Trade Commitments, Working Capital, and Value Added under External Shocks

A quantitative international macroeconomic framework for conditional credit and reciprocal investment

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Abstract

This paper develops and quantitatively disciplines a policy framework that links purchase-conditional credit, reciprocal trade and investment arrangements, and transparent settlement netting. The motivating question is whether such a framework can ease working-capital constraints and support value-added-intensive production during external shocks without generating excessive demand, hidden fiscal exposure, or unmanageable bank liquidity risk. The proposal is motivated by recent OECD estimates: export-weighted domestic value added in gross exports across 41 economies was approximately 77.0 percent in 2022, 77.7 percent in 2023, and 77.6 percent in 2024; these are experimental nowcasts, not finalized national accounts. The OECD also reports substantial cross-country heterogeneity and little evidence of widespread reshoring in 2023–24. Recent BIS research documents how production-network position, payment lags, and undrawn credit lines connect financing conditions to firm activity.

The framework has three linked but separately measurable modules. First, a participating bank offers credit that can be drawn only for eligible purchases; repayment remains a borrower obligation and the program is not assumed to be costless or inflation-neutral. Second, two jurisdictions may agree to a disclosed commercial exchange concession tied to verified investment and value-added milestones; the arrangement references market exchange rates and does not replace the official exchange-rate regime. Third, reciprocal obligations may be netted only when legal, operational, currency, maturity, and counterparty conditions are met. The paper formalizes working-capital demand, incremental demand, delayed capacity response, bank exposures, and the consolidated public balance sheet.

A transparent two-country, three-period simulation illustrates the mechanism rather than estimating its effects. With a 10-point demand increase and assumed capacity gains of 3, 7, and 12 points over the subsequent periods, the demand-to-capacity pressure index rises from 1.00 to 1.07 in the short run, then falls to 0.98 after capacity expands. If capacity fails to respond, the index remains above baseline. A 100-versus-80 matched-obligation example reduces gross settlement needs by 88.9 percent under perfect legal netting, but does not imply an equivalent fall in money, credit, or systemic liquidity. These results are conditional arithmetic, not empirical findings.

The empirical agenda combines OECD TiVA 2025 data (80 economies, 50 activities, 1995–2022) with sectoral macroeconomic, financial, and trade indicators to estimate exposure and discipline calibration. Because the proposed institutions have not been implemented as a comparable cross-country program, the paper does not claim a causal treatment effect. It states falsifiable hypotheses, a data-matching plan, a comparative-statics model, and explicit stopping rules. The contribution is to make a proposed demand-and-supply coordination mechanism testable against real data while preserving monetary, prudential, and fiscal safeguards.

JEL: E32, E44, E51, F14, F23, G21. Keywords: working capital; trade finance; global value chains; domestic value added; payment timing; international macroeconomics; targeted credit.

1. Research question and motivation

This paper asks: under what conditions can purchase-conditional credit, reciprocal investment commitments, and settlement netting mitigate the propagation of external shocks through working-capital-intensive production networks while keeping inflation, bank liquidity, and public contingent liabilities within explicit limits? The question is deliberately conditional. The proposed instruments are not presumed to outperform policy-rate changes, conventional trade finance, or fiscal support. Their performance must be compared with those alternatives using common outcomes and transparent costs.

The motivation is a timing problem as much as a financing-volume problem. Firms often pay for labor and intermediate inputs before receiving sales revenue. Longer production and delivery chains can increase value creation but also increase inventories, receivables, and financing needs. BIS research links working-capital requirements within production networks to credit-line availability and financial conditions, and shows how tightening can propagate across firms (Kim and Shin 2023; Banerjee, Shin, and Vidal Pastor 2026). This literature provides the paper's empirical anchor; it does not establish that the proposed arrangement will solve the problem.

A second motivation is the distinction between gross trade and domestic value added. The 2025 OECD TiVA edition provides indicators for 80 economies and 50 activities from 1995 to 2022. Its structure permits country–industry exposure measures that track domestic and foreign value added embodied in exports. OECD experimental nowcasts for 2023–24 suggest that recent global value-chain changes were limited on average but heterogeneous across countries and sectors (OECD 2026). This combination supports a forward-looking stress test: policy can be evaluated against current production structures and plausible future shocks rather than speculative historical counterfactuals.

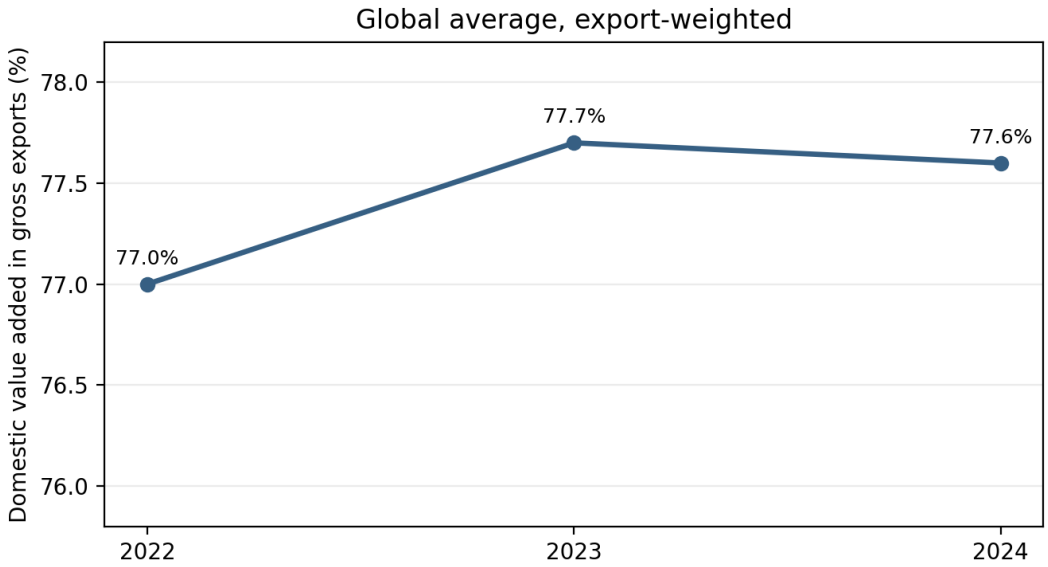


Figure 1. Export-weighted domestic value added in gross exports, global average, 2022–24. Experimental OECD nowcasts; values are descriptive context, not a policy effect.

The project's broader label, "quantum economics," is not used here as a claim about quantum mechanics or as a substitute for standard economic identification. This paper operationalizes the underlying emphasis on value-added intensity, timing, and interdependence through observable variables, a transparent model, and testable restrictions.

2. Relation to existing research and contribution

The paper connects three established strands. The trade-finance literature shows that credit constraints can shape firms' export participation and trade outcomes (Amiti and Weinstein 2011; Manova 2013). Supplier credit and prepayment terms also affect the timing and allocation of risk between buyers and sellers (Petersen and Rajan 1997; Antràs and Foley 2015). Work on global value chains emphasizes the time-to-build nature of production and

the working capital needed to bridge costs and revenues (Kim and Shin 2023). Newer work studies the elasticity of money and credit lines in production networks, documenting that financing conditions and firms' network positions affect activity and spillovers (Banerjee, Shin, and Vidal Pastor 2026). OECD TiVA provides a consistent multi-country, multi-industry measurement framework for value-added trade.

The paper's contribution is narrower than proposing a new monetary regime. It formalizes a specific contract architecture that combines (i) purchase-conditional credit, (ii) bilateral commercial discounts tied to verified reciprocal investment, and (iii) legally valid net settlement. It then asks how payment lags and input-output linkages alter the transmission from a demand commitment to capacity, prices, bank liquidity, and public costs. The architecture is evaluated as an implementable policy proposal, not as an established instrument or a proven replacement for interest-rate policy.

Three distinctions are central. First, a purchase commitment does not guarantee additional final demand: some spending may be brought forward or substituted from other purchases. Second, an investment promise does not create productive capacity until financing, construction, inputs, labor, and commissioning are completed. Third, netting reduces settlement flows only under enforceable and operationally matched obligations; it does not eliminate underlying credit risk or automatically reduce broad money.

3. Institutional design

3.1 Purchase-conditional credit

A participating financial institution extends a credit line whose drawdown is permitted only for a defined eligible purchase or supplier invoice. The customer remains liable for principal, and credit underwriting, consumer protection, disclosure, and provisioning remain in force. "Interest-free" in the user-proposed design is modeled as no stated interest charge to the borrower, not as zero economic cost. Funding, administration, expected losses, capital, liquidity, currency risk, and opportunity cost must be assigned to a fund, participating firms, banks, or public entities and recorded explicitly. If those costs are hidden or subsidized, the fiscal and distributional results change.

For each draw, the platform records the buyer, supplier, invoice, currency, eligibility category, draw date, maturity, repayment source, and ultimate settlement. Eligibility rules are set by the participating jurisdictions and published before the pilot. The central bank may monitor aggregate conditions and provide ordinary liquidity under its existing legal mandate, but the proposal does not require it to direct individual loans or guarantee private losses.

3.2 Reciprocal commercial discount and investment

The bilateral investment module starts from a publicly observable market exchange rate. A disclosed commercial discount, if permitted by domestic law and international obligations, is negotiated for an eligible trade flow. A predetermined share of the discount benefit may be placed in a ring-fenced investment fund; the remainder stays with the trading parties. Disbursement is conditional on verified milestones such as commissioned capacity, domestic value added, delivery performance, or workforce training. The mechanism is not an official exchange-rate peg, a hidden export subsidy, or an assurance that the recipient country will earn a fiscal surplus.

Investment selection belongs to the participating governments and independent technical bodies, not to the model. The proposed evaluation criteria are measurable additional capacity, value-added potential, supply-chain importance, regional development, environmental compliance, and realistic time to operation. The pilot should compare selected projects with the best available non-program alternatives and publish failed as well as successful projects.

3.3 Interbank commitments, netting, and balance-sheet discipline

A platform may register reciprocal payment obligations and calculate net settlement amounts. Netting is allowed only when obligations are legally enforceable, same-currency and same-maturity or otherwise contractually

matched, operationally verified, and supported by clear default-management rules. Gross exposures remain reportable alongside net exposures. Each party records a receivable or payable and the corresponding counter-entry; public guarantees, fund assets, and contingent liabilities are reported separately. No accounting presentation can transform a private loss into a social gain.

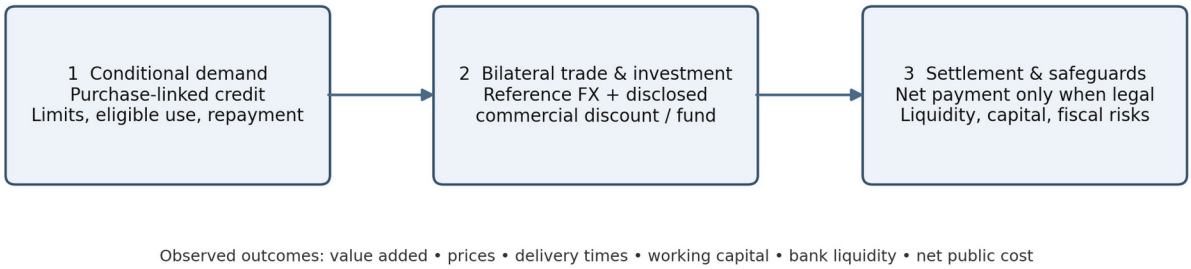


Figure 2. Proposed mechanism and measurement points. Each module can be evaluated independently and the full package against a common baseline.

4. A compact quantitative framework

Consider countries i and j, sectors s, and dates t. Let D_{st} denote realized demand, K_{st} available productive capacity, and p_{st} the sectoral price. For short-horizon stress analysis, define the pressure index

$$R_{st} = D_{st} / K_{st}. \quad (1)$$

R is a dimensionless diagnostic, not a consumer-price index. R above one indicates demand exceeds the modeled capacity index; the mapping to inflation requires market structure, inventories, imports, expectations, and policy responses. A second indicator, the excess-demand gap $g_{st} = (D_{st} - K_{st})/K_{st}$, is useful for comparing scenarios.

Let C_{st} be eligible purchase commitments, $\lambda_s \in [0,1]$ the share converted into gross eligible purchases, and $\mu_s \in [0,1]$ the value of non-program spending displaced per unit of commitment. Then the net demand impulse is

$$\Delta D_{st} = \lambda_s C_{st} - \mu_s C_{st}. \quad (2)$$

The parameters must be estimated or bounded; setting $\lambda=1$ and $\mu=0$ would assume the desired result. Capacity evolves with an implementation lag:

$$K_{s,t+1} = (1 - \delta_s)K_{st} + A_s I_{s,t-\ell} - X_{st}, \quad (3)$$

where δ is depreciation, I is completed investment, ℓ is the gestation lag, A is capacity delivered per unit of investment, and X captures disruptions or input constraints. Imported-input dependence, labor availability, permitting, and utilization must enter calibration. An announced project is not counted as capacity until it becomes operational.

Working-capital needs are approximated by the cash-conversion cycle:

$$WC_{st} \approx c_{st} \times (DI_{st} + DR_{st} - DP_{st}) / 365, \quad (4)$$

where c is annual cash operating cost, DI inventory days, DR receivable days, and DP payable days. A longer commitment horizon can reduce demand uncertainty but increase receivable exposure and working-capital needs. Any reduction in liquidity demand must therefore arise from a measured shortening of the cash-conversion cycle, reliable guarantees, or legally valid netting—not from the existence of a commitment alone.

For two reciprocal obligations A and B, define gross settlement G=A+B and net settlement N=|A−B|. The maximum mechanical reduction is

$$\text{Netting rate} = 1 - N/G, \text{ for } G>0. \quad (5)$$

This calculation applies only to matched, enforceable obligations. It measures settlement value, not monetary aggregate contraction, loss reduction, or central-bank liquidity relief. Bank and fund exposures must be modeled using probability of default, loss given default, exposure at default, collateral haircuts, and stress liquidity needs.

The consolidated public fiscal impact is

$$F = \tau \cdot \Pi_{inc} - S - E[\text{Guarantee payouts}] - A_{DM} - C_{OTHER}, \quad (6)$$

where τ is the effective tax rate on genuinely incremental taxable profit Π_{inc}, S is public support, A_{DM} administration, and Co_{ther} includes other public costs. F>0 is not automatically debt reduction: it lowers borrowing needs only if collected revenue is additional and the fiscal authority applies the net gain to the deficit or debt.

5. Illustrative simulation

The simulation is a transparent scenario exercise, not an estimated forecast. Normalize initial demand and capacity to 100. Suppose a purchase-conditional credit pilot raises the demand index to 110. Assume reciprocal investment raises usable capacity to 103 in the short run, 107 in the next period, and 112 after commissioning. These are deliberately simple hypothetical inputs; they must later be replaced with sector-specific ranges disciplined by observed investment gestation, utilization, and import content.

Scenario period	Demand index	Capacity index	R = D/K	Interpretation
Pre-shock	100	100	1.000	Normalized reference
Short run	110	103	1.068	Demand precedes capacity; pressure rises
Intermediate	110	107	1.028	Pressure moderates but remains above baseline
Commissioned capacity	110	112	0.982	Capacity exceeds demand in this illustrative case
No capacity response	110	100	1.100	Demand support alone increases pressure

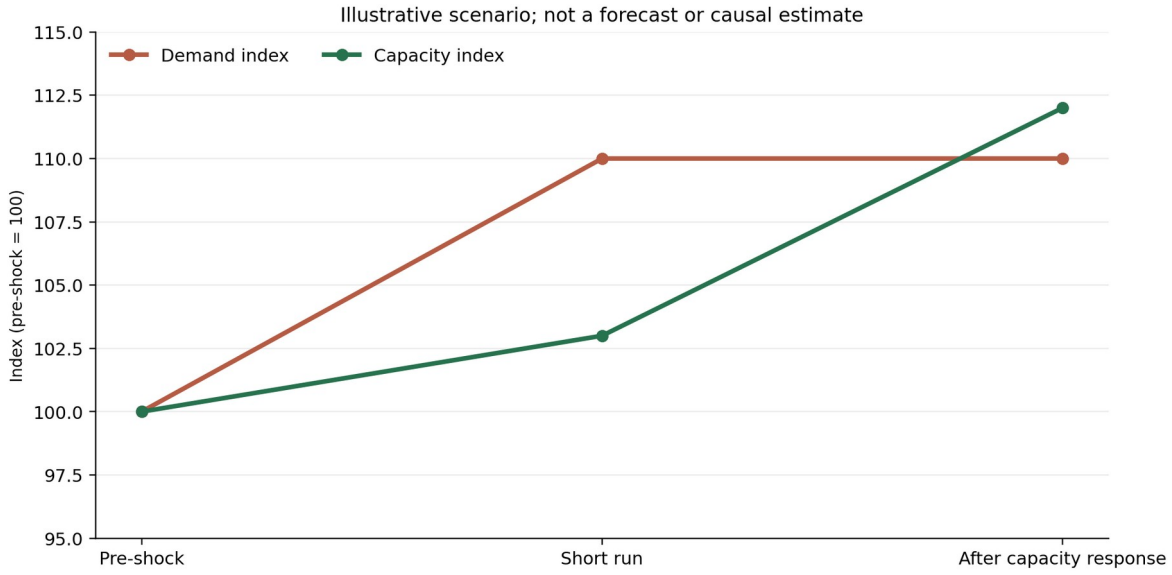


Figure 3. Stylized demand and capacity paths. Parameter choices are illustrative; the figure is not an inflation forecast or estimated policy effect.

The result is a timing proposition, not a blanket anti-inflation claim. If credit expands eligible demand before capacity arrives, short-run price pressure can rise. If capacity is late, imported inputs are unavailable, or commitments crowd out other productive spending, the expected supply response may not occur. The model therefore requires a demand brake: new commitments pause when sectoral price growth, utilization, delivery delays, arrears, or bank liquidity breaches preannounced thresholds.

The same distinction applies to interbank transfers. With A owing 100 and B owing 80 in the same currency and maturity, gross settlement is 180 and net settlement is 20; the arithmetic reduction is 88.9 percent. This does not mean money supply falls 88.9 percent. If obligations are not enforceably nettable, or if one party defaults before settlement, the gross exposures and liquidity needs may remain. A stress test must include collateral calls, concentration, intraday liquidity, currency mismatch, and resolution costs.

5.1 Production time, capacity mobility, and an illustrative sensitivity test

The country map motivates a second margin of adjustment: not only how much real value added is generated, but how quickly an investment commitment becomes usable capacity. For a comparable descriptive indicator, manufacturing value added at constant 2015 US dollars is divided by population. In the fixed sample of 183 economies with observations in all three years, the cross-economy median is $461.49 per person in 2000, $562.47 in 2012, and $651.36 in 2023. The 2000–2023 increase is 41.1 percent; the 2012–2023 increase is 15.8 percent.

These figures document changes in real manufacturing value added per capita and substantial cross-country dispersion; they do not measure the time required to produce a unit of value added, identify the effect of the proposed system, or establish a causal link with inflation. Production time must be measured directly at the project or sector level, for example as months from financial close or verified investment commitment to first commercial output, alongside commissioning milestones and capacity utilization.

The timing channel can be isolated in a transparent sensitivity test. Let τ_s be the median commissioning lag in sector s, I_s the verified investment entering the pipeline, and A_s the capacity delivered per unit of completed investment. A simple measure of capacity mobilization is $M_s = A_s I_s / \tau_s$. This is a diagnostic rate, not a welfare measure: it must be reported with realized real value added, quality, input use, and investment cost so that faster but low-value or costly capacity is not rewarded.

$$\tau_s = \text{median commissioning time (months)}; \quad M_s = A_s I_s / \tau_s. \quad (7)$$

For illustration, demand rises from 100 to 110 after a shock. Both capacity paths ultimately reach 116, but the faster path brings four index points of the same planned capacity online one period earlier: baseline K = (100, 103, 107, 112, 116); earlier commissioning K = (100, 107, 112, 116, 116). The diagnostic excess-demand gap is $g_t = (D_t - K_t)/K_t$. In period 1 it is 6.8 percent under the baseline path and 2.8 percent under the earlier-commissioning path. This is a mechanical scenario result conditional on the assumed paths, not an estimated policy effect or a CPI inflation prediction.

$$g_t = (D_t - K_t)/K_t. \quad (8)$$

The proposed mechanism is therefore conditional: reciprocal trade discounts and purchase-conditional credit could support production mobility only if they finance additional, viable capacity; investment milestones are verified; supply inputs and labor are available; and commissioning actually occurs sooner. The testable prediction is that treated sectors exhibit shorter commitment-to-production times and an earlier capacity response, with a smaller near-term demand–capacity gap than a comparable counterfactual, without a compensating increase in unit costs, defaults, or public contingent liabilities. Failure to shorten the lag, or demand expansion that precedes capacity by more than the measured tolerance, counts against the mechanism.

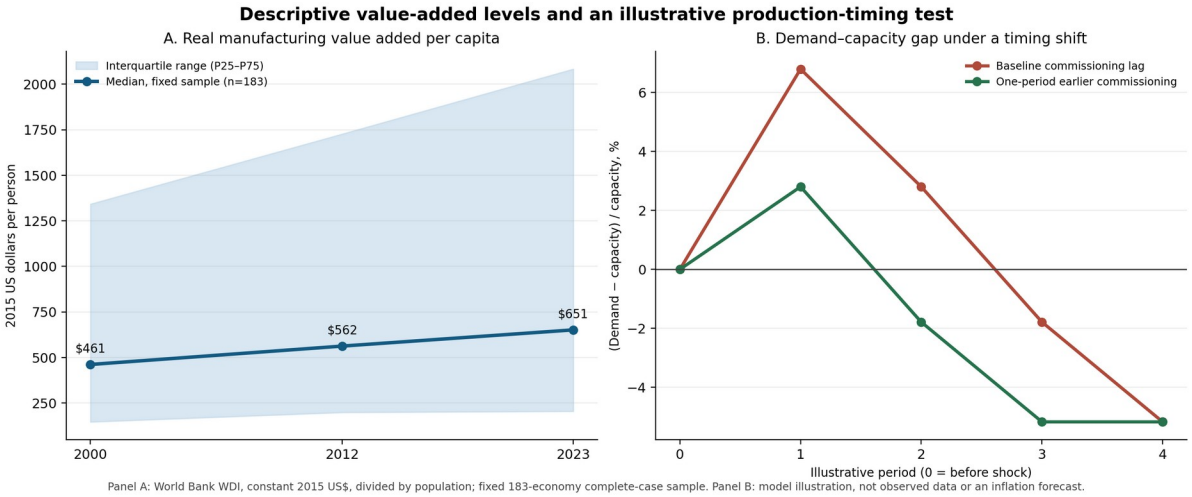


Figure 4. Real manufacturing value added per capita and an illustrative commissioning-lag sensitivity test. Panel A is descriptive World Bank data; Panel B uses assumed index paths. Neither panel estimates the policy's causal effect or forecasts inflation.

6. Empirical strategy and data

6.1 Data and measurable outcomes

The baseline country–industry dataset will use the OECD TiVA 2025 edition: 80 economies, 50 activities, and annual observations from 1995–2022. The unit is economy × industry × year. Main structural measures are domestic value added embodied in gross exports, foreign value-added content, value added absorbed in foreign final demand, and industry trade exposure. These are combined, subject to availability and consistent definitions, with OECD STAN/ICIO output and price measures, national accounts, bilateral trade and exchange rates, sectoral credit, interest-rate spreads, external financing conditions, and investment indicators. The OECD 2026 nowcast is used only as a recent descriptive benchmark because the 2023–24 estimates are experimental. As a separate descriptive companion series, World Bank World Development Indicators data on manufacturing value added (NV.IND.MANF.KD, constant 2015 US dollars) and total population (SP.POP.TOTL) are used to calculate manufacturing value added per capita for a fixed 183-economy sample observed in 2000, 2012, and 2023. This series describes cross-country levels and change; it contains no direct measure of commissioning time and is not pooled with TiVA or used as a causal estimate.

The primary outcome set is: (i) sectoral output, exports, and domestic value-added share; (ii) sectoral producer prices and import-cost exposure; (iii) investment and capacity utilization; (iv) trade payment and working-capital proxies; (v) bank liquidity, credit-line availability, arrears, and default measures where comparable; and (vi) consolidated public support and contingent liabilities. Payment delay data are less harmonized than trade and national-account data; they will not be treated as a complete global panel unless metadata and coverage support that claim.

6.2 Estimation and calibration plan

The first empirical step is descriptive and predictive: estimate how country–industry outcomes co-move with external demand, input-cost, exchange-rate, and financial-condition shocks as a function of pre-shock value-added and working-capital exposure. A baseline reduced-form specification is

$$Y_{ist} = \alpha_{is} + \gamma_t + \beta_1(Shock_{it} \times Exposure_{is,t-1}) + \beta_2 X_{ist} + \varepsilon_{ist}. \quad (9)$$

Here α_{is} are economy–industry fixed effects, γ_t are common time effects, X contains prespecified controls, and Exposure is measured before the shock. Outcomes Y are estimated separately, including output growth, domestic value-added share, investment, prices, and external finance dependence. Standard errors will be clustered at the

economy level, with sensitivity to industry and two-way clustering. Results will be reported as conditional associations unless a credible source of exogenous shock variation and identification assumptions can be defended.

The second step disciplines the model's response ranges: demand additionality λ, substitution μ, investment gestation ℓ, capacity yield A, input import share, payment cycle, and credit loss. Estimates from the panel and published micro evidence inform parameter intervals, not a falsely precise single calibration. The policy simulations compare (a) baseline shock with no program, (b) purchase commitments without reciprocal investment, (c) investment without conditional demand, (d) integrated program, and (e) conventional credit or fiscal support under matched fiscal-risk assumptions.

The third step is a pilot evaluation blueprint. If a jurisdiction implements a pilot, eligible firms or sectors should be phased in using a transparent lottery, threshold rule, or staggered rollout where legally and operationally feasible. Outcomes are compared with pre-specified eligible controls using event studies or difference-in-differences, with anticipation, spillovers, selection, and general-equilibrium effects reported. This is the route to causal estimates; the current proposal cannot claim them in advance.

7. Testable hypotheses and falsification

Hypothesis	Predicted sign / condition	Evidence against the mechanism
H1: Purchase commitments ease demand shortfalls	Eligible sales rise beyond substitution and timing shifts; effect is larger in demand-constrained sectors.	No net additional output or sales; purchases merely move across time or suppliers.
H2: Investment complements demand support	Capacity, delivery reliability, or domestic value added improves after a measurable commissioning lag.	Investment is delayed, import bottlenecks dominate, or capacity/utilization fails to rise.
H3: Payment architecture affects working capital	Cash-conversion cycle or required committed liquidity falls after controlling for sales growth and risk.	Receivables, arrears, or funding needs rise as much as or more than settlement needs fall.
H4: Reciprocal commercial discount can be fiscally neutral or positive	Net public cost remains non-positive after tax additionality, administration, and guarantees are counted.	Public support and expected losses exceed incremental collected tax revenue.
H5: Effects differ by network and value-added exposure	Impacts vary systematically by imported-input intensity, payment cycle, and value-added position.	No robust heterogeneity after correcting for measurement and selection.

The framework is rejected or redesigned if it systematically raises prices without subsequent capacity delivery; increases net firm debt or defaults; transfers unpriced risk to bank balance sheets; creates material currency mismatches; relies on non-enforceable netting; or produces a positive gross fund balance only by omitting public guarantees and administration. A pilot must include sunset clauses, exposure caps, independent evaluation, and an orderly unwind procedure.

8. Applications to current U.S. and European policy settings

The framework is designed for application to current and future U.S. and European economic programs, while keeping the paper's central model and empirical tests country-neutral. For the United States, a dated application can compare tariff-based incentives and announced manufacturing investment agreements with the proposed reciprocal investment mechanism. The outcomes are bilateral investment additionality, consumer and input prices, value added created in each location, delivery time, tax receipts, and public exposure. Tariff pass-through and investment responses must be estimated separately; a tariff is not treated as equivalent to a negotiated investment-linked commercial discount. U.S. Commerce Department announcements in 2026 provide program context, not independent verification of realized investment or causal effects (U.S. Department of Commerce 2026).

For Europe, the Clean Industrial Deal and the European Commission's 2026 Industrial Accelerator Act proposal provide a concrete setting to assess whether purchase commitments, cross-border supply agreements, and investment milestones complement strategic manufacturing and clean-technology capacity goals. Any mechanism involving preferential pricing, local-content conditions, or public support requires prior review under EU procurement, state-aid, competition, and trade rules (European Commission 2025, updated 2026). The paper therefore treats legal compatibility as a precondition, not an assumed feature.

Türkiye's possible EU accession is a long-run counterfactual rather than a baseline forecast. The European Commission's 2026 country report states that accession negotiations have been at a standstill since 2018 (European Commission 2026). The paper will not claim that accession would mechanically reduce European defense spending or guarantee economic gains. Instead, sensitivity scenarios can test how deeper market integration might affect defense and dual-use supply-chain fragmentation, procurement duplication, production scale, and value-added distribution, while preserving security needs and transition costs. These country applications illustrate external validity; they do not replace the comparative empirical design.

The United States and Europe are therefore treated as institutional cases for applying identical measurement rules. China and alternative-market scenarios are outside the active scope of this paper.

9. Risks, governance, and comparison with existing policy

The proposal does not make interest-rate policy obsolete. Policy rates affect aggregate financial conditions, expectations, exchange rates, and demand; targeted credit affects selected transactions and introduces allocation, governance, and fiscal risks. The relevant comparison is a rule-based integrated portfolio versus the existing policy mix, with central-bank independence and mandates preserved. Fiscal authorities select and fund any tax expenditure or guarantee; prudential supervisors set bank capital, liquidity, and provisioning requirements; payment-system operators determine settlement finality; and independent evaluators measure outcomes.

Risk	Why it matters	Required control
Demand runs ahead of supply	A credit commitment may increase demand before new capacity comes online.	Sectoral price and utilization triggers; staggered caps; automatic pause rules.
Adverse selection / moral hazard	Guarantees and expected support can weaken underwriting.	Risk-based pricing, borrower exposure limits, collateral rules, transparent loss allocation.
Liquidity and netting risk	Net positions can conceal gross exposures and intraday needs.	Gross and net reporting, legal opinions, stress liquidity, default waterfall.
FX and sovereign exposure	Bilateral commercial concessions can create mismatch or contingent liabilities.	Reference market rates, currency limits, public disclosure, consolidated fiscal reporting.
Political allocation / capture	Targeted credit and investment may favor connected firms.	Published eligibility, independent selection, conflict rules, audit and sunset clauses.
Competition and trade-law risk	Selective price and tax treatment may breach domestic or international rules.	Legal review before launch; open, objective criteria; no hidden exchange-rate subsidy.

A key discipline is double-entry reconciliation. At every reporting date, the platform should publish gross commitments, drawn balances, repayments, net settlement, overdue amounts, collateral, expected losses, fund assets and liabilities, public guarantees, and bank capital/liquidity effects. A reduction in a gross payment flow is never reported as a reduction in debt, money, or public cost unless the corresponding balance-sheet evidence supports that statement.

10. Expected contribution and limitations

The paper offers a disciplined way to assess an unimplemented policy architecture. Its expected contribution is not a claim that the system succeeds, but a set of mechanisms and measurements that makes success or failure observable: additional expenditure versus substitution; timing of capacity delivery; value-added and input exposure; cash-conversion cycle; gross and net settlement; bank risk; and consolidated fiscal cost. The empirical anchor is real, but the program-specific outcomes remain unobserved.

Three limitations are material. First, TiVA is annual and published with a lag; it is suited to structural exposure, not high-frequency program monitoring. Second, cross-country industry panels do not reveal contract-level payment timing, firm credit quality, or default waterfalls. Third, without implementation variation, the policy effect is not causally identified. These limits motivate a pilot and matched firm–bank–invoice data, not stronger language about certainty.

The paper also avoids treating credit growth as intrinsically anti-inflationary, assuming that all domestic value-added growth is efficient, or presuming that bilateral discounts finance themselves. Any such claim must be tested against inflation, productivity, distribution, public balance sheets, and the counterfactual use of the same resources. Likewise, a proposal for zero stated interest must still account for all real financing costs and who bears them.

11. Conclusion

Purchase-conditional credit and reciprocal investment could, in principle, coordinate demand with future capacity while improving payment certainty in cross-border production networks. The same design could also raise short-run prices, enlarge receivables, weaken underwriting, or shift risk to public and bank balance sheets. The decisive question is therefore not whether commitments exist, but whether verified additional demand is matched by timely capacity, manageable working capital, enforceable settlement, and fully disclosed risk-bearing.

The proposed quantitative framework makes those conditions explicit. OECD TiVA supplies a broad structural map; published OECD and BIS evidence motivates the channels; a transparent simulation shows the timing trade-off; and a pilot design identifies what must be measured before scaling. For the NBER ISoM audience, the next research step is to complete the country–industry dataset, report the pre-program exposure facts, calibrate ranges from data, and distinguish every estimated result from every scenario assumption.

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Appendix A. Scenario parameters and reproduction rules

The simulation uses normalized indices, not currency values. Baseline demand and capacity equal 100. In the commitment scenario, demand is 110 from period 1 onward. Capacity is set to 103, 107, and 112 across the short, intermediate, and commissioned-capacity horizons. The pressure index in each period is computed by Equation (1). The no-capacity-response case fixes K=100, yielding R=1.10. No stochastic shocks, expectations, inventories, imports, or endogenous policy reaction are included. These omissions are intentional at this stage and should be added only when parameterized from data. The production-timing sensitivity in Figure 4 holds terminal capacity at 116 in both paths and shifts four capacity-index points from period 2 to period 1. Demand is 110 from period 1 onward. The gap is (D−K)/K; no inflation pass-through is assumed.

For netting, use nonnegative matched obligations A and B in identical currency and maturity buckets. Report G=A+B, N=|A−B|, and 1−N/G. If a bucket is unmatched, in dispute, or legally unenforceable, it is excluded from the netting benefit and remains in gross exposure. For fiscal accounting, use incremental realized taxable profit only, subtract cash subsidies, administration, and expected guarantee payouts, and separately disclose tail-risk exposure under stress.

Appendix B. NBER submission alignment

The target is the 50th NBER International Seminar on Macroeconomics (ISoM), June 18–19, 2027, hosted by the Central Bank of Montenegro. The call requests quantitative macroeconomics with an explicit international dimension, motivated by real-world questions and closely tied to facts and data. It accepts a PDF consisting of either a detailed abstract or a draft paper by November 1, 2026. The call also states that a submission may not be under consideration at another journal and that submission permits consideration by the Journal of International Economics for a special issue. The file is therefore formatted as a detailed abstract and quantitative research design, not as a completed empirical paper. Before submission, the author should confirm the portal’s author fields and make the required publication-status declaration.