

# **The Return of the Policy That Shall Not Be Named**

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*“If we know what an economic miracle is, we ought to be able to make one”*

*Lucas (1993)*

# A TIP for Growth

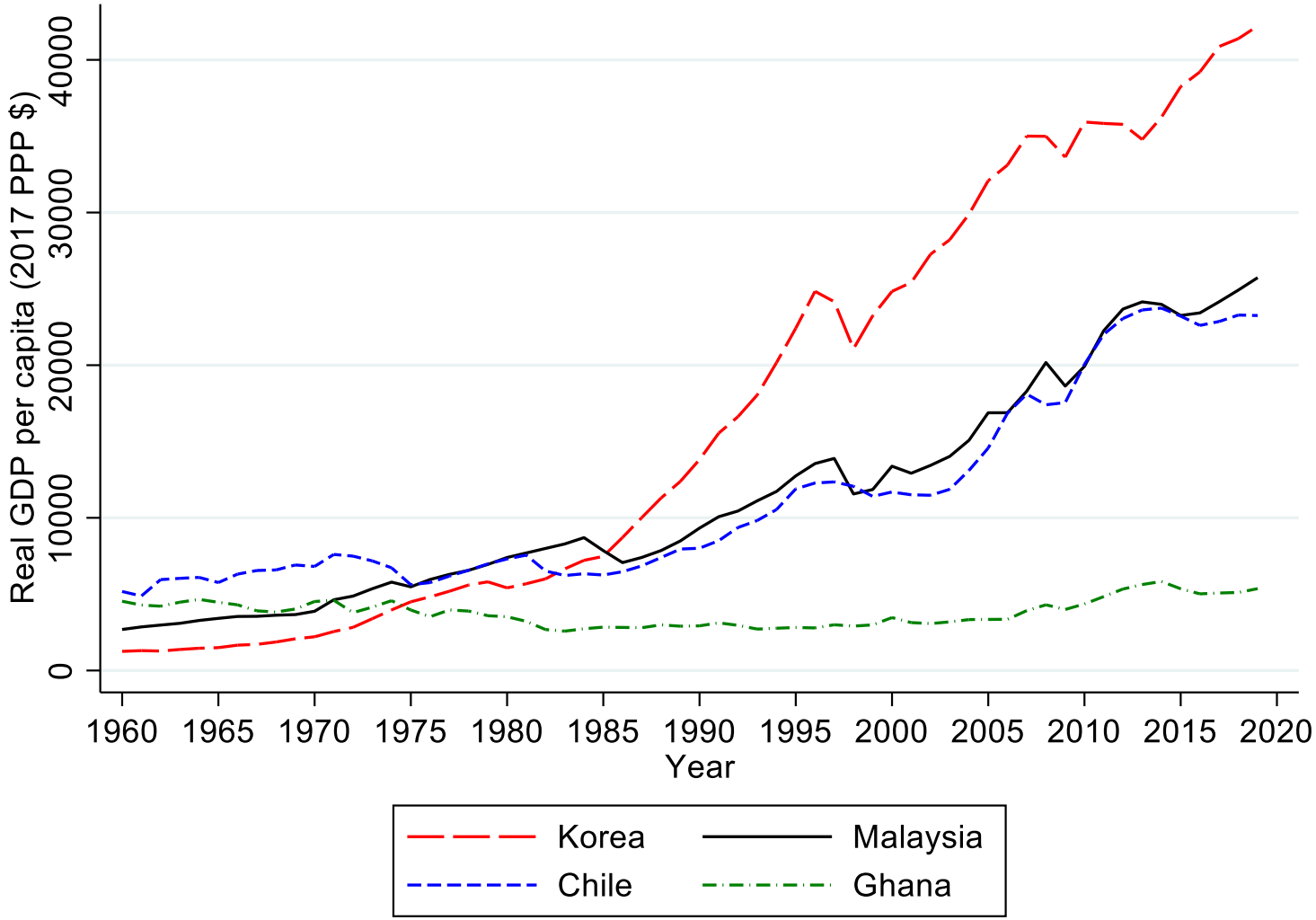
“Much of the real world is controlled as much by the tails of distributions as [by] means or averages...by the exceptional not the common place; by the catastrophe, not the steady drip...we need to free ourselves from ‘average’ thinking.”

- Phil Anderson, Nobel laureate in physics

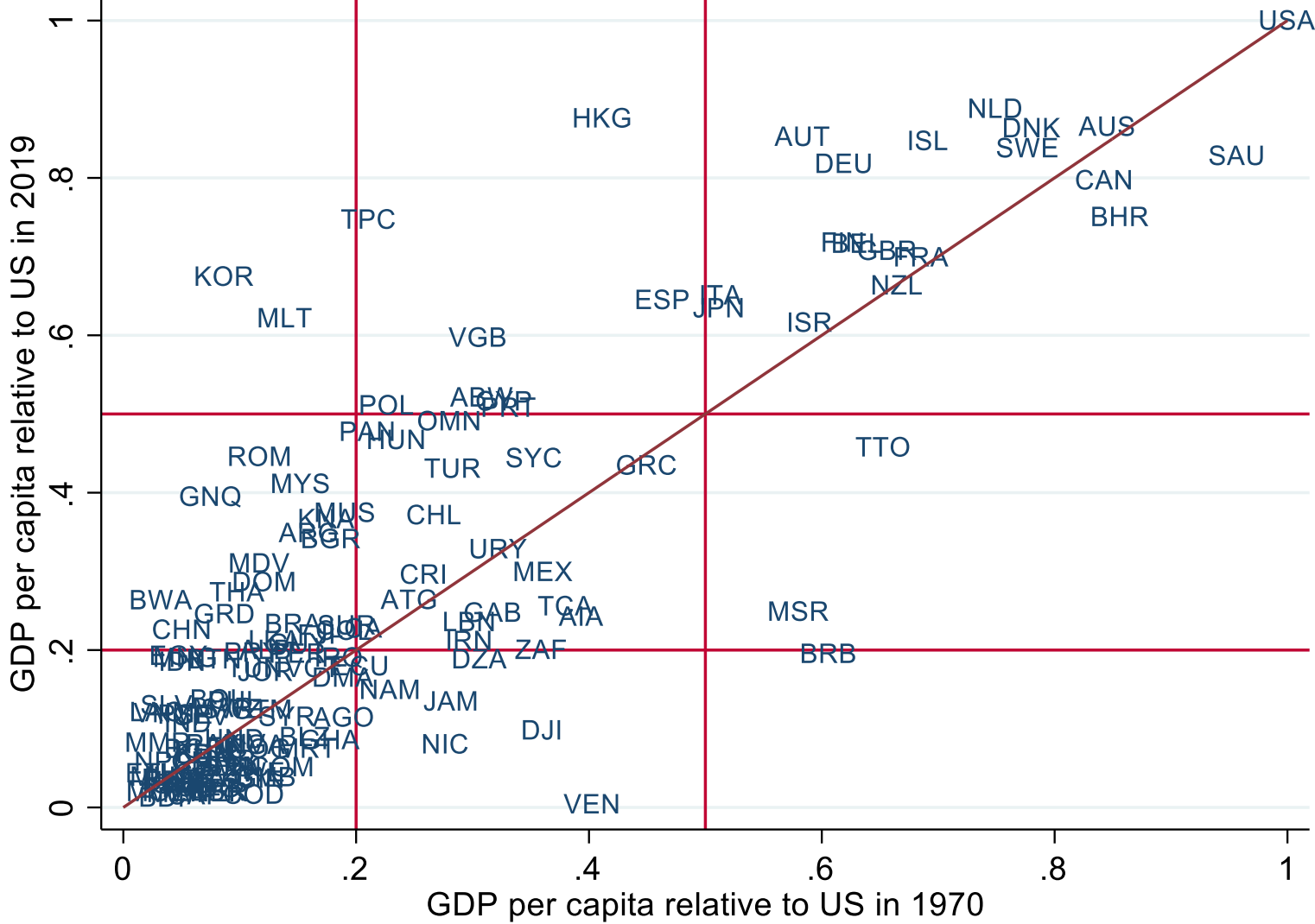
What do we learn from the Asian Miracles?

We give you a TIP for growth – “True Industrial Policy,” that is, Technology and Innovation Policy (TIP)

# What is the Grail of Development?

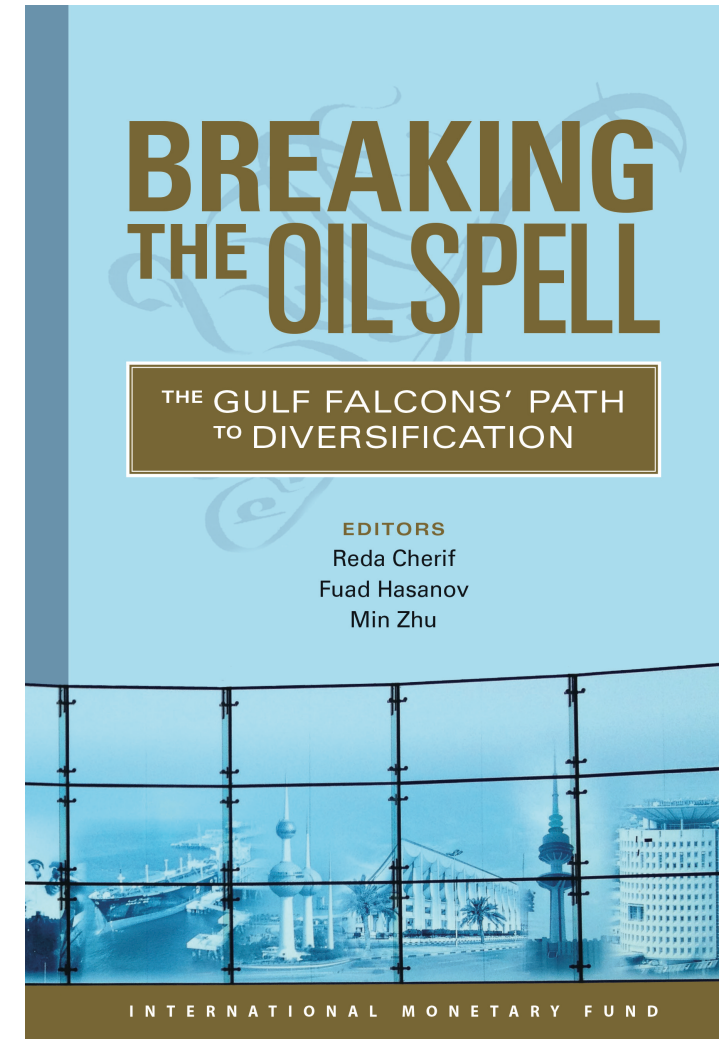


# One-Half-Century of Development



# Standard Growth Policy Advice May Not Be Sufficient

- Standard policy prescription includes macroeconomic stability, minimum state intervention and an enabling environment conducive to investment in both physical and human capital. It consists of tackling “government failures” (Rodrik 2005)
- A quasi-natural experiment: the Gulf Cooperation Council (GCC) countries have improved dramatically in most of these dimensions outperforming many AEs but they have been diverging (see *Breaking the Oil Spell* by Cherif, Hasanov and Zhu 2016)
- “Market failures” necessitate government intervention (e.g. LBD in Krugman 1987), i.e. *the leading hand of the state*

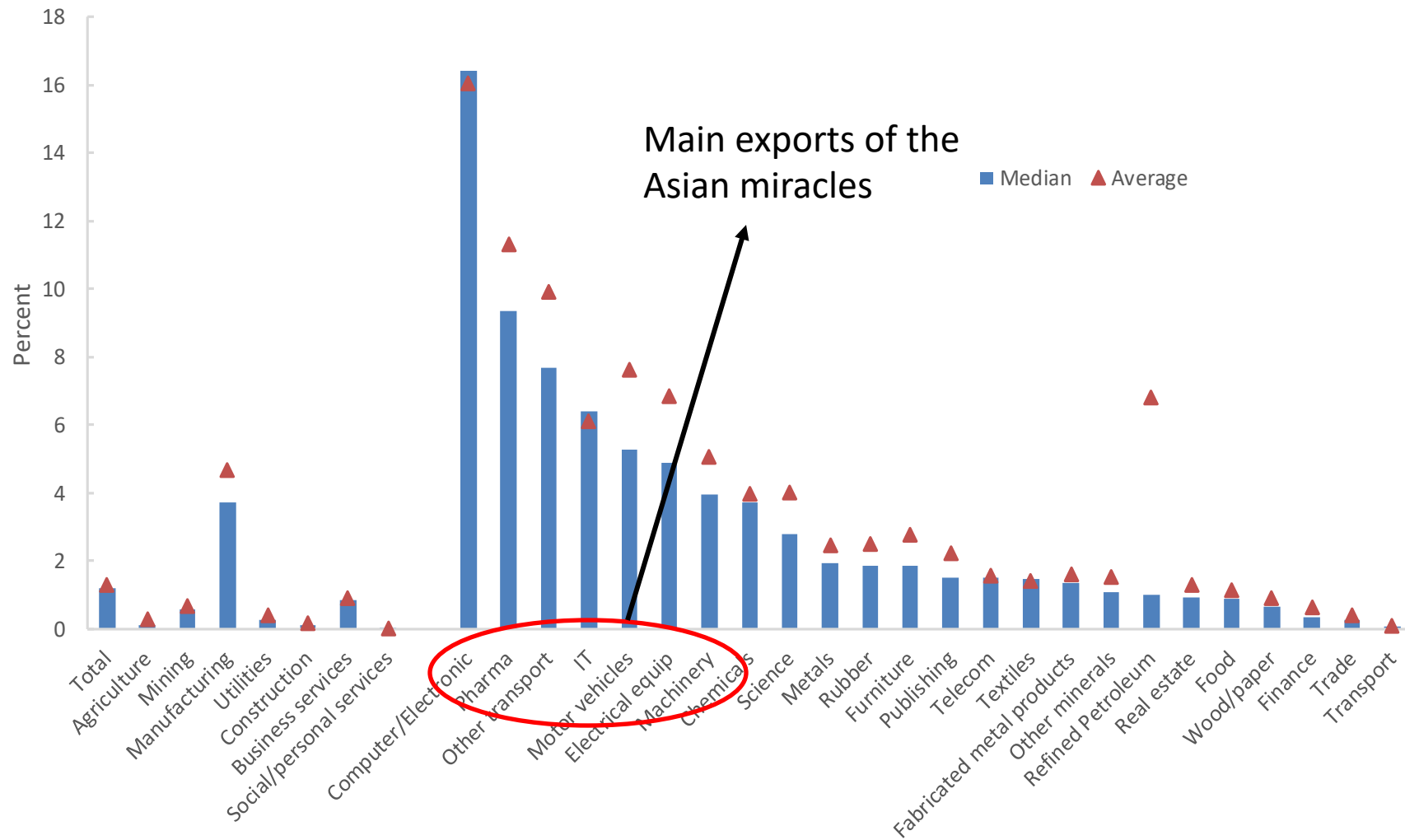


# TIP: Three Key Principles

- **Intervene to create new capabilities in sophisticated industries:** Pursue policies to steer the factors of production into technologically sophisticated tradable industries beyond the current capabilities and existing comparative advantage
- **Export, export, export:** A focus on export orientation from the onset and the use of market signals from the export market as a feedback for accountability
- **Fierce competition (at home and abroad) and strict accountability:** No support was given unconditionally although performance assessment was not always based on short term profits. As conditions change, both the state and the firms need to adapt fast

Source: Cherif, R. and F. Hasanov. 2019. "The Return of the Policy That Shall Not Be Named: Principles of Industrial Policy," IMF Working Paper 19/74

# What is a Sophisticated Industry?





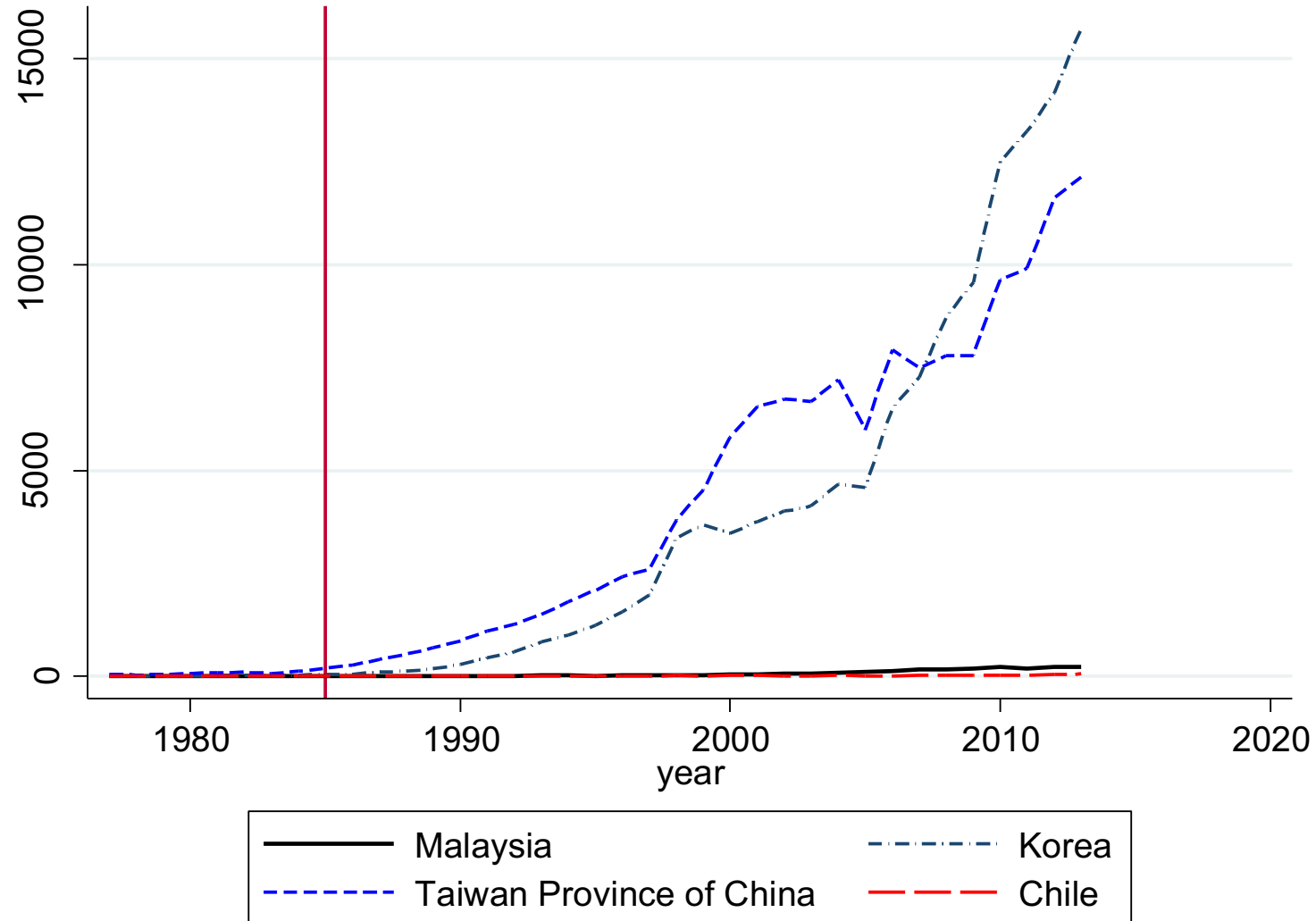
# Creating a Dynamic Export Sector

- Export orientation vs. import substitution/non-tradables
- Domestic capabilities vs. portfolio diversification (e.g. Norway in the 1970s vs. petrochemicals/metals in other oil exporters)
- Sophisticated exports vs. agriculture and services such as tourism and finance
- Beyond vs. within comparative advantage (e.g. Korea/Malaysia vs. Chile)

# The Pursuit of Global Markets is Key

- Malaysia's Proton car
  - Established in 1985 and reached annual production of 500,000 cars
  - Lack of innovation, vested political interests, and mismanagement
- A few key elements for the success of Korea's Hyundai
  - The push to export from the outset
  - “Move first, then learn and adjust” strategy (huge annual production targeting the US, own dealership network and investment in advertisement)
  - Large state support with strict accountability
  - High R&D spending and own engine produced in 1991
  - Competition across several chaebols in international markets

# It is All About Technology Creation



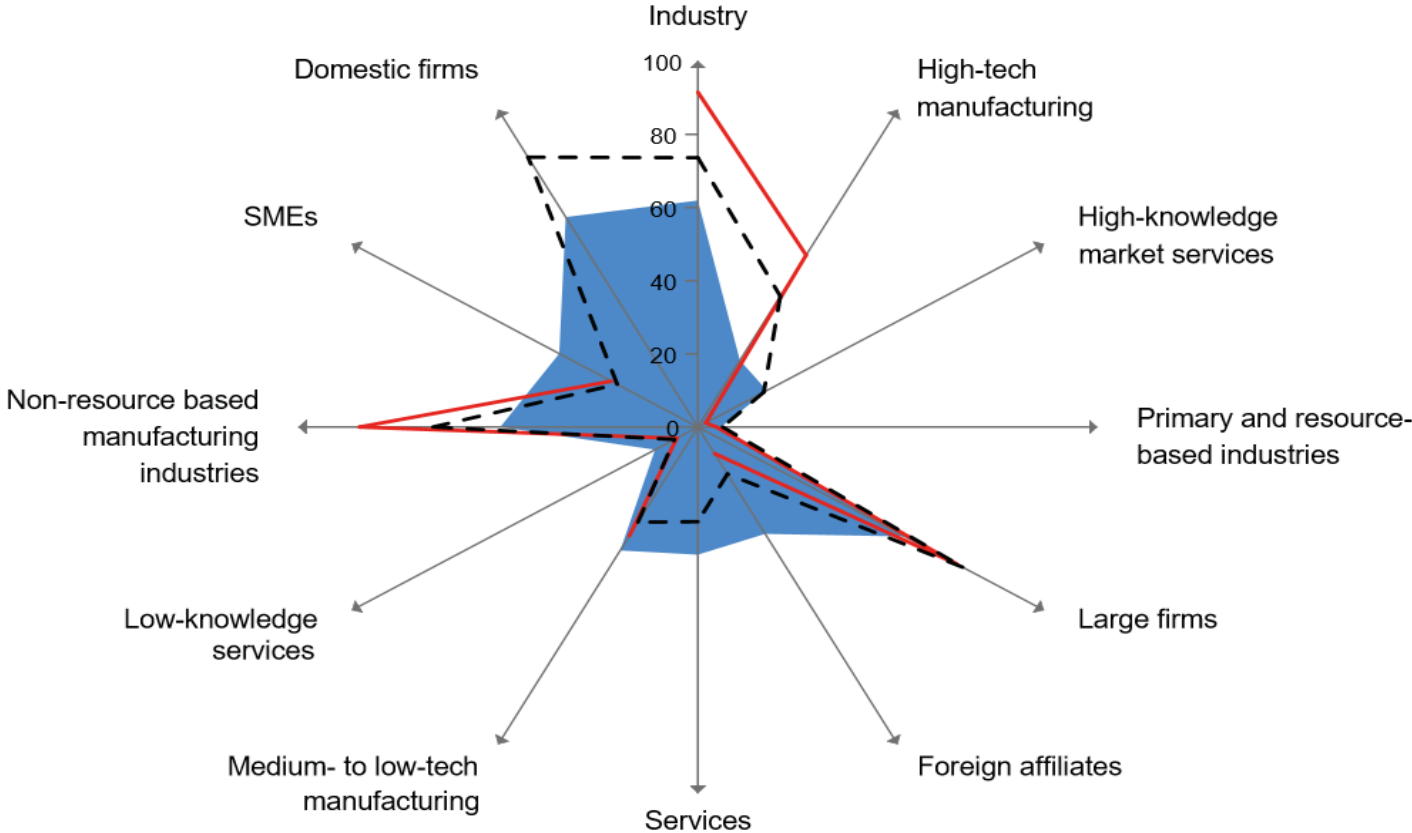
# Who Does R&D in Innovative Economies?

## Structural composition of business R&D

Percentage of business R&D expenditure (BERD), 2013 or latest year available



Legend: ■ OECD median — Korea  Compare to



Source: [https://stats.oecd.org/viewhtml.aspx?datasetcode=BERD\\_STIO&lang=en](https://stats.oecd.org/viewhtml.aspx?datasetcode=BERD_STIO&lang=en).

# Creating Homegrown Technology: From Spin-Offs to MNCs

- Electronics industry in Taiwan Province of China
  - A focus on SMEs and linkages with MNCs
  - Public research institutes to create technology
  - Massive investment in skills
  - Leap to the frontier at an early stage
  - Industrial Technology Research Institute (ITRI) set up in 1973 to lead the effort
- “Spin-offs” and the state as a venture capitalist
  - Technology sharing agreement or license with a US firm
  - Staff sent for training in the facilities of the US partner firms
  - Experimental production units set up within the institute
  - About 50 percent of capital provided and even initial production took place at the institute
- Technology frontier reached within a decade by late 1980s

# The Rise of Nokia: The Forgotten Leading Hand of the State

- Nokia started as a paper mill company (joint venture later with rubber and cables companies)
- Government procurement played an important role in ICT cluster development (e.g. Post and Telecommunication Operator)
- Parallels with Taiwan Province of China: STPC-STAG; ITRI-Tekes; ERSO-VTT
- 7-8% of Nokia's R&D in 80s and 90s from Tekes (excluding partnerships) and from the late 90s to 2010, Nokia's R&D was around 1% of GDP (about 1/3 of total R&D)

# University-Centered Innovation: EPFL

- Large investment in basic and applied research in Universities, including through Swiss National Foundation and Commission for Technology and Innovation
- Strong collaboration with industries: CTI on a national level, Innovation Park at EPFL
- Policies to attract foreign talent (professors and PhD/masters students)
- Supporting legal framework for technology transfers (early 1990s for ETH System) and various funding instruments (e.g. Innogrants) and startup support at Innovation Park

# Venturing into Sophisticated Sectors: Changing Incentives for Firms and Workers

- Firms:
  - Purpose-specific investment in skills and infrastructure: University-centered innovation and industry clusters
  - Funding and business support (e.g. development banks and export promotion agencies)
- Workers:
  - Improving education quality (e.g. early childhood, teacher quality, vocational training, and study abroad)
  - Changing social attitudes
    - Developing economies: “Saemaul Undong”-type social development program (Cherif, Hasanov, and Zhu 2016)
    - Advanced economies: Encourage entrepreneurship and risk taking



# Creating Winners

- The key is exporting activities of domestic firms and homegrown technology creation
- It is about picking sectors/missions rather than firms while preserving competition and “creative destruction”
- To succeed at creating homegrown technology, competition in international markets, moving to frontier technology early on, and enforcing market discipline and accountability, are crucial
- It is important to invest in purpose-specific skills and infrastructure and align incentives for firms and workers to go into sophisticated sectors

*Creativity always comes as a surprise to us; therefore we can never count on it and we dare not believe in it until it has happened. In other words, we would not consciously engage upon tasks whose success clearly requires that creativity be forthcoming.*

Albert Hirschman

“The Principle of the Hiding Hand”