

Malaysia's Productivity Paradox and Long Term Growth

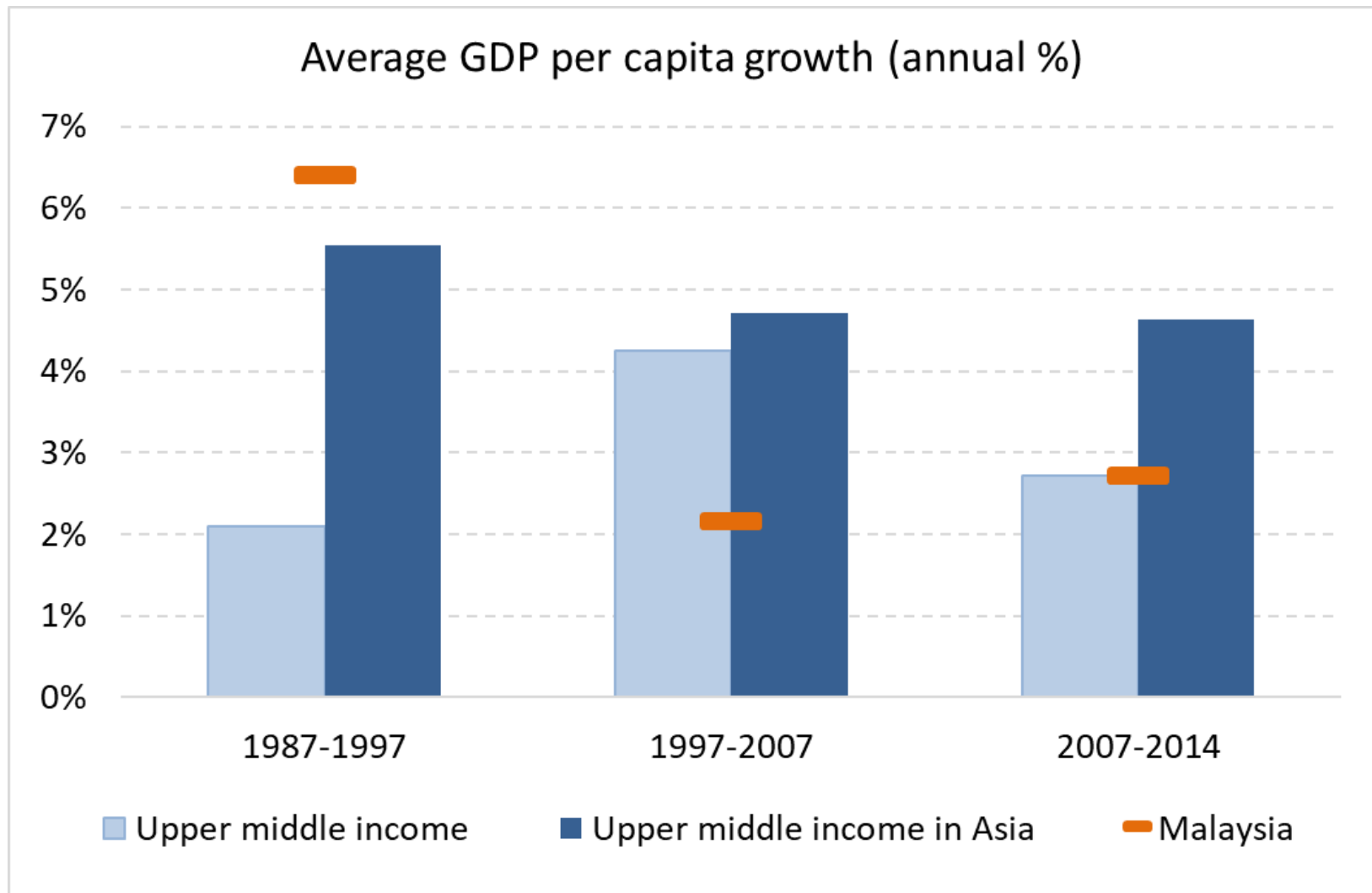
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Malaysia's GDP per capita growth over the last 3 decades

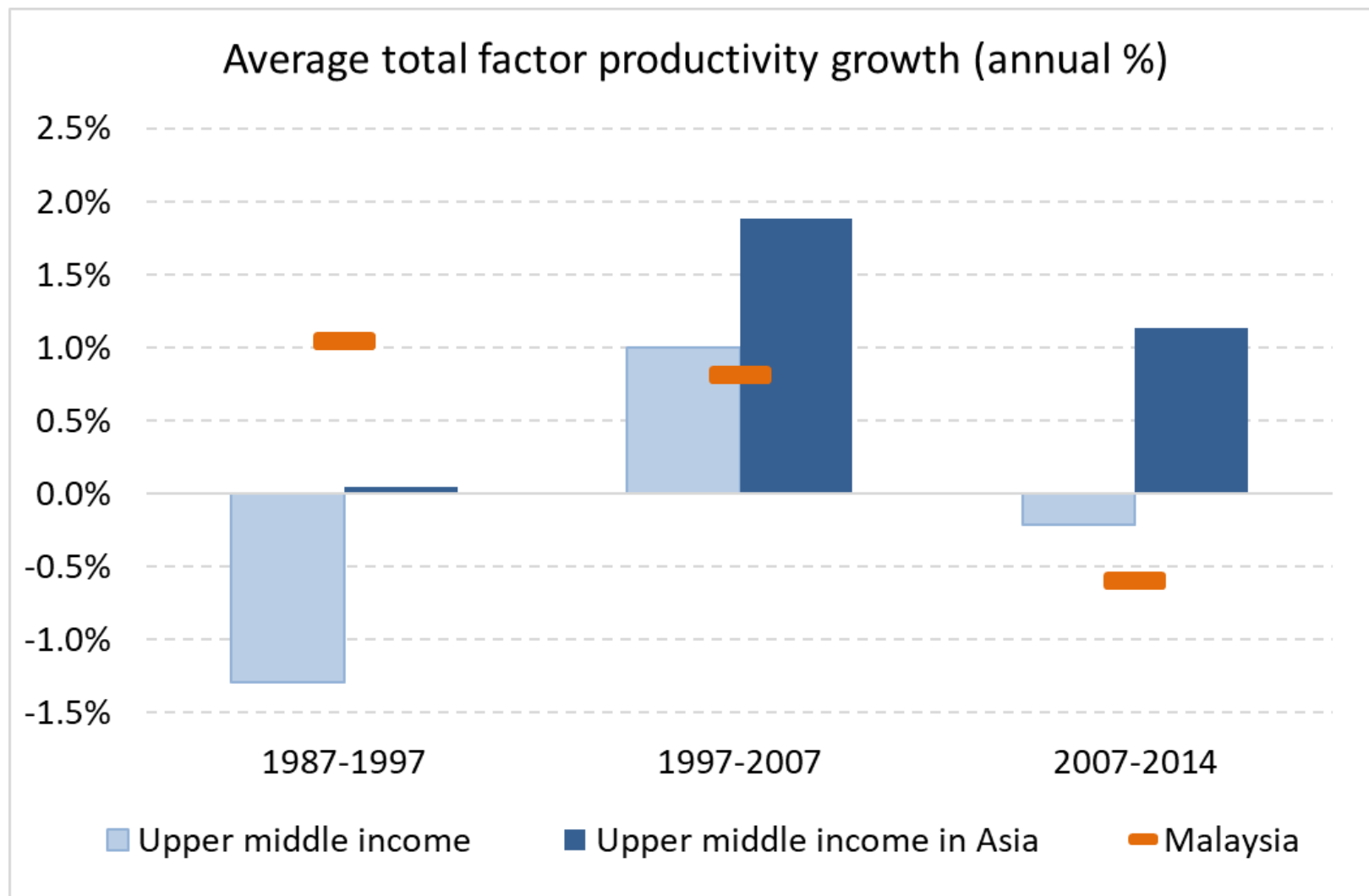


Source: World Development Indicators 2019.

Countries with small population (<2 million) and heavy oil rent (top 10 percentile) are excluded.

Upper middle in Asia (GDP PC \$3,895-\$12,055): China, Malaysia, Mongolia, Thailand, Korea (transition to the high-income in 1990s).

Malaysia's total factor productivity growth over the last 3 decades



Source: Penn World Table 2018.

Countries with small population (<2 million) and heavy oil rent (top 10 percentile) are excluded.

Upper middle in Asia (GDP PC \$3,895-\$12,055): China, Malaysia, Mongolia, Thailand, Korea (transition to the high-income in 1990s).

Implications

1987-97: high growth

- The level of physical capital stock was low.
- The return on investment was high.

Following decades: lower growth

- The level of physical capital stock increased. Therefore, its return on investment decreased.
- Growth mainly based on investment is not sustainable.
- Productivity is the key to sustained growth, and transition to the high-income status.

What drives productivity?

- Extensive literature review
 - Time: 1990–2016
 - Key search words: “Total factor productivity”, “Growth”, “Determinants”
 - Criteria:
 - 1) A quantitative relationship between productivity and its determinants
 - 2) A focus on developing countries as well as developed ones
- 63 papers are identified.
- Productivity determinants are classified into five categories based on the identified papers.

Productivity determinants

Generation and adoption of new technologies, products, and processes

Innovation

Knowledge and skills to generate new technologies, as well as to disseminate, adapt, and implement them

Good governance (regulatory, justice, policy, and political systems) for stability, safe environment, property rights, and civil rights

Institutions

Education

Transport, telecommunication, energy, and water and sanitation for access to markets, workplaces, and knowledge

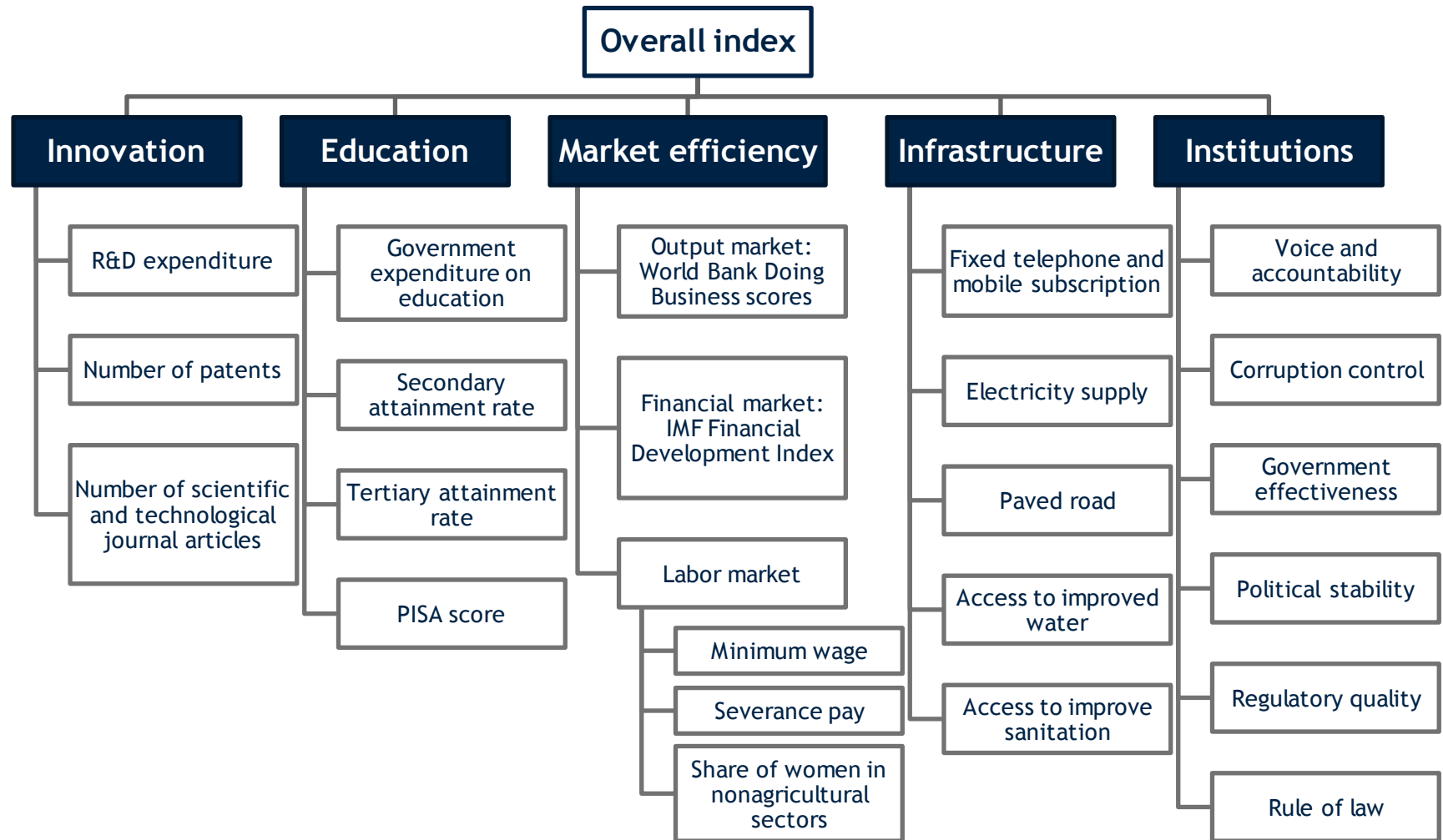
Infrastructure

Market Efficiency

Efficient allocation of resources across firms and sectors, inducing laggard firms to exit, productive firms to grow, and new firms to emerge

⁵ Literature review results for each category are shown in the working paper (Appendix A.)

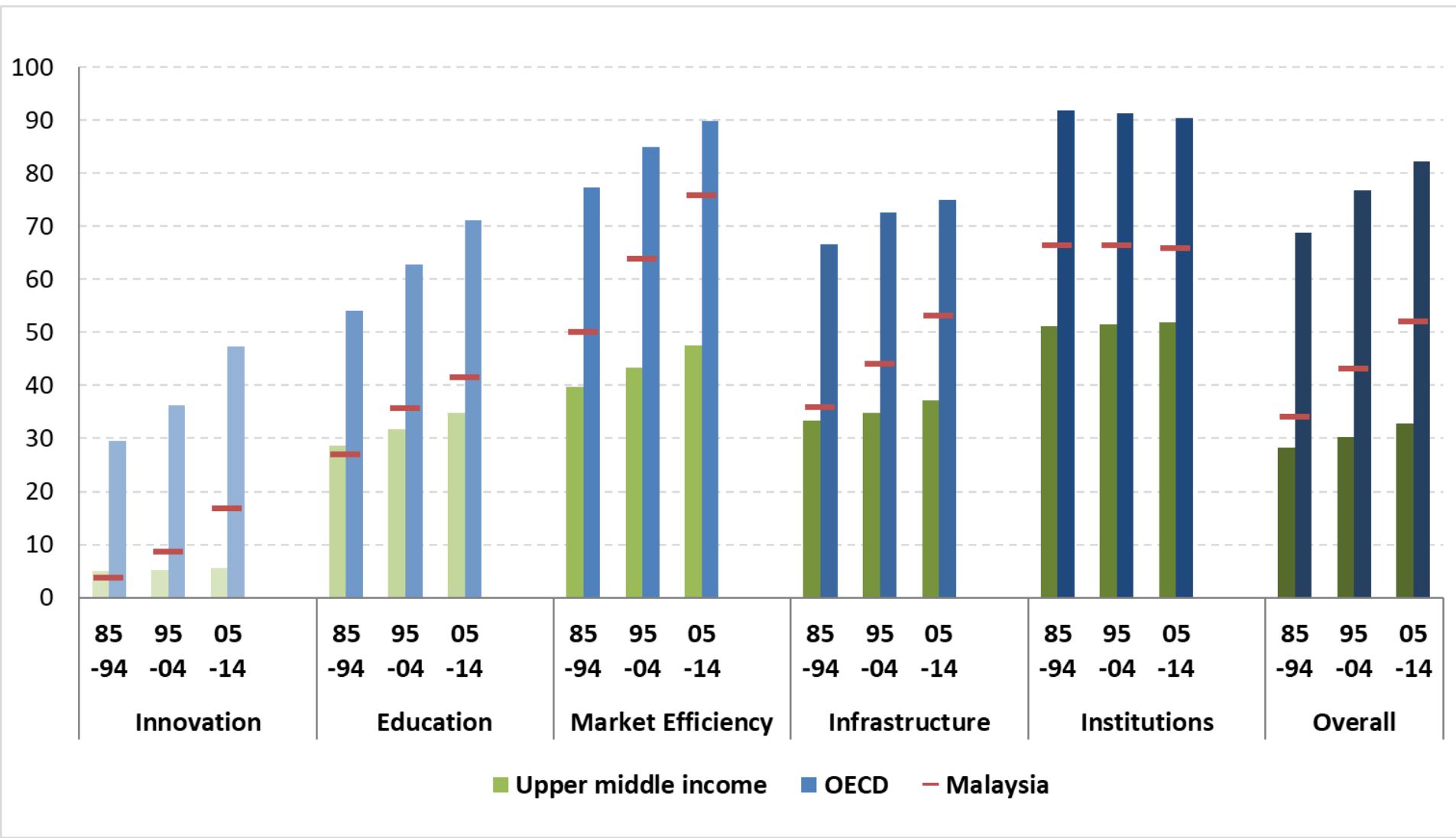
Productivity determinants are measured as indexes.



We collect data for indicators for 115 countries, yearly over 1985-2014, and construct the five subcomponent indexes and the overall index using statistical methods: factor analysis and principal component analysis to summarize the information from the different indicators.

MEA 12MP Kick-Off Conference

Overall determinant index in history



Source: Authors' calculation.

Note: The indexes are rescaled to range from 1, the lowest performance, to 100, the best among all countries over the three decades.

OECD: High-income countries that have been a member of OECD for more than 40 years (21 countries).

Upper middle: GDP per capita in 2014 between \$3,895 and \$12,055.

Bars show averages by group.

Relationship between the overall determinant index and productivity growth

productivity growth ~ overall determinant index + initial productivity level
 + time and country fixed-effects

$$\ln(TFP\ growth_{c,t}) = \beta_1 \ln(Index_{c,t-5}) + \beta_2 \ln(TFP\ index)_{c,t-5} + \delta_t + \theta_c$$

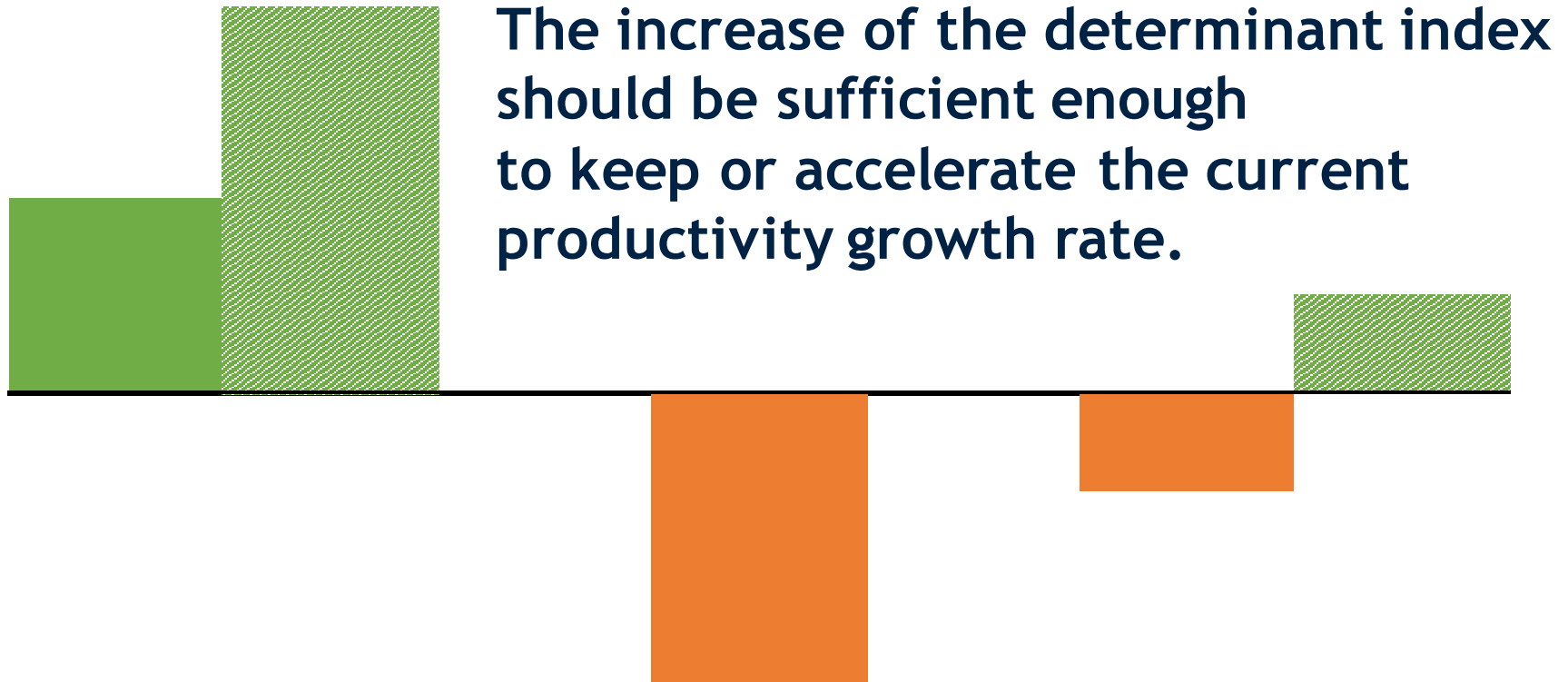
(TFP: Total Factor Productivity)

Dependent variable:	<i>Annualized TFP growth</i> _{c,(t-5,t)}
Number of observations:	477
Number of groups (countries):	98
Regressors (below):	Coefficient (SE)
<i>ln(Index</i> _{c,t-5})	0.050 (0.0183) ***
<i>ln(initial TFP level)</i> _{c,t-5}	-0.099 (0.0151) ***
<i>Year 1999</i>	-0.006 (0.0034)
<i>Year 2004</i>	0.004 (0.0034)
<i>Year 2009</i>	-0.001 (0.0045)
<i>Year 2014</i>	-0.004 (0.0063)
<i>(Reference year: 1993)</i>	
Explained variance (<i>R</i> ²):	
Within countries	0.3048
Between countries	0.2749
Overall	0.1586

SE = Standard error; *: significant at 10%; **: significant at 5%; ***: significant at 1% level

Intuition from the regression result

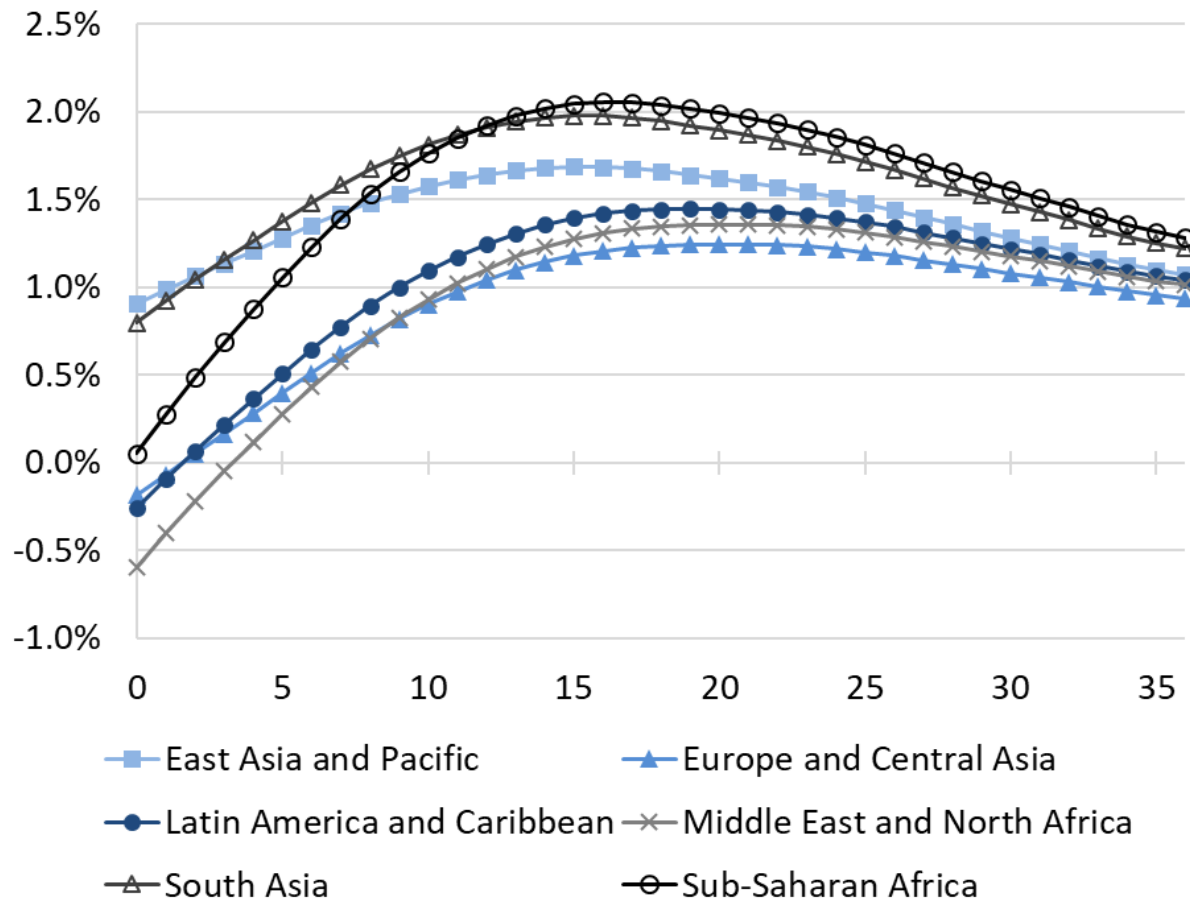
Impact from the increase in the determinant index + Impact from the increase in the productivity level = Change in the productivity growth rate



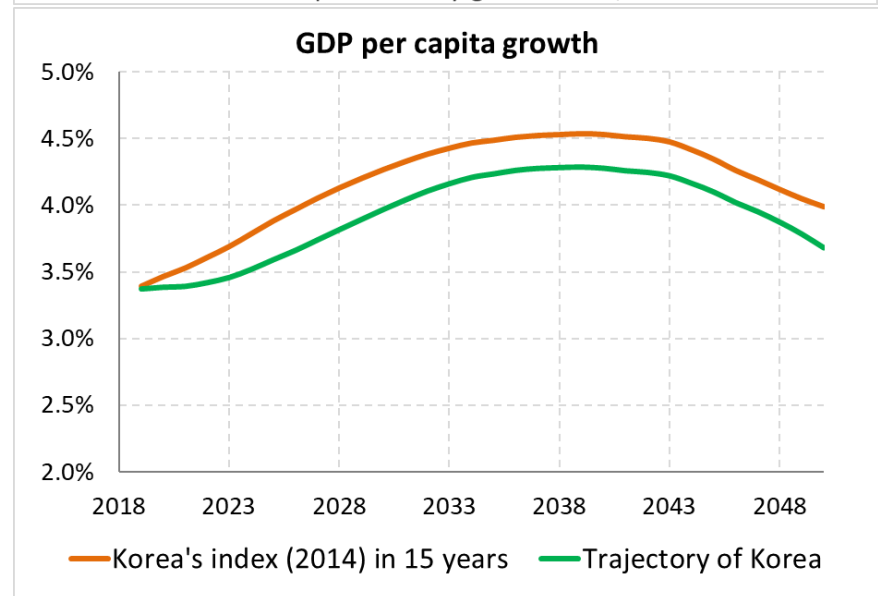
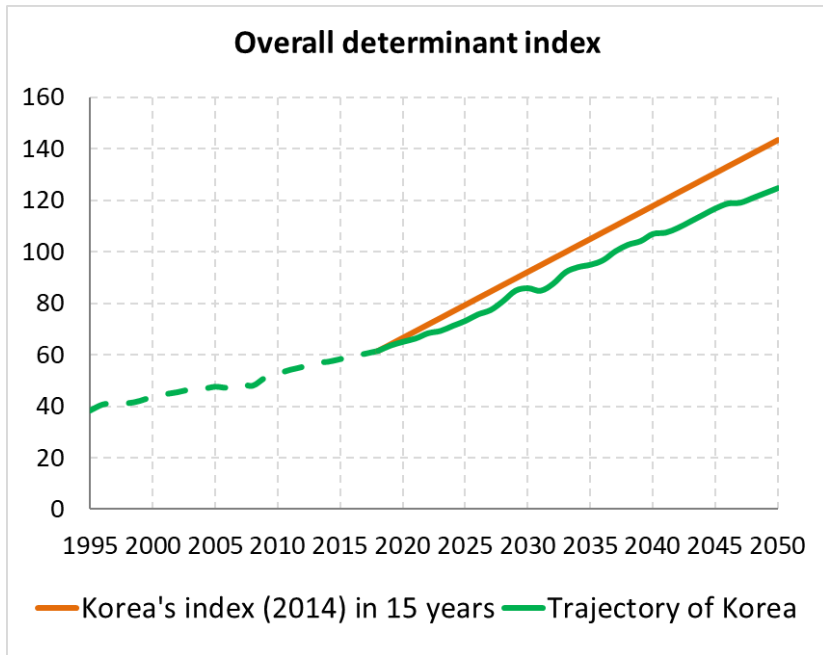
Simulation 1: What if countries replicate the trajectory of Korea in the overall determinant index?

- Korea increased the index the most among all developing countries during 1985-2014.

Simulated total-factor-productivity growth rate by region, average



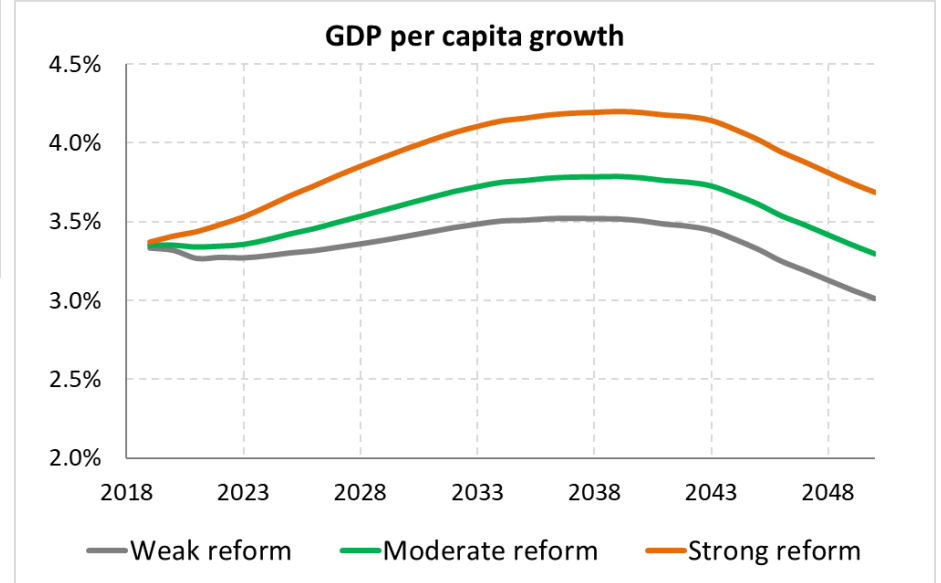
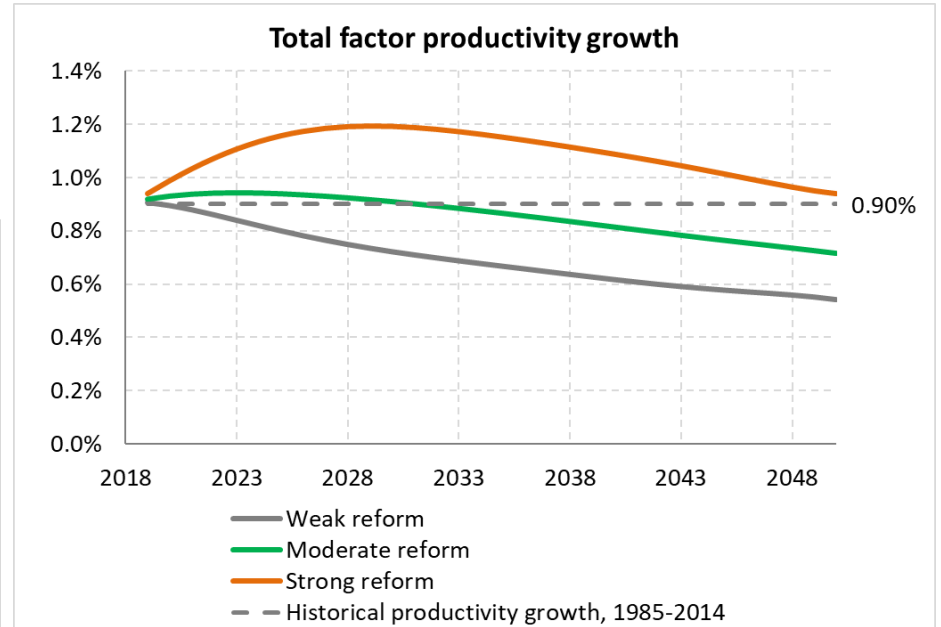
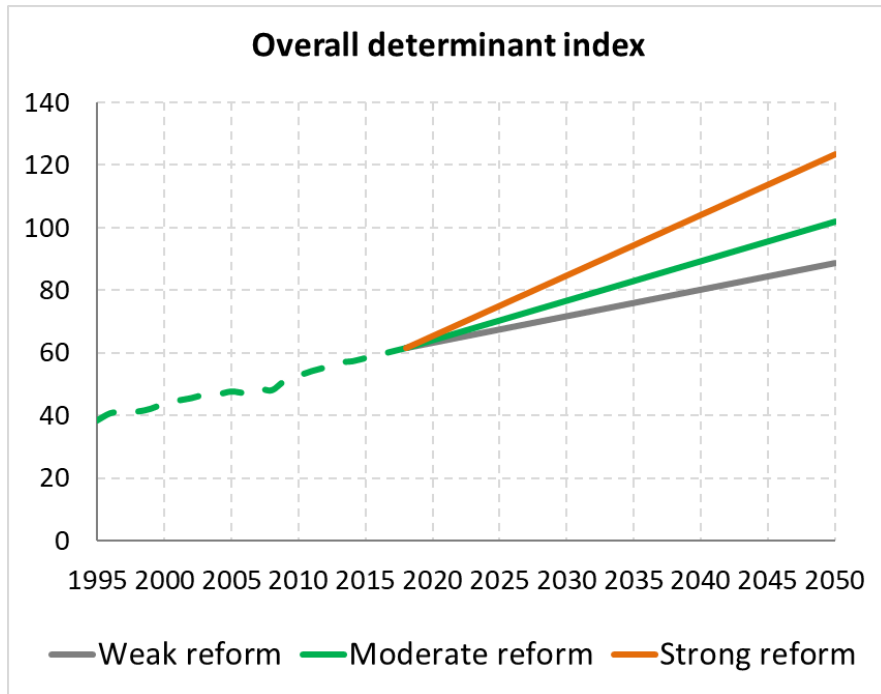
Simulation 2: Malaysia follows Korea's path.



Simulation 3: Malaysia achieves the 25, 50, and 75 percentiles of the subcomponent indexes among high-income countries.

	Innovation	Education	Market Efficiency	Infrastructure	Institutions
Malaysia in 2018					
	24.79	52.07	85.26	60.20	69.45
Scenario 1: Weak reform					
25 percentile	21.93	62.05	72.45	62.20	73.17
Country	-	Spain	-	Portugal	Slovakia
Years to target	-	8	-	1	16
Scenario 2: Moderate reform					
50 percentile	40.24	71.49	86.89	68.68	82.22
Country	France	Netherlands	Italy	Finland	France
Years to target	9	20	2	13	19
Scenario 3: Strong reform					
75 percentile	56.17	77.46	90.75	73.93	91.68
Country	Denmark	Sweden	Germany	Switzerland	Germany
Years to target	10	20	4	16	34

Simulation 3: Malaysia achieves the 25/50/75 percentiles of the subcomponent indexes among high-income countries.



Summary

- Mid-1980s to mid-1990s with high growth
 - High GDP-per-capita growth and high productivity growth in comparison to other upper-middle income countries
- Following decades with lower growth
 - Low GDP-per-capita growth and low productivity growth in comparison to other upper-middle income countries, especially Asian countries.
- Productivity is the key to sustained growth, as the return on investment declines with the level of physical capital stock going up.
- Productivity is mainly driven by innovation, education, market efficiency, infrastructure, and institutions.
- With a strong reform (e.g., benchmarking Korea or stable high-income countries), the productivity growth is expected to increase to 1.2%-1.4% and its GDP-per-capita growth to 4.3%-4.5%, and then taper off over the next 3 decades.
- Alongside productivity improvements, savings, investment, labor participation, and human capital formation should continue to figure prominently in country's growth and development agendas.

Thank you