

Cut to Fit: Tailoring Investment for Indonesia's 2045 Inclusive Growth Agenda

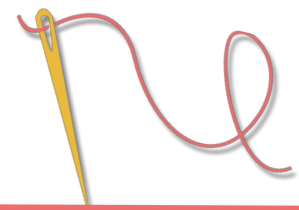
Optimizing FDI Relocation into
Indonesia's Labor-Intensive
Sectors

INDONESIA
EMAS
20
45

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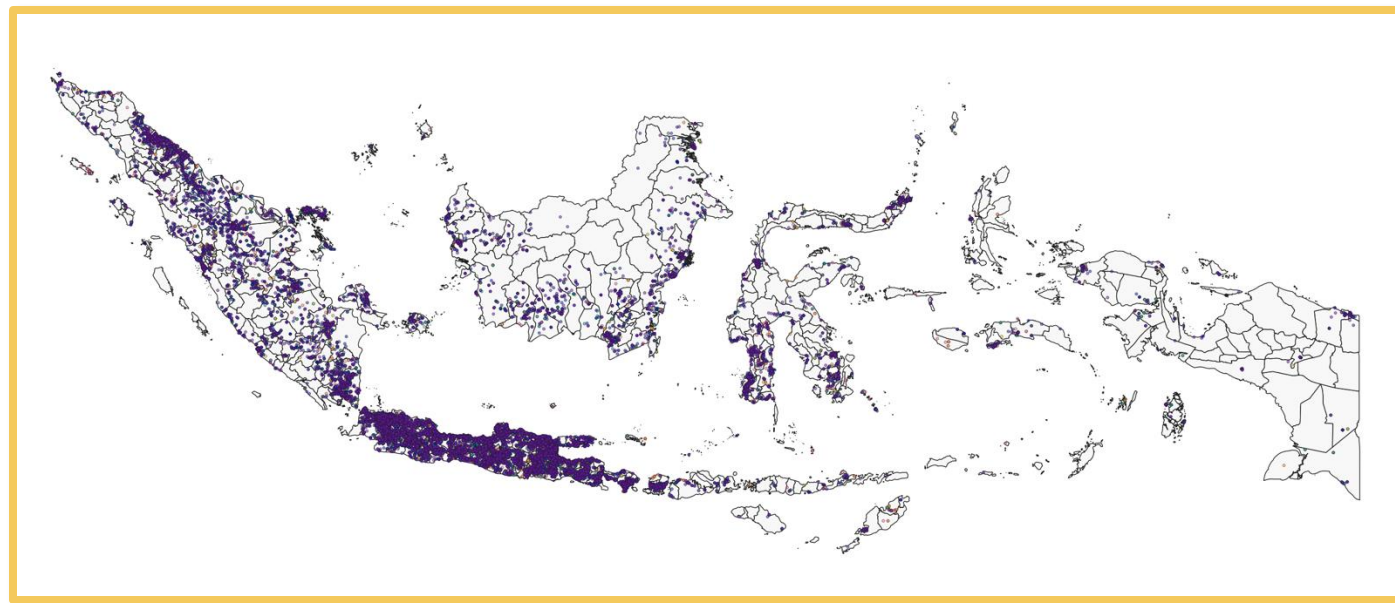
Presented for
POLICY BRIEF COMPETITION
DEWAN EKONOMI NASIONAL REPUBLIK INDONESIA
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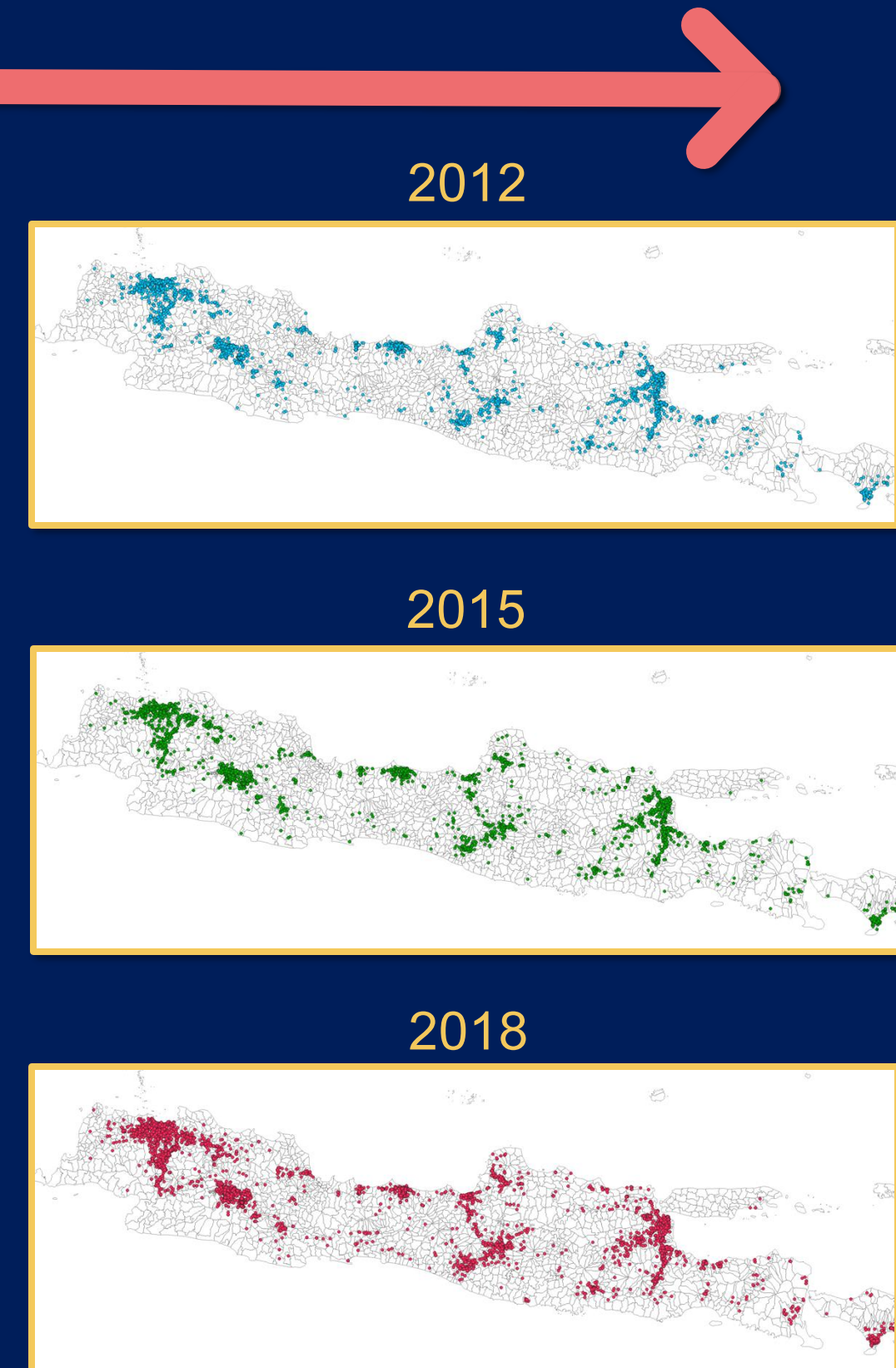


Sizing Up Growth: Garments and Textiles

Universe of Manufacturing Firms (2010-2018)



Source: Authors' geocoding and visualization (2025)



3.9 M **formal** workers, but skill mismatches → unemployment, low productivity, high informality (86 M in whole economy)



Strong production ecosystem, but regulations halt FDI → different improvement room for each production stage



Low wages and infrastructure attract FDI; wages higher than agriculture → drives structural transformation, promotes inclusive growth



What:
products to
invest in?



What:
firm structure
drives gains?



How to:
optimize labor
market links?



How to:
keep fostering
FDI inflows?



Who:
drives demand
for products?



Data



Index of Economic Complexity



BACI Bilateral Trade Flows



CEPII Trade Gravity Data



Statistik Industri



Sensus & Direktori Manufaktur



UN OCHA Database



Author's productivity estimates



Susenas & Sakernas



BPS GDP and deflator data



OECD FDI RRI



World Bank Development Indicators



UN World Investment Report



Transaction-level exports data for
Indonesia, Bangladesh, China,
Ethiopia, India, Pakistan, Vietnam



Methods

- ✓ Minimum conditional probabilities
- ✓ Product proximity
- ✓ ACF productivity, with control function for endogeneity
- ✓ OCR and ArcGIS geolocation
- ✓ Panel vector autoregressions
- ✓ Labor share and productivity decomposition
- ✓ OLS residualization
- ✓ Binned scatterplot with standard errors
- ✓ Construct buyer sourcing measures based on transaction frequency

What:



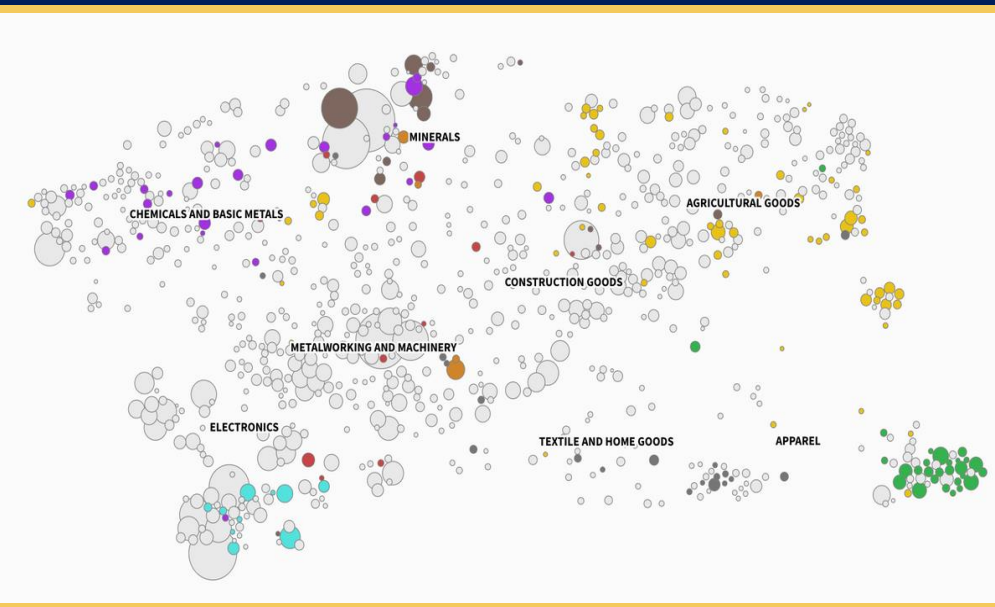
Products



Structure

Table A2: Garment Export Diversification Profiles, by Country

Variable (1)	Unit (2)	China (3)	Bangladesh (4)	Vietnam (5)	India (6)	Indonesia (7)
Average annual export value	billions of USD	13.981	4.133	3.239	1.722	1.033
Δ Exports (2020 to 2021)	%	12.613	26.154	8.694	22.059	14.920
Product specialization (2021)	%	36.707	45.952	34.018	39.382	36.448
Product specialization (2019)	%	35.671	48.185	33.929	40.049	34.109
Destination specialization (2021)	%	36.787	41.495	66.369	45.252	62.074
Destination specialization (2019)	%	36.205	38.961	65.276	41.166	61.998
Destination GDP (2021)	trillions of PPP \$	0.166	0.228	0.251	0.145	0.201
Destination GDP per capita (2021)	thousands of PPP \$	30.362	34.995	22.616	30.273	22.772
Distance to destination (2021)	thousands of km	4.886	5.598	2.978	3.920	4.132



The Akerberg et al. (2015) estimation method defines productivity as the unitless variable ω_{fy} , in the specification:

$$\ln Y_{fy} = \beta_0 + \beta_L \ln L_{fy} + \beta_K \ln K_{fy} + \beta_M \ln M_{fy} + \omega_{fy} + \epsilon_{fy}$$

where Y_{fy} is real output, L_{fy} is labor, K_{fy} is real capital stock, M_{fy} is real material cost, and ϵ_{fy} is the random error that the method allows us to disentangle from productivity ω_{fy} . We then use the estimated productivity to run the following regression:

$$\omega_{fy} = \gamma_0 + \gamma_1 \text{Density}_{ly}^{f(j)} + \gamma_2 \text{Density}_{ly}^{f(-j)} + \gamma' X + \nu_{fy}$$

Indonesia's Relative Capacity and Complexity



Source: Harvard Growth Lab (2025)

- ✓ Products with higher complexity have higher proximity to a larger number of products (share capabilities with many other products).
- ✓ Diversification into more complex products helps raise value added and technology.

Firm-level Productivity Estimation

Table B1: Firm Productivity and Density

	1990-1997		2000-2015	
	(1)	(2)	(3)	(4)
$Density_{ly}^{f(j)}$	-0.015 (0.160)	0.004 (0.159)	-0.237** (0.116)	-0.213* (0.120)
$Density_{ly}^{f(-j)}$	0.131 (0.152)	0.119 (0.152)	0.293** (0.139)	0.339** (0.137)
FEs	f, y, j, l	f, y, j, l	f, y, j, l	f, y, j, l
Controls	None	Yes	None	Yes
R^2	0.86	0.86	0.86	0.86
Obs.	17,950	17,823	44,150	43,832

Source: Authors' calculations (2025)

- ✓ More productive firms do not necessarily locate in industrial zones, likely due to worker poaching
- ✓ Firm productivity is higher when it is near other firms which produce **other** products; being near complementary firms is helpful

How:



Labor

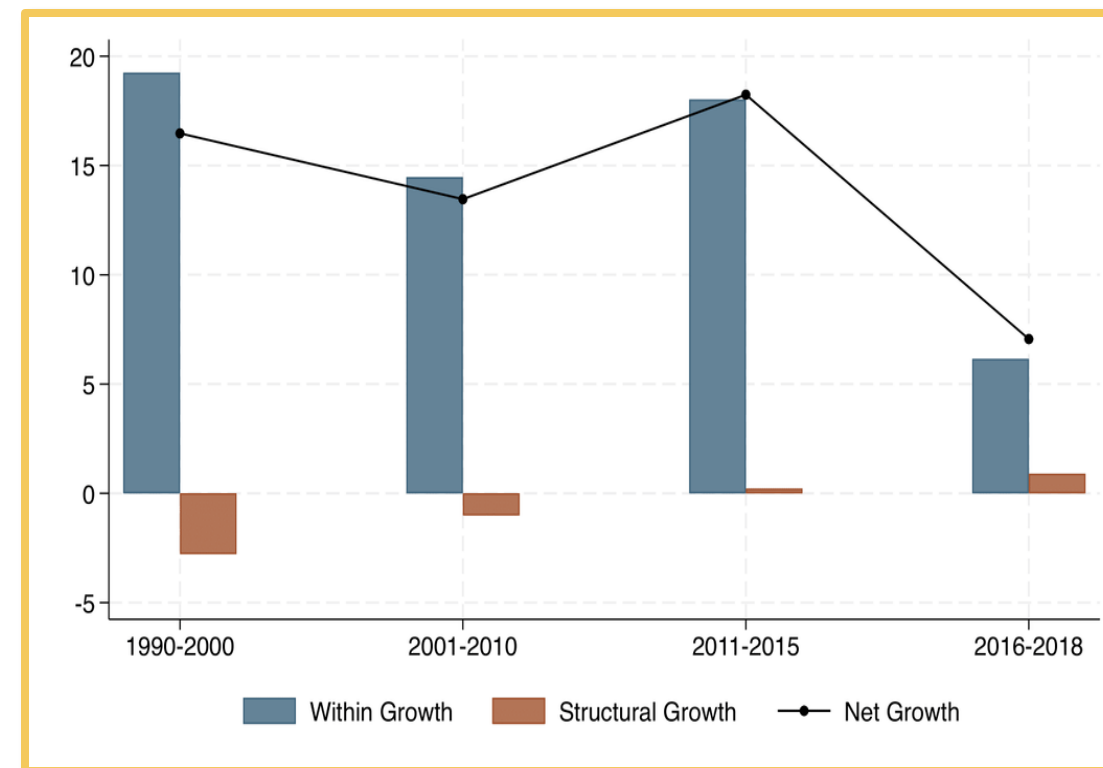


FDI Inflows

Table C1: Vector Autoregressions

(1)	
	$Density_{ly}^f$
$Density_{ly-1}^f$	1.003*** (5.42)
$Schooling_{ly-1}$	-0.00113 (-0.32)
$Productivity_{ly-1}$	-0.00158** (-1.70)
$Schooling_{ly}$	
$Density_{ly-1}^f$	0.765 (0.50)
$Schooling_{ly-1}$	1.001*** (26.21)
$Productivity_{ly-1}$	0.0239** (1.81)
$Productivity_{ly}$	
$Density_{ly-1}^f$	2.166 (1.07)
$Schooling_{ly-1}$	-0.0504 (-0.32)
$Productivity_{ly-1}$	0.984*** (12.57)
<i>N</i>	1055

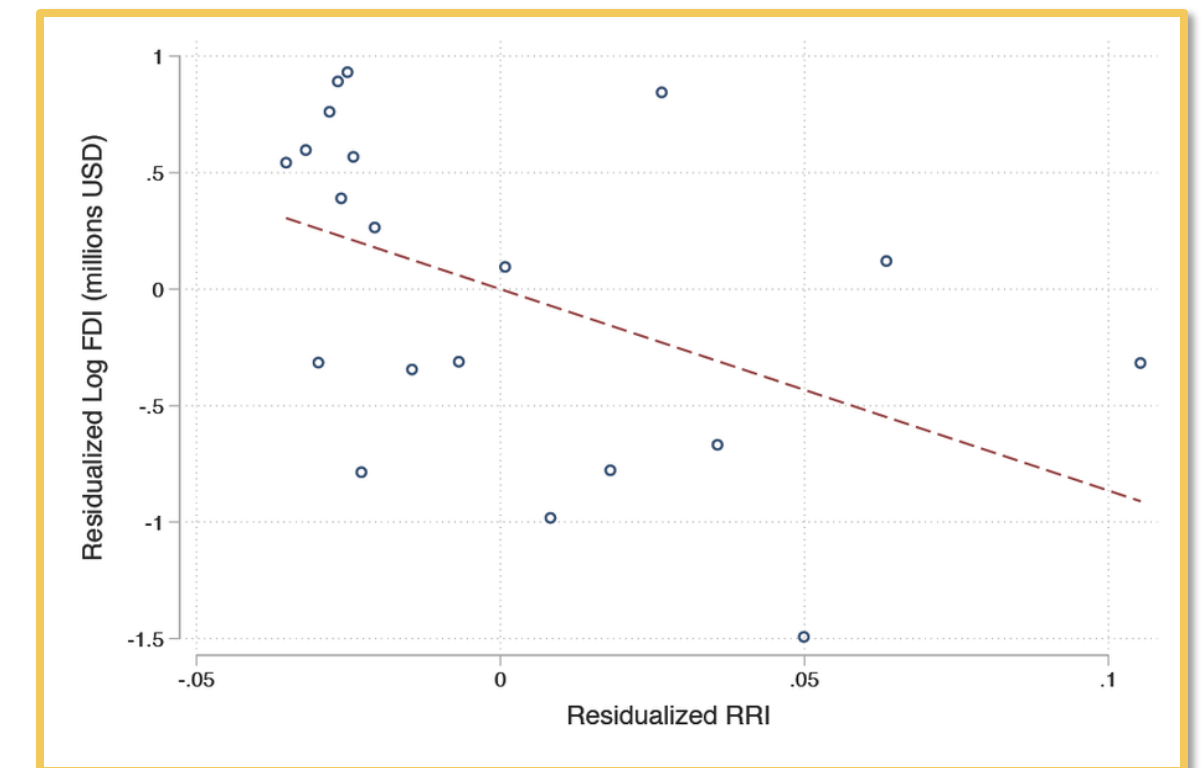
Labor Productivity Growth Breakdown



Source: Authors' calculations (2025)

- ✓ Initial availability of worker skills does not necessarily encourage firm investment
- ✓ Firm productivity is linked with, and drives, higher levels of formal schooling; workers are slowly moving to higher-productivity sectors

FDI and "Other" Restrictiveness



Source: Authors' calculations (2025)

- ✓ Labor and foreign equity restrictions are not linked with lower FDI, but other types of restrictions are, e.g. some permits take > 2 years to make
- ✓ Textiles vs. garments have varied bottlenecks and global competition, thus varied investment needs

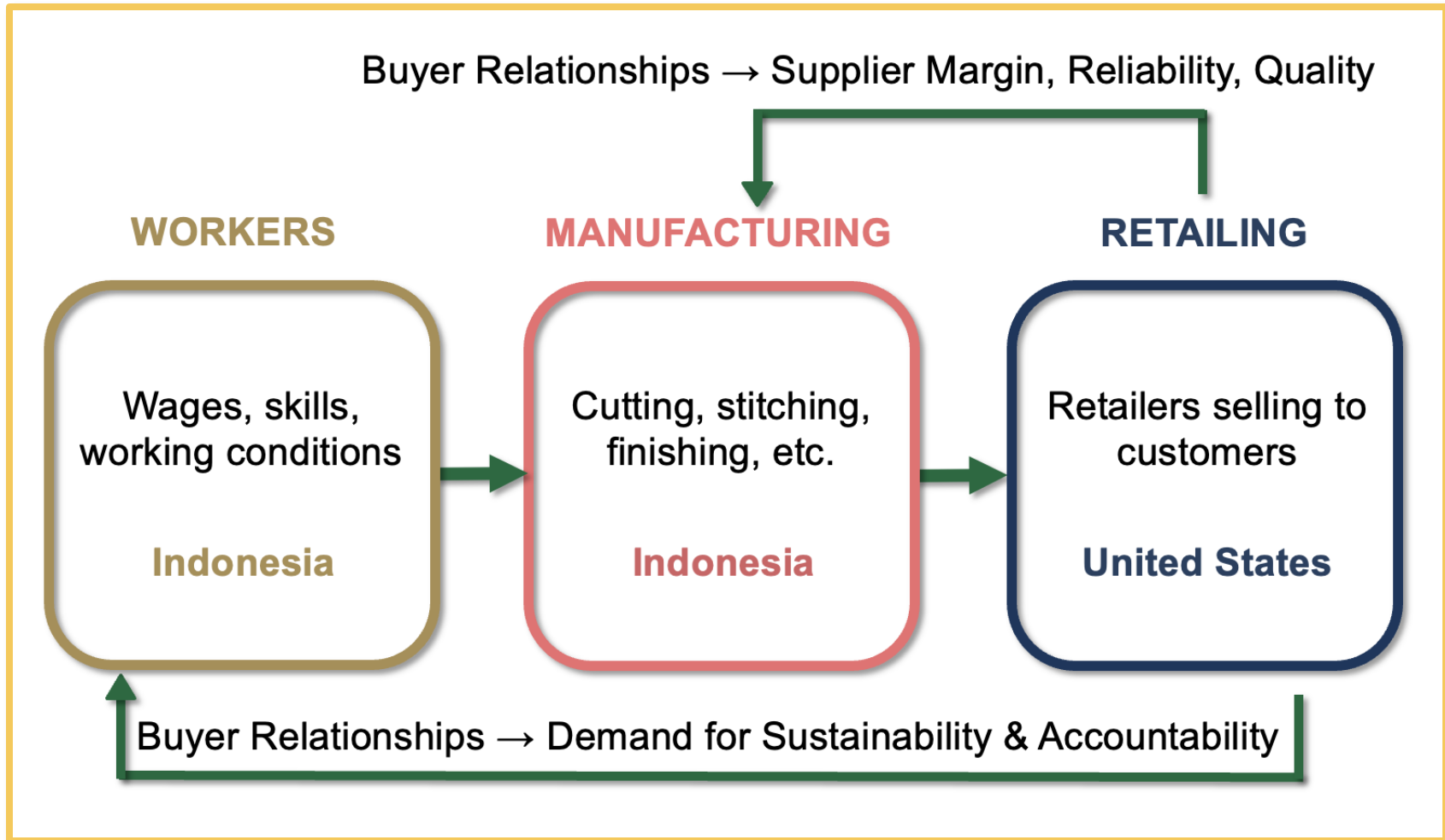
Who:



Buyers

A Theory of Buyer Sourcing Relationships

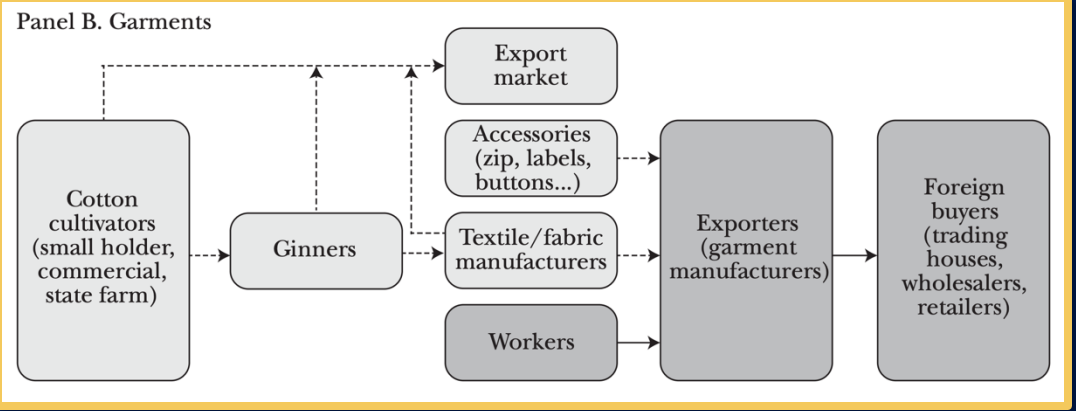
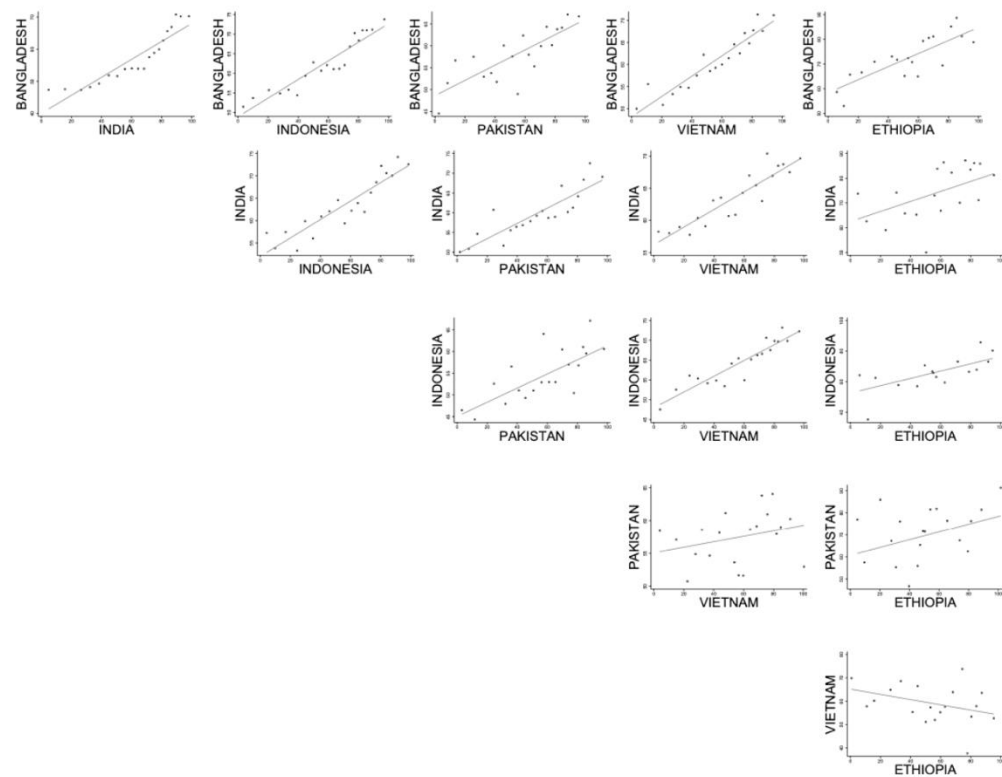
Buyer Relationships → Supplier Margin, Reliability, Quality



Source: Authors' visualization (2025)

- ✓ Garments have low margins, but relationships with long-term buyers can raise markups
- ✓ More stable buyers also translate to more stable jobs, and lower uncertainty incentivizes quality and value upgrading

Figure C2: Buyers' Sourcing Strategies in Different Countries





What:
products to
invest in?



What:
firm structure
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How to:
optimize labor
market links?



How to:
keep fostering
FDI inflows?



Who:
drives demand
for products?

Key Takeaways

Opportunity gains are in using existing structures to raise complexity, competitiveness and value added

Productivity is higher in more diverse clusters; labor mobility and complementarities matter

Firm productivity drives returns to education, schooling incentives, and labor share shifts

The right regulations can protect domestic labor markets while attracting more FDI inflows

Improving relationships with foreign buyers can raise firm and worker surplus in the long-run

Hidalgo Product Proximity + Harvard Product Opportunity Gain Data =

3 Step Prioritization



1) Identify Economic Gain & Workforce Absorption



2) Evaluate the cost & distance



3) Choose a product mix, balancing (distance & gain)

Recommendation 1: High Gain & Low Distance Opportunities

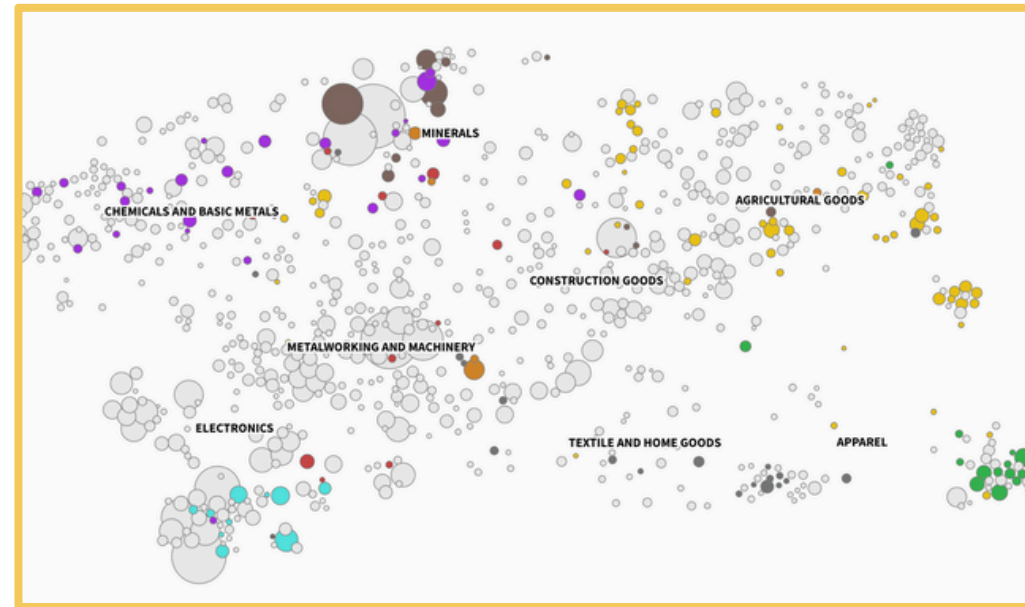
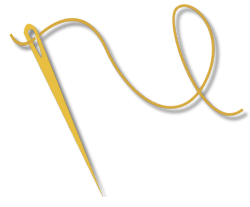
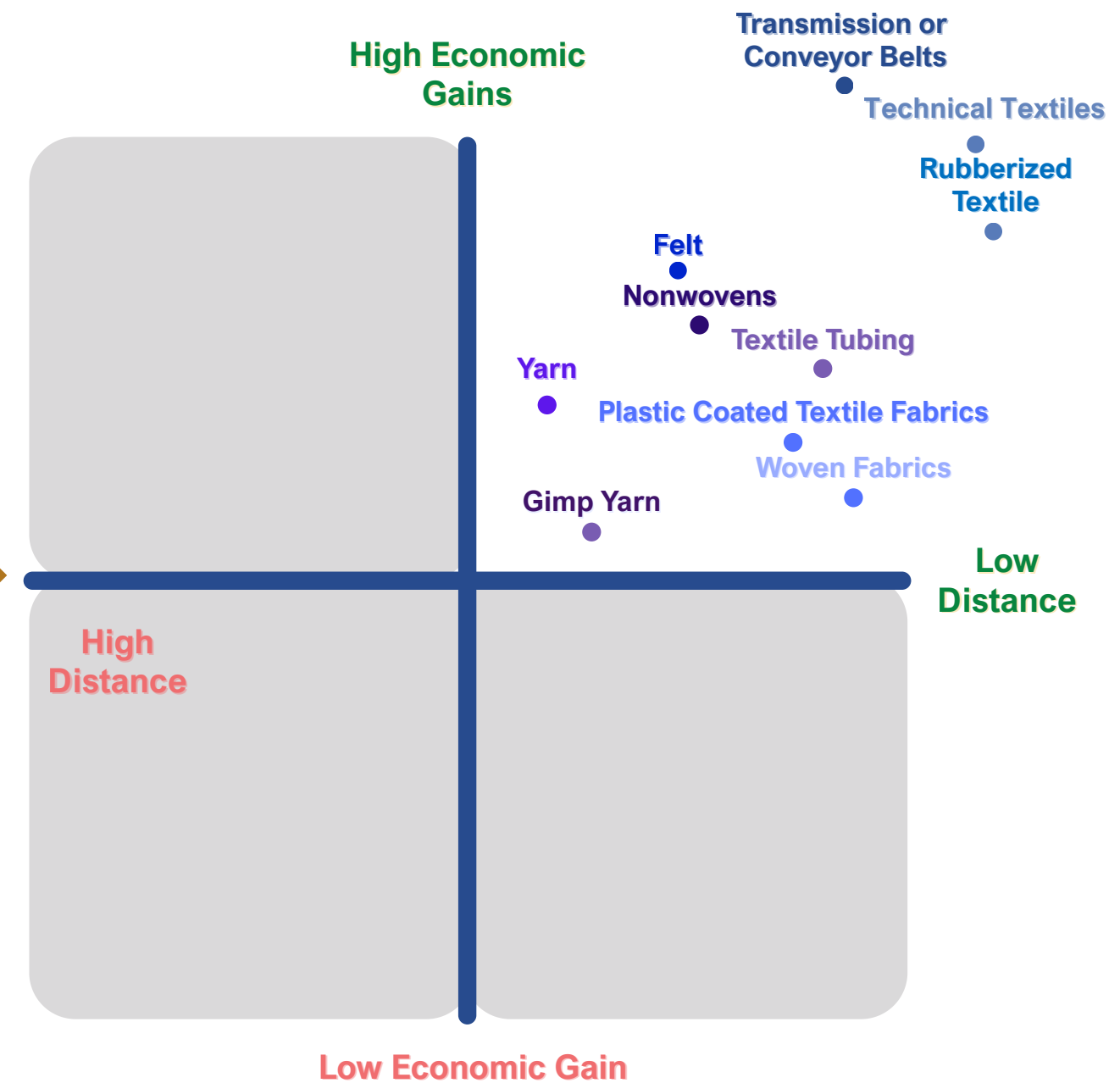
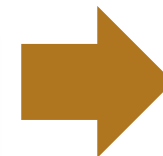
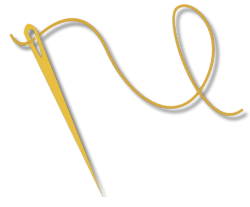


Table 1: Highest-Gain Textile Products for Indonesia in 2023

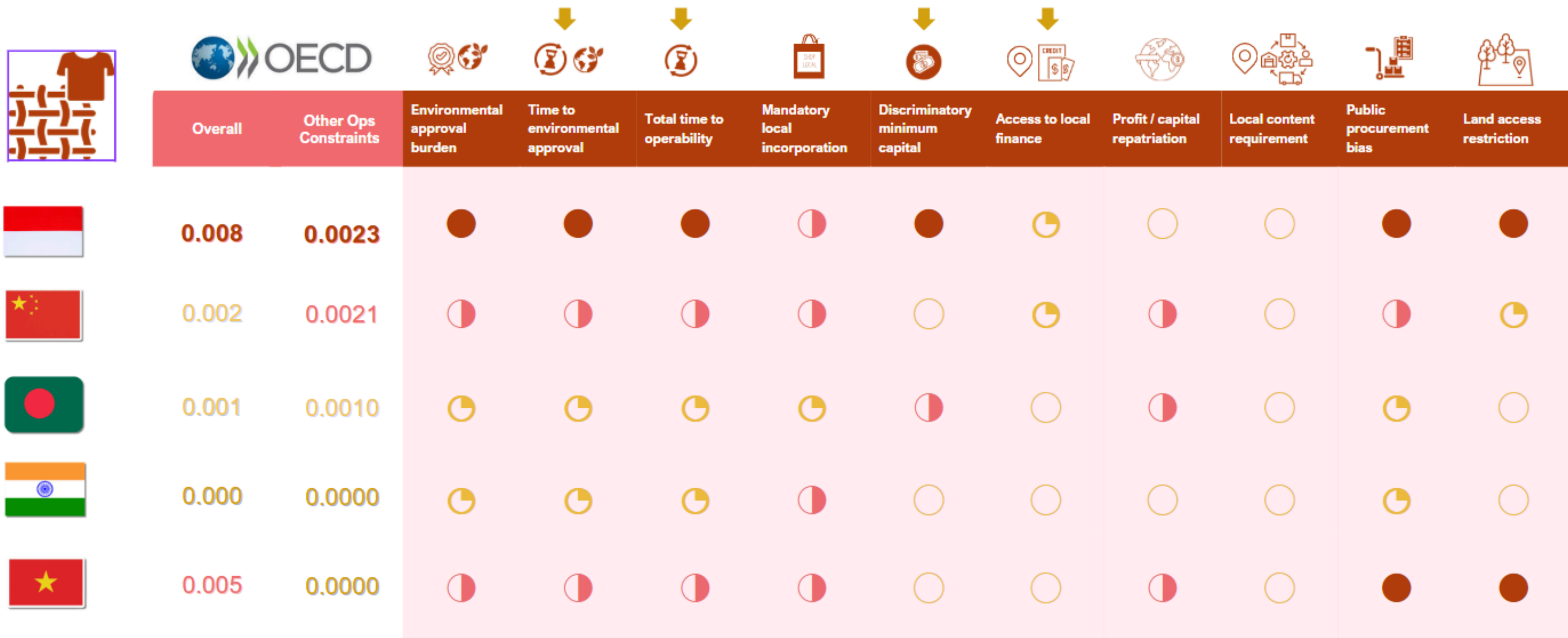
Product Description (1)	HS4 (2)	RCA (3)	Distance (4)	Complexity (5)	Gain (6)
Transmission or conveyor belts or belting	5910	0.082	0.854	1.447	1.310
Textile products and articles, for technical uses	5911	0.195	0.857	1.246	1.244
Rubberized textile fabrics	5906	0.857	0.858	1.220	1.201
Felt	5602	0.236	0.841	0.831	1.145
Nonwovens	5603	0.359	0.844	1.112	1.098
Textile hosepipe and similar textile tubing	5909	0.002	0.853	0.945	1.082
Yarn of combed wool	5107	0.005	0.829	0.190	1.011
Textile fabrics coated with plastics	5903	0.176	0.851	1.243	0.950
Woven fabrics of carded wool	5111	0.016	0.855	0.620	0.914
Gimp yarn, synthetic or artificial monofilament	5606	0.094	0.834	0.627	0.894



Recommendation 2: Improving FDI through Targeted Deregulation

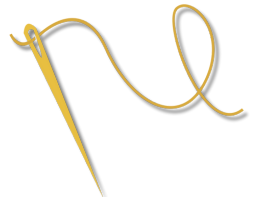


“Indonesia has the highest ‘other’ and overall FDI restrictions among textile peers, per our analysis only these correlate with FDI inflow, suggesting targeted deregulation can unlock investment while preserving local protection

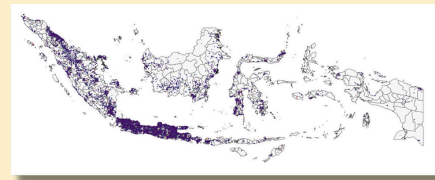


least restrictive ○ ←————→ ● most restrictive

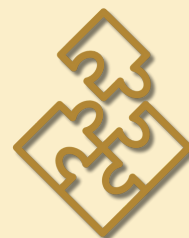
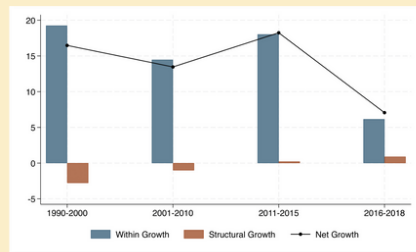
Recommendation 3: Optimizing the Impact of Textile Investment



1) Spreading investment toward lower firm density area with incentives

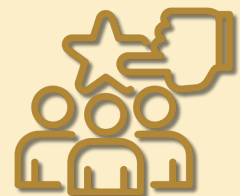


Indonesia's Manufacturing = **heavily clustered** → **suboptimal** for 4 reasons :



1) **Sparesness = limited productivity growth** → structural shift slowdown

2) **Complementary products = lower distance** for complexity + foster **cooperation**



3) **Worker poaching = costly** → disincentives investing in workers



4) **High-productivity jobs = motivate education pursuit**

2) Diverse types of firm clustering

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Controls	None	Yes	None	Yes
R^2	0.86	0.86	0.86	0.86
Obs.	17,950	17,823	44,150	43,832

More firms \neq higher productivity; varying agglomeration matters more, thus:



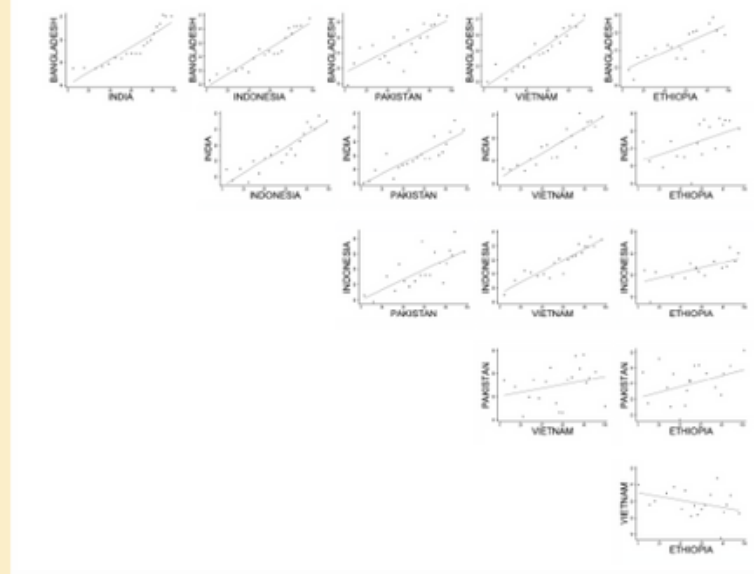
1) Need to build **diversity & linkage** of factories cluster



2) Mini-clusters with **downstream** sectors or **mid-city integration**

3) Helping firm establishing long-term relationship with buyers

Figure C2: Buyers' Sourcing Strategies in Different Countries

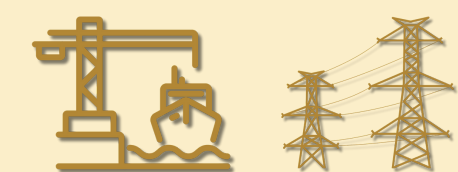


Strong buyer ties via **quality and reliability** → long-term partnerships → higher value, thus:



1) **Policy to improve buyer trust:**

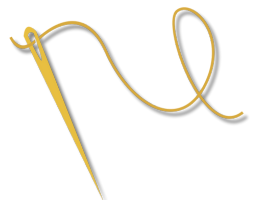
- Certification
- International standard support
- transparency
- contract enforcement
- etc



2) **Improve Infrastructure reliability:**

- Ports,
- Roads
- Electricity
- etc

Conclusion: Fitting the Vision



Prioritize



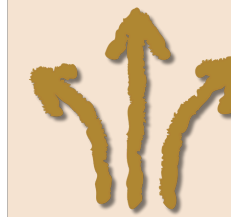
Most impactful textile investments = high economic gain + close to Indonesia's current know-how

Deregulate



Targeted deregulation can boost FDI while preserving local protection & self determination

Diversify



Maximize societal gains by spreading investment, building supportive mini-clusters, and policy to strengthening long-term buyer trust to firms.

Risk, Limitation, & Nuance



1) Data limit & Proximization:

- No workforce absorption, cost (distance as proxy), & practical consideration data in prioritization analysis
- No FDI inflow for textile data, general FDI inflow as proxy
- No quantity data per firm in spreading & strengthening analysis



2) Granularity constraints:

- Product investment optimization: HS4 granularity level
- FDI: "other restrictions" score aggregates various laws
- Spreading investment: only observe the main product per firm,



3) Risk of other confoundings and other unidentified variables

Next Steps



1) Data Enrichment:

- **Product:** add workforce absorption and investment cost per product, and practical consideration data
- **FDI:** Add FDI inflow for textile data



2) Model & Analysis Optimization:

- **Product:** optimize model using workforce absorption, cost, and practical consideration as constraints or optimization output
- **FDI:** Per law analysis under other restrictions to FDI inflow



3) Follow-up studies

- **FDI:** Controlled confounder analysis and pre-post assessment of FDI inflows following changes in Indonesia's FDI restrictions.
- **Spreading & strengthening:** Firm- and workforce-level incentive studies and the local impact of investment.



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