

STRUCTURAL DYNAMICS AND INDUSTRIAL POLICY

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THE MAJOR CONCEPT: DYNAMIC EFFICIENCY

- ❖ Successful development is essentially a process of structural change. It depends on dynamics of production structures and related policies and institutions.
- ❖ Basic rationale for industrial policy: conflict between dynamic (changes in the structure of production) and static efficiency (resource allocation).
- ❖ Analytical contributions of classical development economics, neo-Schumpeterian, structuralist and evolutionary economics: critical role of learning, externalities and economies of scale/agglomeration.
- ❖ Disappointment with effects of more open economic policies on growth (e.g., Latin America).

STYLIZED FACTS

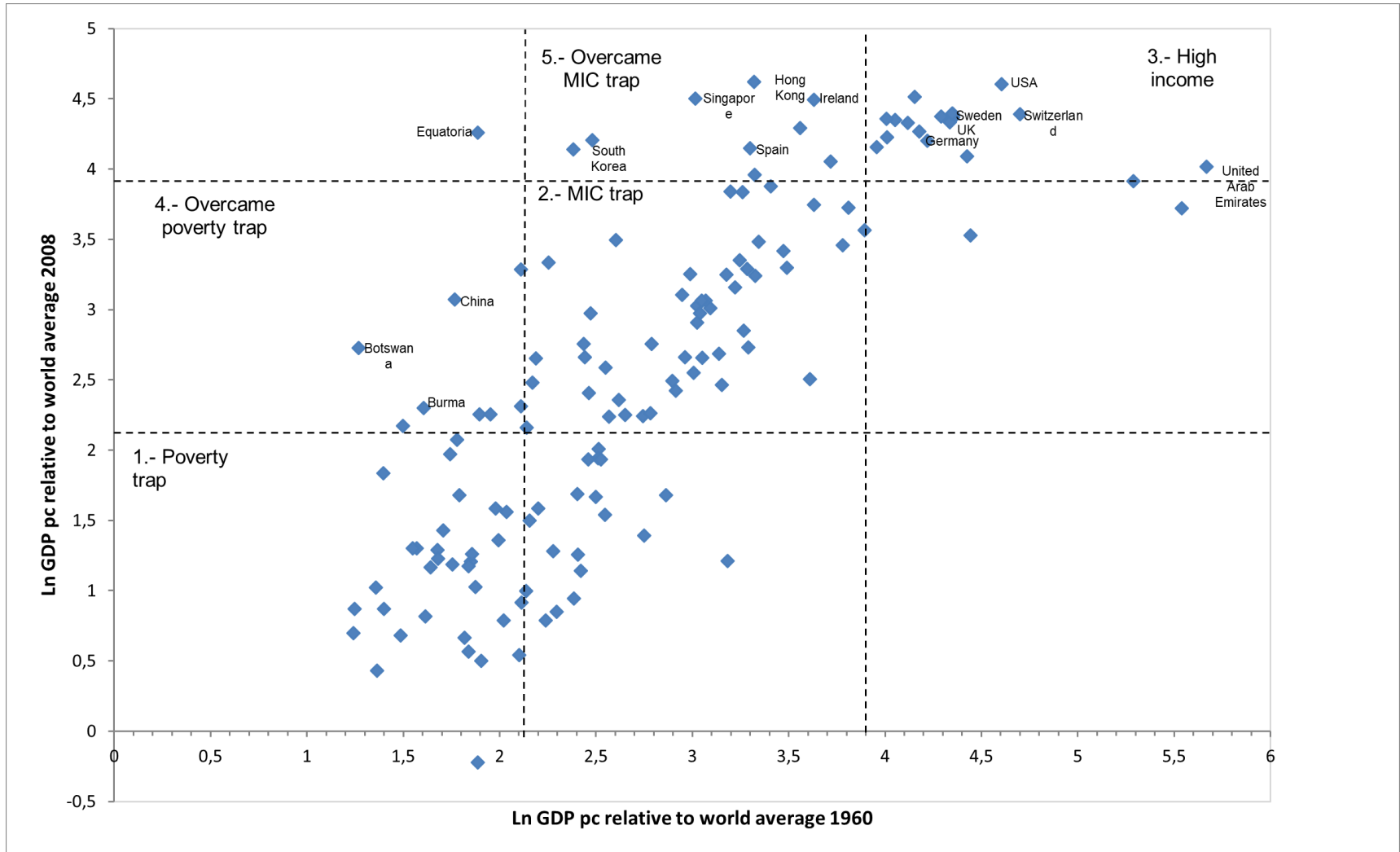
STYLIZED FACT (1): PERSISTENCE OF LARGE INEQUALITIES

- ❖ Persistence of large inequalities in the world economy: very few new entrants into the top club.
- ❖ High variance of growth experiences in the developing world: low and middle-income traps, truncated convergences, open divergence...
- ❖ ... but also success stories, particularly in Asia → “dual divergence” in the last few decades.
- ❖ Agglomeration generated by static or dynamic economies of scale: the East Asian cluster.
- ❖ Major implication: economic opportunities are largely determined by the position that a particular country occupies within the world hierarchy

FACTORS BEHIND THE “MIDDLE-INCOME TRAP”

- ❖ High concentration of research and development, and thus of innovations, in developed economies → high entry costs into technologically dynamic activities.
- ❖ Asymmetries between firms that lead and suppliers in global value chains.
- ❖ Differences in domestic financial development.
- ❖ Volatility of external financing and the terms of trade.
- ❖ As a result, macroeconomic asymmetries, which are reflected in the quite different degrees of freedom to adopt countercyclical macroeconomic policies.
- ❖ Challenges associated with building up institutions that can reconcile the interests of diverse actors.

A VISUALIZATION OF THE LOW AND MIDDLE-INCOME TRAPS



STYLIZED FACT (2): STRUCTURAL CHANGE IS THE ESSENCE OF ECONOMIC GROWTH

- ❖ “Balloon” vs. “structural” views of economic growth.
- ❖ Ability to generate new dynamic activities/innovations.
- ❖ Patterns of international specialization matter.
- ❖ Repetitive phenomenon of creative destruction.
- ⇒ Success in structural change has been the key to successful economic development.

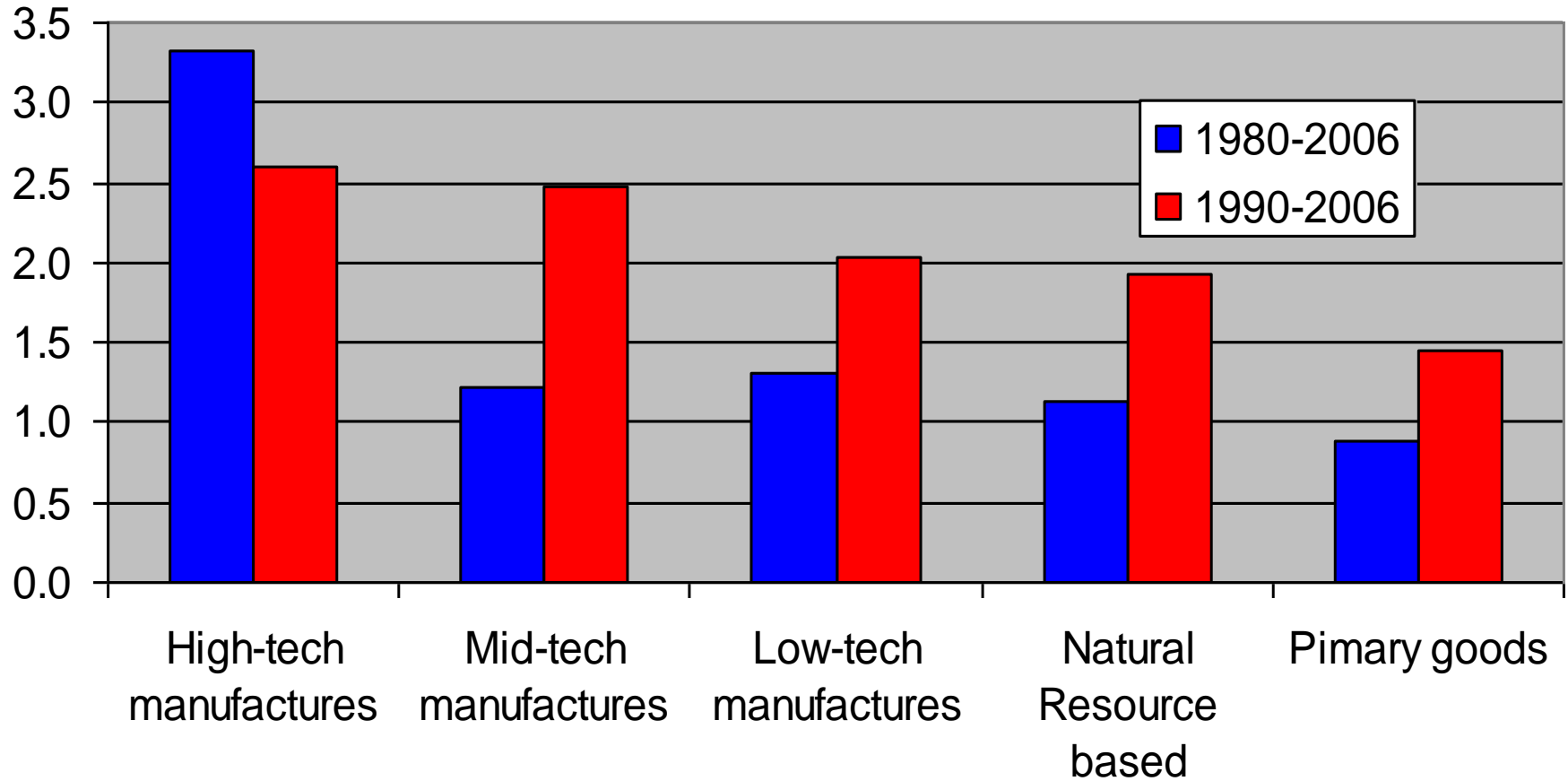
SPECIALIZATION PATTERNS MATTER

- ❖ Most countries that have failed in increasing market shares are exporters of primary goods and natural resource-intensive manufactures.
- ❖ Non-dynamic markets face “fallacy of composition” effects (typical of commodity markets).
- ❖ There are countries that have extracted fair growth out of a specialization pattern based on natural-resources or low-tech manufactures.
- ❖ But most developing countries that have grown fast have been increasing market shares in mid or high-technology exports
- ❖ The East Asian regional cluster has an effect on top of those captured by the patterns of export diversification (huge contrast with Latin America).

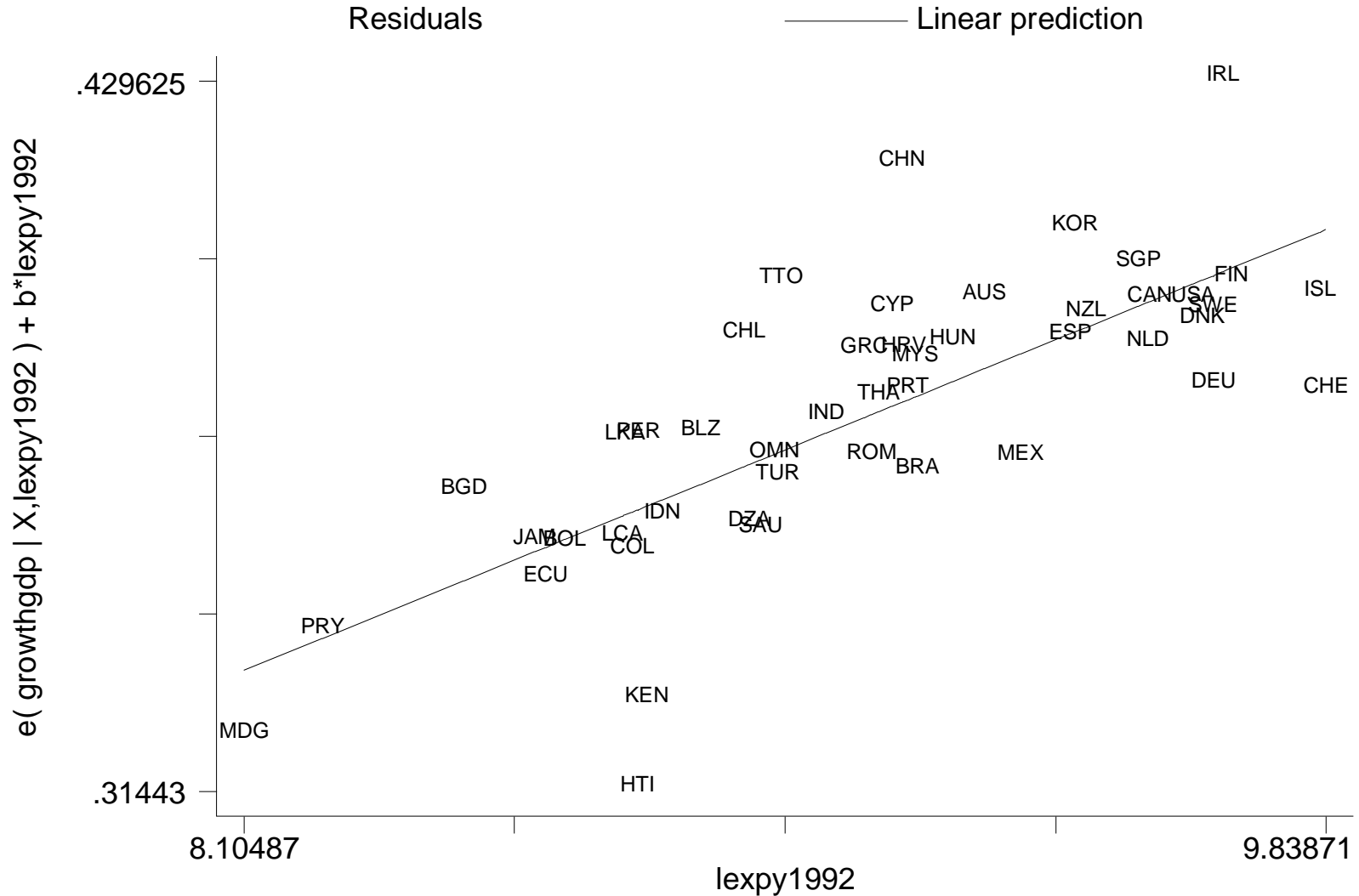
SPECIALIZATION PATTERNS MATTER

(Ocampo-Parra)

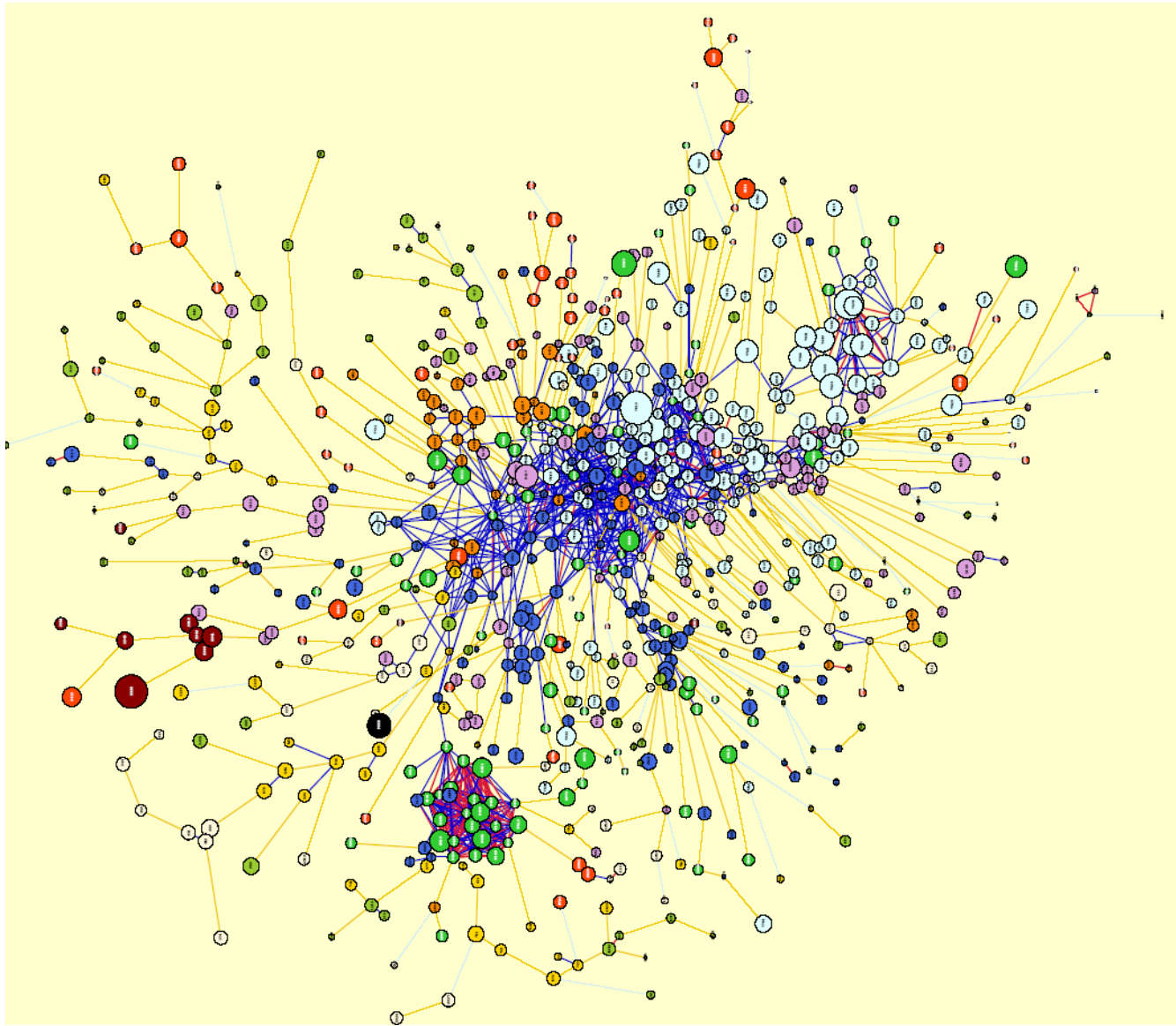
Per capita GDP growth according to specialization pattern



SPECIALIZATION PATTERNS MATTER (Hausmann-Hwang-Rodrik)



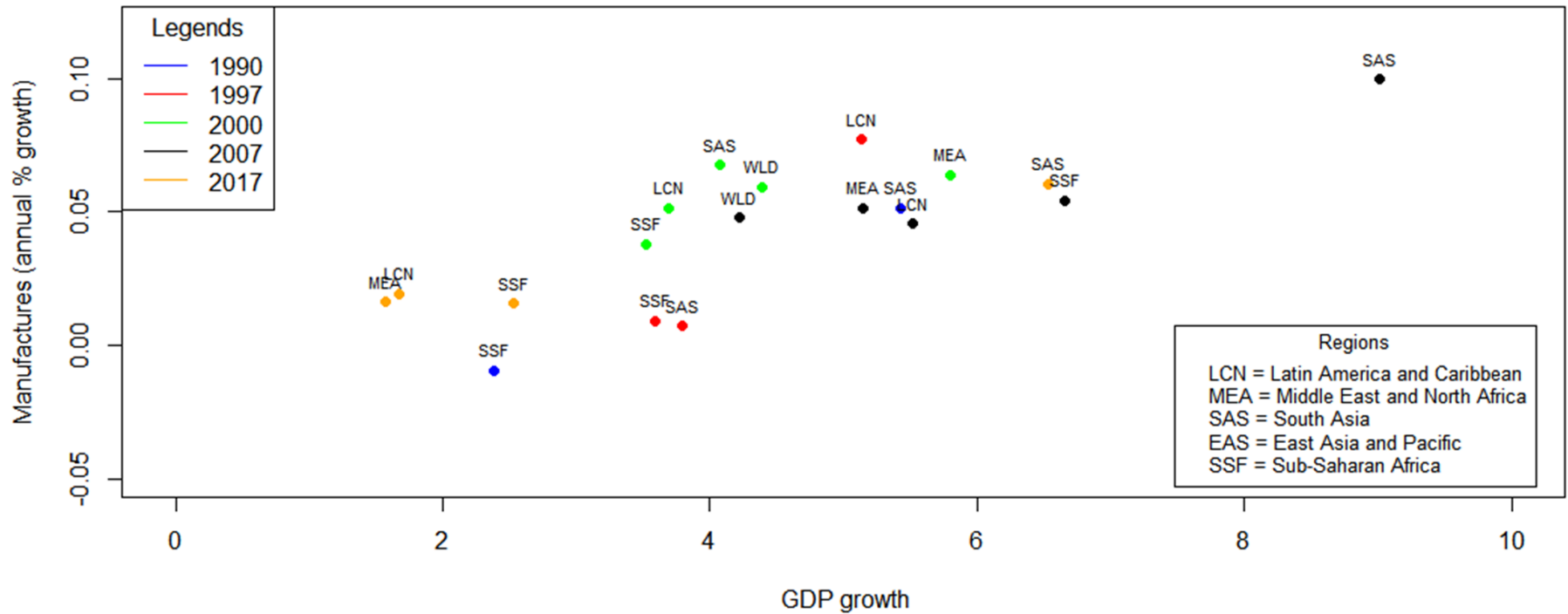
THE “PRODUCT SPACE” (Hausman-Hidalgo-Klinger)



- Not Classified 0
- Petroleum 1
- Raw Materials 2
- Forest Products 3
- Tropical Agriculture 4
- Animal Products 5
- Cereals 6
- Labor Intensive 7
- Capital Intensive 8
- Machinery 9
- Chemical 10

MANUFACTURING IS CRUCIAL FOR RAPID GDP GROWTH

Manufactures growth vs GDP growth



STYLIZED FACT (3):

PATH DEPENDENCE ASSOCIATED TO LEARNING PROCESSES

- ❖ Dynamic economies of scale associated with learning.
- ❖ Opportunities are determined by production experience.
- ⇒ Comparative advantages **can be created**.
- ⇒ The loss of productive experience can have adverse long-term effects on growth (which may come with a lag, particularly in economies experiencing a commodity boom).

DYNAMICS OF PRODUCTION STRUCTURES

DYNAMICS OF PRODUCTION STRUCTURES

Interaction between two basic forces:

- ❖ **Innovations**: New activities and new ways of doing previous activities (“new combinations”) and the **learning processes** associated with their development.
 - ❖ **Complementarities** (linkages, networks, value chains) among firms and production activities and the **institutions** required for the full development of these complementarities.
 - ❖ A complementary factor: Elastic factor supplies for innovative activities.
- ⇒ The combination of these factors determines the **dynamic efficiency** of a given production system

INNOVATIONS AND ASSOCIATED LEARNING PROCESSES (1)

- ❖ Critical mix between creation and destruction...
- ❖ ...and between substitution vs. complementary effects of innovations: creative destruction or destructive creation?
- ❖ In the industrialized world, technical change is the engine; in the developing world, transfer of sectors from the industrialized world plays that role.
- ❖ No innovative process is passive, as it requires investment and learning. So, technology transfer is positive to the extent that it generates the accumulation of technological capabilities.

INNOVATIONS AND ASSOCIATED LEARNING PROCESSES (2)

- ❖ Climbing up the ladder in the world hierarchy entails shortening transfer periods and gradually becoming a more active participant in the generation of technology.
- ❖ Following the evolutionary school: attributes of technical change, organizational and commercial knowledge:
 - ✓ Incompletely available and imperfectly tradable.
 - ✓ Proficiency cannot be detached from production experience.
 - ✓ Private-public attributes.

COMPLEMENTARITIES AND INSTITUTIONAL DEVELOPMENT (1)

- ❖ Development of networks of suppliers of goods and specialized services, marketing channels (value chains)...
- ❖ ... and organizations and institutions that disseminate information and provide coordination among agents
- ❖ Demand effects: macroeconomic multipliers
- ❖ Supply effects: positive externalities, basis of mesoeconomic dynamic economies of scale that determine competitiveness of production activities

COMPLEMENTARITIES AND INSTITUTIONAL DEVELOPMENT (2)

- ❖ Efficient provision of non-tradable inputs and specialized services is crucial
 - ✓ Knowledge, logistic and marketing services
 - ✓ Specialized financial services
 - ✓ Adequate infrastructure
- ❖ Institution-building is a non-tradable factor (at best imperfectly tradable thanks to imitation), closely associated with experience and has dominant public good attributes

INTERPLAY OF INNOVATIONS AND COMPLEMENTARITIES

Learning process	Complementarities	
	Strong	Weak
Strong	Deep	Short breath
Weak	Labor absorbing	Shallow

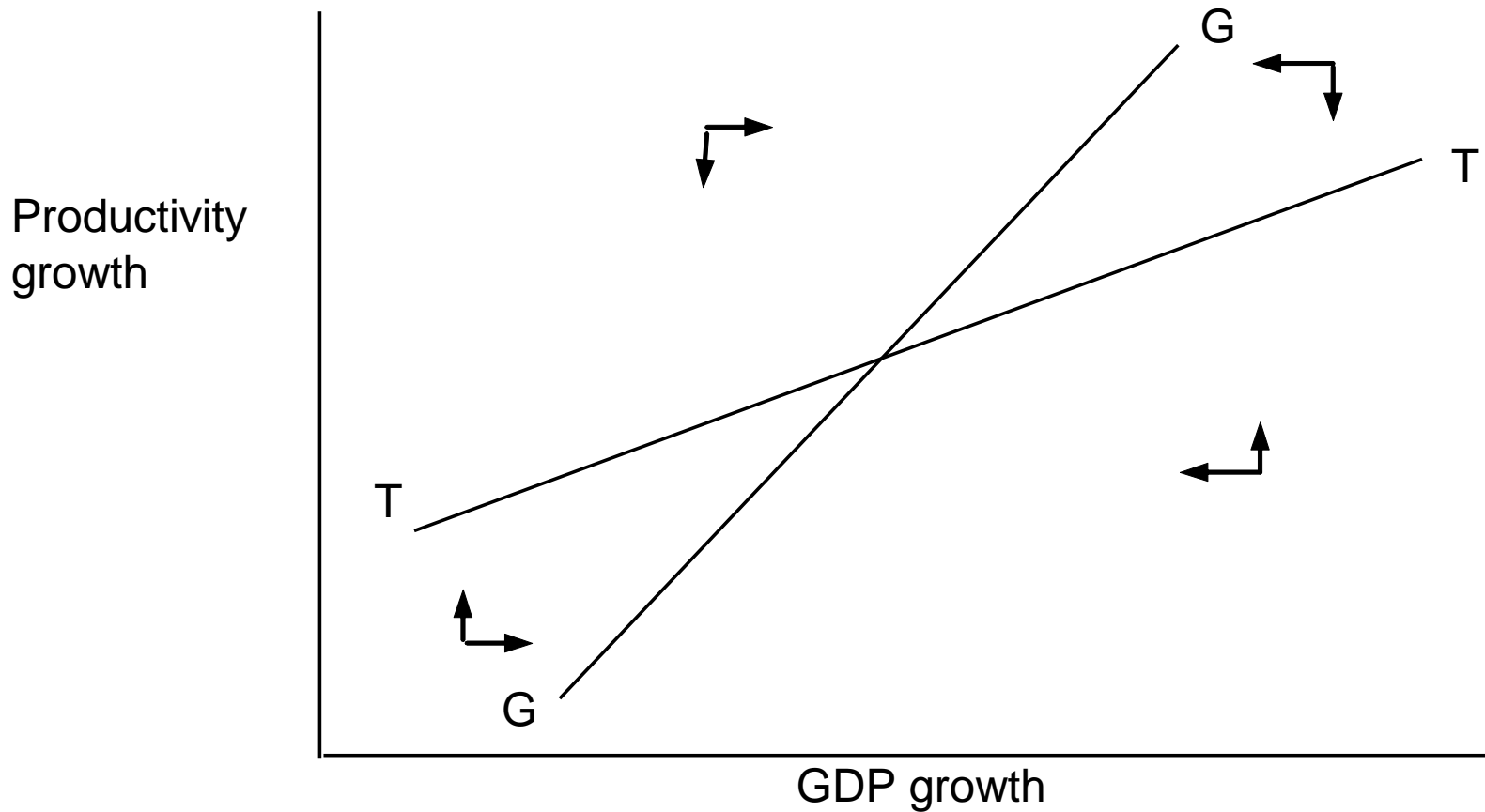
ANCHORED VS. SHALLOW INDUSTRIES

- ❖ The development impact of the strategy of a given country depends on the capacity to capture a high or small share of value added.
- ❖ This is, in a sense, obvious and even tautological, as GDP is nothing else but “value added”.
- ❖ But it has broader implications, as those activities with limited value added (e.g., maquila) are likely to be footloose.
- ❖ Unless the industries are firmly “anchored” in the domestic economy, their growth-enhancing capacity evaporates: “shallow” specialization.

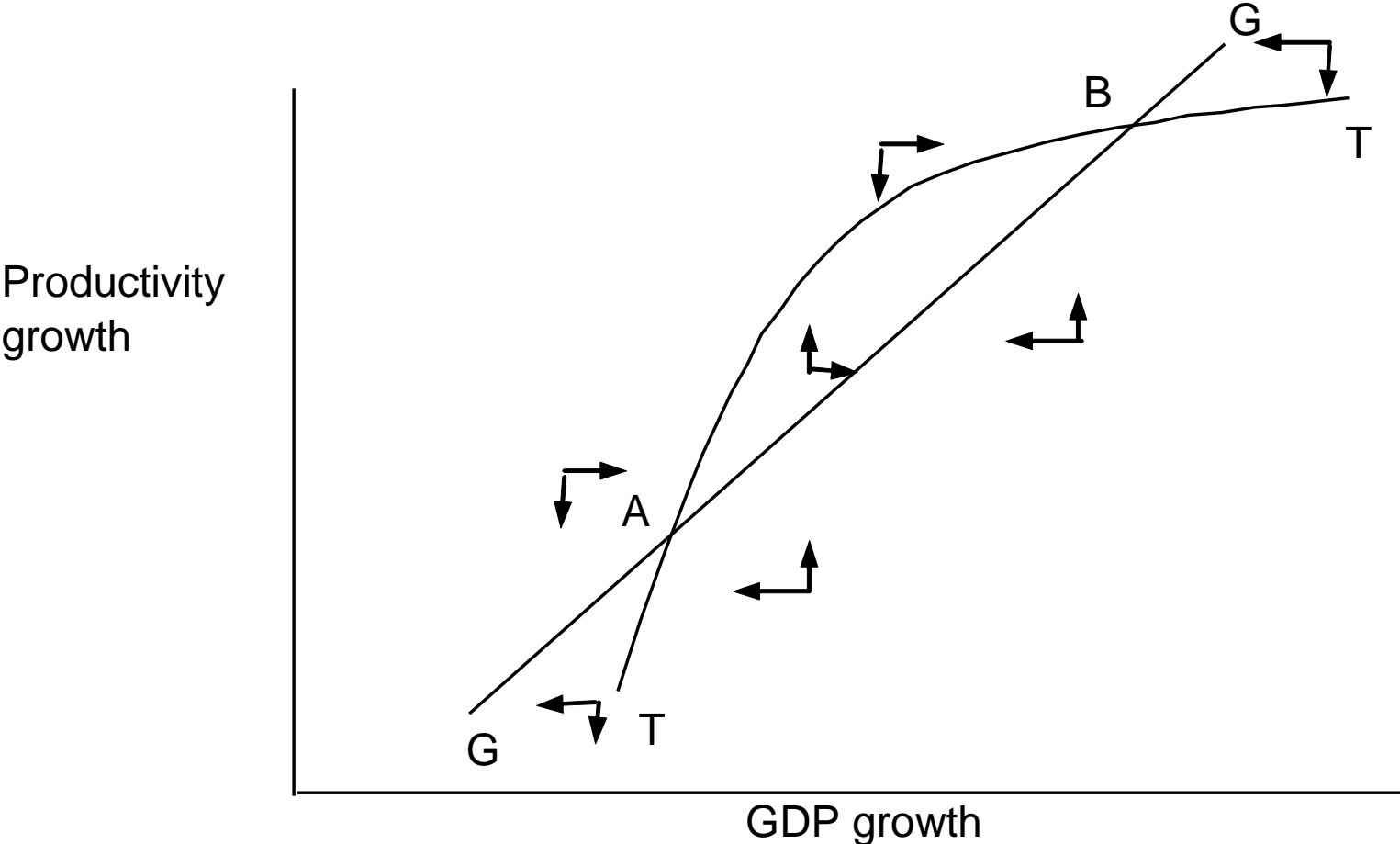
ELASTIC FACTOR SUPPLIES

- ❖ Crucial role of availability of finance for innovative activities.
- ❖ Structural heterogeneity (coexistence of firms with different productivity levels) guarantees an elastic supply of labor in the developing world.
- ❖ Rapid development is the result of reallocation of labor towards high-productivity activities subject to increasing returns to scale.
- ❖ Kaldor-Verdoorn growth-productivity links.
- ❖ This implies that the dynamics of aggregate productivity is a largely a *result* of dynamic economic growth, rather than a cause.

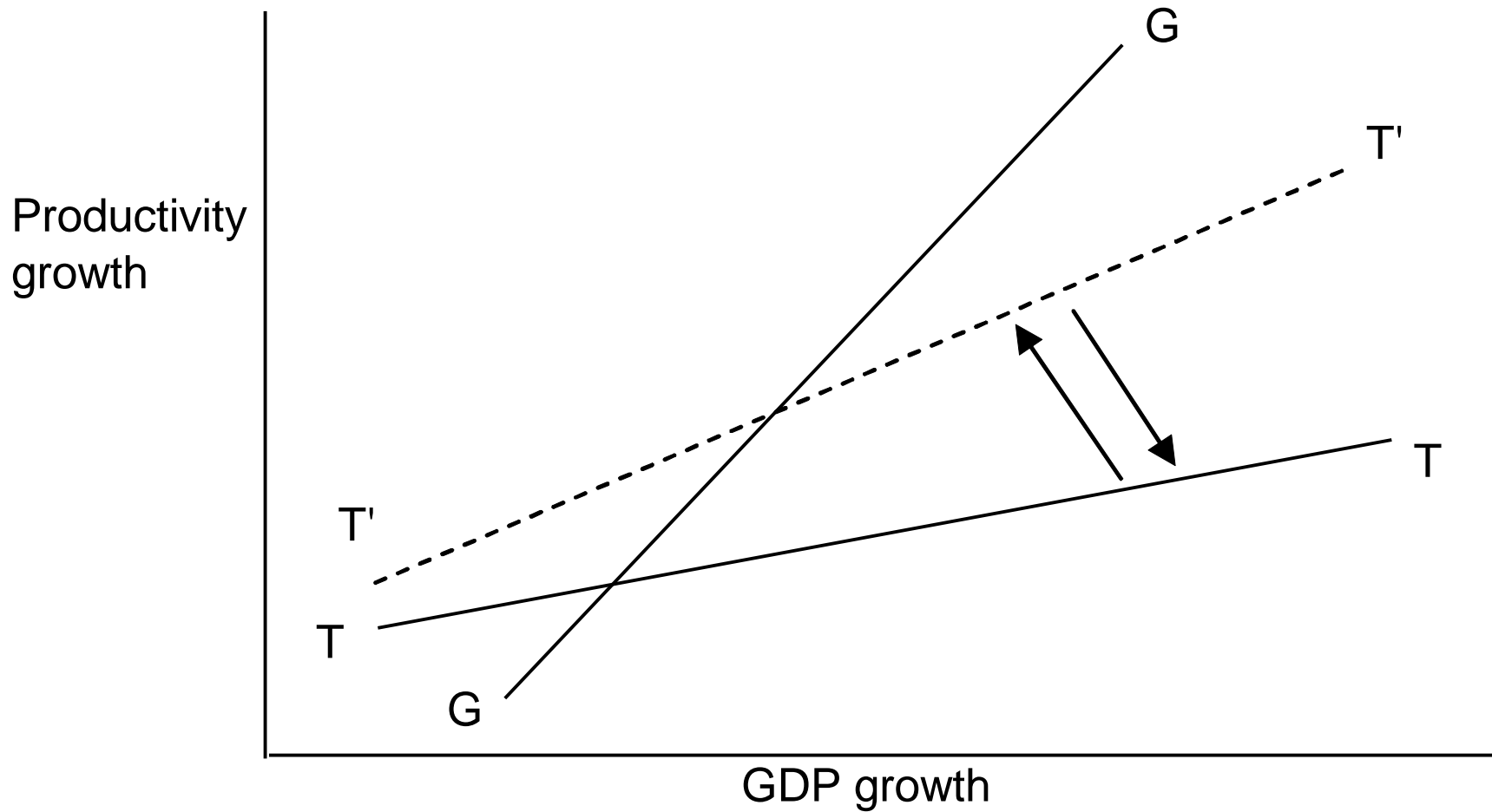
LINKS BETWEEN STRUCTURAL AND MACROECONOMIC DYNAMICS: SINGLE EQUILIBRIUM



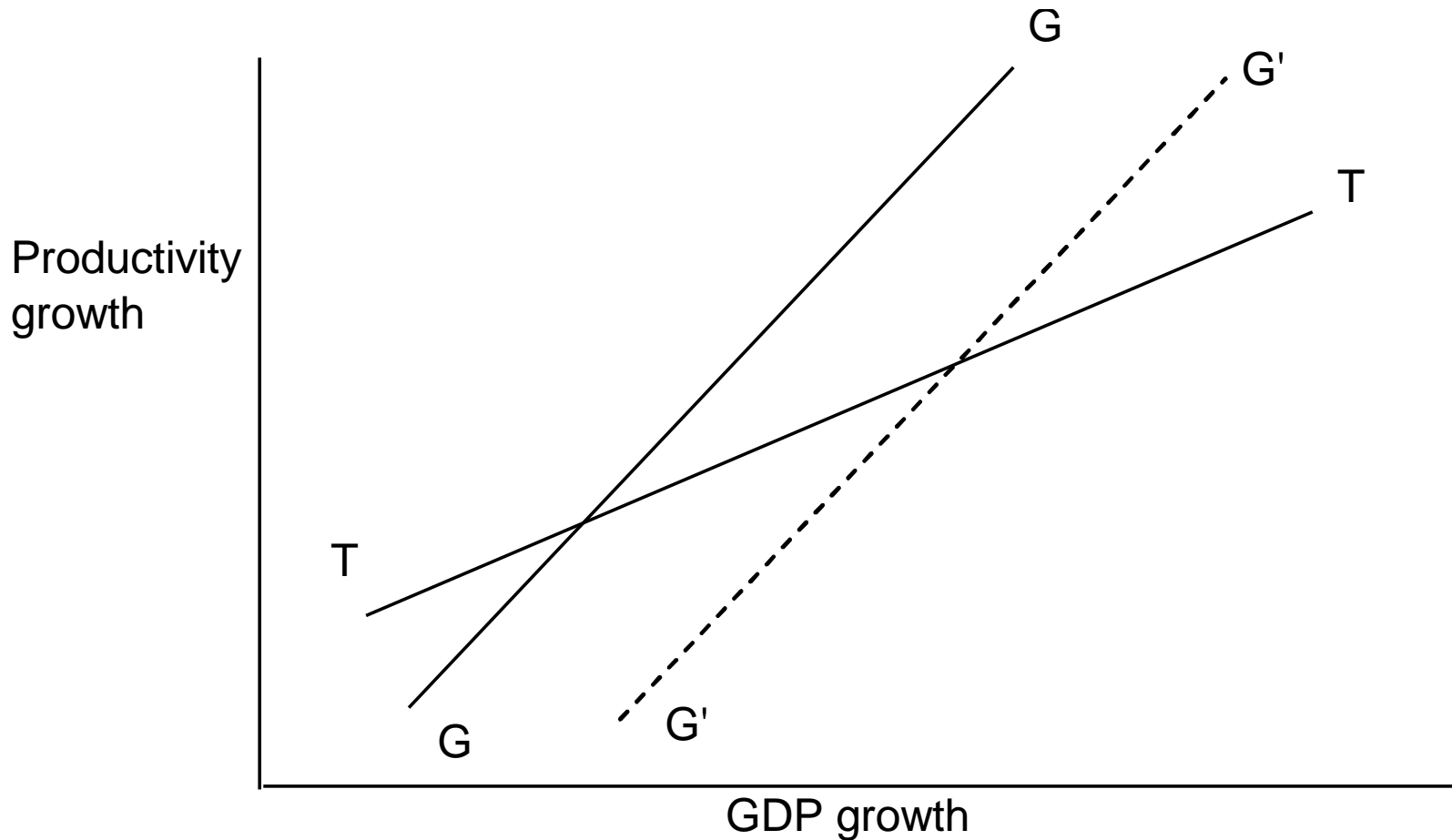
MULTIPLE EQUILIBRIA



EFFECTS OF A NEW WAVE OF INNOVATIONS



EFFECTS OF A FAVOURABLE MACROECONOMIC SHOCK

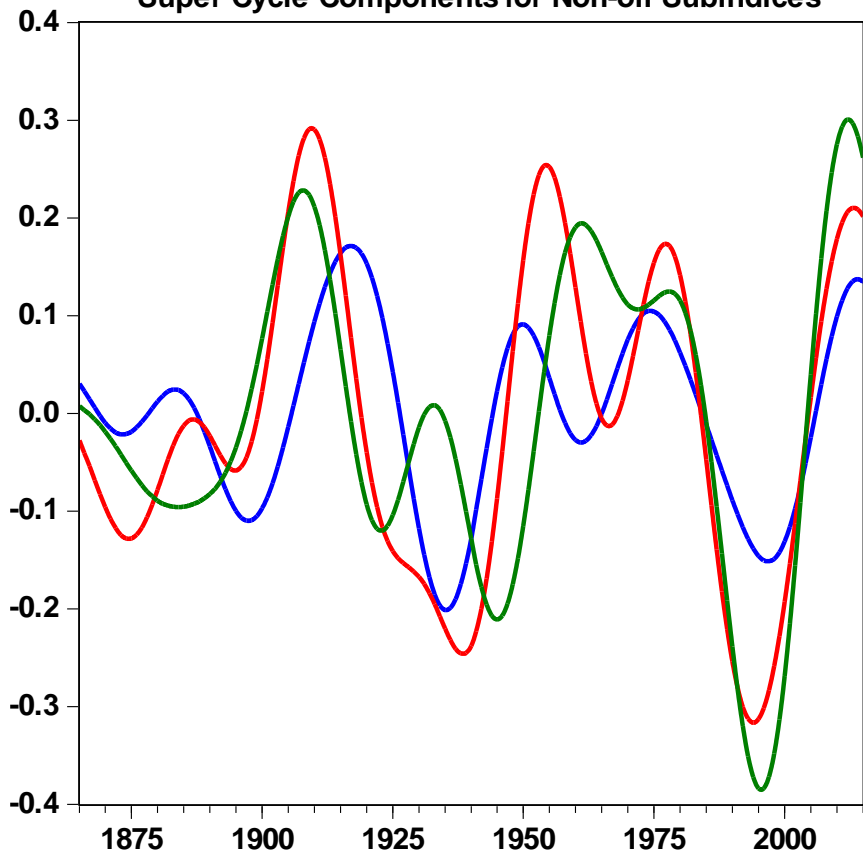


COMMODITY SPECIALIZATION

- ❖ Long debate on the “Dutch disease”
- ❖ Problems associated with the economic *structure*. The clue here is the exploitation of the production linkages and technological upgrading.
- ❖ *Macroeconomic vulnerability* due to commodity price volatility and associated fluctuations in capital flows. The clue here is counter-cyclical policies, and in particular avoiding exchange rate overvaluation and volatility.
- ❖ *Political economy problems*: rents generate a perverse political economy + rent-seeking and possibly corruption + conflict in oil/mining areas.

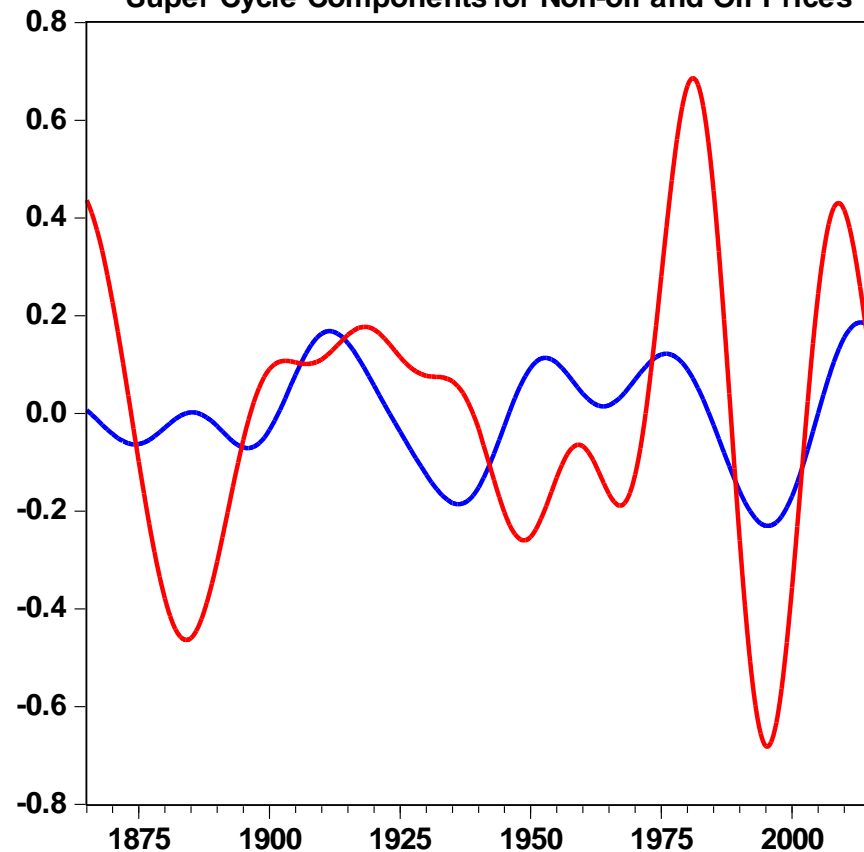
THERE IS STRONG EVIDENCE OF LONG-TERM COMMODITY PRICE CYCLES

Super Cycle Components for Non-oil Subindices



— Non-tropical super cycle — Tropical super cycle
— Metal super cycle

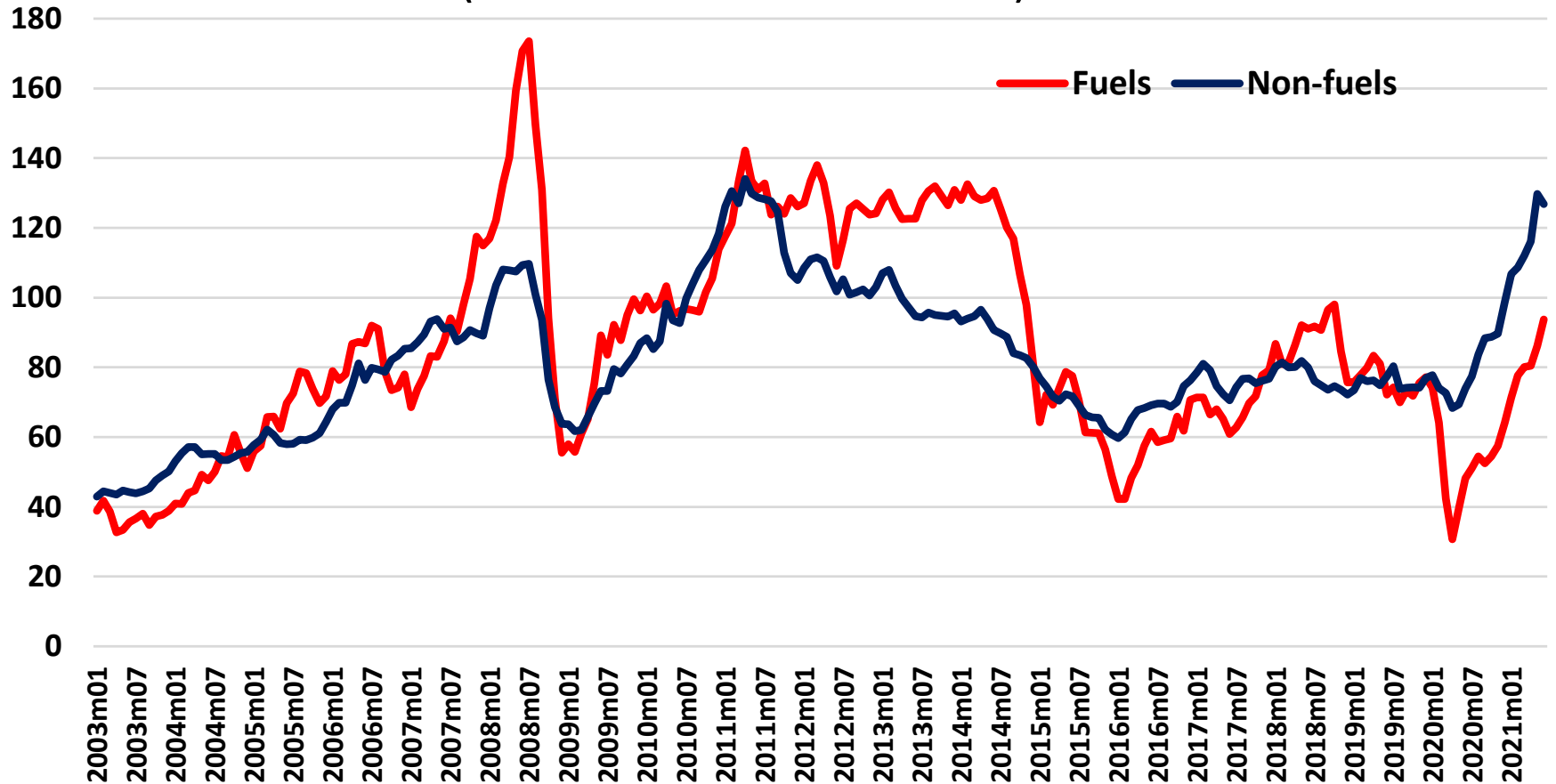
Super Cycle Components for Non-oil and Oil Prices



— Non-oil total super cycle — Oil super cycle

STRONG COMMODITY PRICE FLUCTUATIONS IN THE EARLY TWENTY-FIRST CENTURY

Commodity Prices (2010=100)
(CPB Netherlands Bureau)



THE CASE FOR NATURAL RESOURCE-BASED EXPORTS TODAY

- ❖ It may be the main (only) strategy available for low-income and some middle-income countries + Some middle-income countries may have lost the train in manufacturing ICT products (Latin America).
- ❖ Complementarities with East Asia.
- ❖ Opportunities in natural-resource based industrialization
 - ✓ Technological: biotechnology, nanotechnology, environmentally-friendly products.
 - ✓ New market opportunities: differentiated and customized products.
 - ✓ High Asian demands + prices (now questionable)
- ❖ Need to exploit the whole value chain + fair trade and environmentally-friendly opportunities.

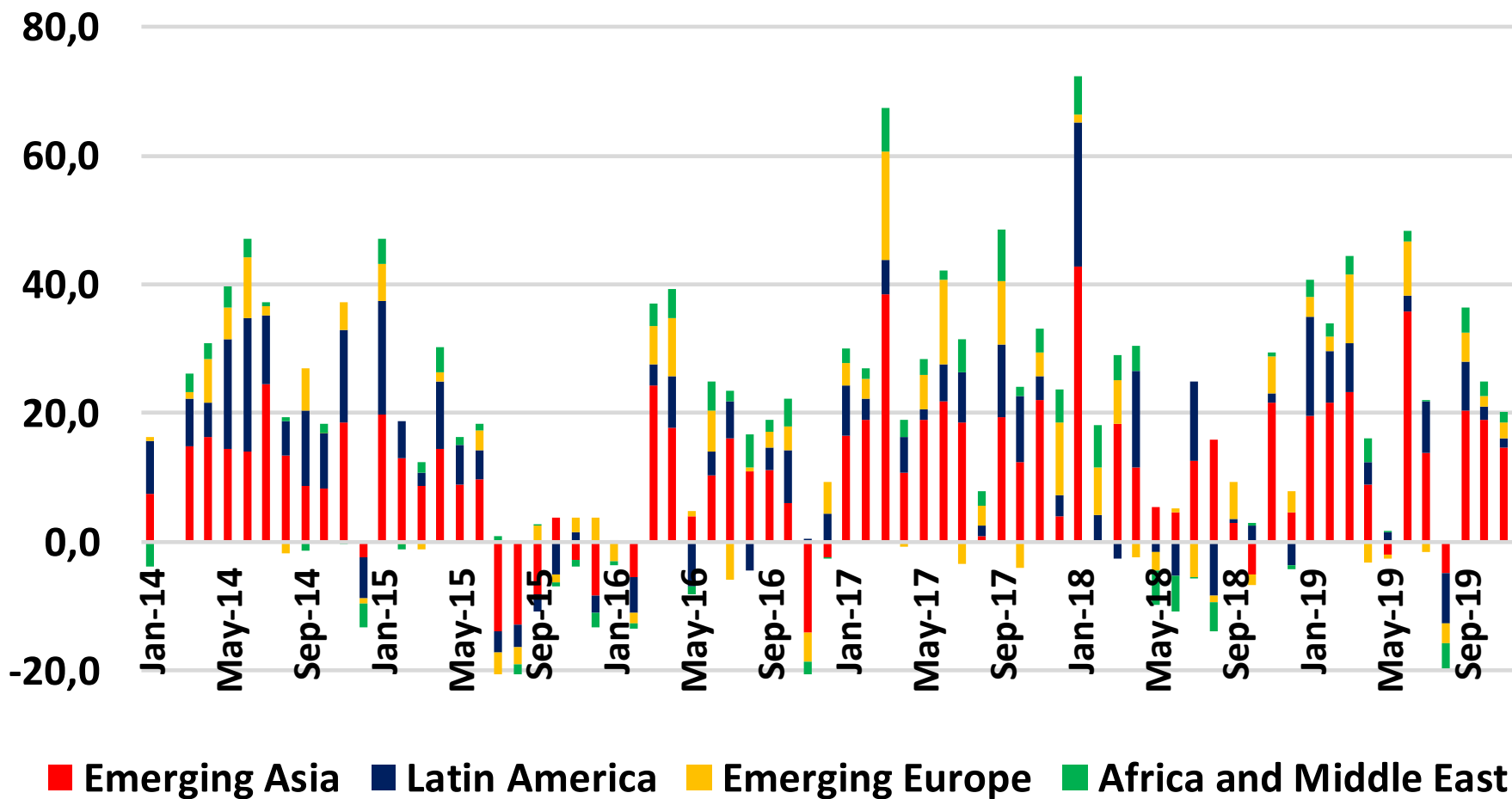
MACROECONOMIC AND FINANCIAL DIMENSIONS

VOLATILITY OF EXTERNAL FINANCING

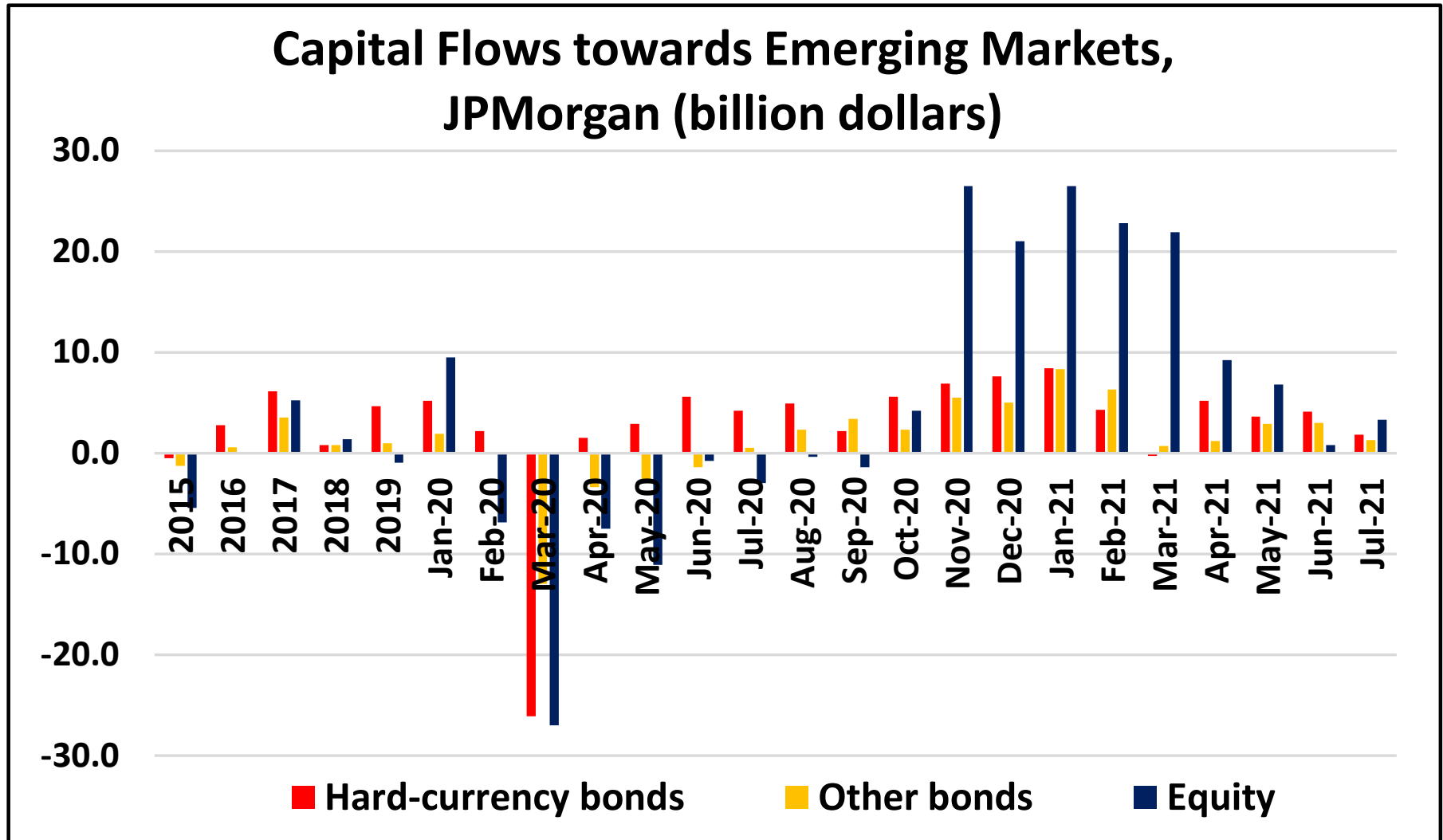
- ❖ In developing economies, external financing may not be available, or is procyclical (including, possibly, sudden stops).
- ❖ External financial cycles directly affect domestic spending, the growth of credit and asset prices...
- ❖ ... but they also reduce the margin for countercyclical macroeconomic policies, and even generate incentives to adopt procyclical policies.
- ❖ With capital mobility, economic policy faces a strong undesirable trade-off between a procyclical monetary policy and a procyclical exchange rate policy.
- ❖ The latter has strongly negative effects on economic diversification, both because of uncompetitive rates during booms (“Dutch disease” effects) and volatility.

VOLATILITY OF PORTFOLIO FLOWS HAS BEEN PERSISTENT

Portfolio flows, 2014-2019 (IIF, billion dollars)



CURIOSLY, THE SUDDEN STOP WAS VERY SHORT DURING THE COVID-19 CRISIS



A CRITICAL FINANCING INSTRUMENT: NATIONAL DEVELOPMENT BANKS

- ❖ Private finance unwilling to fund activities with uncertain returns, strong learning effects and externalities key for structural transformation and sustainable development.
- ❖ Basic functions:
 - ✓ Provide counter-cyclical finance.
 - ✓ Support activities that lead structural transformation.
 - ✓ Deepen and improve financial markets for development-friendly instruments.
 - ✓ Support greater inclusion of small firms.
 - ✓ Finance global public goods (climate change).
- ❖ NDBs should work very closely with private sector.

THE ROLE OF EXCHANGE RATES

- ❖ Competitive and stable real exchange rates always play an essential role in the development of new production sectors. Large empirical evidence in this regard.
- ❖ This role is stronger if we want to overcome two constraints: the possible rent-seeking effects of industrial policy, and limits imposed by international rules (lack of sufficient policy space).
- ❖ At the same time, tax sectors with no learning spillovers or externalities.
- ❖ This leads to *effectively* multiple real exchange rates: different real exchange rates for sectors with diverse spillovers, while maintaining the commitment of IMF members to avoid multiple exchange rates.

**SUMMARY:
POLICY IMPLICATIONS**

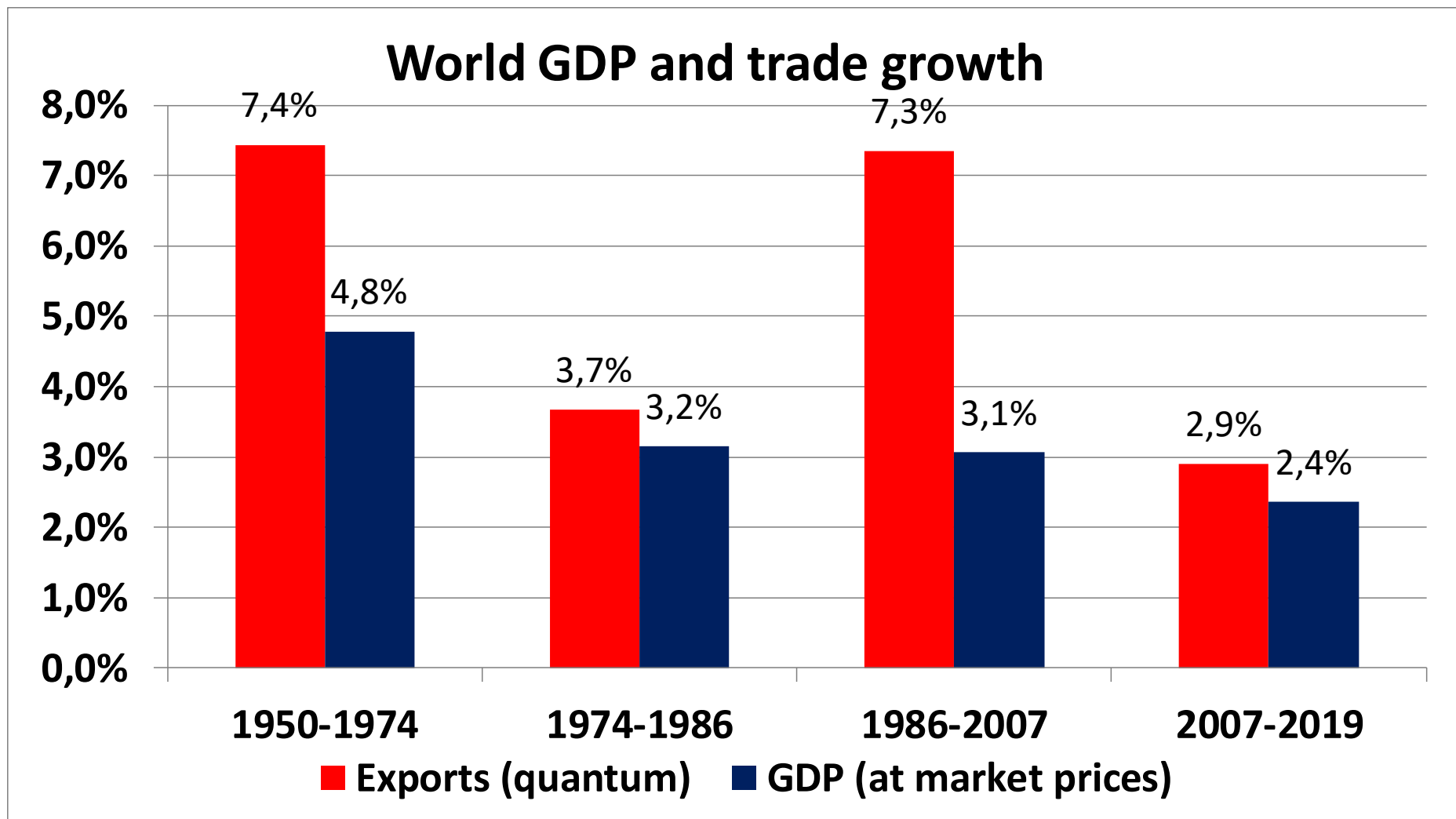
STRUCTURAL TRANSFORMATION POLICIES

- ❖ High quality infrastructure and education systems serve as basic “background conditions”
- ❖ Support for structural transformation of production
 - ✓ Support for new industries and production clusters
 - ✓ Diversification of the export base
 - ✓ Domestic production linkages of exports and activities with FDI presence
- ❖ Innovation systems that accelerate the development of technological capacities
- ❖ Appropriate international rules / “policy space”
- ❖ Structural transformation is not a once and for all process, it is not smooth (creation/destruction), and structural heterogeneity is a persistent feature.

EXPORT STRATEGIES

- ❖ Domestic conditions (existing specialization patterns, size, location) determine the opportunity that an individual country has.
- ❖ Diversifying into higher technology products is crucial, but opportunities may be limited.
- ❖ Individual countries can succeed in any of these strategies, but as a group developing countries can only succeed if the demand is elastic (it may require developed countries losing market shares).
- ❖ Different markets provide different opportunities (N-S, S-S with China at the center, intraregional).
- ❖ Domestic and regional markets are attractive!

STRONG SLOWDOWN OF INTERNATIONAL TRADE MAKES DOMESTIC/REGIONAL MARKETS MORE ATTRACTIVE



ACCOMPANYING MACROECONOMIC AND FINANCIAL POLICIES

- ❖ Combine strategies of structural transformation with countercyclical macroeconomic policies that help manage commodity and external financial cycles.
- ❖ Commodity stabilization funds and capital account management are crucial instruments of an appropriate counter-cyclical policy.
- ❖ An active exchange rate policy to guarantee a competitive and relative stable real rates is important in a structural transformation strategy.
- ❖ Taxing sectors that do not generate learning externalities is a complementary instrument.
- ❖ At as a domestic policy, National Development Banks play an essential role.

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