

THE ONE NUMBER

– 0.61

error correction
coefficient ($t = -4.1$)

About 60% of any gap closes each quarter. The timing is hard to explain by changes in ideas alone.

The long-run channel survived re-estimation. The short-run tests did not.

Notes: Johansen trace 48.0 against a 29.8 critical value, one cointegrating vector; ECT $\alpha = -0.61$ ($t = -4.1$) in the tariff equation; Toda–Yamamoto with HAC errors puts RER $\rightarrow$ tariff at 1%. Original Granger tests: oil $\rightarrow$ tariff $\chi^2 = 19.5$ (5%), RER $\rightarrow$ tariff $\chi^2 = 4.7$ (10%), tariffs causing neither. Cumulative IRF to an oil shock +0.76 / +0.41 / +0.21 at 1, 4 and 8 quarters. Full comparison in Appendix F.

Source: Basri & Hill (2004); author's re-estimation (2026)

APPENDIX F — VAR/VECM EVIDENCE, 1974Q2–1993Q4

24

The original tests and the 2026 re-estimation side by side, on the same quarterly dataset.
Correlation consistent with the mechanism, not causal identification

Evidence	Basri & Hill (2004)	2026 re-estimation, same data
Long-run relationship	Granger causality: oil $\rightarrow$ tariff $\chi^2 = 19.5$ (5%); RER $\rightarrow$ tariff $\chi^2 = 4.7$ (10%)	Johansen: one cointegrating vector (trace 48.0 vs 29.8). ECT $\alpha = -0.61$ ($t = -4.1$) — about 60% correction per quarter
Direction of causality	Tariffs never cause oil or the RER ($\chi^2 = 0.03, 0.001$)	Confirmed — RER $\rightarrow$ tariff at 1% (Toda–Yamamoto, HAC)
Response of tariffs	Cumulative IRF to an oil shock: +0.76 / +0.41 / +0.21 at 1 / 4 / 8 quarters	Sign pattern replicates at every horizon (Monte Carlo bands)
What aged	Short-run, quarter-to-quarter Granger tests	Sensitive to the oil proxy; the long-run channel is the robust one
2026 diagnostics	—	ADF / PP / KPSS unit-root tests, AIC lags, Johansen, VECM, Toda–Yamamoto with HAC errors, Monte Carlo IRF bands

The long-run channel is what the argument rests on. The short-run tests are not, and did not survive.

Notes: real oil revenue (OILREV deflated by the CPI) proxies the crude price series missing from the original dataset. This weakens the quarter-to-quarter tests, not the cointegration result. The tariff series is the unweighted average nominal tariff; the real exchange rate is $R = e \cdot p^*/P_N$ as defined on slide 7.

Source: Basri & Hill (2004) ; author's re-estimation (2026)

APPENDIX G — THE INDONESIAN CHRONOLOGY

25

A price instrument until 2014 and again in 2017–19. A pure quantity instrument from 2020. They hand the rent to different people

INDONESIA TAXED, THEN BANNED	WHO CAPTURES THE RENT	WHAT THE OUTSIDE WORLD DOES
May 2012 a 20% export duty on 65 raw-mineral lines, nickel ore included January 2014 the 2009 law's transition expires: nickel, bauxite, tin, gold, silver, chromium must be refined. Six concentrates keep a duty rising 20–25% → 60% February 2017 nickel ore below 1.7% Ni exportable again at a flat 10% duty January 2020 the taxed channel closes. Processed exports US\$8bn → US\$34bn by 2024	The price instrument — collects the rent at the border, and the trade stays open The quantity instrument — hands the rent to the smelter owner. Tax holidays return what royalties recover Exercised backwards, then reversed — a monopolist restricts quantity; Indonesia expanded it, taking nickel to US\$16,000–17,000. The 2026 quota cut, 379 → 270 Mt, is the first real restriction — the ban's bill arriving as a second discretionary instrument The credibility trade-off — a rate can be lobbied down and a ban cannot — but discretion moved to RKAB quotas	Article XI:1 — bans quantitative restrictions, not export duties DS592 — the ban found inconsistent; unadopted on appeal Trade remedies — EU duties since 2020–22; China 20.2%; Malaysia, India and Türkiye; US Section 232 at 50%

Both can build an industry. Only one collects the rent, and only one survives Article XI.

Notes: the January 2014 ban was the expiry of the five-year transition in UU 4/2009, not a new decision. LME averages are approximate; the 2025 royalty reform moved partly toward border capture, verify against the current regulation.

Source: PMK 75/2012, 6/2014, 13/2017; UU 4/2009; Permen ESDM 1/2014; WTO DS592; USGS; LME; Septian Hario Seto (November 2025)

APPENDIX H — THE DYNAMIC-EXTERNALITY OBJECTION

26

The strongest case for the ban, stated fairly — and why it yields a rate rather than a prohibition

THE OBJECTION

Learning, agglomeration, technology transfer and infrastructure may carry social returns above the forgone fiscal rent

If so, revenue is second-order and the ban is justified on dynamic grounds

This is the Juhász, Lane and Rodrik case — and it is accepted here, not disputed

Conceded — if the spillover is real and large, the fiscal argument does not carry.

THE ANSWER

A ban is not intervention versus none. It is one way of financing the same intervention

An export tax opens the same wedge between the domestic and world ore price, so it subsidises processing too — at a rate you choose

A ban is the corner solution — an implicit subsidy with no ceiling. The externality argument yields a rate, not a prohibition

The price instrument was never tested — four regime changes in eight years, and the 2017 channel was a discretionary quota with a duty attached. No investor faced a rule expected to outlast construction.

So — the rent is not a rival objective to the externality. It is the change from paying for it.

THE BURDEN OF PROOF

The spillover is testable and has not been tested — no independent assessment of technology transfer

Bauxite had the same instrument, but investment arrived under much weaker market power and has yet to demonstrate the claimed spillover.

Foreign-owned smelters at the global cost frontier are the configuration least likely to leave learning behind

So — the burden of proof sits with the claim, and it has not been discharged.

Concede the externality. It still does not get you to a ban.

Notes: the 2012–2019 record cannot show that a price instrument fails, because no stable price instrument existed in it — 20% duty from May 2012; statutory ban on ore from 11 January 2014 with concentrates carved out under PMK 6/2014; conditional reopening on 11 January 2017 (PP 1/2017, Permen ESDM 5/2017 and 6/2017) requiring a Director-General recommendation and 30% domestic absorption, priced at 10% by PMK 13/2017 in February; first export recommendation only on 4 July 2017; then acceleration to a full ban from January 2020 under Permen ESDM 11/2019. Instability and insufficiency are both consistent with what followed — the 2012 duty may simply have been too low. The 2014 concentrate duty rose, 20–25% toward 60%: a rising duty forces refining but never tests it. A declining, legislated path remains a proposal, not an evidenced alternative.

Source: Juhász, Lane and Rodrik (2023); PMK 75/2012, 6/2014, 13/2017; WTO DS592; chronology in Appendix G