

# Thailand in the Middle- income trap: An unrecognized contribution

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**TDRI**

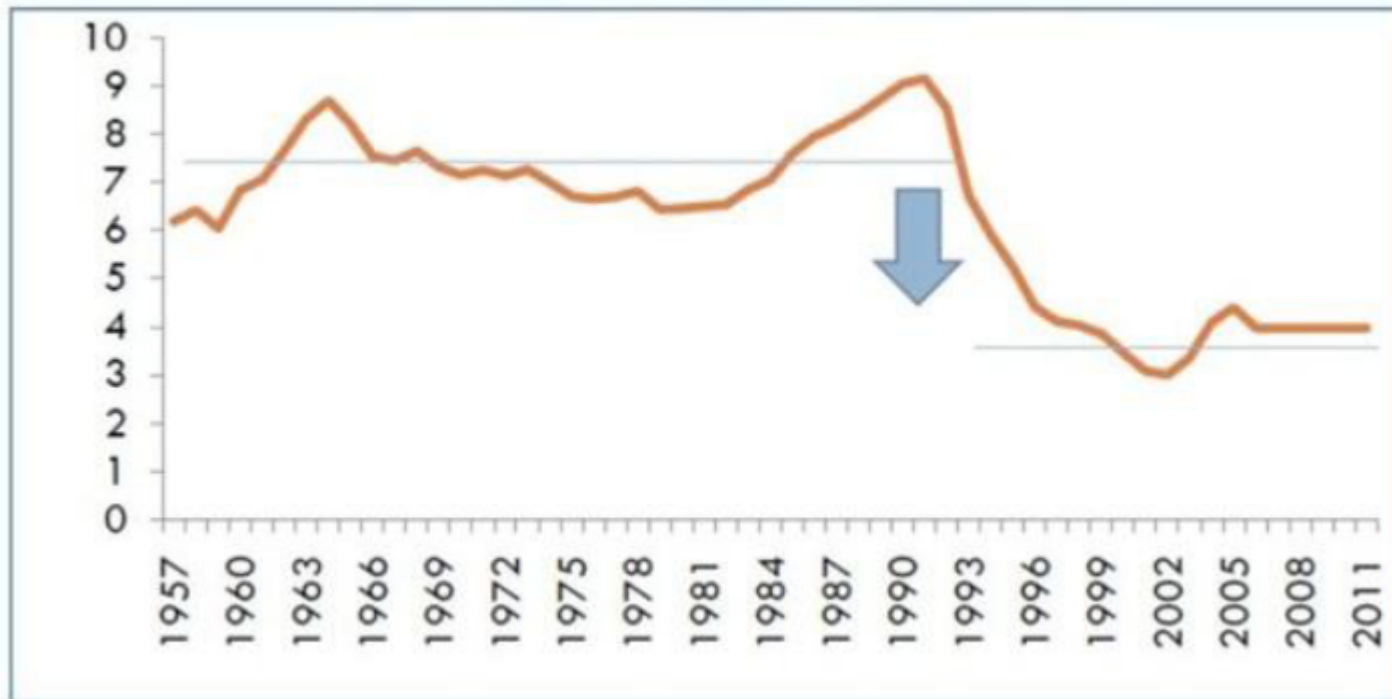
สถาบันวิจัยเพื่อการพัฒนาประเทศไทย

- **Thailand in the Middle-income trap: Evidences and Conjectures**
- **Introduction**
- **Research Methodology**
- **Findings**

# Thailand in the Middle-income trap: Evidences

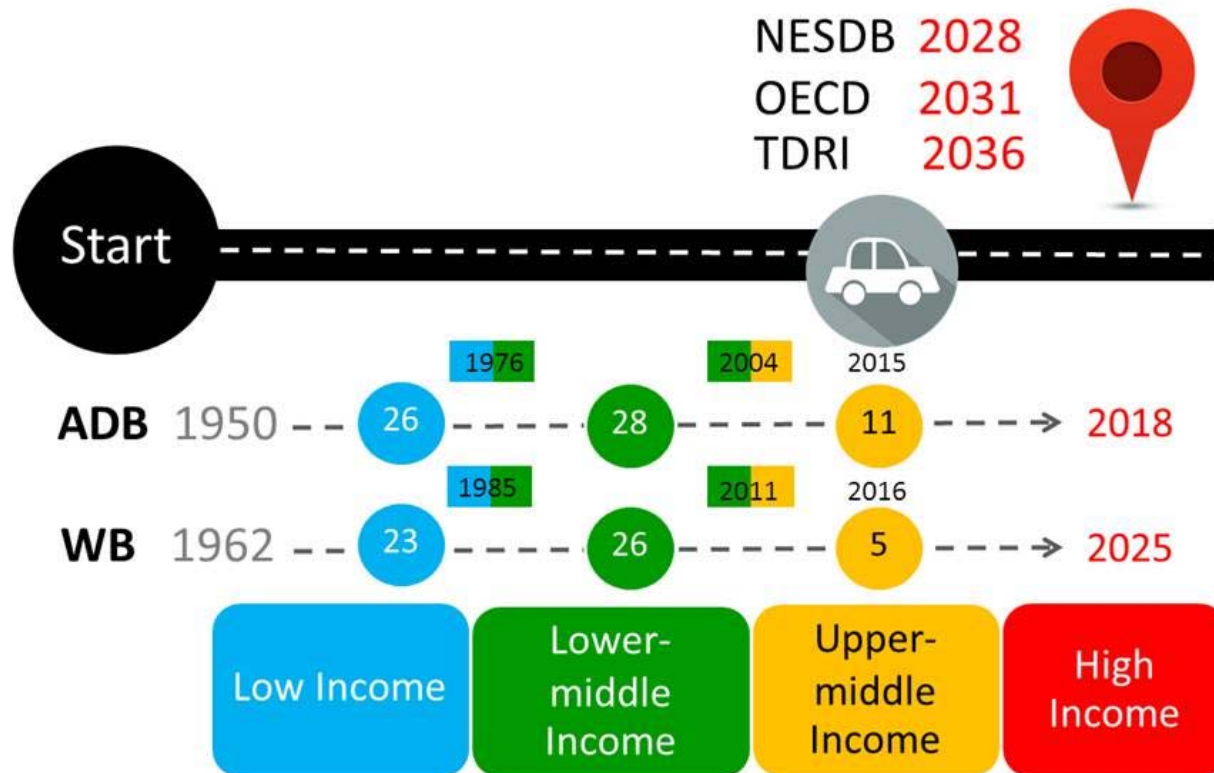
- **Eichengreen, Park and Shin (2011): Growth slowdown by at least 2 percentage points.**

Figure 1: Thailand's 11-years Moving Average real GDP growth



Source: TDRI (2013)

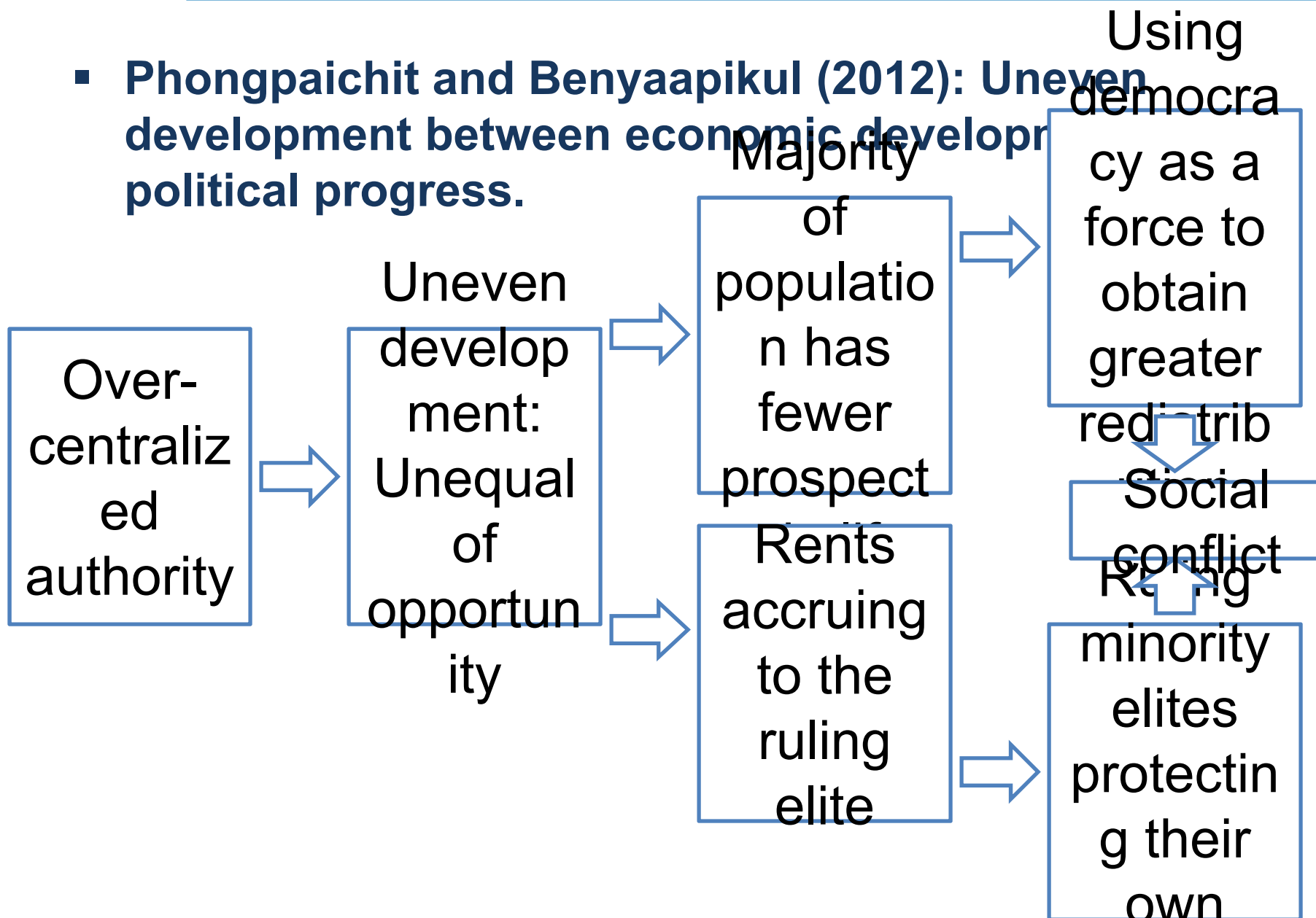
- **Felipe (2012): Slow pace of growth, i.e. being caught in the lower-middle (upper-middle) income status more than 28 (14) years**



# Thailand in the Middle-income trap: Conjectures

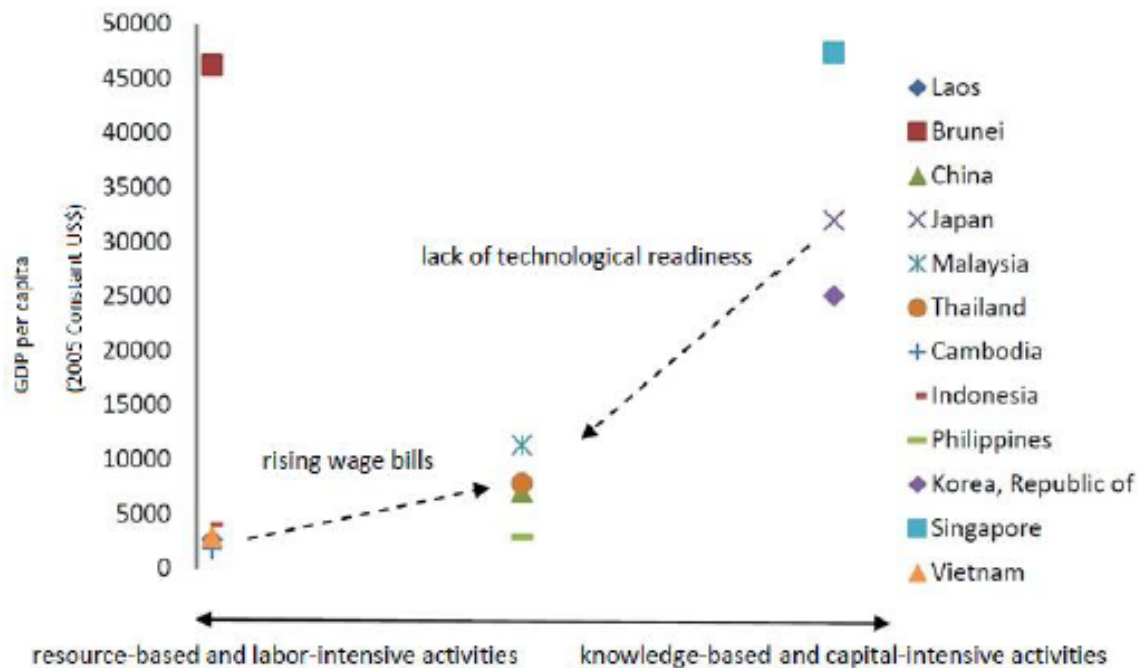
- Ohno (2009): Fail to upgrade human capital.
  - (Quantity) Thai students, on average, spend 4.39 fewer years of schooling than those of the advanced economies.
  - (Quality) Thai students also perform poorly on international standard tests that measure education quality such as the Programme for International Student Assessment (PISA). The PISA average scores for Thai students in Mathematics, Reading, and Science are not only below the OECD average, but also lower than the average of all participating countries.

- **Phongpaichit and Benyaapikul (2012): Uneven development between economic development and political progress.**



- **Kharas and Kohli (2011): Unable to compete with either low-wage economies or highly-skilled advanced economies.**

Thailand in the middle-income trap (in ASEAN+3 perspective )



Source: Author's calculation

- **R&D investment plays another important role in sustaining growth at the middle-income level.**
- **As a country develops toward its middle-income country status, its labor wage bills increase rapidly. A country attaining the middle-income state then can no longer exploit cheap labor as a growth engine any further. It has to find a new development path that can support its future growth.**
- **High levels of R&D investment are a necessary condition for a country to break the middle-income trap because this type of investment is capital- and technological- intensive.**



# Introduction

- For Thailand, the level of R&D engagement, measured by gross expenditure on research and development (GERD) as a percentage of GDP, is lower than other competing developing countries and is considerably less in comparison with developed nations.

- Table 1: Comparison of R&D engagement (selected countries)

Country	GDP per capita (constant 2005 US)*	GERD as % of GDP	GERD – performed by business enterprises
China	3,344	1.98	76
Thailand	3,390	0.37	51
Brazil	5,730	1.21	n.a.
Malaysia	6,790	1.07	57
S. Korea	23,303	4.04	72*
Singapore	36,110	2.23	62
Japan	36,912	3.39	77
United Kingdom	39,793	1.78	64
United States	45,038	2.76	69

- **Current policy proposals include**
  - **giving more financial incentives (R&D tax credits)**
  - **producing more R&D researchers and technicians**
  - **providing more financial access**

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**is this kind of proposals enough?**



- **My work considers two important government-related factors that distort competition in many industries, namely, licensing and public procurement.**
  - **Licensing heightens the entry barriers and limits the total number of firms that can operate in certain industries.**
  - **Public procurement is the process at which government purchases products/services from firms. When the process is unfair or rests upon patronage rather than the quality of products/services, the market is distorted in a way that diverts firms' resources and attention to rent-**

# Data and Methodology

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- **The data on firms that obtain operating licenses, firms that won government procurement and firms that conduct R&D activity are all private information.**
- **Due to the limitations of accessing private data, this paper opts for stock exchange data that contains relatively large firms that allow public security trading in the Stock Exchange of Thailand (SET). Under the Securities Exchange of Thailand Act, B.E. 1974, members of the SET are obligated to publish detailed information of the company's operations that are required for this study and may not be obtained elsewhere.**

- **There are 567 listed companies and only 446 firms that have sufficient information to be employed in the study. Each company is one of the top companies in their own industries and their contributions to the Thai economy are very large. One extreme example is a company named PTT Public Company Limited. The turnovers of this company only are around 22% of Thailand's GDP in 2014.**
- **Focusing on large firms is also important in the study of R&D engagement. Because large firms have more financial access and are more capable of taking R&D ventures than small and medium firms. If Thailand is in the process of transformation toward**

- **To ensure that R&D activity counts in the same widely accepted standard, we redefined the reported R&D activity based on the definition of R&D provided in the Frascati Manual released in 2002 by the OECD. This process mainly excludes conducts that are commonly misperceived as R&D activity e.g., market research and standardization of the production process.**
- **The data employed in this study is dated 2007 which was the last year that companies were obligated to report the detailed R&D activity with some exceptions of unavailable data when 2008 or 2009 data will be used instead.**

- **A standard binary logistic model is applied to examine the issue. The targeted dependent variable in this study is the binary choice variable of whether the firm is engaging in R&D activity or not.**
- **I choose a binary dependent variable of R&D engagement instead of a level of R&D engagement because only 118 firms or only 26% of all firms report to engage in R&D activity.**

- **The literature (Charoenporn, 2006) offers a framework for the determinants of firms' decision to carry out R&D that includes internal factors such as firms' characteristics, internal resources, competencies, strategic variables and contextual factors that cover industrial competition and government related policies.**
- **In this paper, the internal factors related to a firm's characteristics, internal resources and competencies are of less concern because the firms in consideration are top-tier firms in their respective industries. Their characteristics, internal resources and competencies are top-class; some companies are even at the level of world class. For instance, Thai Union Frozen Products Public Company Limited**



- **Another important internal factor is firms' strategies. We argue that the strategy of the firm follows context factors in such a way that maximize the firms' profits. To be more specific, a firm's strategy to engage in R&D depends on the business environment set forth by the competition and government-related policies. Therefore, this factor is normally hidden and can be observed from variation in the contextual factors.**
- **Contextual factors in our analysis consist of the level of competition and government-related factors. Export share and industrial dummies are used to capture the competition level, and government-related factors are licensing and the share of**

# Estimation results

Table 2: Estimation results

Dependent variable:	R&D engagement (binary variable)	
	coefficient	standard error
Firm's capability: Turnovers (mil. of baht)	0.0000069**	0.0000036
Contextual factors: Licensing (binary)	-1.26***	0.24
Government procurement income share (%)	-0.016**	0.006
Export share	-0.963***	0.30

# Findings

- **Business turnover, which is our proxy for internal resource and competency, contributes positively toward R&D decisions.**
- **Export shares of income, which represents a firm's exposure to international competition, are inversely related to R&D decisions. This result is somewhat unanticipated.**
  - **Theoretically, more competition should encourage competing firms to engage in more R&D activity to outclass others.**
  - **(Observation bias) When observations are chosen as purposive rather than randomly chosen, insignificant or opposite signs may be observed when the characteristics of the purposive dataset are skewed in certain dimensions other than the average or the random dataset. In other words, the unexpected estimated relationship of exports on the**

- **Turning our attention to the remaining two important factors, both licensing and the share of income from government procurement have a negative effect on R&D decisions. That is, firms that are operating under licensing and/or have a higher income share from government procurement, tend to have a lower probability of engaging in R&D activities. This result is robust to different model specifications, including a different set of a firm's capabilities proxy and different choices of industrial dummies.**

# Key takeaway

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- **All in all, to provide a suitable environment for R&D upgrading, governments must do more than just implementing R&D financial incentivized promoting policies, they need to reexamine its rules and regulations on licensing.**
  - **The government needs to reevaluate the necessity of licenses in industries where there are many potential competitors ready to enter the market. Additionally, the procurement process must be made more transparent. Both factors are crucial to moving Thailand closer to the knowledge-based economy and break the country out of the middle-income trap.**