STRUCTURAL CHANGE AND DEVELOPMENT IN THE GLOBAL SOUTH
Concepts, experiences, and new directions

Fiona Tregenna

South African Research Chair in Industrial Development & Professor of Economics,
University of Johannesburg

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Outline of this lecture

1. Global context
   - Megatrends
   - Industrial production and deindustrialisation
   - Sub-sectoral dynamics of deindustrialisation

2. Structuralist approach
   - Emerging directions in structuralist approaches

3. Conditions and directions for industrial policy
   - Current conditions for developing countries
   - Broad directions for (re)industrialisation, “new generation” of industrial policies
   - Transformative industrialisation

Global context: Megatrends

- Climate change
- 4IR, technological change
- Pandemic / disease
- Conflict

Global context: Industrial production

- Industrial production remains concentrated among a small group of nations
- Limited ‘breaking in’ over time – largely from East Asia
- Globally, manufacturing net stagnant, but not the sweeping deindustrialisation as sometimes claimed
- Some shifting around of manufacturing production, reflecting as deindustrialisation in many countries
- Including in some lower-middle and low-income countries
  - Cases of ‘pre-industrial deindustrialisation’
- Rapid technological change in manufacturing, uneven across countries

Major historical phases of industrial development and policy in Brazil

1. **–1980:** Extensive state-indicative planning in the areas of sectoral development (e.g. steel, petrochemical and renewable fuels policies) and ISI/trade protection (e.g. ad valorem tariffs and law of similarities).
   Industrial policy aimed mainly at creating new industrial sectors, shifting away from specialisation in primary commodities, and promoting technology-intensive activities.

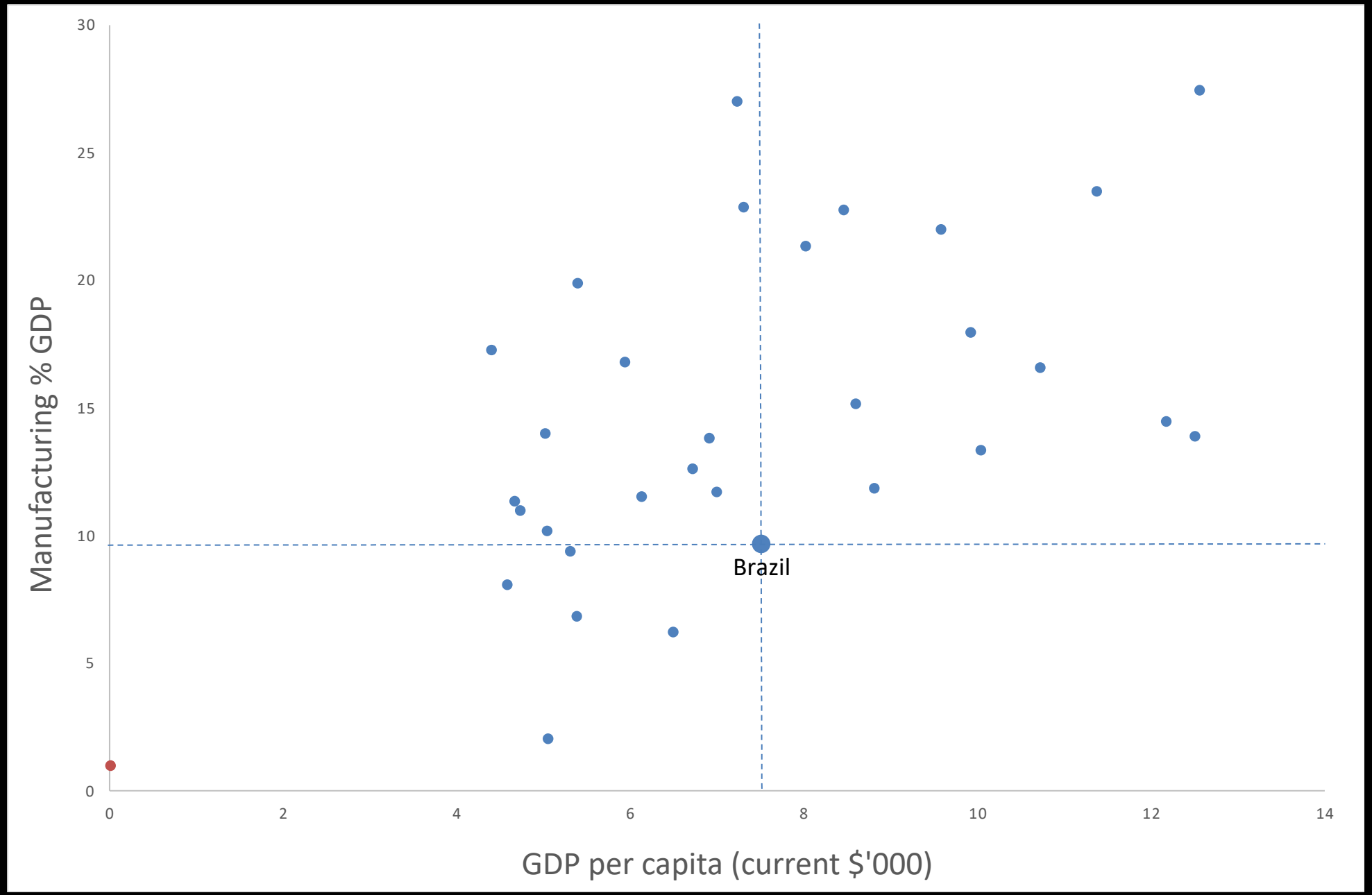
2. **1980s and 1990s:** Structural adjustment policies and macroeconomic stabilisation.
   Structural adjustment initially directed at trade liberalisation and privatisation of public enterprises, from the mid-1990s they increasingly focused on macroeconomic stabilisation (‘Real Plan’).

3. **2000s:** Return and adaptation of selective (sector-specific) industrial policies, focus on tech upgrading.
   PITCE (2003), PDP (2008), Plano Brazil Maior (2011)

Sources and characteristics of deindustrialisation in Brazil

- Classic case of premature deindustrialisation.
- Longstanding (since early 1980s), different phases.
- Policy-induced
  - Macroeconomic policy
    - Focus on price 'stabilisation' and low inflation → high interest rates and currency overvaluation
    - Lack of co-ordination between macroeconomic and industrial policy.
  - Trade liberalisation – tariff cuts.
  - Decline in public investment.
- 'Dutch Disease' type (commodities).
- Negative effects of this premature deindustrialisation are evident over long period (productivity, technological progress, growth, political economy etc.).

Is Brazil too rich / too late to re-industrialise?



UMI countries (excluding population<1m) 2021
Source: WDI

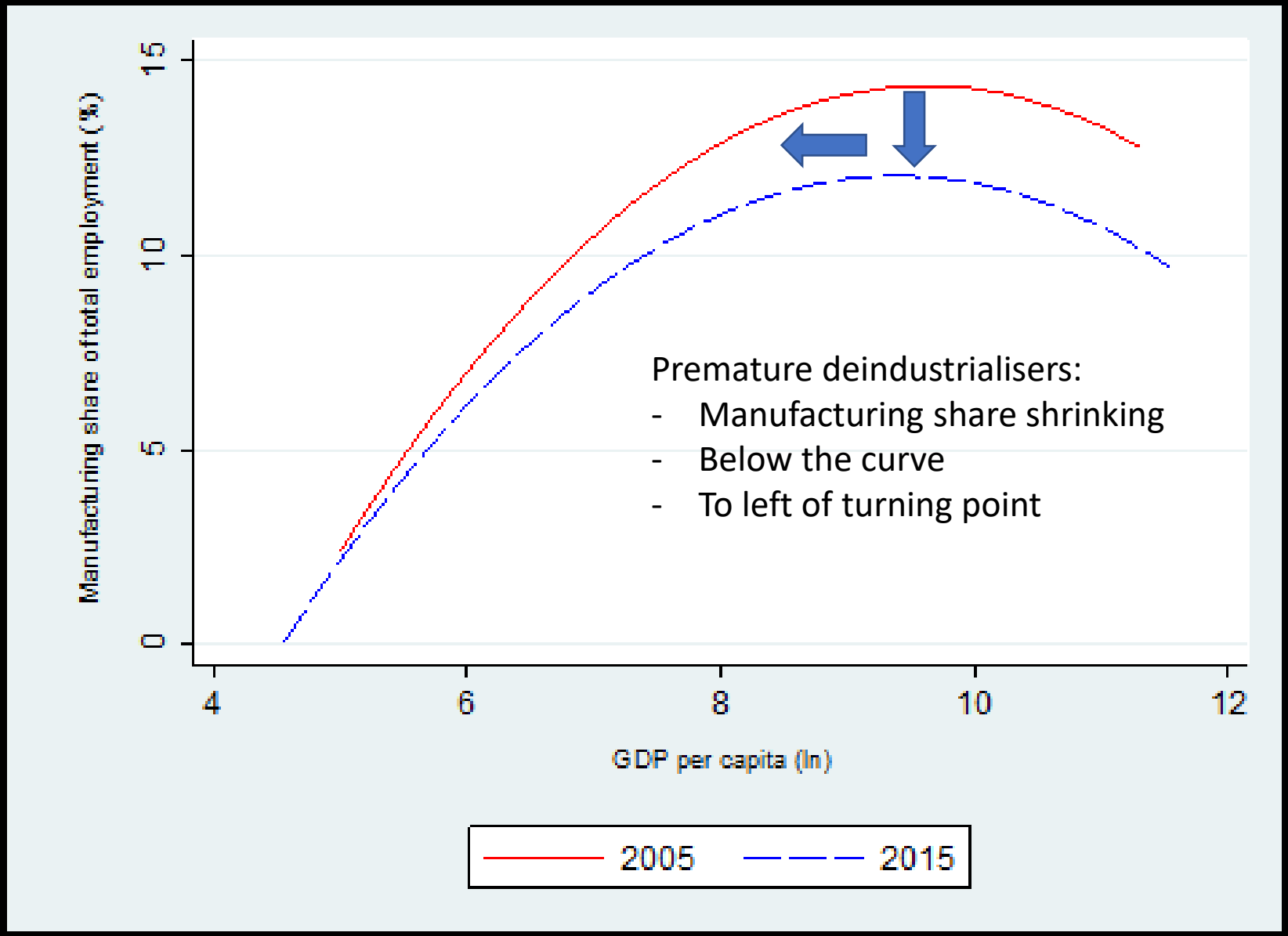
Why manufacturing (still) matters

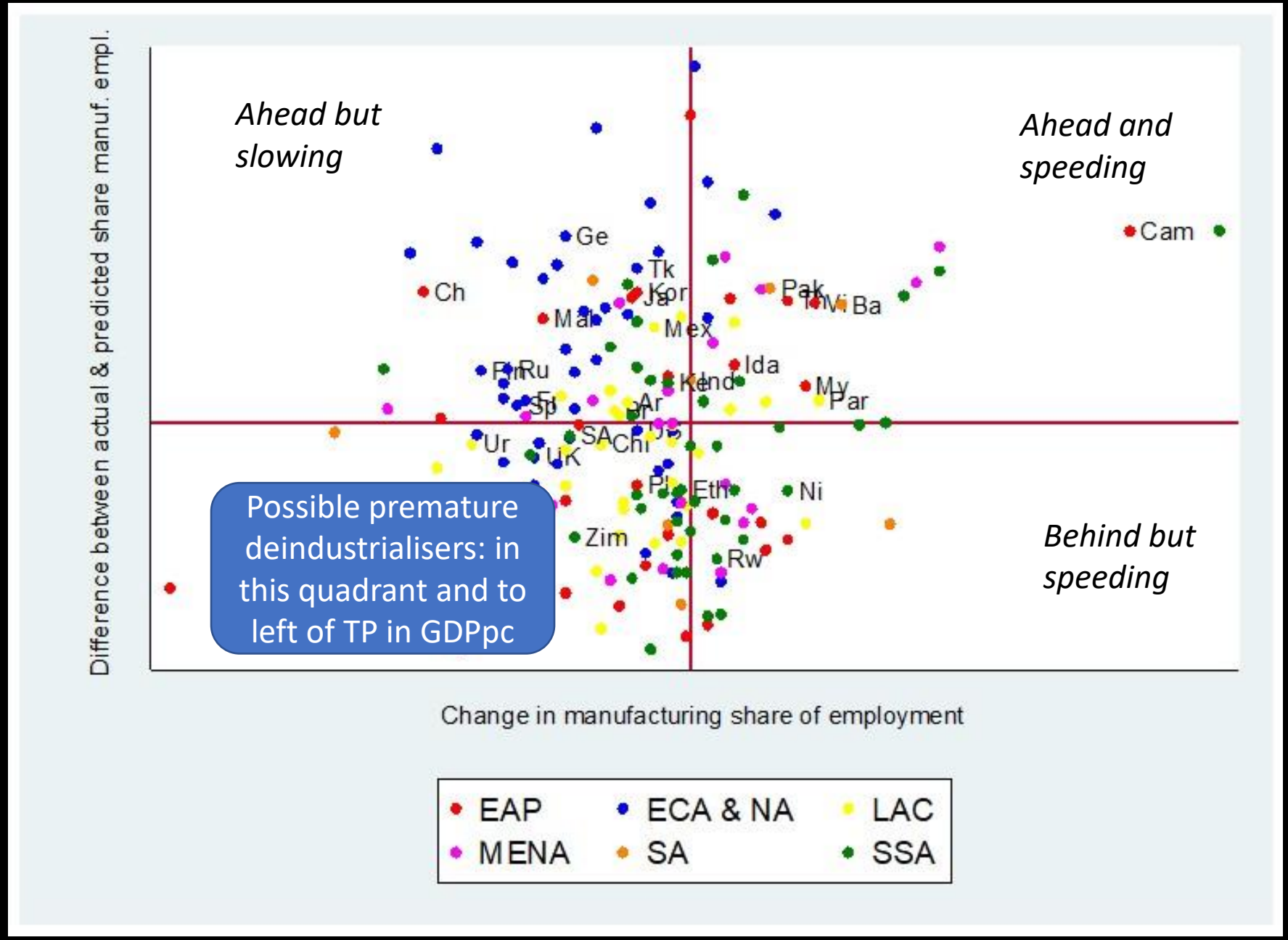
- Characteristics of manufacturing as an engine of growth – still relevant.
  - Strong linkages; learning by doing; cumulative productivity increases and dynamic increasing returns to scale; technological progress; BoP.
- Transformative role of industrialisation, political economy.
- Weak manufacturing, and especially premature deindustrialisation, undermines prospects of other sectors/activities driving growth.

Premature deindustrialisation

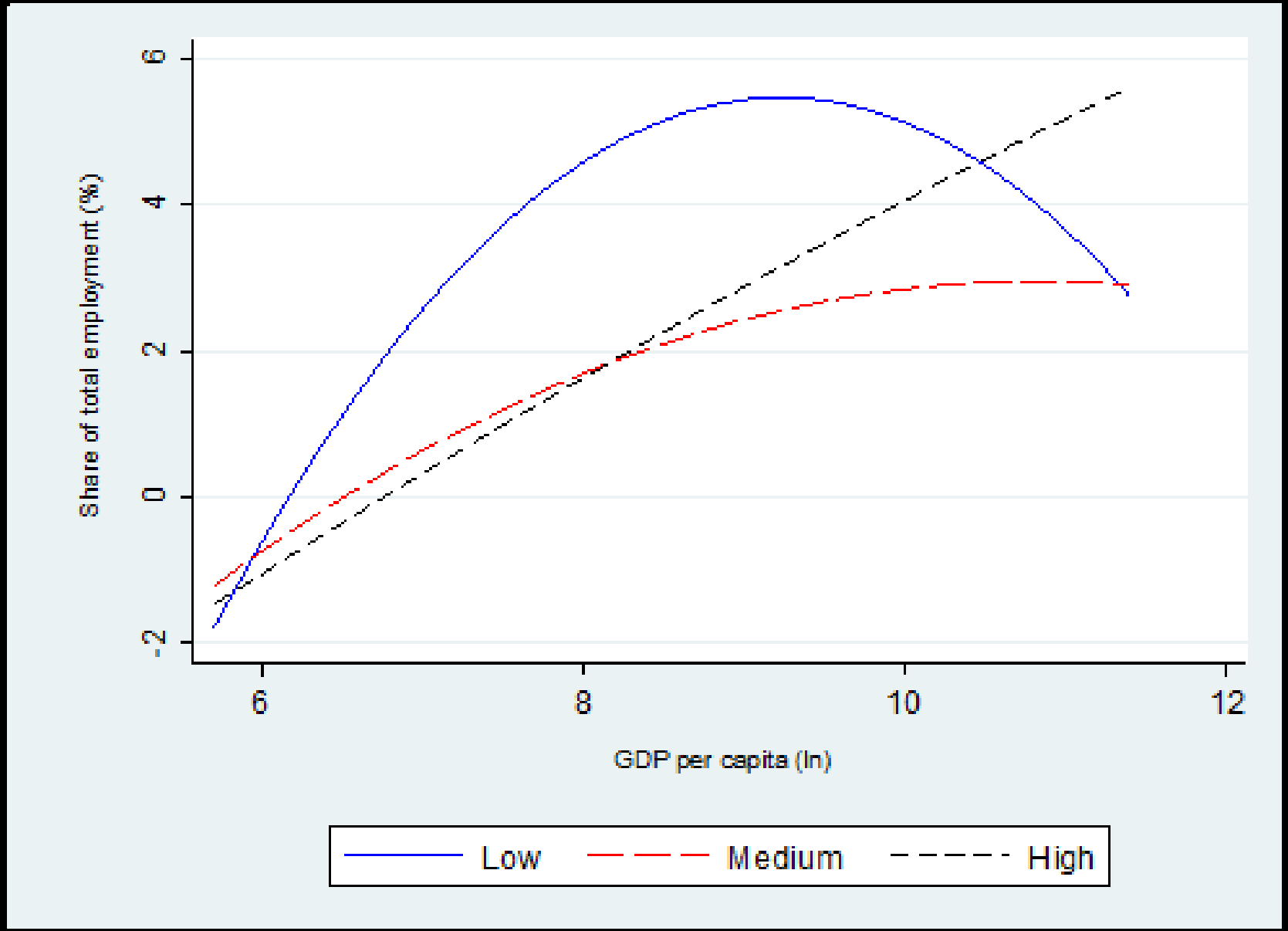
- Deindustrialisation at lower levels of income per capita than would be ‘expected’.
- Typically triggered by economic reforms (‘liberalisation’).
  - Trade liberalisation, tight monetary policy etc.
- So not just ‘maturation’ of economic structure in these countries.
- Less of the benefits of industrialisation would already have been captured by the time deindustrialisation begins.
- Less feasible to move to advanced activities in other sectors as potential engines of growth.
- Likely to have more negative effects on long-term growth.
- Importance (and difficulty) of reindustrialisation.

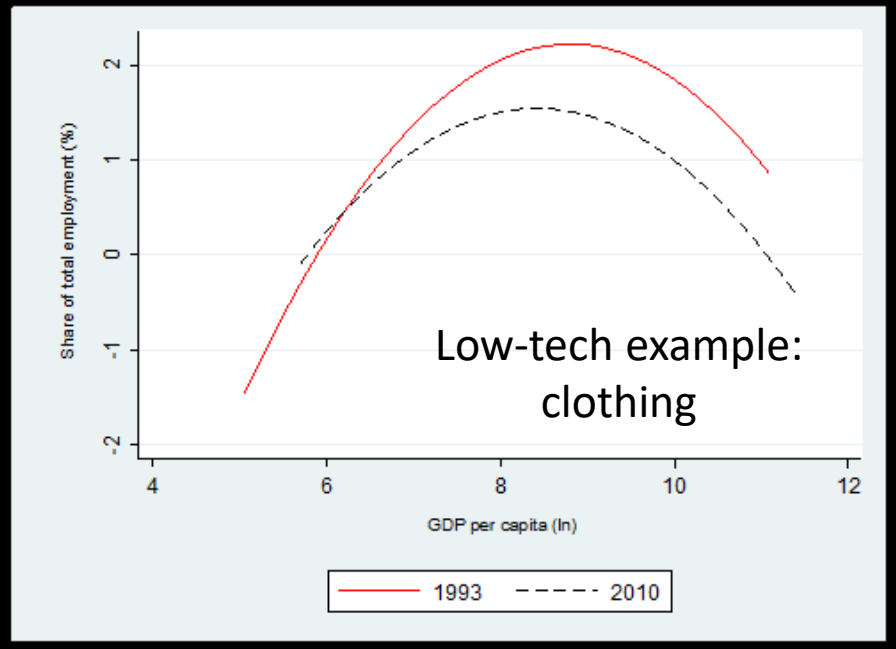
Inverted-U: GDPpc & manufacturing share

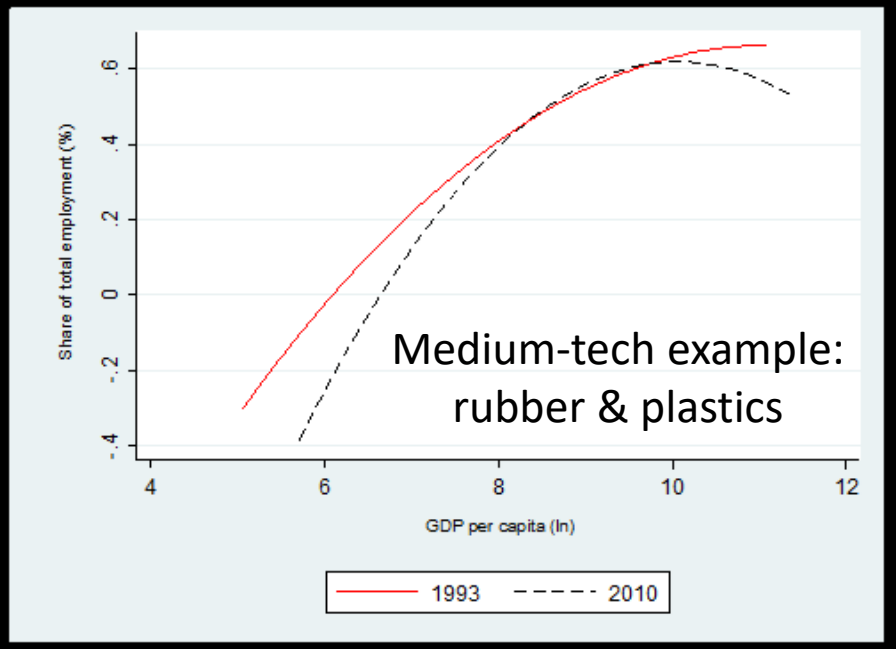


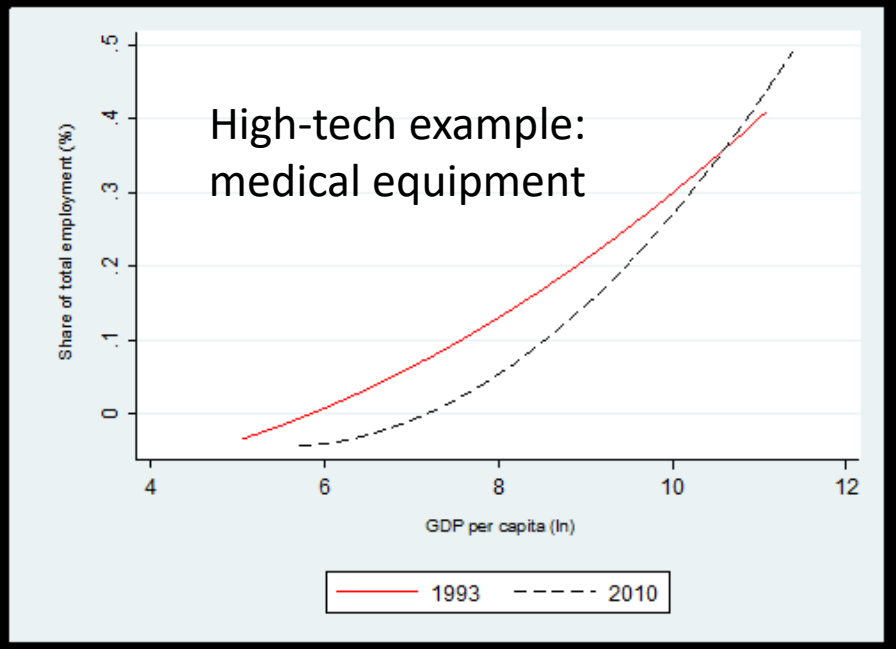

Ahead but slowing
Ahead and speeding
Behind but speeding
Possible premature deindustrialisers: in this quadrant and to left of TP in GDPpc
Difference between actual & predicted share manuf. empl.
Change in manufacturing share of employment
Cam
Ge
Tk
Ch
Kor
Pak
Ba
Mex
Ida
My
Par
Ni
Eth
Zim
Rw
Ur
SA
Chi
UK
EAP
ECA & NA
LAC
MENA
SA
SSA

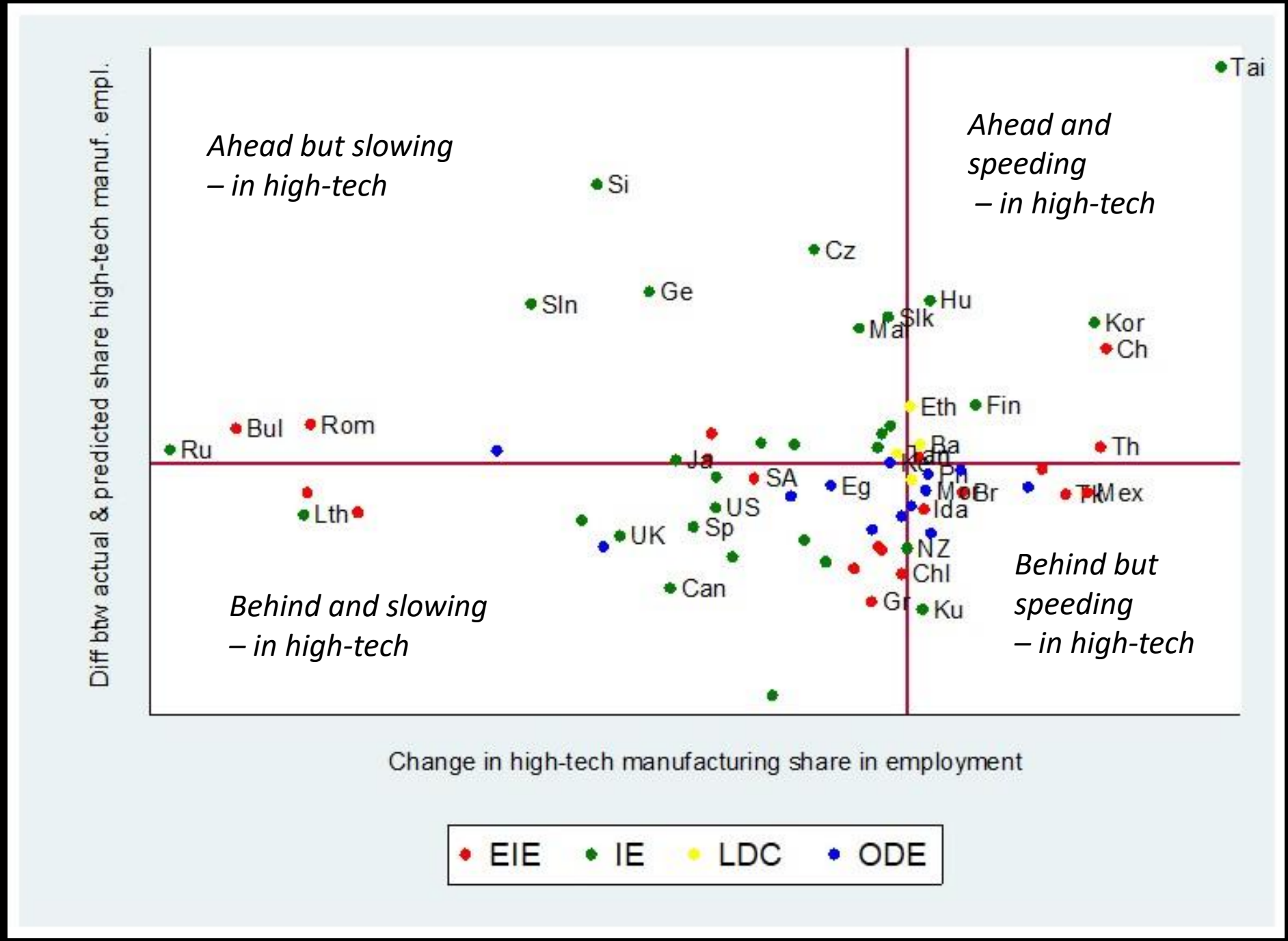
Sub-sectoral dynamics of deindustrialisation




Low-tech example:
clothing
Share of total employment (%)
-2
-1
0
1
2
4
6
8
10
12
GDP per capita (ln)
1993
2010


Medium-tech example:
rubber & plastics
Share of total employment (%)
-.4
-.2
0
.2
.4
.6
4
6
8
10
12
GDP per capita (ln)
1993
2010


High-tech example:
medical equipment
Share of total employment (%)
0
.1
.2
.3
.4
.5
4
6
8
10
12
GDP per capita (ln)
1993
2010


Ahead but slowing
– in high-tech
Ahead and
speeding
– in high-tech
Behind and slowing
– in high-tech
Behind but
speeding
– in high-tech
Diff btw actual & predicted share high-tech manuf. empl.
Change in high-tech manufacturing share in employment
Tai
Si
Cz
Sln
Ge
Hu
Slk
Ma
Kor
Ch
Eth
Fin
Bul
Rom
Ru
Ba
Th
Ja
SA
Eg
Ida
Mex
Lth
US
UK
Sp
NZ
Chl
Can
Gr
Ku
EIE
IE
LDC
ODE

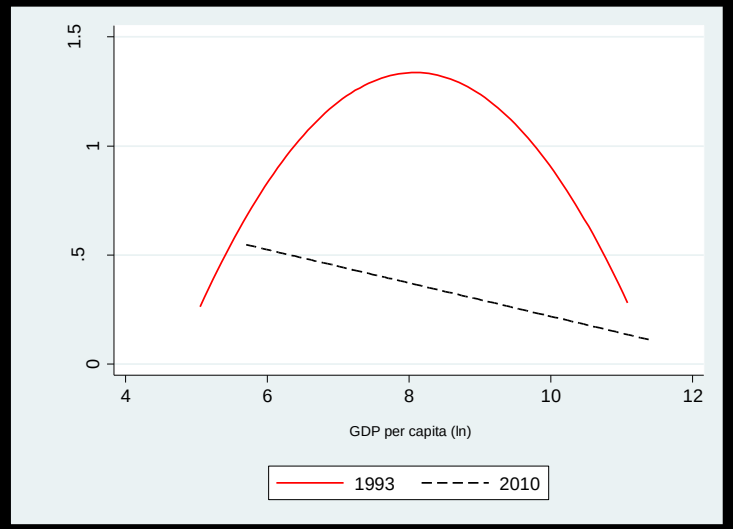
(i) Extraordinary heterogeneity within manufacturing

- Significant differences between low-, medium- and high-tech manufacturing
- And also considerable variation among the subsectors within each of these categories
- Patterns found are analytically intuitive
- Overall inverted-U curve does not hold for all activities within manufacturing
- Stylised fact: the more high-tech a manufacturing activity, the less is the decline with rising income pc; shares even rise with income pc for very high-tech activities
  - Even for capital- and robot-intensive sectors like auto
- Emphasise importance – both analytically and for policy – of analysing diverse dynamics of industrialisation and deindustrialisation at the sub-sectoral level

(ii) Changes over time

- Manufacturing in aggregate: confirm downwards and leftwards shift of inverted-U
- Sub-sectoral heterogeneity also in changes over time, e.g.

Textiles



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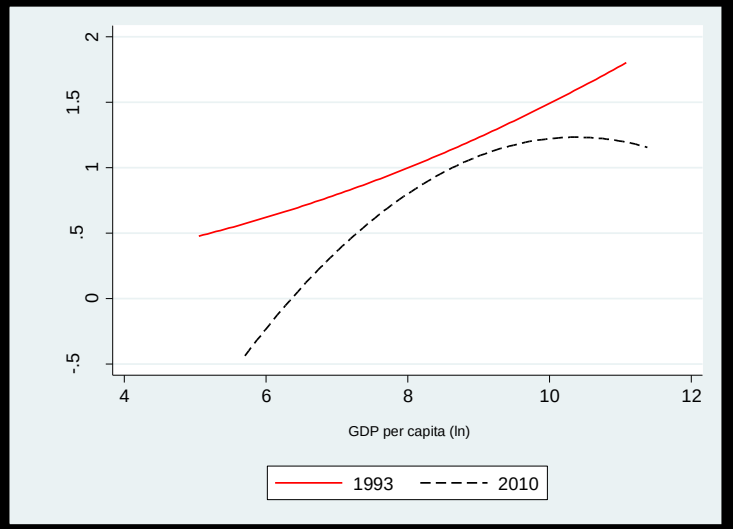

- There are also changes in production and products within sub-sectors over time – curves compare different aggregations of activities

(iii) Diversity of country experiences

- Both for aggregate manufacturing and for subsectors
- Typology of country patterns (“Ahead but slowing”, etc.)
- Importance of looking not just at countries’ trends in manufacturing shares, but in dynamics comparable to other countries based on income per capita

Some policy implications

- Even deindustrialising high-income economies can increase their shares of GDP and/or employment in subsectors of manufacturing.
  - Superior productive capabilities ➔ competitive advantage in high-tech manufacturing.
  - Rather than giving up on manufacturing as a whole, they can grow manufacturing in segments in which they have a competitive advantage, especially high-tech manufacturing
- Prevalence of premature deindustrialisation in developing countries
  - Look to what "ahead and speeding" developing countries are doing?
- Subsectors of manufacturing are uneven in their growth-pulling properties
- 'Under-industrialisation' and 'deindustrialisation' in high-tech sectors raise concerns for growth
  - Role of industrial and other policies, including targeting particular subsectors of manufacturing
- Importance of targeted policies taking into account specificities of deindustrialisation in particular countries, rather than 'one-size-fits-all' response to deindustrialisation

Sub-sectoral patterns of deindustrialisation in Brazil

(Morceiro & Guilhoto, BJPE 2022)

- Brazilian deindustrialization is *normal (and expected) for the labor-intensive manufacturing sub-sectors* (e.g. apparel, furniture and wood).
- But *premature (and undesirable) for the technology-intensive sub-sectors* (e.g. machinery and equipment, chemicals and refined petroleum, and motor vehicles).
  - These started to deindustrialise at income per capita much lower than expected.
- Other sub-sectors intensive in technology and knowledge did not follow robust industrialisation trajectory (e.g. pharmaceuticals, electrical equipment, computers & electronics).
- Premature deindustrialisation has negative implications for Brazil's technological development and growth.

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2. **Structuralist approach**
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3. Conditions and directions for industrial policy
   - Current conditions for developing countries
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Structuralism as a living tradition

- Structuralist tradition has contributed immensely to our understanding of development and catching up and to countries' pathways.
- Both research and policy.
- Fundamentals remain relevant, including importance of industrialisation and structural transformation.
- Institutional legacy – including CEPAL/ECLAC and UNCTAD.

- Developments over past 70 years – theoretical, empirical, political etc.
- Refreshing and developing structuralism as a 'living' tradition.

Emerging directions in structuralist approaches

1. Going beyond sectors
2. Value chains
3. Micro-macro
4. Innovation and technological change
5. Climate change
6. Gender / class / industrial and social policy / the productive and post-productive spheres

1. Going beyond sectors

- Structuralist approach traditionally views structural change through a sectoral lens, with a special role for the manufacturing sector.
- Based on view that sectors have common denominators that are relevant for growth
  - a marginal unit of value added or a marginal job have different effects on growth depending on which sector these are in.

- Sometimes tends towards “sector fundamentalism”.
- Recognise both sector-specificity and activity-specificity.

1. Going beyond sectors (cont.)

- Blurring of the boundaries between sectors
  - growing integration and ‘fuzziness’ of sectors.
- Growing heterogeneity among activities *within* sectors.
  - sectors encompass very different types of activities, with differences in scope for cumulative productivity increases and for pulling along the rest of the economy.
- ‘Industrialisation of freshness’.
- Structuralist perspective on manufacturing as an engine of growth remains relevant
  - But need nuance, including sub-sectoral analysis.

→ Implications for research and for industrial policy.

2. Value chains

- Rise of GVCs – increasing importance of intra-industry trade in intermediate goods.
- ‘Vertical specialisation industrialisation’ through GVCs complicates ISI/EOI paradigms.
- Powerful lead firms control market access and material and knowledge flows in GVCs.
- GVCs can make it easiest for low-income countries to break into manufacturing
  - Do not need to produce along the whole value chain
  - Can gain a foothold in ‘easy’ segments.
- But risk getting stuck in low-VA parts of value chains.

Value chains (cont.)

- This can also weaken the growth-pulling potential of manufacturing
  - Exporting through GVCs can reduce increasing returns, weaken domestic linkages and sever the link between manufacturing and innovation
  - Lead firms with buying power can capture suppliers' productivity gains from increasing returns.
- Final assembly activities may generate some forex and employment, but not drive industrialisation and structural change.
- 'Thin' industrialisation.
- Middle-income countries that have attempted to integrate globally have also ended up 'de-linking domestically' and hollowing out the domestic manufacturing sector.
  - weak productivity growth and rising labour costs, or the emergence of alternative lower-cost locations, might lead to declining profitability, disengagement by the lead firm and a further weakening of domestic productive capacity.

Value chains (cont.)

- Localisation – of production, and of productive capabilities.
- Value chain activities with highest barriers to entry typically have the highest returns.
- Importance of GVC upgrading
  - improving the ability of a firm or an economy to move to more profitable and/or technologically sophisticated activities with higher value-creation potential, and capture the value created from them.
  - Process upgrading, product upgrading, functional upgrading, intersectoral upgrading.
- Requires higher capabilities thresholds.
- ‘Linking up while linking back’.
- Importance of local production system development.

3. Micro-macro

- Strong macro focus in early structuralist contributions.
- Debates about ‘microfoundations’ of macro and ’macrofoundations’ of micro.
- Firm-level innovation, productive capabilities, learning, upgrading as part of the microfoundations of structural transformation and catching up.
- Think through how (largely incremental) firm-level changes connect with macro aggregates.
- Now greater availability firm-level data.
- Disconnect between research communities working at micro and macro levels from a broad structuralist perspective.

3. Innovation and technological change

- Microfoundations of structural transformation and catching up.
- Importance for competitiveness, ‘keeping pace’, product complexity and sophistication, diversification, source of spillover effects and linkages, growth-pulling.
- MHT industries do not follow the same inverted-U path of industrialisation and deindustrialisation as do low-tech manufacturing industries.
- Technological upgrading crucial (but challenging) for late industrialisers.

3. Innovation and technological change (cont.)

- Implicit in structuralist approach
  - (Intersectoral) structural change and intrasectoral upgrading and productivity increases as sources of catching up.
- “Innovation scholars” and “structural change scholars” not always integrated research communities.

→ Implications for research and policy.

5. Industrialisation and climate change

- Importance and urgency of climate change as a fundamental problem facing humanity.
- Industrialisation a major contributor to anthropogenic CO_2 emissions.
- Can (no longer) be treated as a secondary issue by researchers in structuralist tradition.
- Dual goals of industrial development and mitigation of emissions – but can be tension between these goals.
- Some argue that an industrialisation pathway is no longer viable due to climate change.
- Potential for de-carbonising industrialisation – green industrialisation and green industrial policy.
- Challenges and opportunities of 'late industrialisation'.
  - Advanced economies did not have to deal with the obligation of reducing emissions during their own earlier phases of industrialisation.
  - Windows of opportunity for new industrialisation opportunities linked to the green transition.

6. Gender / class / industrial and social policy / the productive and post-productive spheres

- Gender was largely neglected in early structuralist tradition.
- Now widely recognised that women and men are differently affected in industrialisation.
  - Effects of industrialisation on women and gender equality is context-specific.
- Growing literature, uneven attention in policy.

- Class – longstanding debates in dependency theory and between heterodox traditions.
- Role of industrialisation in class formation, modernisation, proletarianisation, unionisation – transformative of social relations and political economy.

- Industrial and social policy – the productive and post-productive spheres.

Emerging directions in structuralist approaches

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Industrialisation: Current conditions for developing countries

Late industrialisers, some premature deindustrialisers

Where to find competitive niche?

Weak productive capabilities

"China squeeze"

Rapid technological change

Barriers to accessing markets in developed countries

Barriers to technology access and transfer

Struggle to break into value chains, get stuck in less productive parts

International rules and barriers – 'pulling away the ladder'

Eroding of some industrial policy space

Poor infrastructure for industrialisation and for exporting

Climate change
Push to decarbonise & reduce emissions

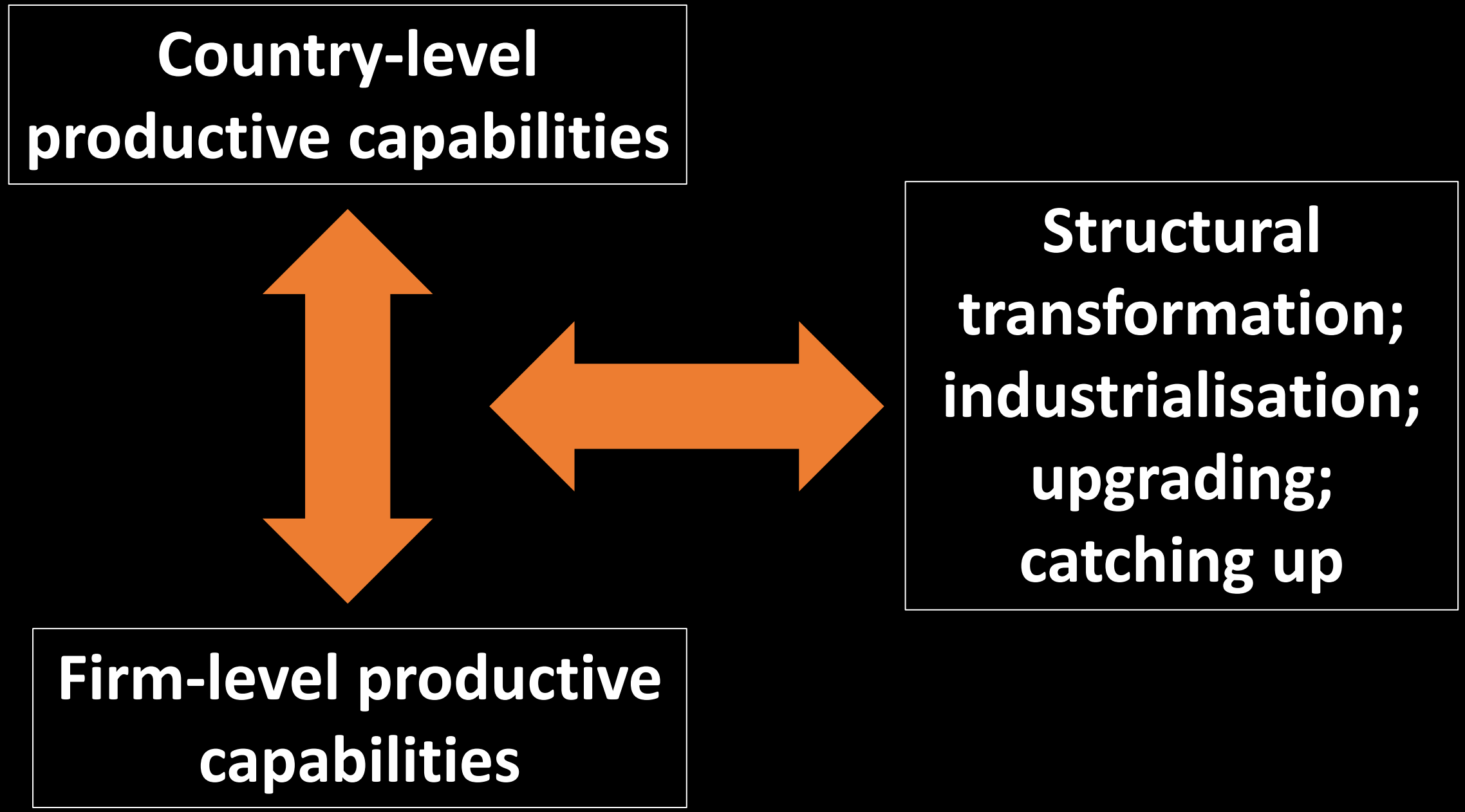
Mainstreaming of industrial policy

Weak state capacity

Powerful economic interests not vested in industrialisation

Unfavourable macroeconomic conditions

Competing fiscal demands in financing industrial policy


Country-level productive capabilities
Structural transformation; industrialisation; upgrading; catching up
Firm-level productive capabilities

Some broad directions for reindustrialisation in Latin American and other developing countries

1. Innovation, capabilities, technological upgrading
2. Lessons from COVID – importance of domestic manufacturing capacity and capabilities
3. GVCs – strategic integration and upgrading (‘linking up while linking back’)
4. Green industrialisation (windows of opportunity)
5. Sector heterogeneity and activity specificity
6. Spatial differences within countries – different industrial development options
7. Targeting choices adapted to country characteristics and priorities
8. Scale and financing of industrial policy
9. Macro, macro, macro!!

A “new generation” of industrial policies

- Not about discarding the lessons of successful industrial policies.
  - Some policies with demonstrated success not adequately implemented.

- About adapting to current period and to specific country contexts, and new tools.

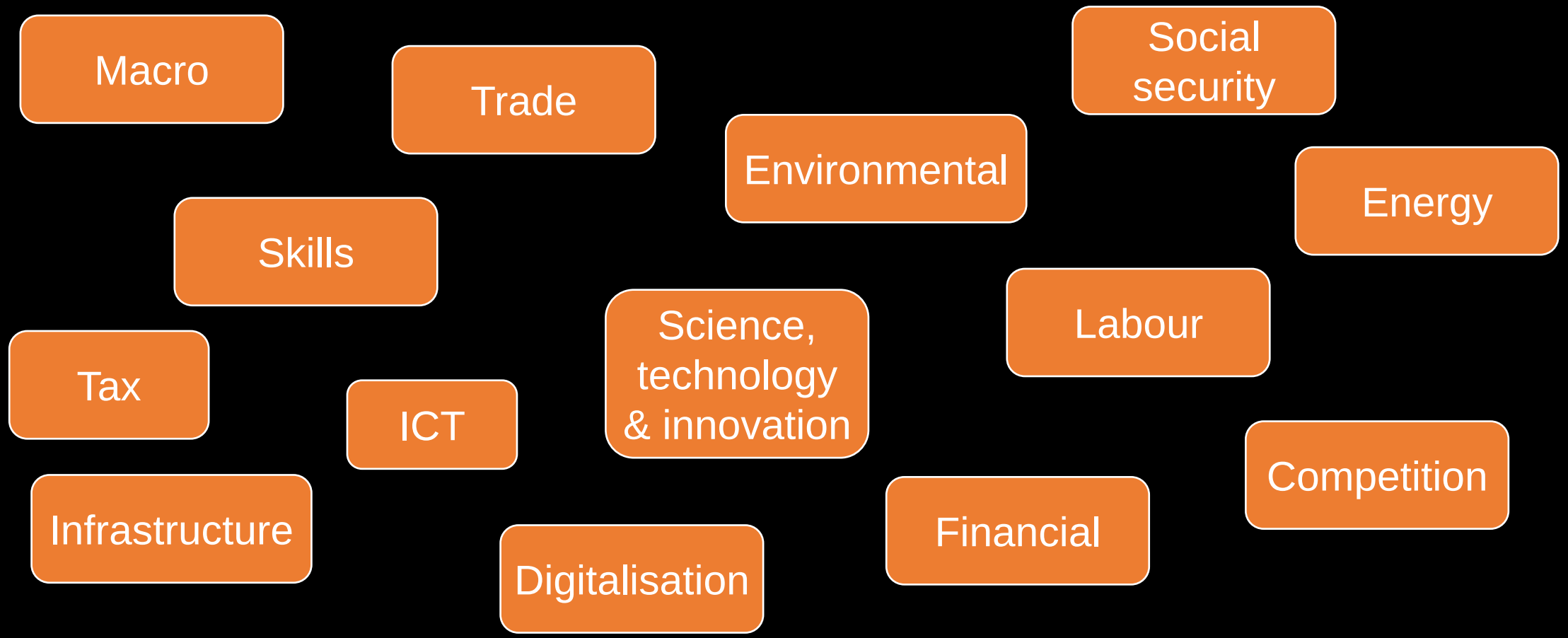
- Heterogeneity among developing countries
  - Need country-specific approaches
  - Successes show the possibilities.

- New generation of industrial policies is also about HOW designed and implemented
  - Across multiple vertical and horizontal agencies of the state
  - Tailor for different types of firms (including by size)
  - In learning process with private sector – information exchange, collaboration, co-creation
  - Yet ‘rent management’, disciplining capital, and conditionalities (soft and hard) remain essential.

Industrial policy targeting sectors ‘fit for purpose’

- Choice of sectors to target is one of the key industrial policy decisions.
- No formula – country-specific.
- Different – sometimes competing – objectives enter into this choice.
- Some key considerations for developing countries:
  - Don’t stick to current (static) comparative advantage – looking ahead and upgrading
  - Structural transformation – shift towards more technology-intensive and high-productivity goods
  - Aim for globally demand-dynamic products (and services)
  - Industrial policy also promoting dynamic activities outside of manufacturing
  - Also promote/support types of activities (not only sectors/sub-sectors)
  - Prioritisation depends on country specificities
  - Build on existing strengths, in manufacturing and beyond (including along value chains)
  - Regional conideration and co-ordination.

Policy domains to coordinate with industrial policy include:



Transformative Industrialisation

- Failure to seriously industrialise over long period, cases of ‘pre-industrial deindustrialisation’ →
  - Lower growth;
  - Lack of diversification, complexity, tech intensity;
  - Absence of mass industrial working class and ‘independent’ national capitalist class, range of political and political economy consequences;
  - Difficulty of transitioning into growth-pulling services on significant scale.
- Industrialisation is about much more than economic growth.
- What makes the various industrial revolutions ‘revolutionary’.

Transformative Industrialisation

SYSTEMIC

effects beyond growth – societal challenges

DISRUPTIVE

of political economy, comparative advantage, production systems, social relations etc. that are sub-optimal for growth and development

CATALYTIC

of economic and social change

LONG-LASTING

Not stop-start, and effects are enduring post-industrialisation

- Broader than structural change / structural transformation.
- Must take account of: countries' diversity and specific conditions; and changing boundaries, nature, and heterogeneity of sectors, for industrial policy.

What makes industrialisation transformative?

Scale
(in value add & employment)

Higher productivity, more complex, more innovative, more tech-intensive than rest of economy

Linkages with domestic economy
- Forward & backward linkages
- Technological linkages & spillovers
- Learning and knowledge & skills transfers

Catalyse upgrading in other sectors

Dynamic comparative advantage (comparative advantage defying)

Political economy

Contribute to societal 'grand challenges'

Contribute to economy-wide productive capabilities

Social change
(urbanisation, modernisation, change in gender relations, organised industrial working class, etc.)

Illustration of Transformative Industrialisation: Industrial hubs

Non-transformative	Transformative
Comparative advantage conforming Based on static comparative advantage	Comparative advantage defying Based on dynamic comparative advantage
Produce more of the same	Diversification & upgrading from country's existing production profile
Enclaves	Integrated with domestic economy through multiple linkages & channels
Attraction based on lower wages & poorer working conditions than outside	Attraction based on agglomeration, export opportunities, & positive support rather than exemptions
Hubs policy in isolation	Hubs policy integrated with wider industrial, trade, innovation etc. policies

Transformative industrialisation perspective:

Hubs' potential, especially in countries with nascent manufacturing sectors, to support upgrading, raise scope for cumulative productivity increases, build productive capabilities, etc.; *including outside of hubs and outside of manufacturing.*

Some important research directions in this field

- Micro-macro and firm-level analysis.
- Sub-sectoral analysis.
- Dynamic comparative advantage / comparative advantage defying.
- Range of empirical research possibilities on value chains.
- Innovation, technological change and industrial development.
- Green industrialisation and green industrial policy.
- Research at the intersection of macro and industrial.

- My talk tomorrow:

Structural change and catching up:
The middle-income trap and middle-income technology trap

- My centre, South African Research Chair in Industrial Development, welcomes opportunities for collaboration with Brazilian researchers
- Affiliations available as visiting professors, research associates, etc.
- Opportunities available for postdoctoral researchers

Obrigada!