



Thailand's innovation system

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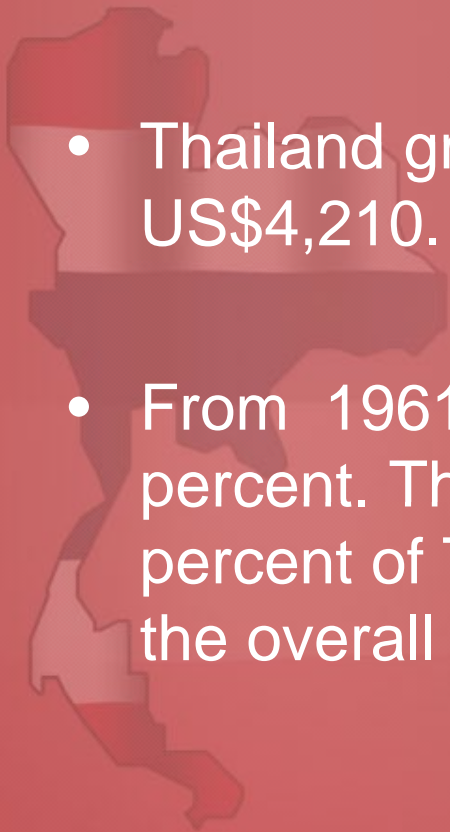
Agenda

- A brief country profile
- Current state of innovation
- Current policy initiatives in promoting innovation
- Current status, Lessons and Challenges



A brief country profile: Thailand

- In 2011, The World Bank has upgraded Thailand's income categorization from a lower-middle income economy to an upper-middle income economy.
- Thailand gross national income (GNI) per capita is at US\$4,210. (2011)
- From 1961 to 2009, the average GDP growth was 6.2 percent. Thailand's development policy has lifted 70-80 percent of Thai population out of poverty and improved the overall standard of living.



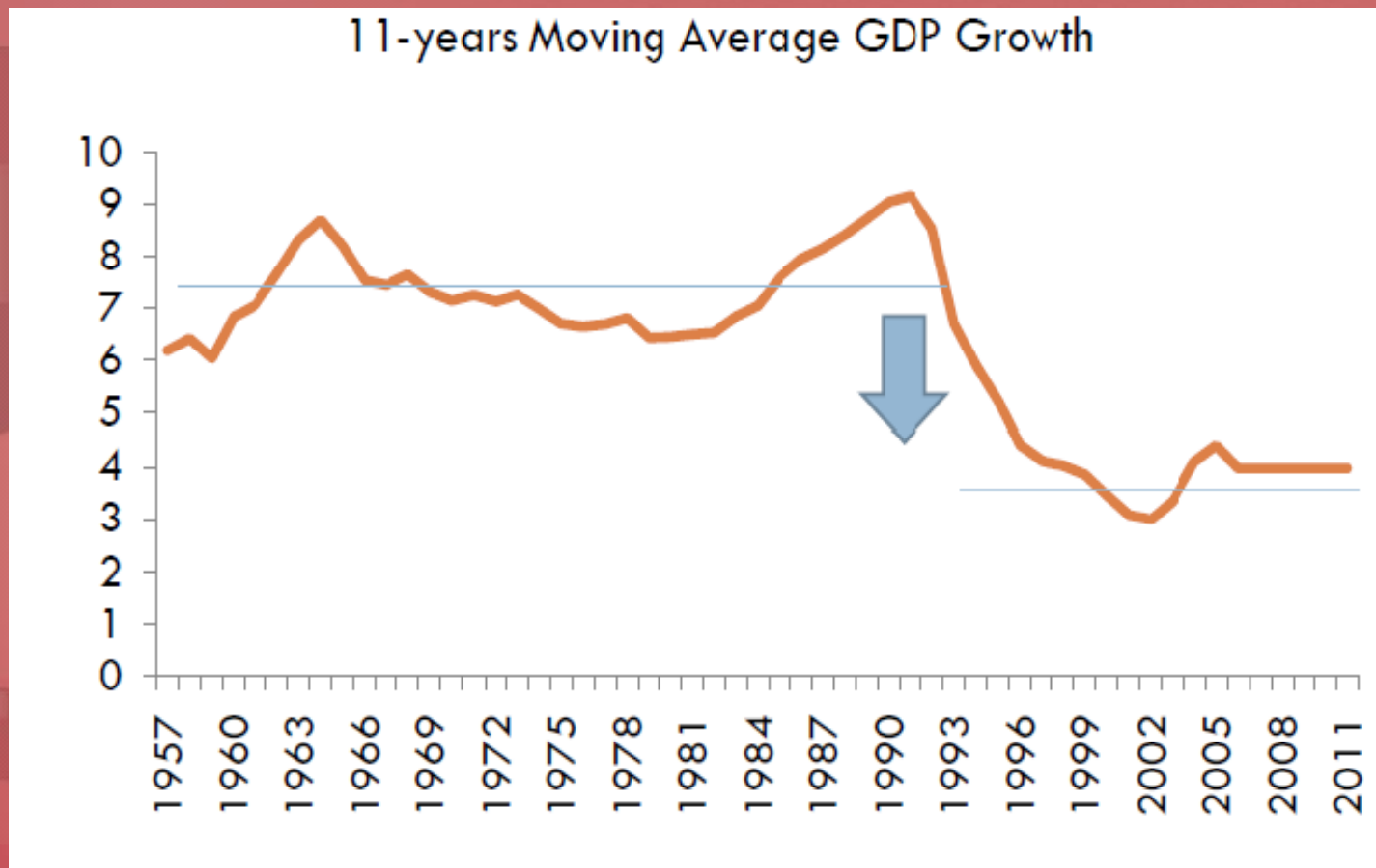
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- The inflation targeting framework was adopted by the monetary authority in 2000.
 - Since then, Thailand has recorded an excellent performance in price stability. Not only has core inflation been within the band for almost the whole period, but it also compares favorably with other countries of the region.
 - Thailand's level of debt is 44% of GDP which is considerably low in comparison with advanced economies.

- But the debt is higher than the average of other emerging markets and is forecast to increase, unlike the average of others.

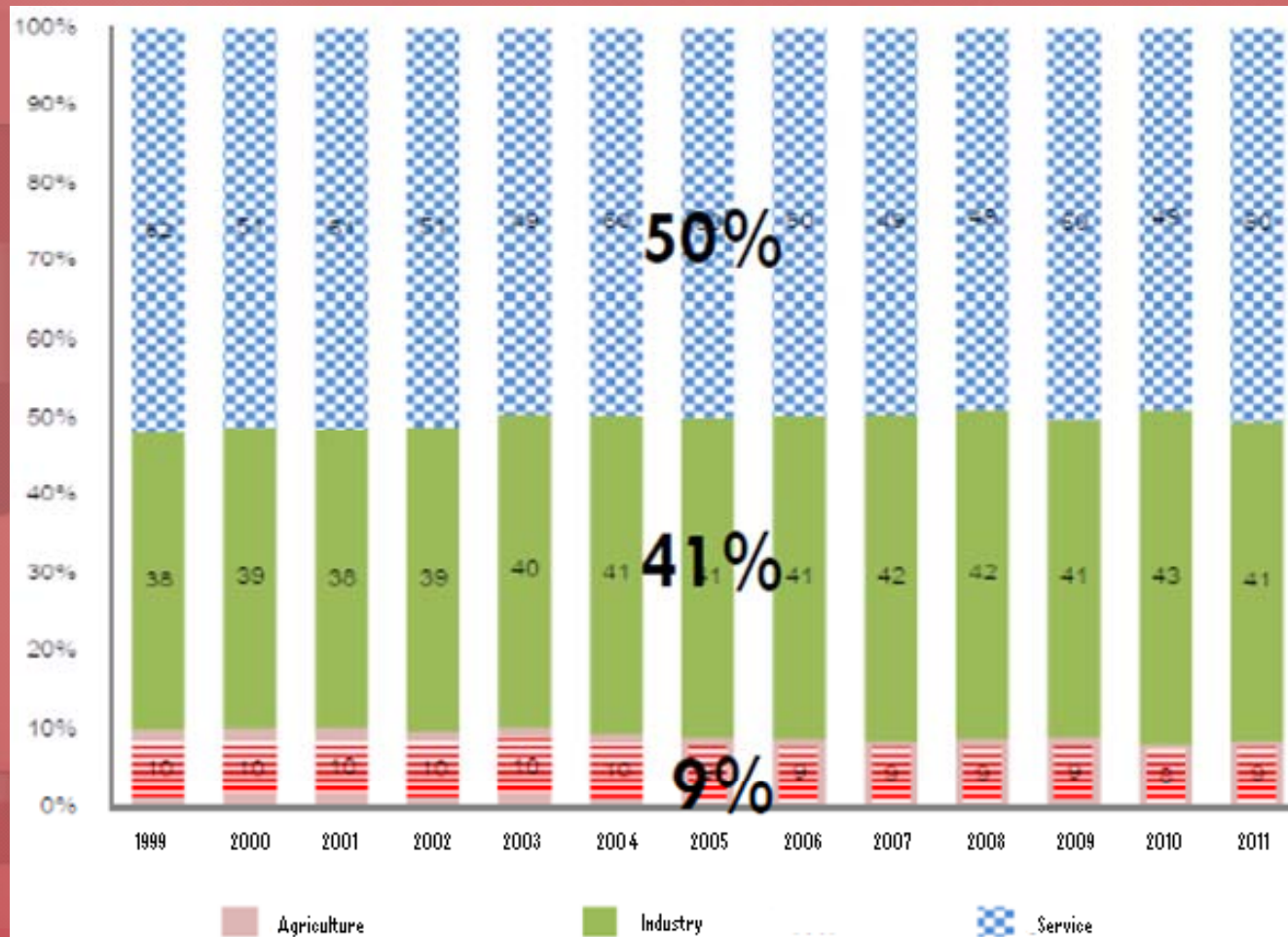
Statistical Table 8. Emerging Market Economies: General Government Gross Debt and Net Debt
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Gross Debt													
Argentina	76.4	67.4	58.5	58.7	49.2	44.9	44.9	42.4	41.7	40.5	39.0	37.3	35.4
Brazil	66.7	65.2	63.5	66.9	65.2	64.9	68.5	67.2	65.9	64.5	62.7	61.3	60.4
Bulgaria	23.4	18.6	15.5	15.6	14.9	15.4	18.5	17.8	20.2	18.3	17.7	14.6	11.9
Chile	5.0	3.9	4.9	5.8	8.6	11.1	11.2	11.1	11.4	11.8	12.1	12.2	12.3
China ¹	16.2	19.6	17.0	17.7	33.5	25.5	22.8	21.3	20.0	18.3	16.4	14.2	11.6
Colombia	36.8	32.7	30.9	36.1	36.5	35.8	32.8	32.0	31.2	29.9	28.5	27.1	25.9
Egypt	90.3	80.2	70.2	73.0	73.2	76.6	80.2	85.2	82.6	79.3	75.2	70.8	65.5
Hungary	65.9	67.0	73.0	79.8	81.8	81.4	79.0	79.9	80.3	80.3	80.2	79.8	79.2
India	78.4	75.0	73.3	75.0	68.5	66.4	66.8	66.4	66.7	66.6	66.2	66.2	66.3
Indonesia	39.0	35.1	33.2	28.6	26.8	24.4	24.0	23.6	23.1	21.9	20.9	19.3	18.2
Jordan	76.3	73.8	60.2	64.8	67.1	70.7	79.6	83.8	87.0	87.2	85.8	83.3	81.0
Kazakhstan	6.7	5.9	6.7	10.2	10.7	10.7	12.3	13.2	14.1	14.3	14.4	14.4	14.6
Kenya	46.8	46.0	45.6	47.5	49.9	48.5	48.2	47.9	47.3	47.1	46.5	46.3	45.9
Latvia	9.9	7.8	17.2	32.9	39.7	37.5	36.4	41.0	36.7	33.1	33.1	32.1	29.8
Lithuania	17.9	16.8	15.5	29.3	37.9	38.5	39.6	40.0	39.8	39.7	39.3	38.9	38.4
Malaysia	41.5	41.2	41.2	52.8	53.7	54.5	55.5	56.0	55.7	55.1	54.5	54.3	54.5
Mexico	38.4	37.8	43.1	44.5	42.9	43.7	43.5	43.5	43.9	44.1	44.3	44.3	44.3
Morocco	59.4	54.6	48.2	48.0	51.3	54.4	59.6	61.2	61.1	60.3	58.8	56.9	54.9
Nigeria	11.8	12.8	11.6	15.2	15.5	17.2	17.8	17.9	18.1	17.8	17.3	16.7	15.0
Pakistan	58.6	56.0	60.2	61.3	61.7	60.3	62.1	64.1	64.8	66.5	68.7	70.8	72.4
Peru	33.1	30.4	25.0	28.4	24.6	22.0	19.8	17.5	16.7	16.2	15.8	15.3	14.9
Philippines	51.6	44.6	44.2	44.3	43.5	41.9	41.9	39.7	38.0	36.4	34.9	33.5	32.1
Poland	47.7	45.0	47.1	50.9	54.8	56.4	55.2	56.8	56.2	55.4	54.3	53.2	52.1
Romania	12.6	12.7	13.6	23.8	31.1	34.2	37.0	36.9	36.6	35.9	35.2	34.5	33.8
Russian Federation	9.0	8.5	7.9	11.0	11.0	11.7	10.9	10.4	11.8	12.1	12.7	13.0	13.1
Saudi Arabia	25.8	17.1	12.1	14.0	8.5	5.4	3.6	3.5	3.5	3.3	3.2	3.1	2.9
South Africa	32.6	28.3	27.8	31.3	35.8	39.6	42.3	42.7	43.7	44.4	44.7	44.8	44.8
Thailand	42.0	38.3	37.3	45.2	42.6	41.7	44.3	45.9	48.2	49.5	50.6	51.5	52.3
Turkey	46.5	39.9	40.0	46.1	42.4	39.2	36.4	35.5	35.4	35.1	34.8	34.5	33.4
Ukraine	14.8	12.3	20.5	35.4	40.5	36.8	37.4	42.2	43.6	43.4	42.9	42.1	41.7
Average	36.9	35.4	33.5	36.0	40.3	36.7	35.2	34.3	33.6	32.5	31.3	29.9	28.3
Asia	34.4	34.8	31.4	31.4	40.8	34.4	32.2	31.0	30.0	28.6	27.0	25.2	23.1
Europe	26.4	23.5	23.6	29.5	29.1	27.8	26.1	25.9	26.4	26.3	26.2	26.0	25.5
Latin America	50.8	49.7	50.5	53.5	51.9	51.7	52.4	50.9	50.3	49.4	48.3	47.3	46.6
Middle East and North Africa	78.4	71.1	62.3	64.9	66.8	70.1	74.9	78.8	77.1	74.8	71.7	68.1	63.9
G-20 emerging	36.5	35.4	33.0	34.6	39.9	35.5	33.7	32.4	31.6	30.5	29.2	27.7	26.0

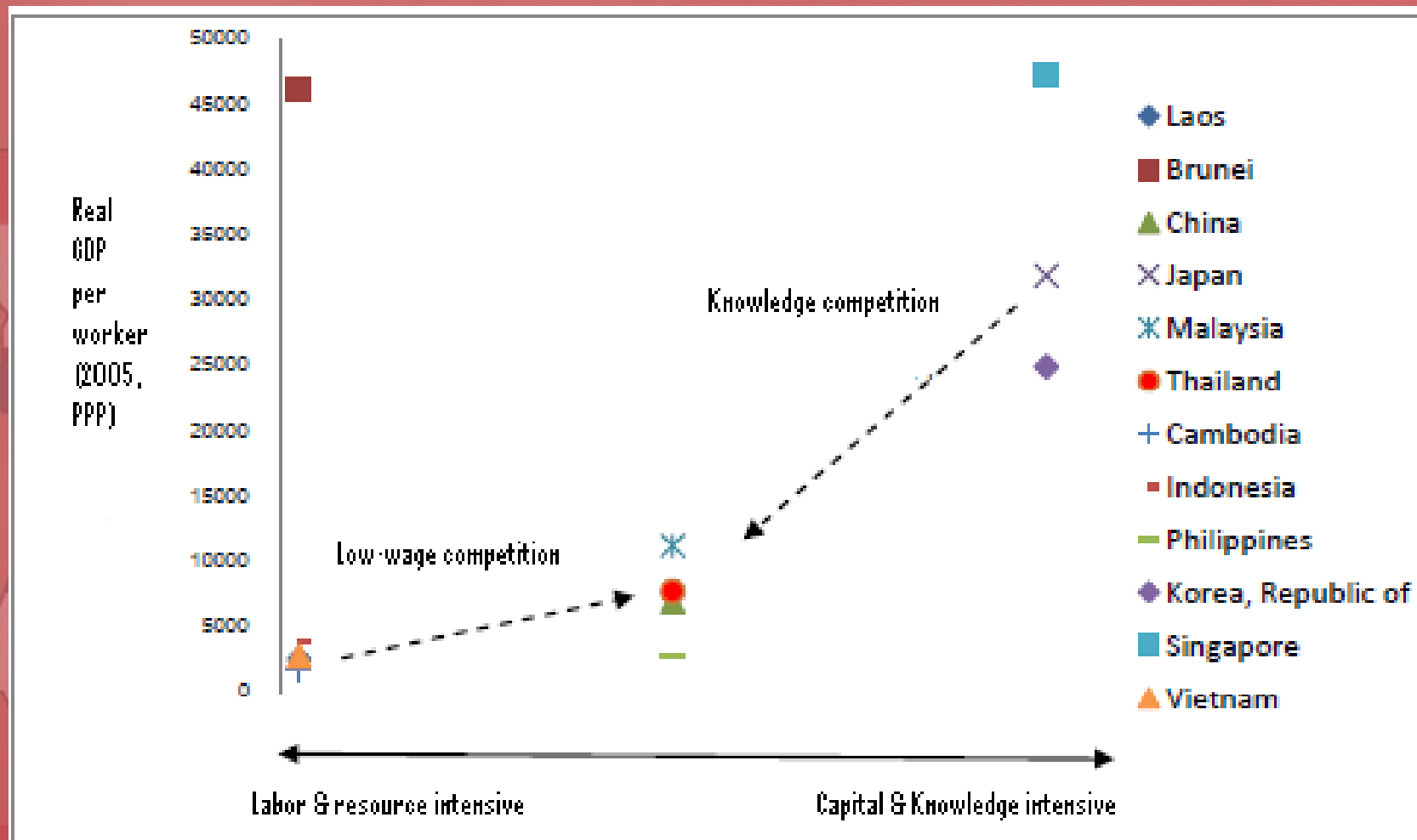
- Evidence of Thailand's growth slowdown after 1997 Asian crisis.



- Evidence of structural stagnant



- Likely to be caught in the middle-income trap (MIT)

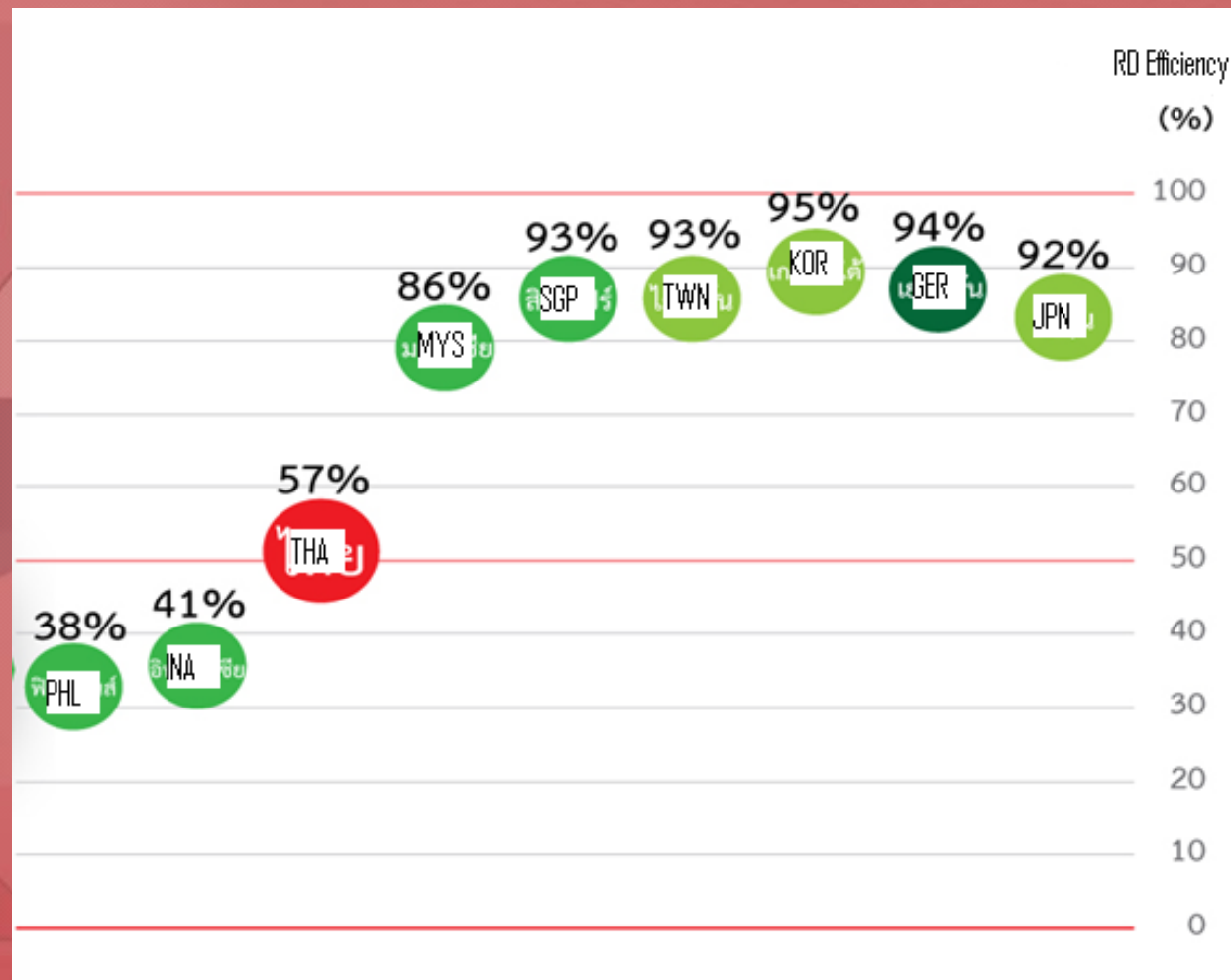


Current state of innovation (2007)

Country	GDP per capita (PPP)	Researchers per million (FTE)	Technicians per million (FTE)	GERD as % of GDP	GERD – performed by private	GERD-financed by private
Thailand	7,705	316	140	.21	45	48.7*
Malaysia	13,344	365**	43	.63**	84.9	84.7**
Argentina	13,334	983	196	.51	30.3	29.3
Brazil	9,775	658	526	1.07	n.a.	44.6
S. Korea	26,191	4,672	727	3.21	76.2	73.7
Singapore	53,014	5,955	517	2.37	66.8	59.8
Japan	33,577	5,409	593	3.44	77.9	77.7
UK	35,719	4,149	861	1.78	62.5	46
US	46,406	4,673	n.a.	2.67	72.2	66.2

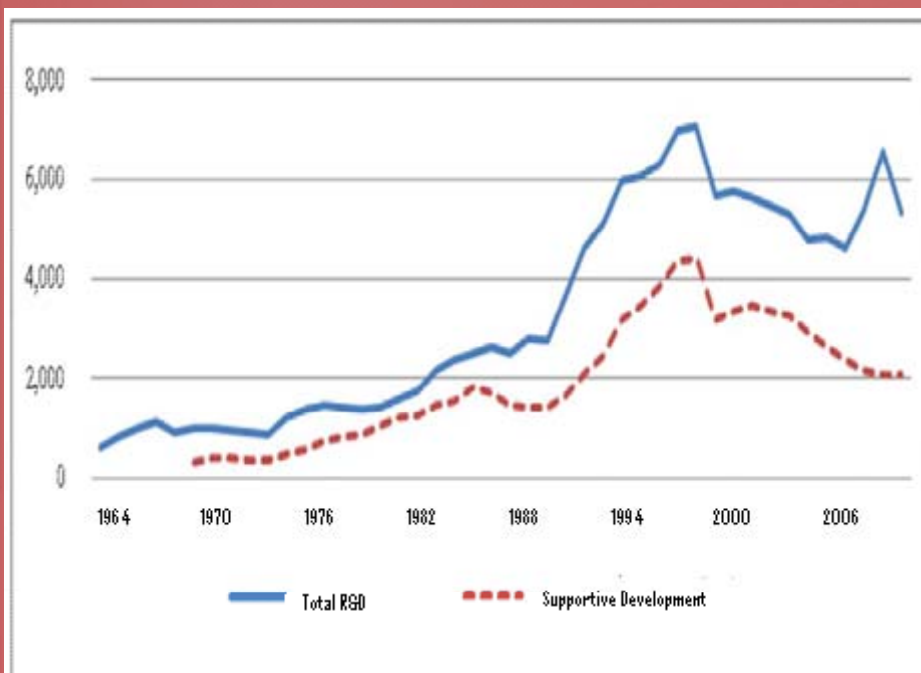
Qualitative aspect

- Thailand also has low R&D Efficiency



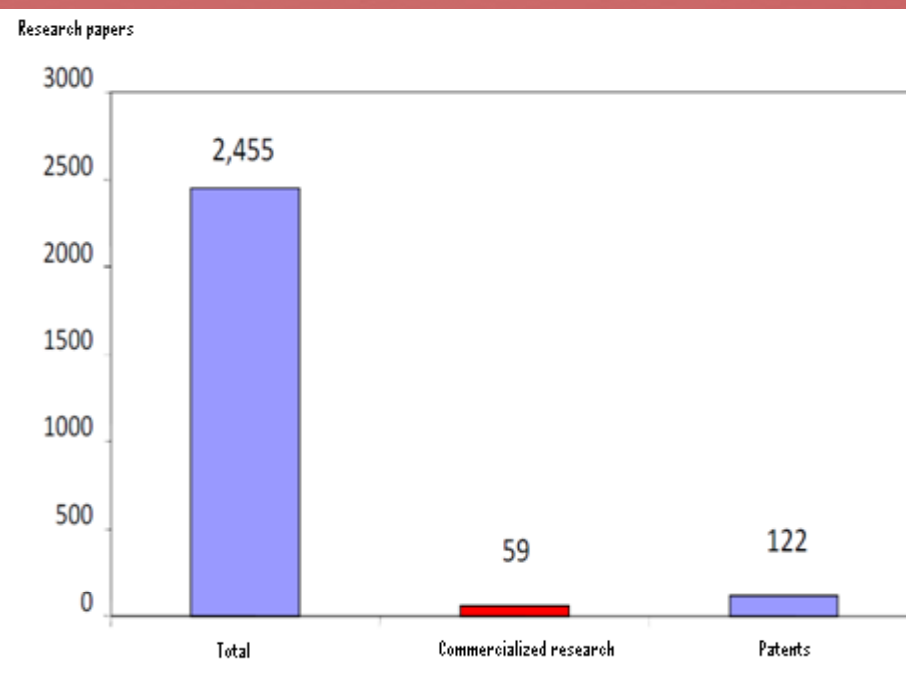
Government R&D

Agricultural R&D



Source: NRCT (2009)

Industrial R&D



Source: NRCT (2009)



Current innovation policy initiatives (Private R&D)

Revenue Department

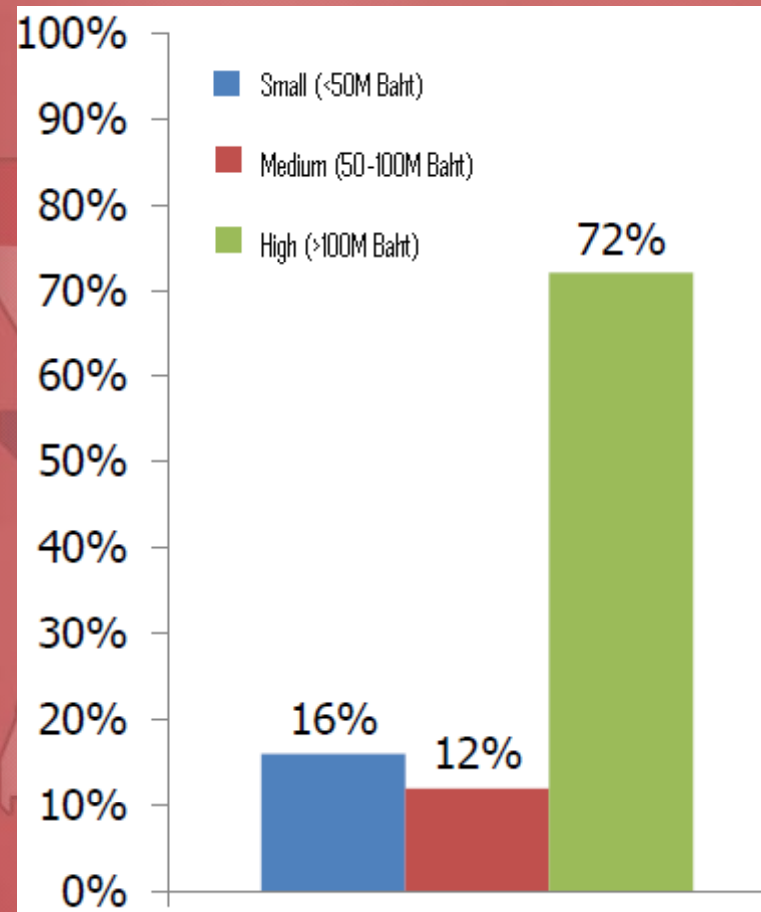
- 200% R&D tax relief
 - R&D expense is deductible in calculating corporate income tax

Board of Investment

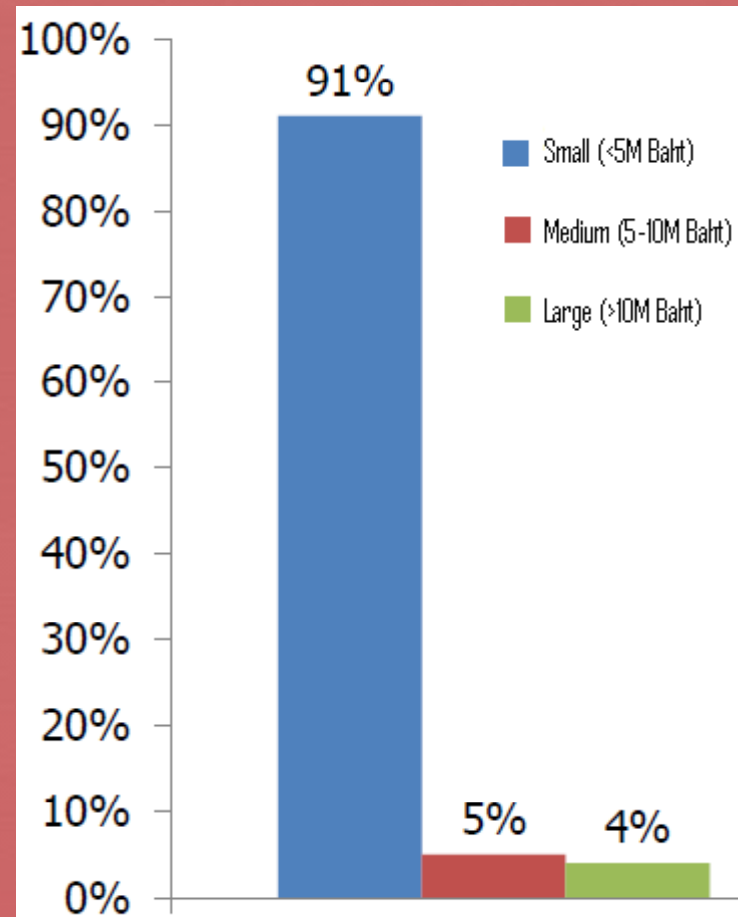
- Skill, Technology and Innovation (STI policy)
 - Import duty reduction for R&D-related machine and equipment.
 - Corporate income tax exemption (up to 3 years)

Current status

Benefit to large firms



Attract small projects

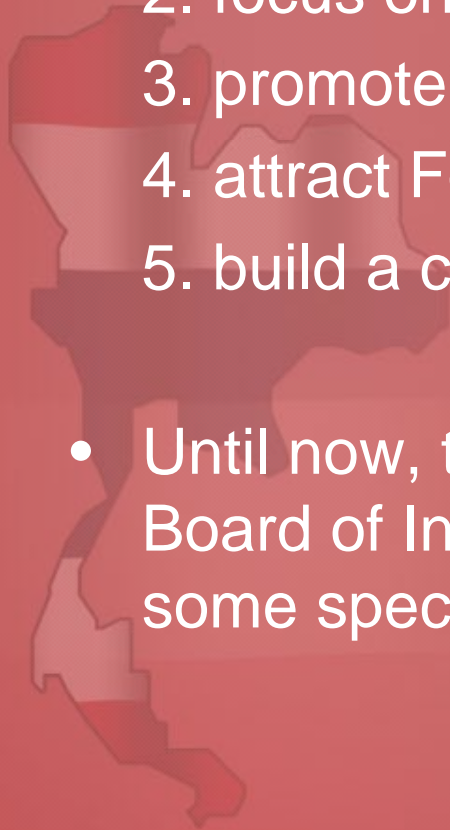


Lessons

1. Thai R&D incentives are mostly broad-based, so big firms have the advantage. Broad-based incentives are also less appeal to other competing nations (e.g. Malaysia and Singapore)
2. Corporate tax exemption is useful only if the R&D firms are not making profits.
3. The definition of R&D for Thailand is very restrictive and covers mainly basic research. (Should cover other types of R&D such as product design, experimental development)

Challenges

- Need to redesign the incentive packages that...
 1. cover all commercialized R&D processes.
 2. focus on promising R&D area
 3. promote SMEs participation
 4. attract Foreign R&D (R&D hub for some industries)
 5. build a career path for researcher
- Until now, the only promising development is the new Board of Investment R&D package which will focus on some specific R&D area.





Thank you!