Phase Reversal Hypothesis

How AI May Reorder the Binding Constraints of Capital Allocation

Independent Research Note · Independent Researcher

Opening Question. Does AI change *which* constraint is binding in capital allocation — and under what conditions can that reordering flip the relative ranking of risk-adjusted net returns between capital-scarce and mature economies?

Core Mechanism. A stripped-down decomposition for mechanism, not a structural model:

$R_i^{net} = MPK_i - \delta - c_i - \rho_i$

- c — AI-sensitive execution frictions: due diligence, engineering/design, monitoring/verification, coordination
- ρ — institutional & macro risk: sovereign/political risk, FX risk, contract enforcement
- A — deployability: electricity, connectivity, compute, digital skills, actual adoption
- *Demand* — effective / financeable demand

Binding-Constraint Migration. AI does not relax constraints uniformly; it compresses some faster than others. As c falls, the system may migrate from an execution-constrained regime toward an institution-, deployment-, or demand-constrained regime.

> *Technological progress may change not whether a system is constrained, but which constraint is binding.*

Competing Paths.

- **Path A — Core Complementarity.** AI × existing capital, talent, compute, institutions → mature economies may become even more attractive.
- **Path B — Friction Compression.** AI disproportionately lowers high execution frictions → larger marginal gains in economies with initially high execution frictions.

When does Path B become strong enough to outweigh Path A?

Phase Reversal. Not "AI sends capital to poor countries." Constraint reordering that persistently shifts

$$\Delta R^{net} = R_F^{net} - R_H^{net}$$

toward F — and possibly across zero — is what would constitute a reversal. F and H are analytical types, not a fixed country list.

Empirical Entry.

M1: AI → $c \downarrow$ · M2: A moderates friction compression · M3: ρ filters $c \downarrow$ → investment ↑ · System: ΔR^{net} shifts toward F / crosses zero.

Potential identification: staggered AI adoption, deployment shocks, project-level panels, or natural experiments. No original empirics are claimed here.

Falsifiability. If execution frictions fall sharply, deployability improves, yet institutional risk keeps blocking capital response and productive capital flows show no systematic shift, the macro phase-reversal hypothesis fails — not "too early to tell."

Research Ask. How should c, A and ρ be operationalized, and what empirical design could cleanly distinguish friction compression from core complementarity?

Full references in the accompanying research note.