Center for International Development at Harvard University

Why we like zones

Industrial zones and Harvard CID's Growth Diagnostic

Taking a step back:

What is a Growth Diagnostic?


Maker's
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Investor interest

IP protection issues

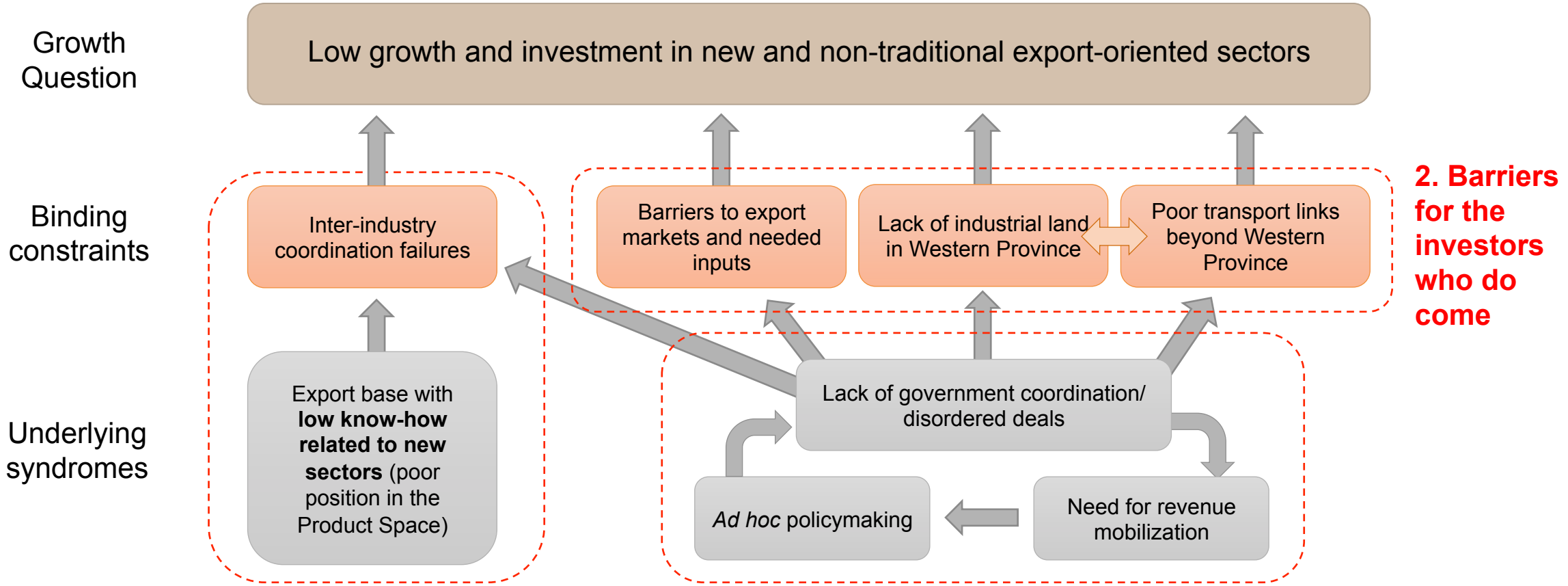
Inadequate road infrastructure

Lack of tertiary education

Poor access to industrial land

Goal: try to address all issues, but <u>prioritize fixing the lowest holes!</u>

Our Growth Diagnostic findings for Sri Lanka (2016)



2. Barriers for the investors who do come

1. Few investors knocking on the door:
No easy diversification opportunities - lack of "sexiness" for investors in new sectors

3. Policy uncertainty instead of proactive strategy: Lack of systematic planning, in which government *sets priorities*, *knocks on businesses' doors* and *provides the critical public goods* they need to compete. Instead, policy is often unpredictable or reactive (waiting for investors to come or complain)

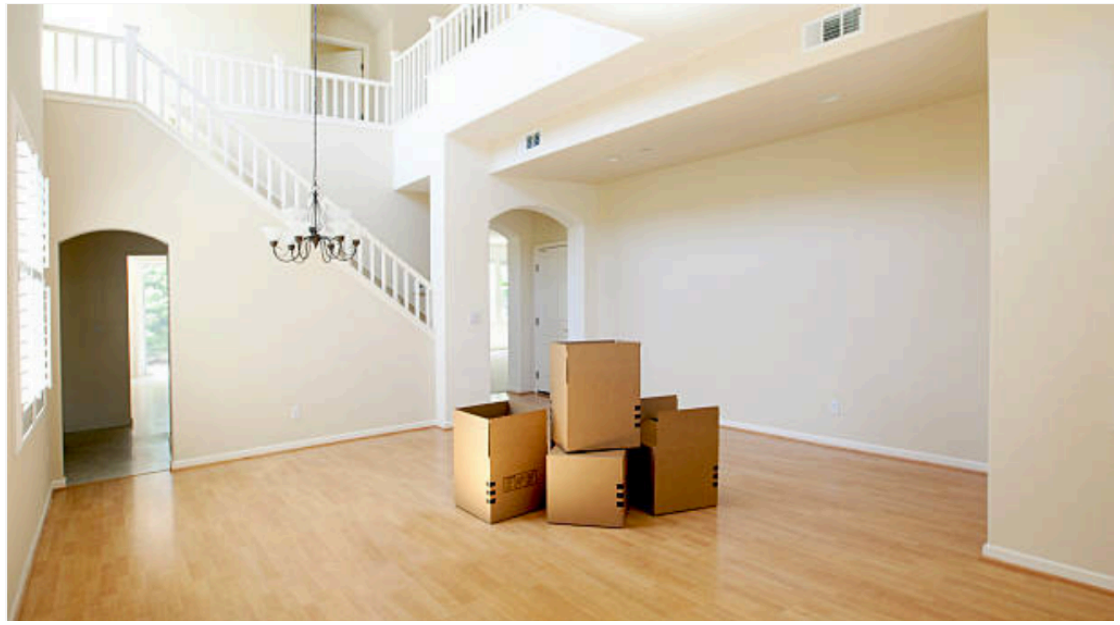
This leads to the question:

Can zones help plug the lowest holes in the barrel?

What makes (well-designed, well-run) zones special

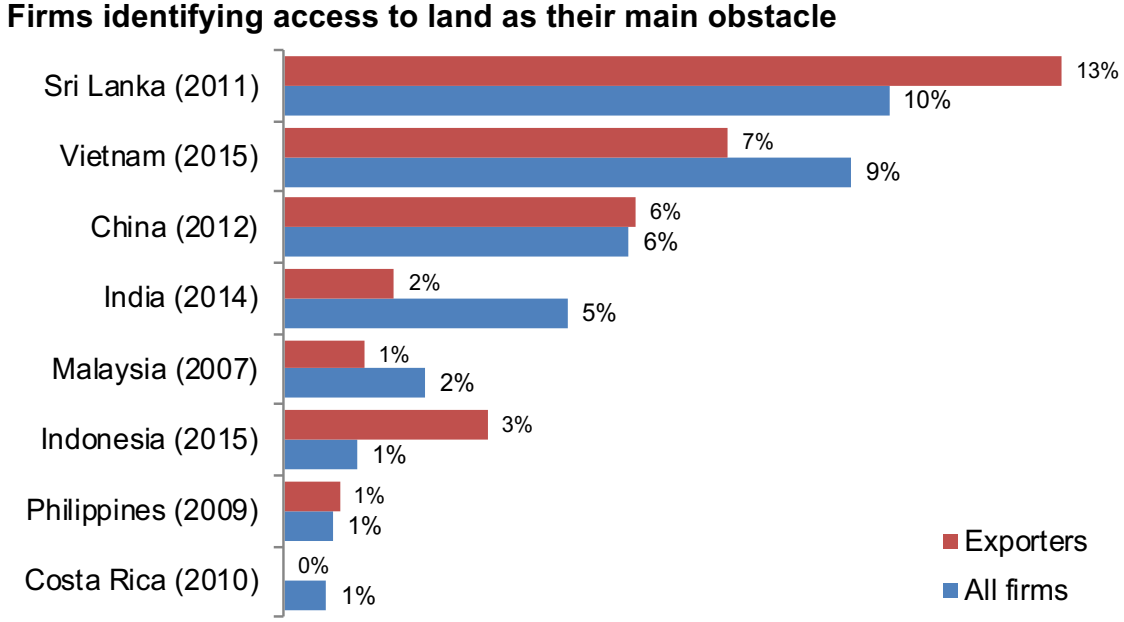
- Need to go beyond providing land: Attend to investors' many needs. "Turn a house into a home."
- "Trying to solve every problem everywhere vs. solving a lot of problems in a few places."
- Agglomeration externalities

- What kind of issues could zones try to solve?



Can zones help solve:

Lack of industrial land? Definitely



Source: World Bank Enterprise Surveys

Table 1: Land, water, and electricity utilization of export processing zones in 2016

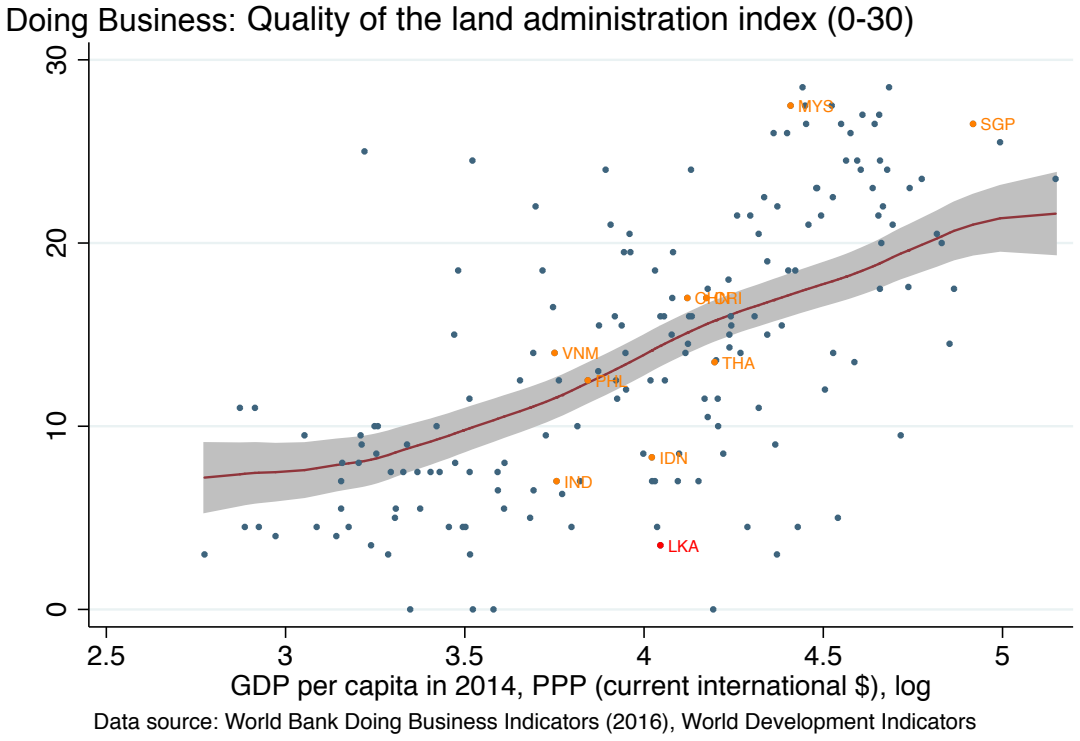
BOI Zone	Industrial Area (acres)	Land Occupancy	Water (m^3/day)	Water Utilization	Electricity (MVA)	Electricity Utilization
Katunayake (KEPZ)	306	96%	8,500	94%	63	30%
Biyagama (BEPZ)	256	100%	18,000	117%	45	62%
Koggala (KgEPZ)	195	90%	1,950	92%	20	78%
Seethawaka (SEPZ)	183	94%	9,950	85%	95	26%
Horana (HEPZ)	180	95%	3,000	46%	36	67%
Mirigama (MEPZ)	171	97%	2,250	47%	10	55%
Wathupitiwala (WEPZ)	66	100%	950	126%	8	81%
Polgahawela (PgEPZ)	40	71%	450	44%	4	100%
Mawathagama (MwEPZ)	30	67%	200	95%	4	94%
Malwatta (MEPP)	26	98%	320	44%	4	50%
Kandy (KIP)	82	85%	1,000	50%	12	58%
Wagawatta (WAEPZ)*	61	100%	0	n/a	0	n/a
Total	1,597	94%	46,570	94%	301	47%

*Source: BOI figures. *Note: no dedicated power or water source available at WAEPZ.*

- Zones have been at full capacity for a while, but no new BOI EPZs for 15 years – a lot of demand, no supply response
- Need to make sure appropriate facilities are included (industrial-use water, wastewater and solid / hazardous waste treatment, more?)

Can zones help solve:

Policy uncertainty (related to land)? Yes



Data source: World Bank Doing Business Indicators (2016), World Development Indicators

Weakness across all components of the index:	Reliability of Infrastructure: **0 / 8**	Transparency of Information: **2.5 / 6**	Geographic Coverage: **0 / 8**	Land Dispute Resolution: **1 / 8**

- See also: L-Team's study on procedures for vesting land; and study by de Mel and Woodruff (2011)

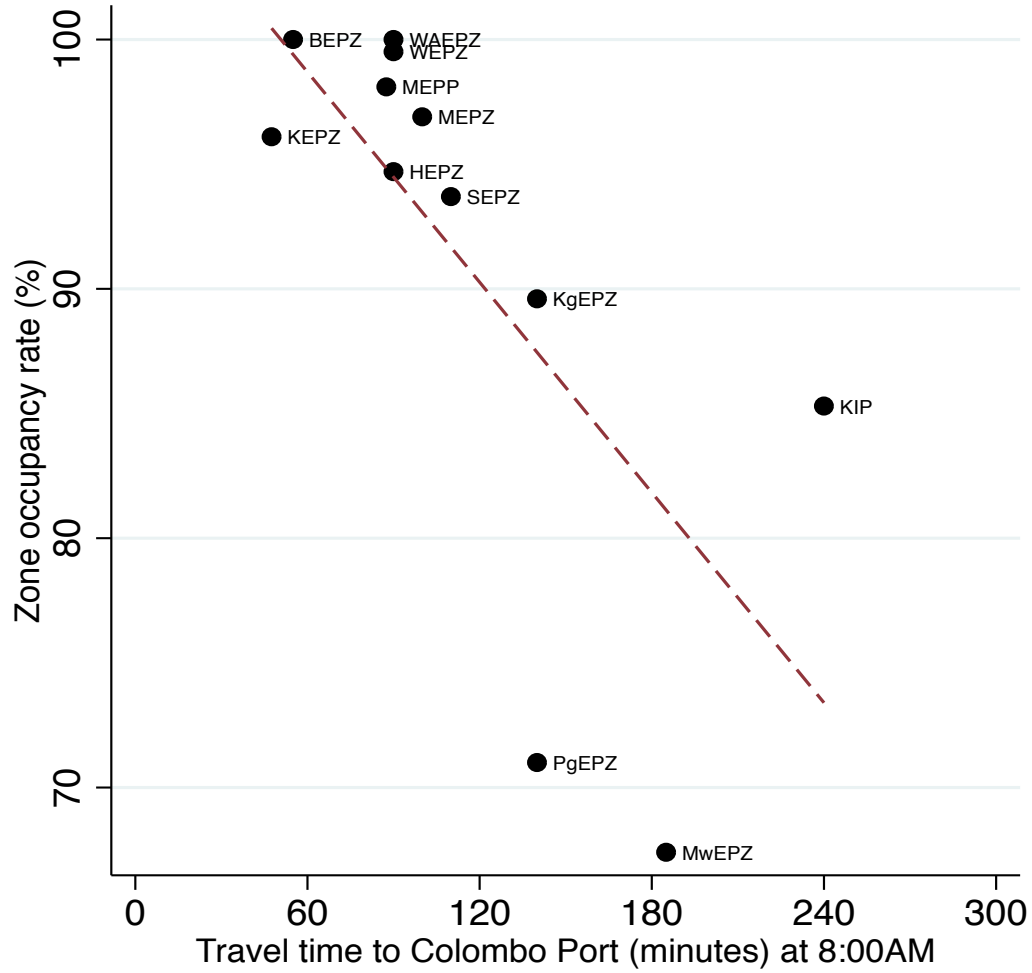
	Required approvals
Pre-approved in EPZs (5)	• Environmental clearance and concurrence; • land clearance; • electricity registration; • water registration; • telecommunications registration
Expedited in EPZs (4)	• Site approval; • building plan approval; • certificate of conformity; • environmental protection license
Normal procedures apply (8)	• Company registration; • preliminary investment clearance; • work permit and resident visa; • tax registration; • import and export registration; • import and export license; • rules of origin certificate; • chemical materials approvals

Source: BOI estimates. Note: applies to five high-priority sub-sectors; estimates differ for other activities

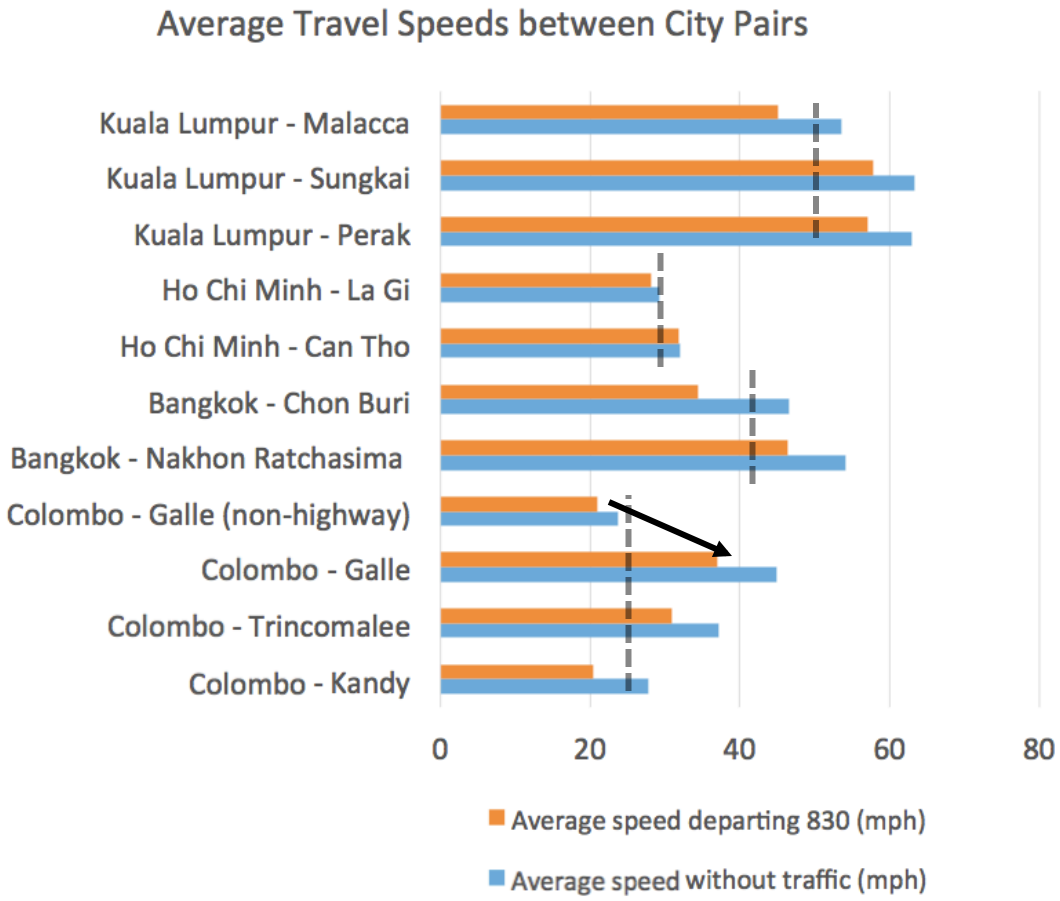
- Also: dedicated service providers, including customs, labor dispute settlement, connections w/ CEB & Water Board, etc
- But: many other forms of policy uncertainty (tariffs, tax)

Transportation infrastructure: not clear if zones can help directly. But, there are indirect ways that zones can help!

1. Expressways could make more distant zones more attractive



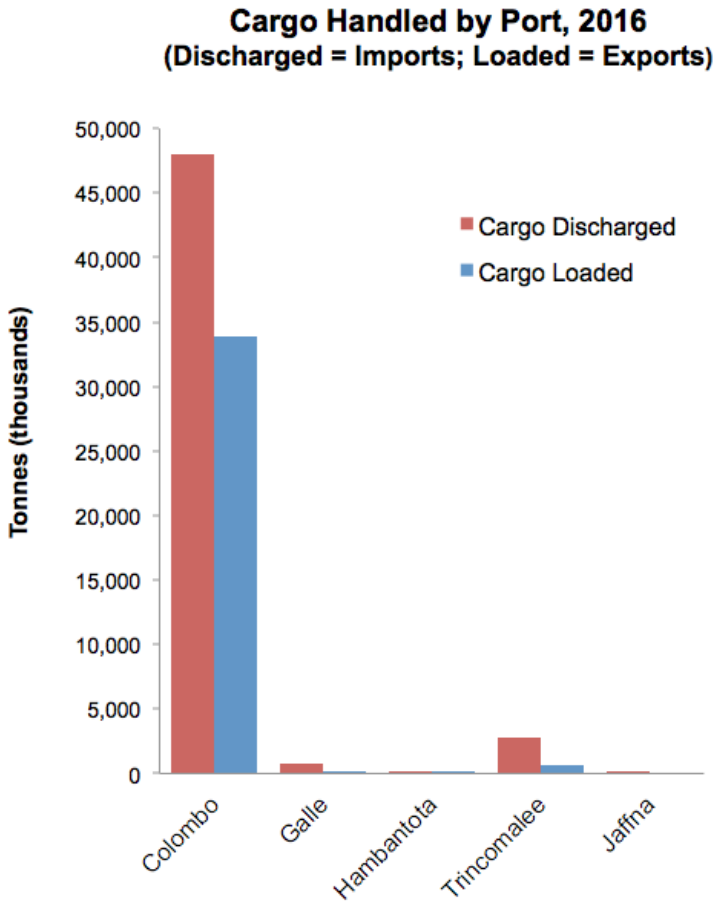
Sources: BOI figures and Google Maps

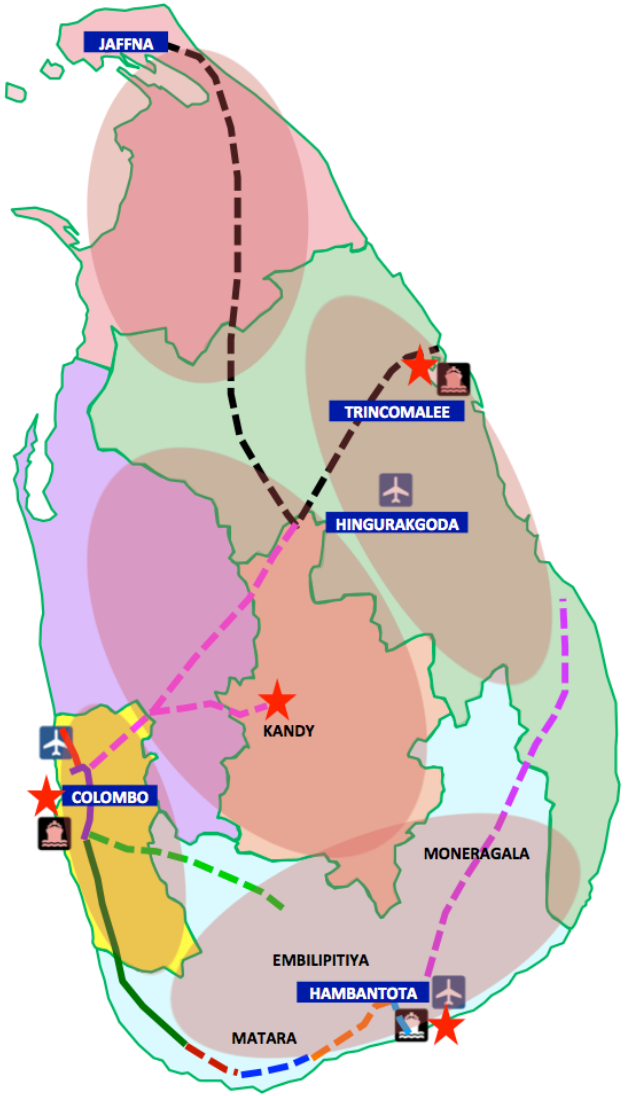


Source: Travel speeds calculated based on Google Maps travel times in 2016.

Transportation infrastructure: not clear if zones can help directly. But, there are indirect ways that zones can help!

2. Combining ports / airports with zones can help solve coordination failure in new hubs beyond Colombo





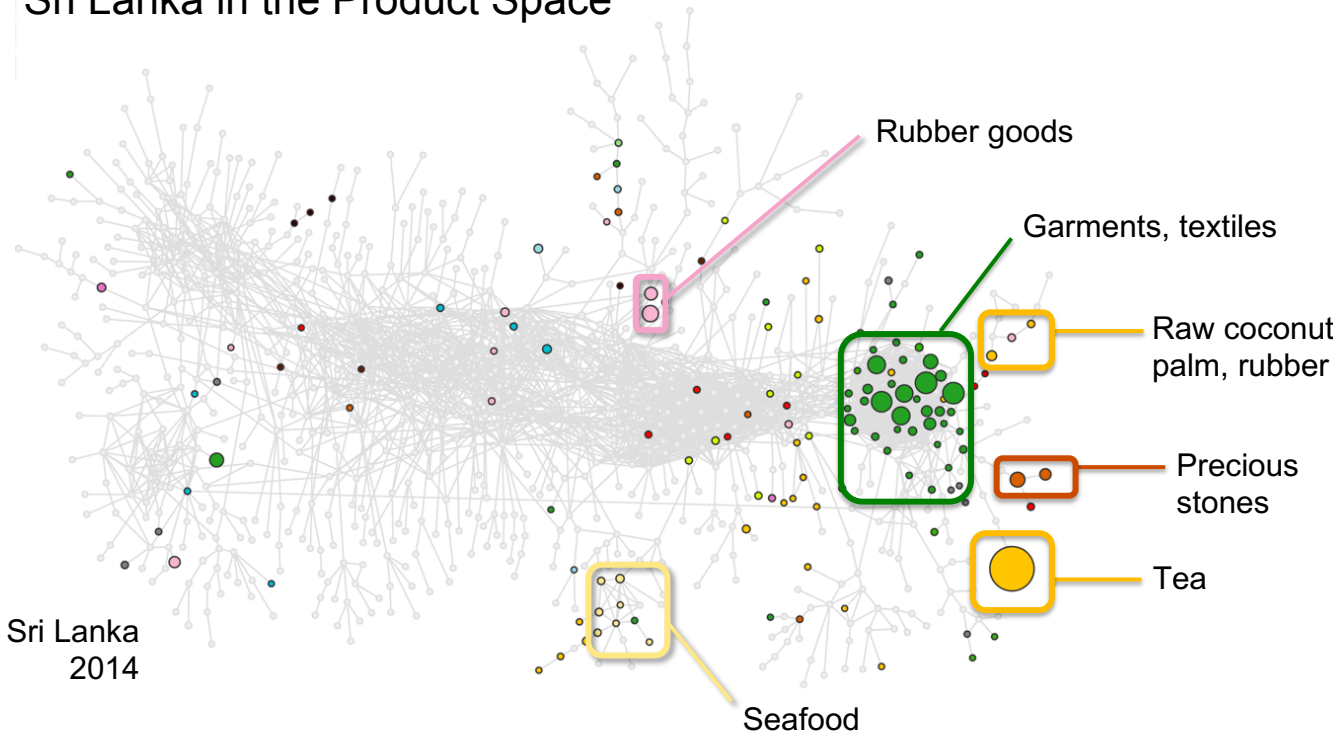
Sources: Ministry of Ports and Shipping, 2016 Performance Report (left); MODSIT Development Strategies Update, March 2017 (right)

Can zones help solve:

Private sector coordination? Maybe!

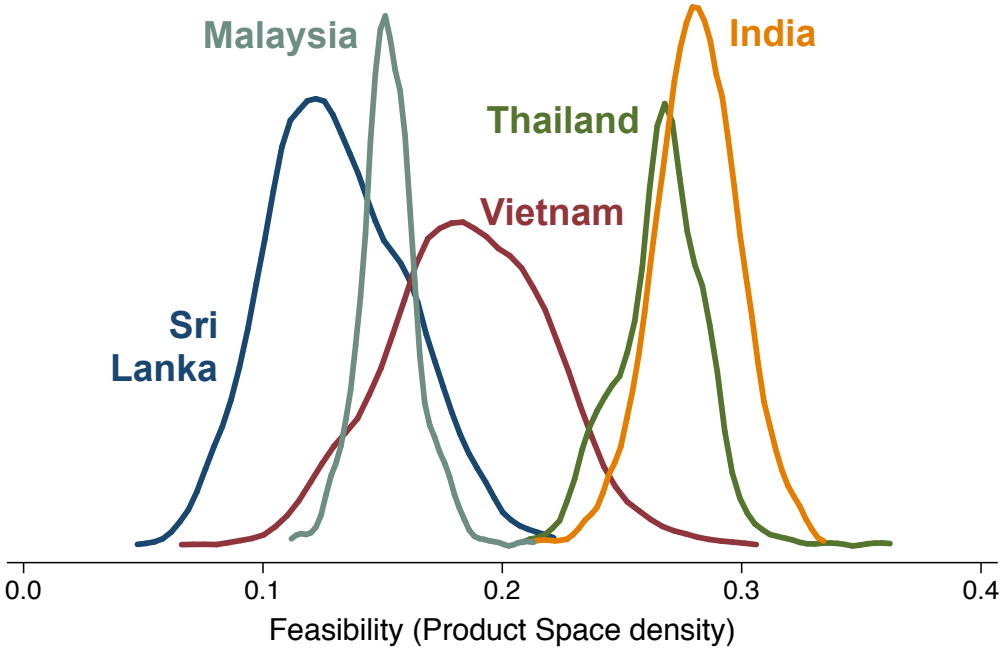
1. Sri Lanka's missing export sectors are very different from its current comparative advantage:

Sri Lanka in the Product Space



Source: Atlas of Economic Complexity (http://atlas.cid.harvard.edu/)

Export products without revealed comparative advantage (RCA<1)



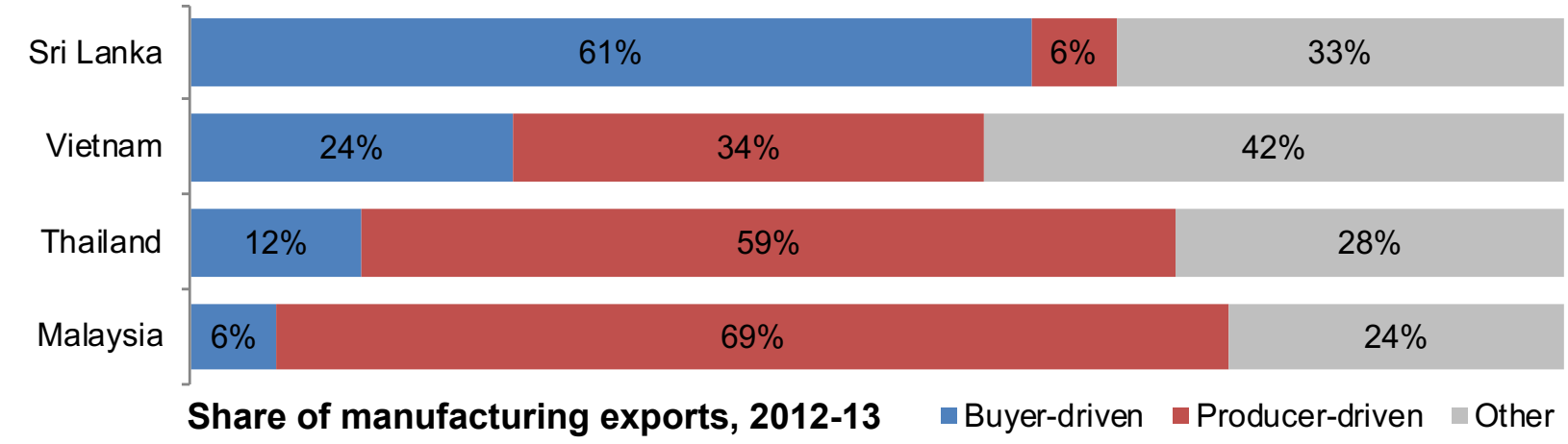
Note: excludes natural resources, and low-complexity goods (PCI<ECI).
Source: calculations based on COMTRADE data

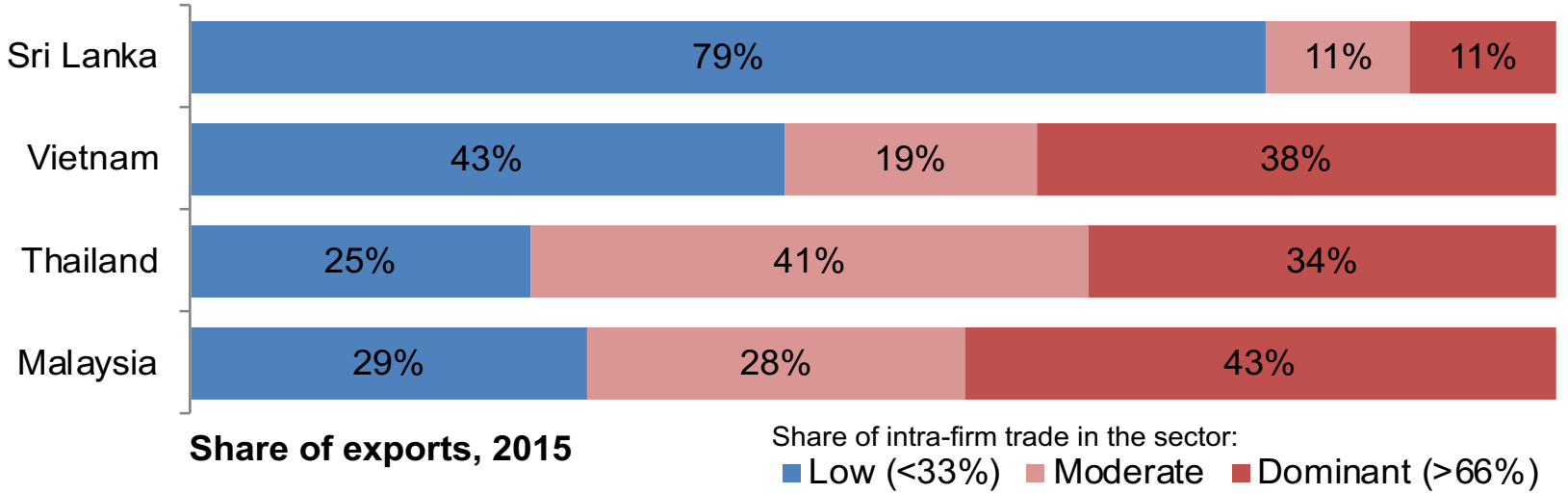
Can zones help solve:

Private sector coordination? Maybe!

2. Missing export sectors are also characterized by tight supply chains:

- Most are in “producer-driven” global production networks
- And have partial ownership stakes by foreign MNCs (high ”intra-firm trade”)





Sources: Athukorala 2016 (top); own calculations, using classifications from Bernard, Jensen & Schott (2006) and COMTRADE data (bottom)

Theory: international zone management companies could tap into their private sector networks & bring these companies (& the amenities they need)

➢ Further research needed!

Conclusions

- While there are many things that can be fixed in Sri Lanka (or in any economy), need to prioritize: will solving an issue release any pent-up investment interest?
- CID study suggests a few binding constraints: access to industrial land, policy uncertainty, transport infrastructure, private sector coordination
- Zones can solve multiple problems at the same time…
- …but it will take extra effort. Turn a house into a home
- GoSL is off to a great start!

Going beyond diagnostics:

Supporting GoSL's work on zones

Work with GoSL:

Addressing the land constraint (1/3)

- Early Harvard findings show lack of targeted promotion of FDI & exports
- GoSL and CID convene PDIA teams to address this, including Targeting Team (T-Team)
- T-Team meetings weekly from Sept-Dec 2016 (anchored in BOI's Research and Policy Advocacy unit)
  - CID assistance w/ methodology & data
  - Results: sector priorities & strategies
  - Also asks if the sectors' required assets (land, infrastructure, skills, etc) are currently available in SL

Rank /30	Sectors	Priority index scores				Promotion index scores			
		Overall	Impact for Sri Lanka	Market opportunity	Investor interest	Strategy	Current strength	Current know-how	Hard & soft assets
1	Electronics	0.63	◕	●	◕	🌐	◔	○	◕
2	Industrial machinery	0.55	◕	◕	◕	🌐	◔	○	◕
3	Automotive	0.52	◕	◕	◕	🌐	◔	○	◑
4	Tourism	0.48	◑	◕	◕	👥 🌐	●	n/a	●
5	Electrical equipment	0.39	◕	◕	◕	👥 🌐	◑	◔	◕
6	Fabricated metal products	0.38	◕	◑	◕	🌐	◔	◔	◕

Work with GoSL:

Addressing the land constraint (2/3)

- T-Team pivots to finding locations for targeted sectors
- L-Team works in Feb-Aug 2017:
  - Team compiles list of 600+ sites, from multiple gov ministries / agencies
  - Narrows down to 70 possible zones, conducts site visits
  - CID support for quantifying land evaluations, & matching land characteristics w/ targeted sectors' requirements

Parameter	Scoring Criteria		
	5	3	1
Hard Assets Availability			
Industrial Land Intensity	>400 acres	200 acres	75 Acres
Industrial-use water	8000m^3/d or above	4500m^3/d	<100m^3/d
Wastewater treatment	6400 m^3/d or above	3600m^3/day	<80 m^3/d
Solid waste treatment	>50 MT/d	30 MT/d	10MT/d
Hazardous waste treatment	>40 MT/d	30 MT/d	10MT/d
Electricity supply	>50KVA	30 KVA	10 KVA
Electricity stability	<20 Disturbance/year	100 disturbances /year	>200 Disturbance/year
Soft Assets Availability			
Skilled Employees	more than double national rate	same as national rate,	less than half national rate
General Employees	more than double national rate	same as national rate,	less than half national rate
General Conditions			
Land Topography	Flat	Slightly Undulating	Undulating
Flooding Landslides	No Flood		High Flood
Landslides	No Land Slides		High Land Slides
Relocation and Resettlemet	No Relocation		High Relocation
Development Cost	Low Development Cost		High Development Cost
Accessibility			
Road	A Grade Road	B Grade Road	C Grade Road
Distance to Railway Line	Less than 1 Km	12 km	More than 25Km
Distance to Colombo Port	Less than 50 Km		More than 200 Km

Asset	Hard assets required							Soft assets required	
	Industrial Land Intensity	Industrial-use water	Wastewater treatment	Solid waste treatment	Hazardous waste treatment	Electricity supply	Electricity stability	Skilled Employees	General Employees
Solar panels and cells, transistors, diodes	1.4	2.2	1.6	0.4	0.2	1.0	4.5	2.5	1.9
Motor vehicle parts and accessories	1.4	2.2	1.6	0.4	1.1	1.8	0.7	1.7	1.3
Hand tool components	1.4	0.5	0.4	0.4	0.2	1.8	0.7	3.8	1.9
Screws, bolts, washers, nuts	1.4	0.5	0.4	0.4	0.2	2.8	0.7	2.1	0.5
Medical devices	1.4	0.5	0.4	0.1	0.2	1.0	0.7	2.5	1.4
Molding boxes for metal foundry	1.4	0.5	0.4	0.4	0.2	1.8	0.7	2.4	0.5
Industrial production machines & robots	1.4	0.5	0.4	0.4	0.2	1.8	0.7	2.4	0.9
Ceramics	7.2	2.2	1.6	0.4	0.2	7.7	0.7	2.9	0.6
Electricity distribution panels	1.4	0.5	0.4	0.4	0.2	1.0	4.5	2.2	1.1
Valves	1.4	0.5	0.4	0.4	0.2	1.8	0.7	2.1	0.6

Source: BOI L-Team, via Sector Targeting Report

Work with GoSL:

Addressing the land constraint (3/3)

- Results: top sites identified & benchmarked against current zones
- 2018 Budget allocates funding for new zones; development under-way in 4 identified sites so far. L-Team members still involved today

Bingiriya industrial zone to be developed as a public-private partnership: PM

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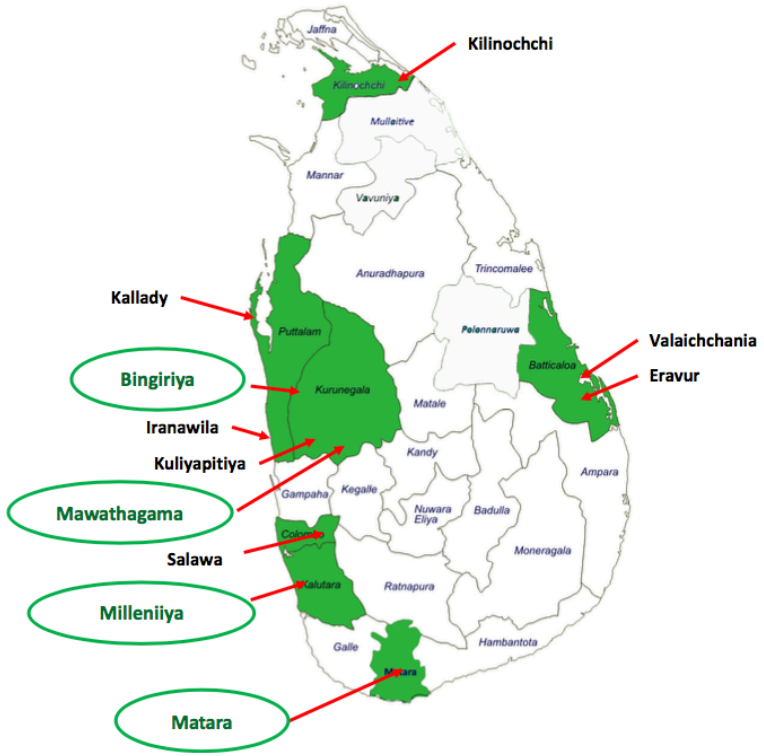
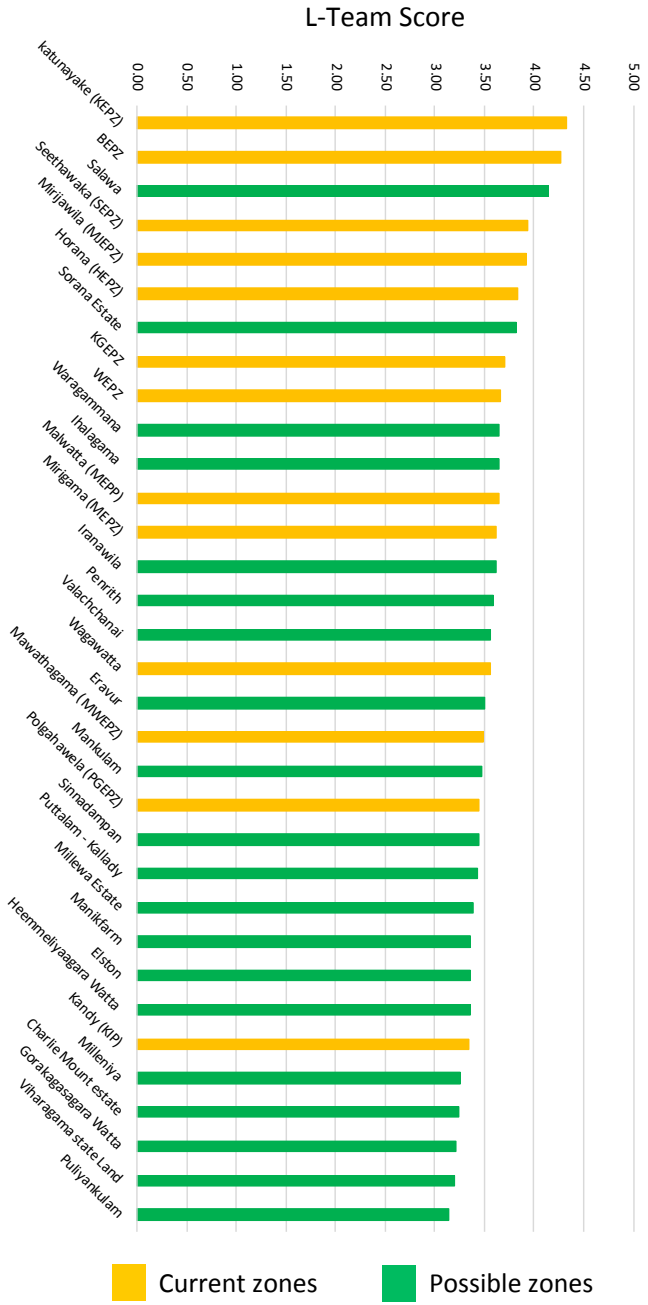
Prime Minister Ranil Wickremesinghe on the inspection tour of the Bingiriya industrial zone with ministers and key officials





Questions to discuss:

1. Do you agree with the Growth Diagnostic findings? What do you think is holding back investment in new export sectors?

2. What have been your experiences working on zones development / industrial land?

3. What are some other studies and initiatives on zones / land that you think are worth discussing? (e.g. the METI Industrial Townships report, or ADB's Colombo-Trinco Corridor study)

Many CID outputs, including the zones report and our full Growth Diagnostic, are on the Sri Lanka Project website:

https://srilanka.growthlab.cid.harvard.edu/

Thank you!

Annex

Buyer-driven vs producer-driven GVCs

Network type	Buyer-driven	Producer-driven
Economic Sectors	Consumer non-durables	Consumer durables, intermediate goods and capital goods
Typical Industries	Apparel, footwear, furniture, toys and diamonds	Automobiles, computers, aircraft and semiconductors
Drivers	Commercial capital	Industrial capital
Core Competencies	Design, brand, marketing	R&D, production
Barriers to Entry	Economies of scope	Economies of scale
Ownership of Firms	Local firms (predominantly in developing economies)	Multinational corporations
Main Network Lines	Trade-based	Investment-based
Predominant Structure	Horizontal	Vertical

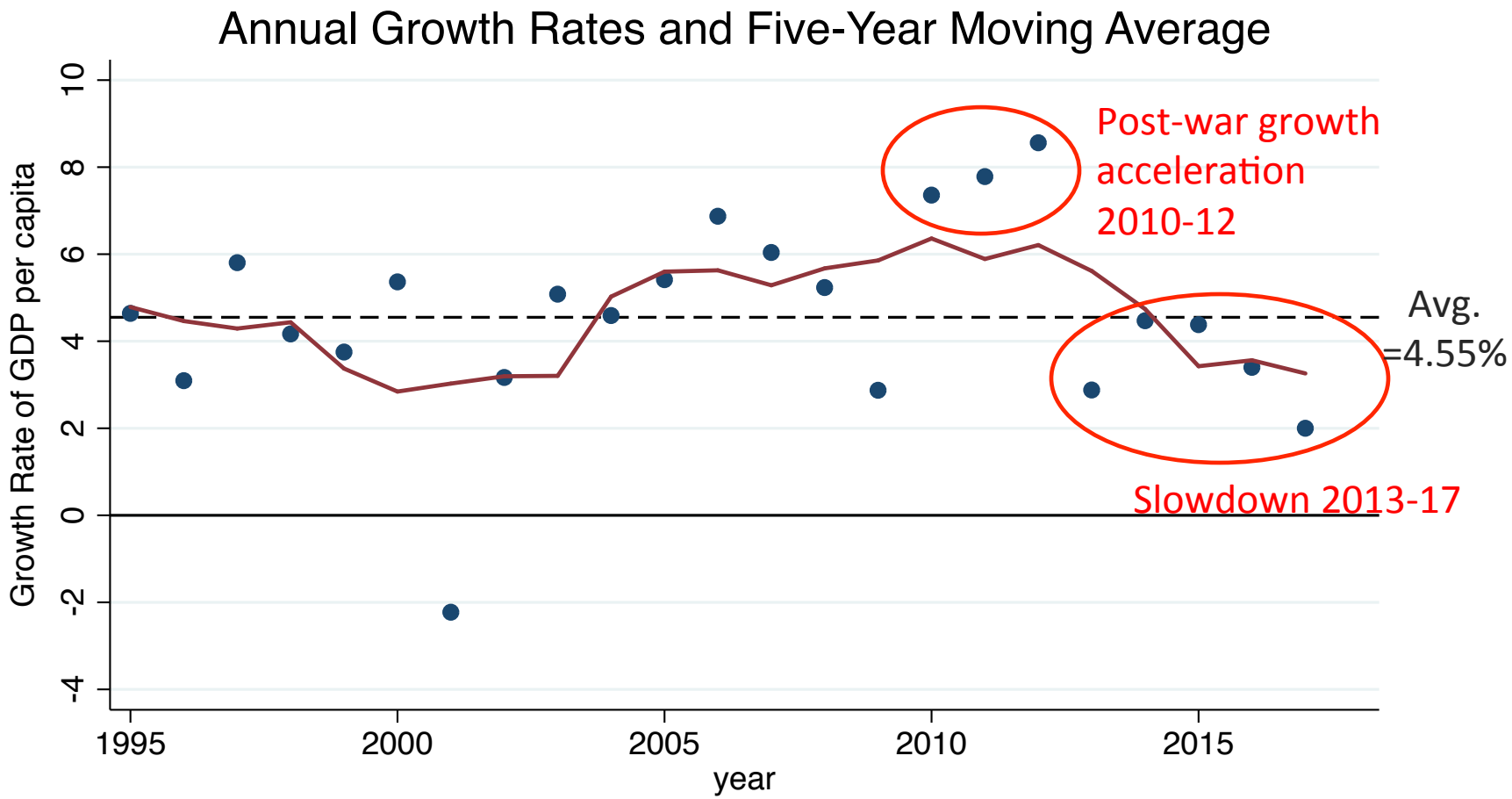
Table 3: Differentiating buyer-driven and producer-driven production networks

Source: Gereffi (1999)

Annex

Why focus on new export-oriented sectors?

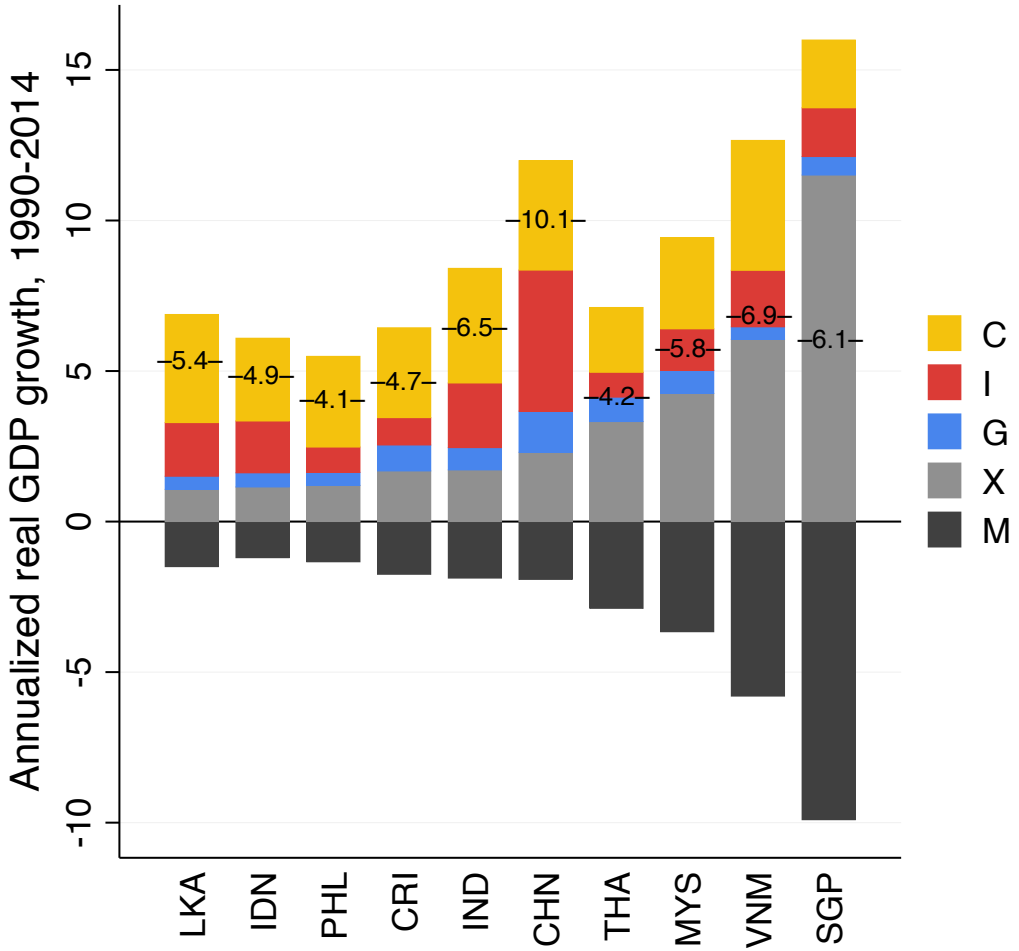
GDP growth is relatively consistent. Though not very fast, and slowing in recent years

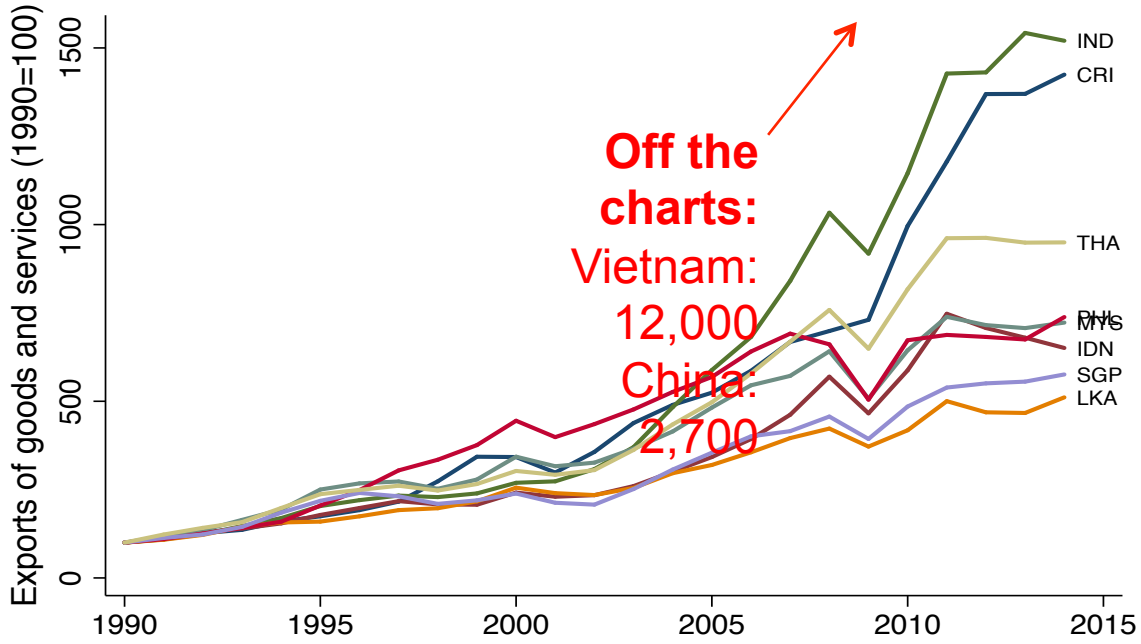


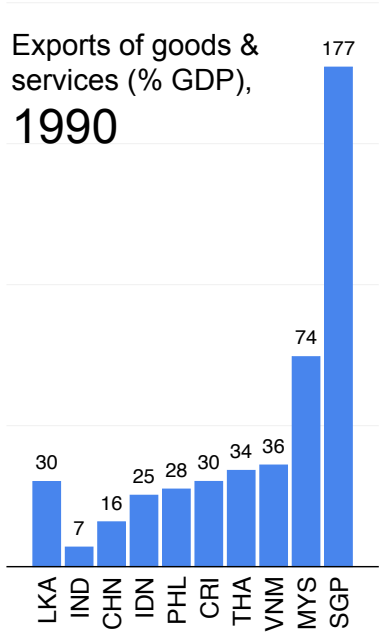
Note: GDP per capita as mesured in constant 2010 US$
Data source: World Development Indicators up to 2015; CBSL

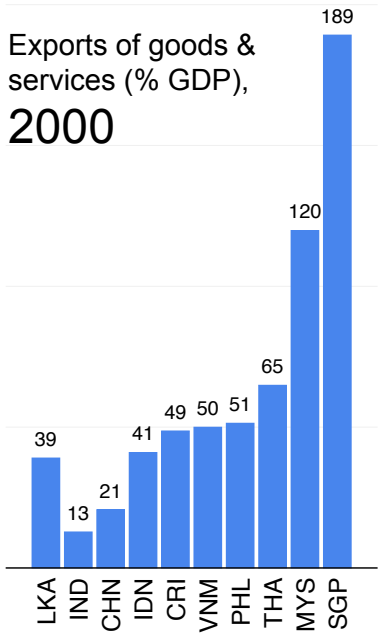
- Other measures of development– e.g. Human Development Index – are increasing (and highest in the region)
- Growth has coincided with poverty reduction

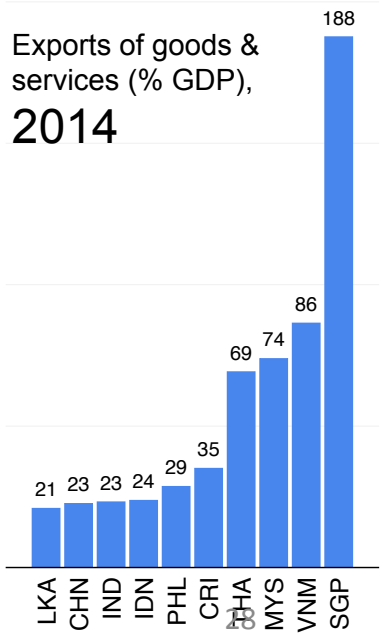
What's missing from growth?
Export component







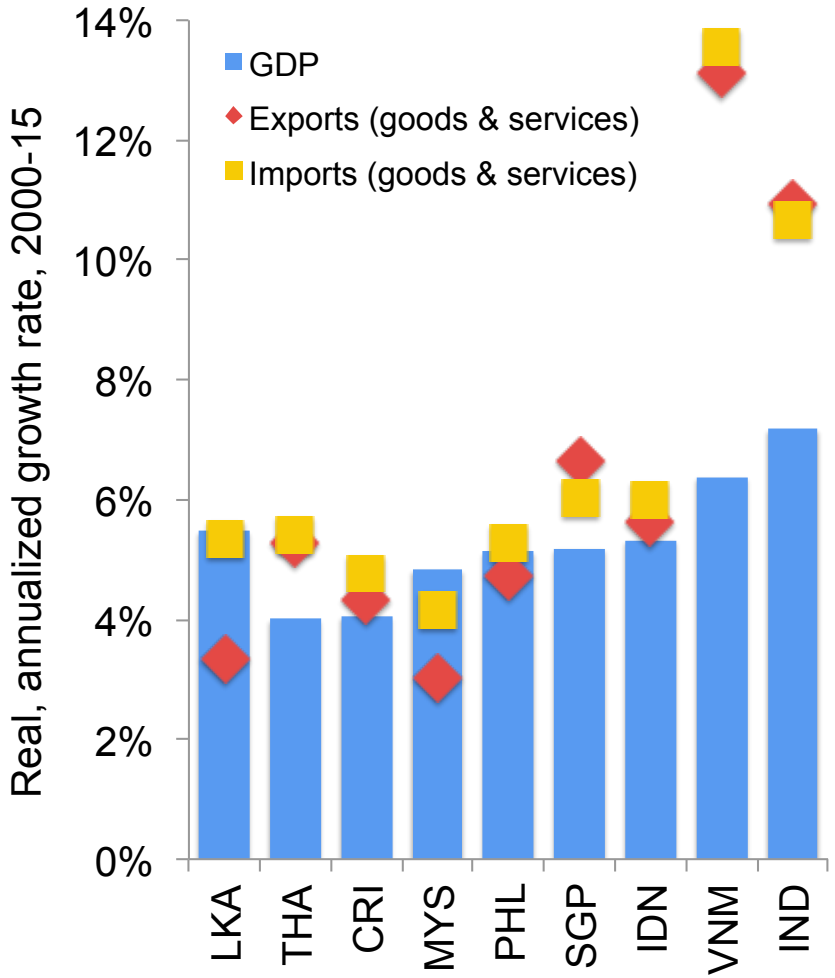




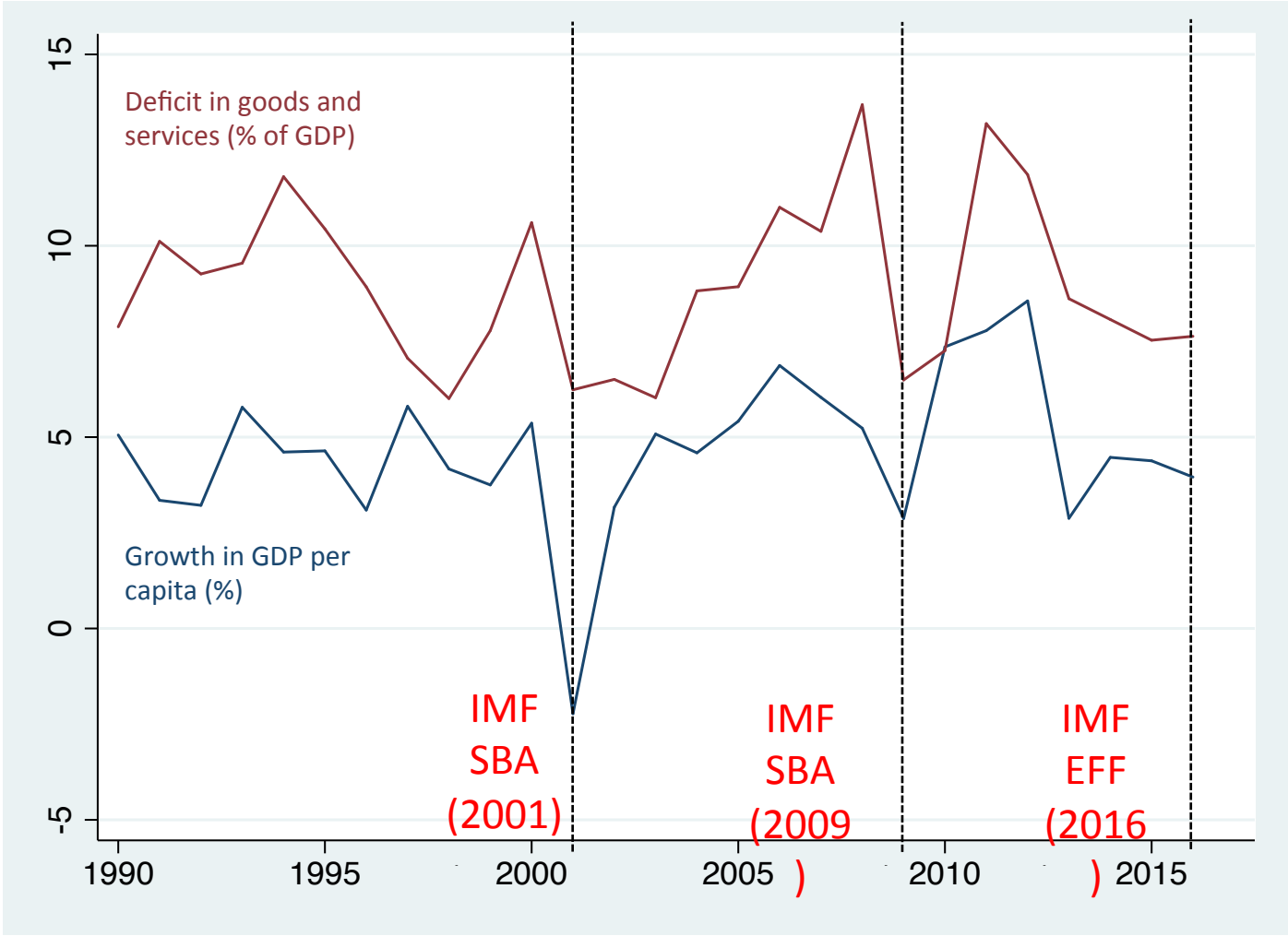
Sources: own calculation using data from WDI and COMTRADE. Note: Top-right not adjusted for inflation

Why might inward-oriented growth be bad?

Balance of payments acts as speed limit



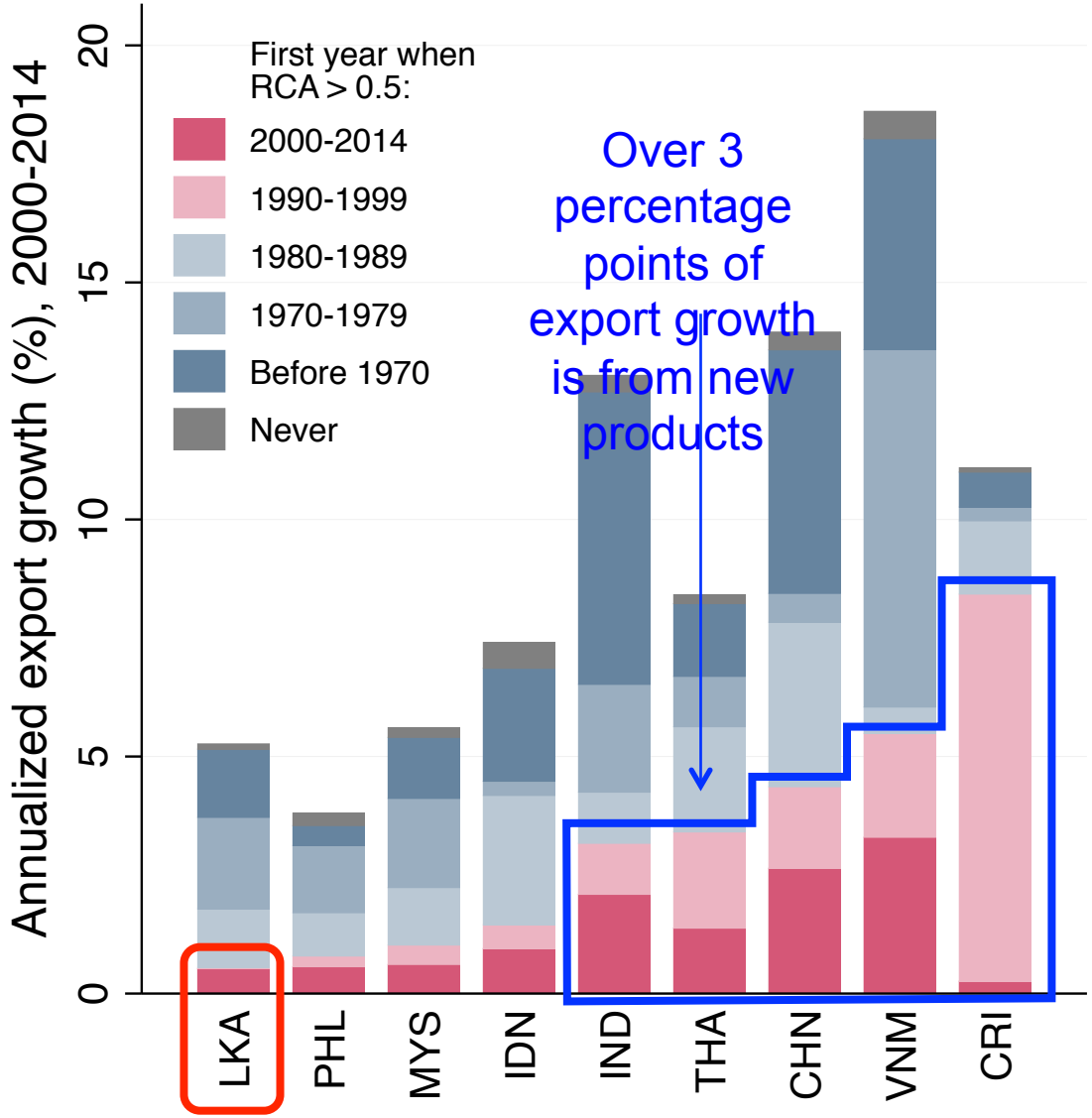
Source: WDI



Sources: WDI, Przeworski and Vreeland 2000. Note: more IMF programs in '65, '74, '77, '83, '88

Why aren't exports growing? No new products.

Quantifying impact of non-diversification



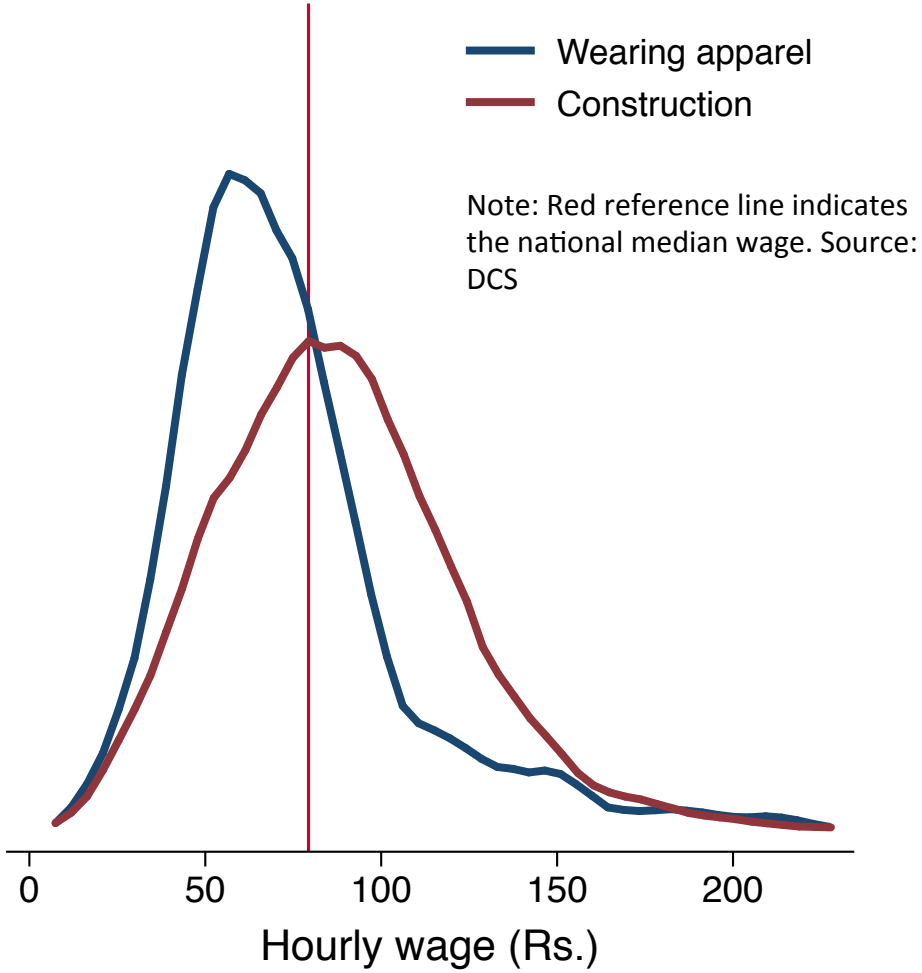
New export products, 2000-2015

Country	Value of new export products		Number of new export products
	Per capita (USD)	Total value (USD bn)	
Vietnam	545	50.4	48
Thailand	326	21.8	70
China	245	331.6	76
Malaysia	149	4.7	10
Costa Rica	139	0.7	6
Philippines	12	1.2	11
Sri Lanka	5	0.1	7
Indonesia	3	0.8	4

Sources: CID calculations, based on COMTRADE data

Another impact of non-diversification:

Lack of new (more complex) export sectors may limit incomes

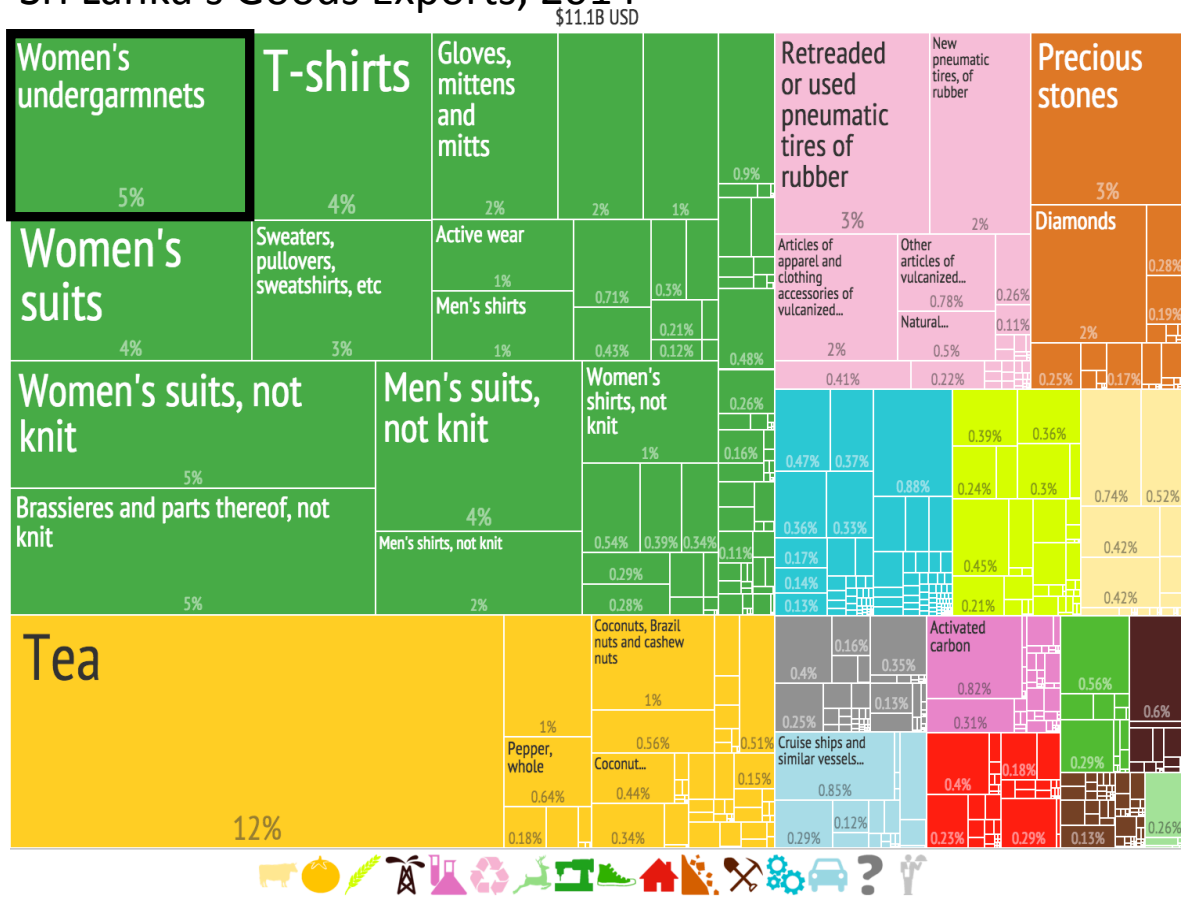


Compare with Panama:

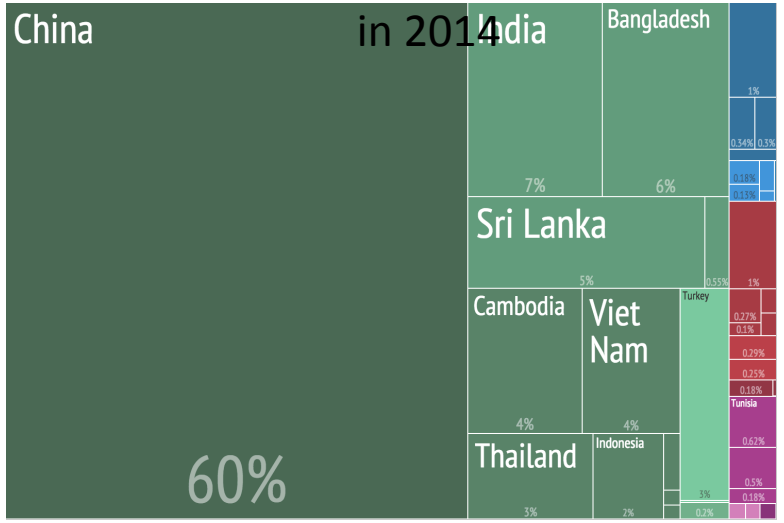
Existing export sectors may face own set of constraints

But these are “out of scope” due to focus on new and non-traditional sectors

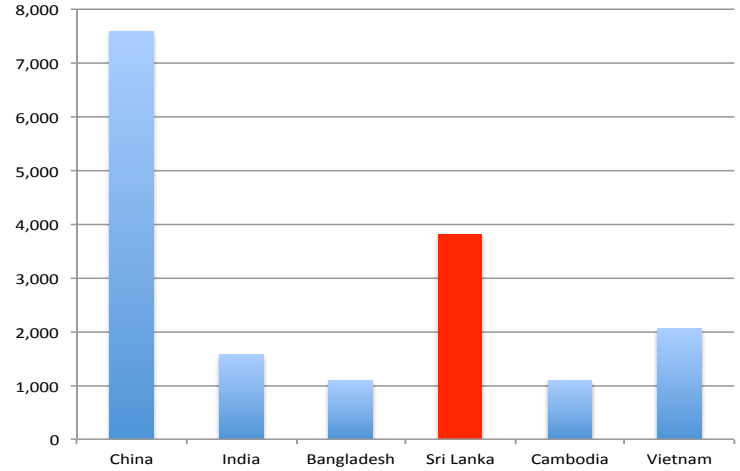
Sri Lanka’s Goods Exports, 2014



Mkt Share of Women’s Undergarments (Net) in 2014



GDP per capita (USD) in 2014



Sources: Atlas of Economic Complexity; WDI

Overall, a lot of work going into growth question – many different ways to ask "what exactly is constrained?"

	What appears healthy?	What appears constrained?
GDP growth by expenditure type	• Overall GDP growth • Growth contribution from investment, government & household consumption	• Trade component of growth (low, stagnant exports; persistent trade deficit)
GDP growth by sector	• Construction & real estate • Retail, logistics, hospitality, recreation (possibly including tourism) • Finance, insurance, technical / support • ICT (growing, though still small)	• Agriculture & fisheries • Manufacturing
Exports by product category	• Goods first exported in 1980s or earlier • Garments, agriculture	• New export products • Manufactures (machinery & electrical)
Exports of services	• Finance/insurance, logistics, tourism	• ICT/BPO (small, relatively slow growth)
Exports by complexity	• Export products associated with lowest income & "know-how"	• Export products associated with mid-to-high income & "know-how"
FDI	• Tourism, logistics, finance, & construction investment	• Overall FDI • Manufacturing (electronics, vehicles, materials) & energy investment

QUESTION OF THE GROWTH DIAGNOSTIC:
What are the constraints that bind **investment in new and non-traditional export-oriented activities?**