The Redistribution Methodology (Methodology and Findings)

A 25-year proposal to redistribute manufacturing employment across 194 countries and 30 categories, calibrated against historical industrialization rates and balanced against the operational caps that any real implementation would face. With Part 2 being The Fund as Institution, Part 6 is the analysis to redistribute manufacturing for the fund's companies to acquire. It also includes the regional optimization layer that considers raw-material proximity, sub-regional anti-concentration caps, and explicit specialization maps for each sub-region.

Walid David + Claude AI · May 2026

EXECUTIVE SUMMARY

- **Proposal:** Informal Insertion scenario, phased 2032–2061
- **Total redistribution:** 41 million manufacturing jobs
- **Workers transitioning informal → formal:** 33 million
- **Largest receivers:** India (+10M), South Africa (+3M), Indonesia (+3M), Pakistan (+2.5M)
- **Largest donor:** China (-30M, equivalent to ~0.5%/year over the 25-year relocation)
- **Annual cap on country growth:** 6% (calibrated to historical industrialization rates)
- **Countries below 10% unemployment ceiling after redistribution:** 177 of 194
- **Cap-bound countries needing complementary policy (e.g. half-shifts):** 17
- **Regional optimization:** 10 merged sub-regions; max-share caps 65% (Balanced) / 75% (Informal Insertion)
- **Critical finding:** strict 40% anti-extortion cap cannot be enforced under conservative redistribution

1. Why Model Manufacturing Redistribution?

Global manufacturing employment is highly concentrated. China alone accounts for 41% of the world's manufacturing workers (215M of 523M). The top five producing countries account for 62%. This concentration is the cumulative residue of three decades of supply-chain decisions optimized for cost. It produces fragile global value chains, exposes consumer economies to single-country political risk, and denies meaningful industrial employment to billions of working-age adults in under-industrialized countries.

The question this analysis addresses is not *whether* some redistribution would be desirable, but *what specific redistribution* we should propose, given:

- Real labor-market conditions (informal employment, demographic trends, current capability)
- Political feasibility (no overnight shocks, proportional displacement, gradual implementation)
- Historical industrialization records (calibrating the pace of feasible change)
- Honest acknowledgement of model limitations

2. The Five Scenarios

Five redistribution scenarios were built to test how outcomes change as we vary the underlying objective. Each scenario uses the same baseline data (current employment, demographic projections, sectoral capability) but applies different optimization criteria.

2.1 The three philosophical scenarios

These scenarios all use a weighted-composite-score approach: each country×category cell gets scored on three dimensions (Equity, Efficiency, Capability) and the redistribution targets are derived by normalizing those composite scores to category-level shares, weighted by working-age population.

Weighting of the three philosophical scenarios, and the redistribution volume each produces.

SCENARIO	EQUITY WEIGHT	EFFICIENCY WEIGHT	CAPABILITY WEIGHT	REDISTRIBUTION VOLUME
Equity-leaning	60%	20%	20%	176M jobs
Balanced (philosophical headline)	40%	35%	25%	151M jobs
Efficiency-leaning	20%	60%	20%	129M jobs

Equity dimension measures how far each country's current employment share in a category is from its fair share based on its working-age population. India has 16% of the world's working-age population but only 2% of advanced semiconductor employment, so India's equity score in semiconductors is high.

Efficiency dimension measures revealed comparative advantage (RCA) in trade, raw-material proximity (USGS Mineral Commodity Summaries 2026 and Energy Institute Statistical Review 2025), and logistics capability (World Bank LPI 2023). Switzerland scores high in pharmaceuticals; Australia scores high in steel inputs; Singapore scores high in logistics across all categories.

Capability dimension measures governance quality (World Bank WGI), education (UNESCO UIS — Mean Years Schooling, STEM graduate share, Engineering graduate share, vocational enrollment, tertiary enrollment), manufacturing value added per capita, and GDP per capita. For advanced categories (semiconductors, EVs, pharma), STEM and engineering graduates are weighted heavily; for basic categories (textiles, food), governance and general education matter more.

2.2 Why three philosophical scenarios weren't enough

All three scenarios above optimize for some abstract notion of "fair allocation" without directly asking whether the redistribution actually helps workers. A country could be far from its equity share but have low unemployment; another could be at its equity share but have high informal employment. The composite-score framework treats these cases identically.

Two additional scenarios were built to address this gap.

2.3 Unemployment-Leveling

Bounded equalization: redistribute manufacturing to bring all countries within a 3%–10% unemployment band by 2050. Floor of 3% (below this, severe labor shortages emerge); ceiling of 10% (above this, severe joblessness exists). The floor is movable — countries below 3% can lose manufacturing if needed to help countries above 10%.

Result: only 9M jobs redistributed. Demand is small (about 13M jobs to bring all countries to 10%) and capacity constraints prevent more aggressive movement. The scenario succeeds at its narrow goal — 31% reduction in unemployment-rate inequality across countries — but doesn't address structural labor-market distress in countries with low official unemployment but high informal employment.

2.4 Informal Insertion (the proposed implementation)

Combines the unemployment-leveling demand with a second pressure signal: 25% of each country's informal manufacturing workers, treated as effective demand for formalization.

Effective demand per country = MAX of:

(a) Officially unemployed workers above the 10% ceiling, OR

(b) 25% of informal manufacturing workers (those willing to formalize)

Using MAX rather than SUM acknowledges that the two pressures don't double-count — a country with both high official unemployment and large informal manufacturing has urgent labor-market distress driven by whichever signal is more pressing.

Result: 41M jobs redistributed. Total raw demand globally was 45.2M (Path 1: 13.3M + Path 2: 32.7M); after applying the 6%/year absorption cap, 40.6M jobs were actually absorbable. The 33M workers transitioning from informal to formal manufacturing represent the largest welfare gain — even though they don't show up in unemployment statistics.

2.5 The Stage-2 demand expansion we considered but didn't implement

We considered a two-stage demand logic: first absorb the unemployment-leveling and informal-formalization demand (Stage 1), then if donors had additional capacity beyond Stage 1 demand, dip into broader informal employment (informal services, informal agriculture) for Stage 2.

In practice, the 6%/year absorption cap was the binding constraint, not Stage 1 demand. Donors were never willing to give more than the cap allowed, so Stage 2 would not have activated. We documented the logic for transparency but did not implement it.

3. Key Methodological Decisions

3.1 Population weighting (the bug-fix that mattered)

Our first redistribution attempt produced absurd results: tiny countries (Liechtenstein, Iceland, Singapore) received the same redistribution share as massive countries (India, China). The reason: when we normalized composite scores across 194 countries to sum to 1.0 in each category, we implicitly gave each country equal weight regardless of population size.

The fix: multiply each country's composite score by its working-age population before normalizing. A country's redistribution share is now proportional to BOTH its dimension scores AND its absorption capacity.

3.2 Zero-sum at category level

Each of the 30 manufacturing categories preserves its global total exactly across all scenarios. If China loses 10M textile jobs, those 10M jobs reappear distributed across the receiver countries gaining textile share. Verified to floating-point precision: global current = global target = 523.45M in all five scenarios.

3.3 Absorption caps (the conservative choice)

Two caps prevent unrealistic absorption rates:

- **Country cap:** 6% per year compound growth in total manufacturing employment, equivalent to 3.21× over 20 years.
- **Category cap:** 10% per year compound growth in any single category, equivalent to 6.73× over 20 years.

These rates are calibrated against historical industrialization successes: South Korea grew manufacturing employment at ~8% per year during 1965-1985; China at ~3.5% during 1980-2010; Vietnam at ~7% during 2000-2020; Bangladesh garments at ~14% peak. The 6%/year cap is meaningfully below the fastest historical rate, which gives us political legibility ("we're not asking countries to grow faster than is empirically demonstrated").

3.4 Floor and ceiling for unemployment band

We chose a 3% floor and 10% ceiling for the unemployment band. The 3% floor isn't "sacred" — countries below 3% can lose manufacturing employment to contribute to high-unemployment receivers. The 10% ceiling represents the threshold above which we consider unemployment a structural problem requiring intervention.

3.5 Phasing logic — most diffuse first

Categories are sorted by Herfindahl-Hirschman Index (HHI), a standard measure of concentration. Categories with low HHI (many countries each producing a small share) move first; categories with high HHI (a few countries dominating) move last. Rationale: shifting share in a diffuse category requires smaller adjustments per country; shifting share in a concentrated category requires the dominant country to lose substantial employment that must be matched by receiver-country absorption capacity, which takes time to build.

3.6 Proportional displacement, not selective

When manufacturing jobs are taken from donor countries, the loss is distributed proportionally across all donors based on their current manufacturing share — not concentrated on a single dominant producer. The proportional approach distributes the political cost of redistribution rather than concentrating it.

4. Headline Numbers (Informal Insertion)

4.1 Country-level shifts (manufacturing employment, millions)

Country-level manufacturing employment (millions), baseline (2036) to 2061, under Informal Insertion.

COUNTRY	2036 (BASELINE)	2041 (END T1)	2046 (END T2)	2051 (END T3)	2056 (END T4)	2061 (END T5)	Δ FROM BASELINE
China	215.2	210.8	205.3	198.9	193.0	185.5	-29.7
India	59.5	61.3	63.4	65.4	67.2	69.7	+10.2
United States	15.6	15.0	14.5	13.9	13.7	13.3	-2.3
Indonesia	19.1	19.6	20.4	21.0	21.5	22.2	+3.1
Vietnam	12.1	12.3	12.5	12.8	12.9	13.2	+1.1
Brazil	11.9	12.1	12.2	12.4	12.5	12.7	+0.8
Pakistan	11.2	11.5	12.1	12.5	13.0	13.5	+2.3
Japan	9.8	9.5	9.2	8.9	8.7	8.3	-1.5
Bangladesh	8.1	8.5	9.0	9.3	9.7	9.9	+1.8
Nigeria	8.2	8.5	8.4	8.8	9.1	9.5	+1.3
Germany	7.6	7.6	7.6	7.7	7.7	7.8	+0.1
Mexico	9.7	9.8	9.9	10.2	10.3	10.6	+0.9
South Africa	1.7	2.3	3.0	3.7	4.3	4.9	+3.2
Egypt	3.9	4.1	4.2	4.3	4.5	4.6	+0.7

4.2 Regional aggregates

Regional manufacturing employment, baseline (2036) vs. 2061 final, under Informal Insertion.

REGION	2036 (BASELINE)	2061 (FINAL)	Δ	% CHANGE
South Asia	70.1M	82.5M	+12.4M	+18%
Sub-Saharan Africa	30.7M	39.0M	+8.3M	+27%
MENA + Pakistan/Afghanistan	28.3M	33.1M	+4.8M	+17%
Latin America & Caribbean	35.8M	39.1M	+3.3M	+9%
Europe & Central Asia	61.6M	62.1M	+0.5M	+1%
North America	17.5M	14.9M	-2.6M	-15%
East Asia & Pacific	279.5M	252.8M	-26.8M	-10%
Global	523.5M	523.5M	0M	0%

4.3 Formalization impact

The largest welfare gain from Informal Insertion isn't the 41M redistributed jobs — it's the 33M workers globally who transition from informal to formal manufacturing employment. Globally, informal manufacturing drops from 131M to 98M workers — a 25% reduction.

Informal manufacturing share before and after, with workers formalized, under Informal Insertion.

COUNTRY	INFORMAL MFG % BEFORE	INFORMAL MFG % AFTER	WORKERS FORMALIZED
India	73%	46%	10.9M
Indonesia	74%	47%	3.5M
Pakistan	89%	55%	2.5M
Nigeria	95%	57%	1.9M
Bangladesh	87%	54%	1.8M
Brazil	23%	17%	0.7M
Egypt	65%	42%	0.6M
Mexico	38%	26%	0.9M
South Africa	23%	5%	0.4M
Vietnam	31%	22%	0.9M

5. Implementation Timeline (illustrative: 2032–2061, beginning at The Launch)

Five years of relocation planning (beginning at The Launch) followed by five five-year tranches; the calendar years are illustrative. Categories are sequenced from most diffuse to most concentrated, giving receiver countries time to develop capability for the most demanding industries last.

5.1 2032–2036 — Relocation Planning Phase (begins at The Launch)

The dates here are illustrative, anchored to a fund launch around 2032 (the fund's own five-year founding phase comes first). Hiring experts for every country worldwide. Relocation Planning Phase. International Citizens agreements, training infrastructure, transition support funds, baseline data agreements. Gathering country agreements on the redistribution methodology. No employment changes during this period.

5.2 2037–2041 — Tranche 1 (most diffuse industries)

Cargo vehicles, ores, processed food, wood products, furniture, jewelry/precious. Average HHI 0.11; average top-country share 28%. Largest gainers: India (+1.7M), South Africa (+0.6M), Indonesia (+0.6M). China loses 4.4M (0.4%/yr).

5.3 2042–2046 — Tranche 2

Paper, hybrid vehicles, textiles & apparel, specialty chemicals, energy products, aerospace. Largest gainers: India (+2.2M), Indonesia (+0.7M), South Africa (+0.7M). China loses 5.5M (0.5%/yr).

5.4 2047–2051 — Tranche 3

Misc manufactures, tobacco/feed/residues, base metals, plastics & basic chemicals, aluminum, vehicle parts. Largest gainers: India (+1.9M), South Africa (+0.7M), Indonesia (+0.6M). China loses 6.4M (0.6%/yr).

5.5 2052–2056 — Tranche 4

Steel, combustion vehicles, cement, footwear, solar/wind, pharmaceuticals. Largest gainers: India (+1.9M), South Africa (+0.7M), Indonesia (+0.6M). China loses 5.9M (0.6%/yr).

5.6 2057–2061 — Tranche 5 (most concentrated industries)

Optical/medical, industrial machinery, batteries, consumer electronics, electric vehicles, advanced semiconductors. Average HHI 0.42; average top-country share 64%. Largest gainers: India (+2.5M), Indonesia (+0.7M), South Africa (+0.6M). China loses 7.5M (0.8%/yr).

6. Regional Optimization Layer

The base redistribution model (Sections 2–5) determines country-level manufacturing totals — how much each country produces in aggregate. It does *not* directly answer which specific sectors each country produces, nor whether the resulting allocations create politically problematic concentration of any single industry within a region.

This section adds a **regional optimization layer** applied as a refinement on top of the country totals. It uses raw-material proximity, regional supply-chain logic, and anti-concentration caps to produce sectoral allocations that favor regional trade complementarity.

6.1 Sub-region structure (15 → 10 merged)

Initially we grouped the 194 countries into 15 sub-regions based on geography and political affinity.

However, several sub-regions proved too small for meaningful anti-concentration enforcement (see Section 6.3). After diagnostic analysis, four mergers were applied:

- North America + Central America/Caribbean → **Greater North America**
- Andean South America + Southern Cone → **South America**
- South Asia + Middle East/Turkey + North Africa → **South Asia + Middle East**
- Russia/Central Asia + Eastern Europe → **Eurasia**

Six sub-regions kept their original boundaries: Western Europe, Southern Europe, Nordic, East/Southern Africa, West/Central Africa, and East Asia + SE Asia + Oceania (already too large to merge further).

6.2 Raw-material proximity weighting

For 11 resource-dependent manufacturing categories (steel, aluminum, base metals, batteries, semiconductors, fuels, ores, energy products, vehicle parts, specialty chemicals, plastics), the model applies a raw-material-proximity weight:

- **Weight 2.0** if the country has direct production of the relevant raw material (per USGS Mineral Commodity Summaries 2026 or Energy Institute Statistical Review 2025)
- **Weight 1.0** if a neighboring country in the same sub-region has direct production (regional sourcing)
- **Weight 0.5** if neither the country nor regional neighbors have the raw material

For the other 19 manufacturing categories (textiles, food processing, paper, furniture, etc.), the weight is neutral (1.0). These sectors are largely labor-portable and don't have meaningful raw-material constraints.

6.3 Anti-concentration cap and feasibility analysis

Original goal: no single country should hold more than 40% of any manufacturing category within its sub-region (the anti-extortion principle — no country can weaponize manufacturing dominance against neighbors).

The strict 40% cap was infeasible.

Diagnostic analysis revealed structural floors that mathematics requires:

- Under Informal Insertion: China holds 73% of East Asia + SE Asia + Oceania's total manufacturing — no cap below 73% is enforceable
- Under Balanced: India holds 80% of original South Asia sub-region — no cap below 80% is enforceable

After merging sub-regions (Section 6.1), the structural floors became:

- Under Informal Insertion: 73% (still driven by China in East Asia + SE Asia + Oceania)
- Under Balanced: 61% (driven by India in South Asia + Middle East)

The enforceable caps are therefore:

- **Balanced scenario:** 65% cap (just above the 61% structural floor)
- **Informal Insertion scenario:** 75% cap (just above the 73% structural floor)

> **This is itself a critical finding.** The moderate Informal Insertion proposal does enormous good for workers (33M moved from informal to formal employment, 41M jobs redistributed) but leaves the structural conditions of economic coercion largely intact. If the goal is to prevent any country from using manufacturing dominance as a political weapon, more aggressive redistribution than Informal Insertion is required. The Balanced scenario is closer to what full anti-extortion would demand.

6.4 The optimization itself

Within the feasible caps, a linear program optimizes sectoral allocation subject to four binding constraints:

- Country totals locked (each country's total manufacturing equals its Informal Insertion / Balanced target)
- Category totals locked (each global category sum equals the current world total)
- Sub-region caps (no country exceeds 65% or 75% of any category within its sub-region)
- Floor/ceiling per cell (no country reduced below 50% of current in any sector; no country exceeds 6.73× current in any sector)

The objective maximizes the sum of weight[country, category] × allocation, where weight = base_score × raw_material_weight. This favors allocations where countries produce in sectors matching their capability and regional raw-material access.

6.5 Results: concentration reduction

Manufacturing concentration (HHI) by sub-region: current vs. after each scenario.

SUB-REGION	CURRENT HHI	AFTER BALANCED	AFTER INFORMAL INSERTION
East Asia + SE Asia + Oceania	0.605	0.397 (-34%)	0.570 (-6%)
South Asia + Middle East	0.432	0.427 (-1%)	0.500 (+16%)
Greater North America	0.408	0.410 (~0%)	0.434 (+6%)
South America	0.405	0.411 (+1%)	0.424 (+5%)
Eurasia	0.395	0.388 (-2%)	0.412 (+4%)
West Central Africa	0.391	0.378 (-3%)	0.399 (+2%)
Western Europe	0.373	0.371 (-1%)	0.379 (+2%)

Under Balanced, the largest concentration reduction occurs in East Asia + SE Asia + Oceania (34% drop in HHI), where China's reduced share allows real diversification across Korea, Japan, Indonesia, Vietnam, Philippines, and other producers. Under Informal Insertion, the change is much smaller because China retains most of its current dominance. Some sub-regions show slight HHI increase under Informal Insertion because the regional optimization shifts allocations toward raw-material-proximate sectors, modestly concentrating production in resource-rich countries.

6.6 Specialization map examples

South America under Informal Insertion: Brazil leads in 11 of 15 sectors (still concentrated), but real complementarity exists: Chile leads in industrial machinery; Bolivia leads in precious metals/jewelry; Colombia leads in plastics/basic chemicals; Venezuela leads in energy products; Argentina leads in furniture.

Greater North America under Informal Insertion: USA leads in misc manufactures, wood, tobacco/feed, furniture, aerospace, industrial machinery. Mexico leads in precious metals/jewelry, paper, vehicle parts, specialty chemicals. Canada is present in precious metals (secondary). Smaller Central American countries appear in wood (secondary) and specialty chemicals.

These specialization maps show that meaningful regional complementarity emerges even under conservative redistribution. No country in any sub-region dominates everything; every country has something its neighbors need. The 40% strict cap is unenforceable, but the 65-75% cap still produces a more diversified regional manufacturing landscape than the current concentration.

7. Comparison: Informal Insertion vs. Balanced

Two parallel implementation timelines are presented in this analysis. **Informal Insertion** is the proposed implementation — the moderate scenario that does the most good for workers without requiring dramatic political upheaval. **Balanced** shows what fully fair allocation would require if the absorption caps were removed. Comparing them reveals the gap between political feasibility and theoretical fairness.

Manufacturing employment by country: Informal Insertion vs. Balanced at 2061, with the gap between them.

COUNTRY	BASELINE (2036)	INFORMAL INSERTION 2061	BALANCED 2061	GAP
China	215M	186M	72M	114M
India	60M	70M	108M	38M
USA	16M	13M	30M	17M
Vietnam	12M	13M	8M	-5M
Bangladesh	8M	10M	8M	-2M
Brazil	12M	13M	16M	3M
Pakistan	11M	14M	14M	0M
South Africa	2M	5M	5M	0M
Philippines	4M	3M	9M	6M

The "Gap" column shows how much further Balanced would push the redistribution beyond Informal Insertion. The 114M-worker gap for China represents the difference between "manageable demographic-style attrition" (Informal Insertion: -0.5%/year) and "profound structural restructuring" (Balanced: -3.0%/year peaking at -10.2%/year in Tranche 5).

8. Tax Revenue vs. Government Needs

Beyond the redistribution of jobs, a separate question emerges: even when factories are placed in lower-income countries, the tax revenue they generate for host governments will be much smaller than equivalent factories in high-income countries, because local wages, sales prices, and operating costs are lower. This creates a fiscal-capacity inequality that the manufacturing redistribution alone cannot solve.

8.1 The structural problem

Consider two equivalent textile factories — one in Haiti, one in the USA. Both employ 1,000 workers producing similar physical output. But:

- USA workers earn ~$50,000/year; Haitian workers earn ~$2,000/year. Income tax revenue per worker is ~30× higher in the USA.
- Sales prices in the USA market are ~30× higher than Haitian market prices. VAT/sales tax revenue per unit sold is ~30× higher.
- Corporate operating costs are higher in the USA, but profit margins similar. Corporate tax revenue is ~10-15× higher.

Net effect: **a factory in Haiti generates roughly 1/30th the tax revenue for the Haitian government than the same factory in the USA generates for the US government**. The manufacturing redistribution puts factories in Haiti (good for workers), but doesn't put proportional tax revenue in Haitian government coffers (not as good for Haitian fiscal capacity). This exercise does not solve it but it does bring it up for future discussion.

8.2 Within-region purchasing power inequality

Coefficient-of-variation analysis of GDP per capita within each sub-region shows the scale of the problem:

GDP per capita range within each sub-region, showing within-region purchasing-power inequality.

SUB-REGION	MIN GDP/CAP	MAX GDP/CAP	MAX/MIN RATIO
South Asia + Middle East	$420 (Afghanistan)	$74,401 (Qatar)	177×
East Asia + SE Asia + Oceania	$1,355 (Timor-Leste)	$94,938 (Singapore)	70×
East & Southern Africa	$228 (Burundi)	$17,106 (Seychelles)	75×
Greater North America	$2,180 (Haiti)	$83,951 (USA)	39×
West & Central Africa	$543 (CAR)	$8,502 (Gabon)	16×
Eurasia	$1,381 (Tajikistan)	$32,050 (Estonia)	23×
South America	$4,486 (Bolivia)	$23,892 (Uruguay)	5.3×
Southern Europe	$9,333 (Albania)	$47,159 (Italy)	5.1×
Western Europe	$51,022 (UK)	$284,285 (Luxembourg)	5.6×
Nordic	$55,009 (Iceland)	$88,109 (Norway)	1.6×

8.3 The reframing: needs-proportional tax revenue

The right benchmark for "fair" tax revenue isn't proportional to GDP per capita — that perpetuates current inequality. It's proportional to **actual government needs**: population × cost-adjusted per-capita service delivery + catch-up infrastructure investment.

A small Haitian health clinic providing the same services as a US clinic costs perhaps $1,000 to operate vs. $30,000 in the US. Measured in services delivered to citizens (not dollars spent), Haiti's per-capita needs are 2-3× US per-capita needs (because of catch-up

infrastructure deficit), not 1/30th. The dollar amount needed depends on local price levels.

8.4 Three architectural responses

Three approaches could address the fiscal-capacity gap:

Architecture A — The fund tops up low-tax-base governments. A share of fund profits beyond citizen dividends is allocated to host governments proportional to needs-vs-revenue gap. Haiti gets dividends to citizens AND a fund top-up to its government to meet baseline service delivery. This expands what the fund does — from individual dividend mechanism to also fiscal-capacity-equalization mechanism.

Architecture B — Regional tax-sharing pools. Countries within each sub-region pool a fraction of manufacturing-related tax revenue and redistribute according to needs-weighted formulas. Analogous to EU cohesion funds. Requires explicit treaty arrangements between high-purchasing-power and low-purchasing-power neighbors.

Architecture C — Preferential sectoral placement. The redistribution deliberately places high-margin sectors (pharmaceuticals, luxury goods, advanced electronics) in lower-income countries — even when capability scores don't naturally favor it — to maximize tax revenue per factory in those countries. This is the most ambitious because it overrides capability-based optimization.

> This analysis does not implement any of these architectures. They are sketched as a framework for future work. Each requires its own quantitative analysis and political design.

9. Limitations and Caveats

9.1 This is a methodology, not a fixed plan

The numbers in this document should be recalculated every 5 years (between tranches) using updated data on labor markets, demographics, technology, and political conditions. The framework — five scenarios, absorption caps, phasing logic, regional optimization, transparent reasoning — matters more than any specific 2061 target.

9.2 Data gaps and approximations

- **Country coverage:** 194 UN members + Palestine. 28 countries had no direct sectoral data and used peer-proxy estimates from regional+income-group medians.
- **Sectoral data sources:** 52% of countries from UNIDO INDSTAT Rev.4 (latest), 7% from Rev.3 supplement, 26% from Comtrade trade composition, 14% from peer proxies.
- **Demographic projections:** Used UN WPP 2024 Medium Variant for population projections to 2050.
- **Manufacturing value added:** WB World Development Indicators data ends in 2021 for some countries (notably USA). Used most-recent-available year per country.
- **The 25% informal-formalization assumption is a guess.** Could be 15% or 35%. The methodology is robust to this number; specific magnitudes shift.

9.3 Underlying model assumptions

- Sectoral capability is assumed roughly persistent over 25 years. Reality: capability evolves significantly with investment in education and infrastructure.
- The model assumes a global coordinated approach. Whether such coordination is politically achievable is a separate question.
- Manufacturing technology evolution (automation, additive manufacturing, AI) is not modeled.
- The fund's role in setting prices, retaining margins below 10%, owning value chains, and managing the transition is acknowledged but not modeled in this analysis. Those questions are addressed in other parts of the series.

9.4 Questions addressed elsewhere in the series

Several questions that arose during this analysis are outside the scope of this manufacturing model and are taken up in other articles of the series:

- How the fund competes with private companies and eventually wins through the dividend feedback loop. Cross-ref: [Article 3-2 — Pricing and Competition; Article 5-4 — How the Fund Gets Built.]
- Consumer price changes in high-cost countries when the fund operates at lower margins, and the mechanism for cross-country wage convergence. Cross-ref: [Article 3-2 — Pricing and Competition.]
- Half-shift work-sharing for cap-bound countries, and service-sector redistribution where applicable — complementary policies noted here as open design questions for the fund's governance to resolve.
- The transition path: pilots, treaties, and political coalitions. Cross-ref: [Article 5-4 — How the Fund Gets Built.]
- Critiques and failure modes. Cross-ref: [Article 7-1 — What Stops the Fund From Becoming What It Replaces; Article 7-2 — The Honest Failure Modes.]

10. Connection to the $1 Global Fund

This analysis (Part 6 of the series) is one piece of a broader system being developed across the series. The full system has these components:

Component 1 — Universal membership from birth. Every human participates in the fund from birth, with relatives contributing $1/month on behalf of children. Dividends accumulate in escrow until the age of legal majority, then become accessible. People join the fund at birth and exit at death. Membership is not tied to employment status.

Component 2 — One fund-owned company per industry. The fund fully owns one company per manufacturing industry, competing with private companies in the open market. Because the fund is owned by everyone equally, consumers receive dividends from products they buy from fund-owned companies, structurally favoring fund-owned companies over time. Within 30-50 years, fund-owned companies are expected to dominate most consumer-facing manufacturing markets.

Component 3 — Margin discipline and consumer pricing. The fund operates at a target maximum margin of 10% on industries where current margins exceed that threshold; industries already below 10% margin stay at current margins. This compresses extractive margin-capture by intermediaries and lowers consumer prices globally as the fund gains market share.

Component 4 — Manufacturing redistribution (this post). Fund manufacturing is distributed across countries proportional to labor-market need (Informal Insertion scenario), with regional sourcing emphasized to reduce political fragility and create employment near consumers.

Component 5 — Democratic governance. Decisions are made through the fund's bicameral structure, set out in full in Part 4: a Citizen Chamber voting by global one-person-one-vote (every human equal) and a Country Chamber voting one-country-one-vote across 194 countries (no country steamrolled by larger neighbors), with a proposal passing only if it clears both. Disagreements run through a staged cascade — AI-mediated compromise, then a public mediation period, then rejection with a cooling-off window — and a constitutional layer protects the foundational rules (strictly equal dividends, per-capita caps on regional manufacturing share, industry ownership ceilings, capped margins on essentials, and an open-source, auditable AI governance system), amendable only by a 75% supermajority in both chambers plus five of six continental regions. Cross-ref: [Article 4-1 — One Person, One Vote; Article 4-3 — Members' Engagement.]

Component 6 — AI-augmented operations. Decision support and operational execution at fund scale require AI-augmented systems, transparently designed and democratically accountable.

Together, these components form a coherent proposal: a citizen-owned, democratically-governed global productive system that gradually replaces extractive capitalism with mission-driven citizen-owned production. Manufacturing redistribution is one critical piece. The other pieces are developed in the other articles of the series.

11. Data Sources

Data sources used in this analysis, with what each was used for and the access date.

SOURCE	USED FOR	DATE ACCESSED
UN World Population Prospects 2024 (Medium Variant)	Population projections to 2050	May 2026
ILO ILOSTAT (Files 01, 02a, 02b, 02c, 03)	Manufacturing employment, working-age population, total employment, unemployment rate, informality	May 2026
ILO WESO Trends 2025 + May 2025 Update	Global labor force aggregates, regional informal employment shares	May 2026
UNIDO INDSTAT (ISIC Rev.4 + Rev.3)	Sectoral employment by ISIC industry code	May 2026
UN Comtrade Plus	Trade flows by HS code (2/4/6 digit)	May 2026
World Bank WGI	Governance: government effectiveness, regulatory quality	May 2026
World Bank WDI	Manufacturing value added (USD), GDP (USD)	May 2026
World Bank LPI 2023	Logistics performance scores (overall + 6 sub-components)	May 2026
UNESCO UIS (SDG + OPRI)	Mean years of schooling, STEM/Engineering graduate share, tertiary enrollment, vocational enrollment, and 4 other dimensions	May 2026
USGS Mineral Commodity Summaries 2026	Raw material production by country and commodity	May 2026
Energy Institute Statistical Review of World Energy 2025	Oil, gas, coal production for energy-products category	May 2026
FAOSTAT	Agricultural production for food-processing category	May 2026

Replication: All intermediate data tables and the final five-scenario comparison are available as downloadable CSV files. The complete dataset is 5,820 country×category cells (194 countries × 30 categories) with full transparency on data provenance per cell (INDSTAT Rev.4, INDSTAT Rev.3, Comtrade proxy, or peer proxy). Additional outputs: regional optimization allocations (LP solver output), specialization maps per sub-region, and merged sub-region assignments. See Article 6-3 — Five-Scenario Comparison Data and Article 6-4 — Phased Implementation Data.

12. Closing Note

This analysis is one input into a much larger conversation. The numbers are calibrated, the methodology is transparent, and the limitations are stated. But the question of *whether* to redistribute global manufacturing — and at what pace, with what trade-offs, governed by which institutions — is fundamentally political. Models inform that political conversation; they don't replace it.

What this analysis demonstrates is that **fair redistribution is computationally tractable**, **empirically defensible**, and **does not require dismantling existing economies**. The proposed Informal Insertion scenario achieves enormous welfare gains — 33 million workers transitioning from informal to formal employment, manufacturing access expanded across 147 receiver countries — while

keeping the pace of change within historical norms.

This methodology adds the regional optimization layer, which reveals an important tension: even moderate redistribution like Informal Insertion leaves the structural conditions of economic coercion largely intact. Anti-extortion principles require more aggressive redistribution than the moderate proposal provides. This is an honest finding that should inform political negotiation, not a reason to abandon the moderate proposal.

The point isn't to predict 2061. It's to demonstrate that we have the methodology to plan it, the data to calibrate it, and the analytical tools to revise it as conditions change.

Walid David + Claude AI · May 2026