Challenges to Thailand's IT and consumer electronics Industry

Bhanupong

Lecture 16

Main themes

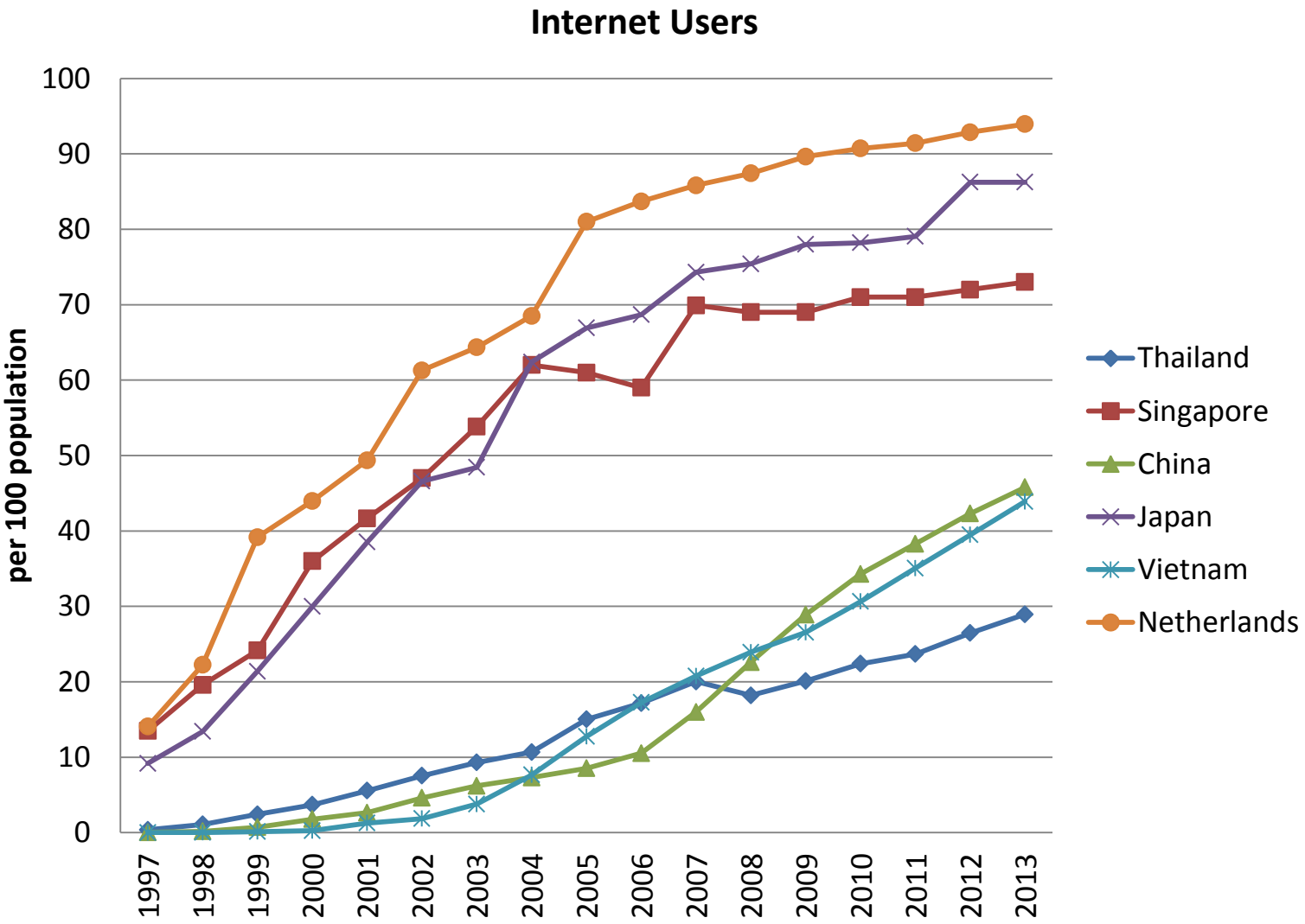
- Industry characteristics
- Trade performance indicators
- Vulnerability and competitiveness
- International product fragmentation
- Strategic industrial policy
- Digital divided and digital economy
- Digital economy

Thailand's exports of IT and Consumer electronics

	IT & Consumer electronics	IT & Consumer electronics
	(Value)	(Rank)
Number of exporting countries for the ranking in the sector	128	
Value of exports (in thousand US$)	28430178	
Export growth in value, p.a. (%)	0.05	42
Share in national exports (%)	0.12	
Share in national imports (%)	0.07	
Relative trade balance (%)	0.24	
Relative unit value (world average = 1)	2.4	
Net exports (in thousand US$)	11103640	7
Per capita exports US$/inhabitant)	425.7	20
Share in world market (%)	0.0258	9
Product diversification (N° of equivalent products)	4	88
Market diversification (N° of equivalent markets)	9	38

Trade performance indicators-- electronic components: 2012

	(Value)	(Rank)
Number of exporting countries for the ranking in the sector	138	
Value of exports (in thousand US$)	20040064	
Export growth in value, p.a. (%)	0.01	57
Share in national exports (%)	0.08	
Share in national imports (%)	0.1	
Relative trade balance (%)	-0.12	
Relative unit value (world average = 1)	1.3	
Net exports (in thousand US$)	-5501919	127
Per capita exports US$/inhabitant)	300.1	30
Share in world market (%)	0.016	14
Product diversification (N° of equivalent products)	10	58
Market diversification (N° of equivalent markets)	13	13
Relative change of world market share p.a (%)	-0.0205	


Internet Users
per 100 population
100
90
80
70
60
50
40
30
20
10
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Thailand
Singapore
China
Japan
Vietnam
Netherlands

IT- led growth hypothesis

"Countries that invested more in Information Technology would achieve consistently higher productivity and income growth rates."

How do we verify this hypothesis?

What are the caveats of this hypothesis?

China Focus: Internet to drive future growth with enhanced productivity: study

English.news.cn 2014-07-27 21:01:29

SHANGHAI, July 27 (Xinhua) -- Internet could contribute up to 22 percent of China's GDP growth through 2025, via increased productivity and adoption of internet application across a number of sectors, according to the latest research by consultancy McKinsey.

The booming internet sector has provided momentum in China's attempt to wean the economy off investment and export, and rely more on consumption and innovation for growth.

This is happening as the world's second-largest economy sets to embark on a digital transformation to boost productivity and economic growth.

McKinsey's prediction

- Based on McKinsey's calculation, the internet took up 4.4 percent of China's economy last year, a share placing the country among the world's most advanced economies.
- The consultancy predicts the internet could contribute up to 22 percent of GDP growth from 2013 to 2025, provided supportive policies are put in place and businesses are aggressive in adopting the internet in their practices.
- McKinsey argues the internet's ability to boost productivity is crucial for sustaining China' s growth as the nation is facing dwindling labor pool and rising labor cost.
- The report also shows increased adoption of the internet by the country's financial sector, through big data and online channels for example, will lead to more efficient use of capital.

- This, McKinsey says, will grant China's small and medium-sized firms with more access to financing. These firms account for 70 percent of China's GDP, according to China's National Bureau of Statistics.
- They also boast higher return on assets, at 8.2 percent, compared with 6.6 percent for larger firms.
- Aside from growth, the report finds the internet is changing China's labor market.
- Jobs will be lost when they are moved online while demand for workers with digital skills grow over time. Yet the internet' s net impact over jobs, the report says, will be positive as jobs it creates outnumber positions it eliminates.

- Whether the economy will benefit thoroughly from the internet depends on government support and adoption by various industries.
- The report argues that authorities should articulate boundaries between privacy protection and data sharing. This will help remove constraints that prevent companies from using consumer data to maximize value.
- The report indicates the importance of realigning with international standards in the push for the internet' s growing impact.
- Adopting international technology standards rather than solely domestic ones can also improve China's competitiveness and ability to export, it says.

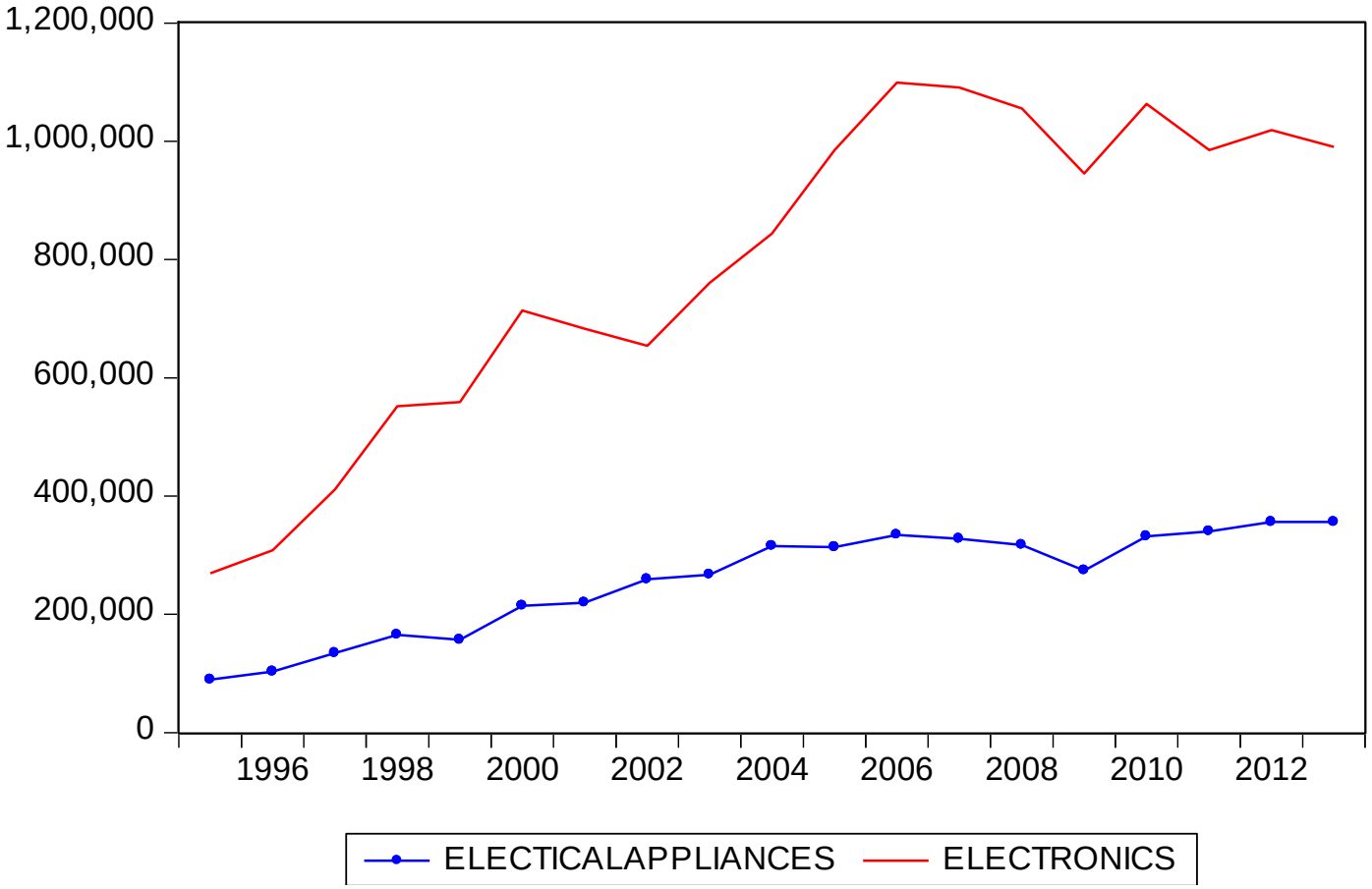
Domestic IT Market

- The domestic IT market in Thailand has been growing rapidly since the economic recovery in 1999.
- The *hardware* market is larger than the combined software and IT service sectors.
- These three sectors are complementary by nature.
- They move together closely in the same direction.

The IT sector is extremely sensitive to business-cycle

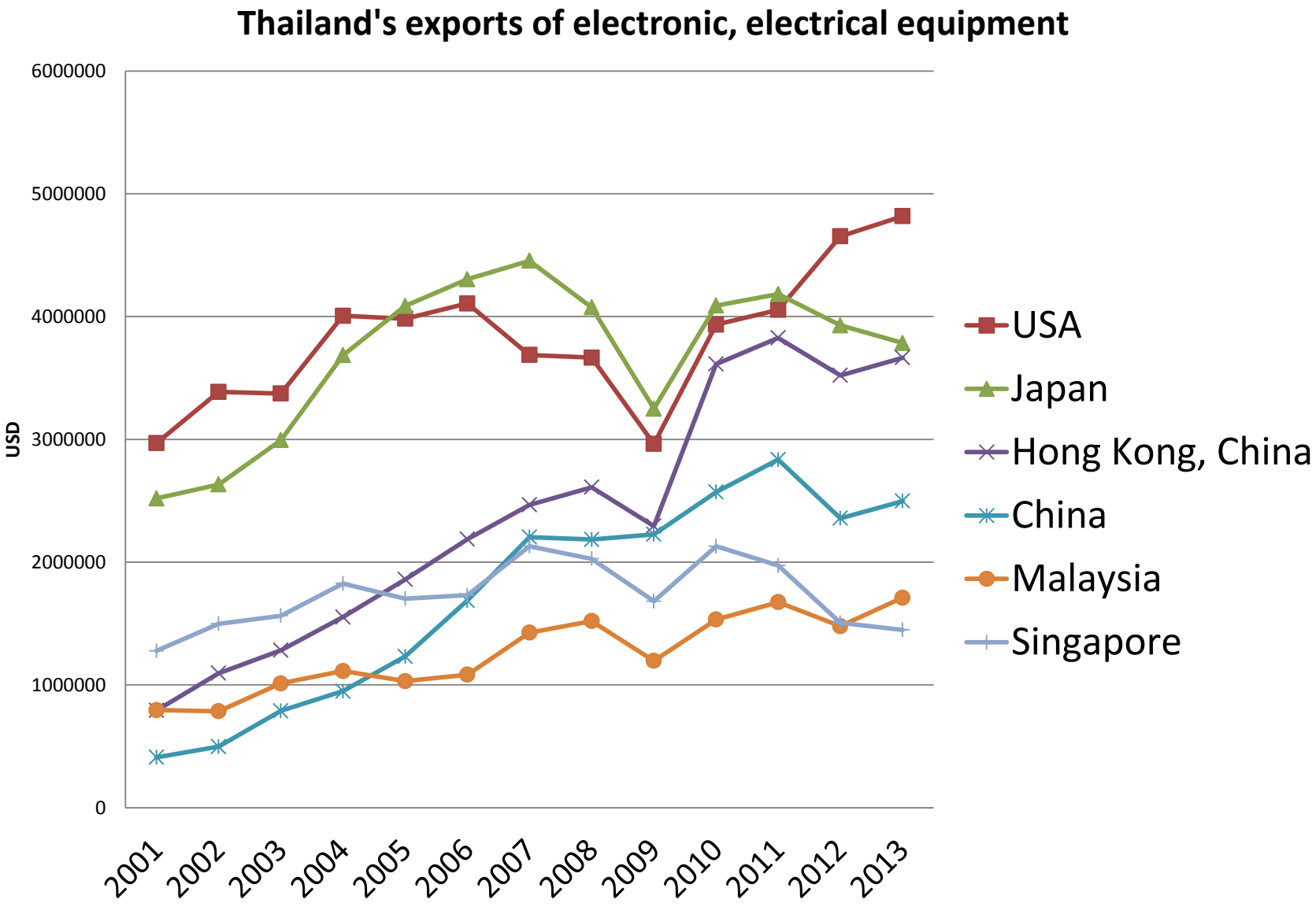
- The year 2001 witnessed another poor performance of the Thai economy, when the GDP growth rate dropped to 2 percent.
- The IT industry suffered the same contractionary impact of a slowdown in world GDP growth in 2009 and 2014.
- When the economy rebounded, the growth of the IT industry surpassed the GDP growth.
- We observed similar situation during the global recession in 2009 and the sharp rebound in 2010 of IT exports.

Thailand's exports



How to maintain a stable growth path

- Since shocks are random, the IT industry will still have a long-term prospect as long as the GDP can maintain its stable high growth path.
- Shocks like those in 1998, 2001, 2003, 2009, and 2014 would simply cause a *temporary deviation* from the stable growth path of the IT market.
- The IT growth is also consistently growing faster than the GDP growth during the booms and likewise it would fall faster during GDP slumps.


Thailand's exports of electronic, electrical equipment
USD
6000000
5000000
4000000
3000000
2000000
1000000
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
USA
Japan
Hong Kong, China
China
Malaysia
Singapore

Changing comparative advantage

- Computer and Hard Disc Drive (HDD) have the most promising trend.
- Output of computer tripled within 5 yeas, where as output of HDD rose by 250 percent between 2000 and 2004.
- Output of integrated circuit and printers has a moderate growth, while computer keyboard and monitor has been declining.
- Thailand cannot compete with cheap imports from low-cost countries.


Manufactured exports: 1995-2010
million usd
16,000.00
14,000.00
12,000.00
10,000.00
8,000.00
6,000.00
4,000.00
2,000.00
0.00
JAN 1995
SEP 1995
MAY 1996
JAN 1997
SEP 1997
MAY 1998
JAN 1999
SEP 1999
MAY 2000
JAN 2001
SEP 2001
MAY 2002
JAN 2003
SEP 2003
MAY 2004
JAN 2005
SEP 2005
MAY 2006
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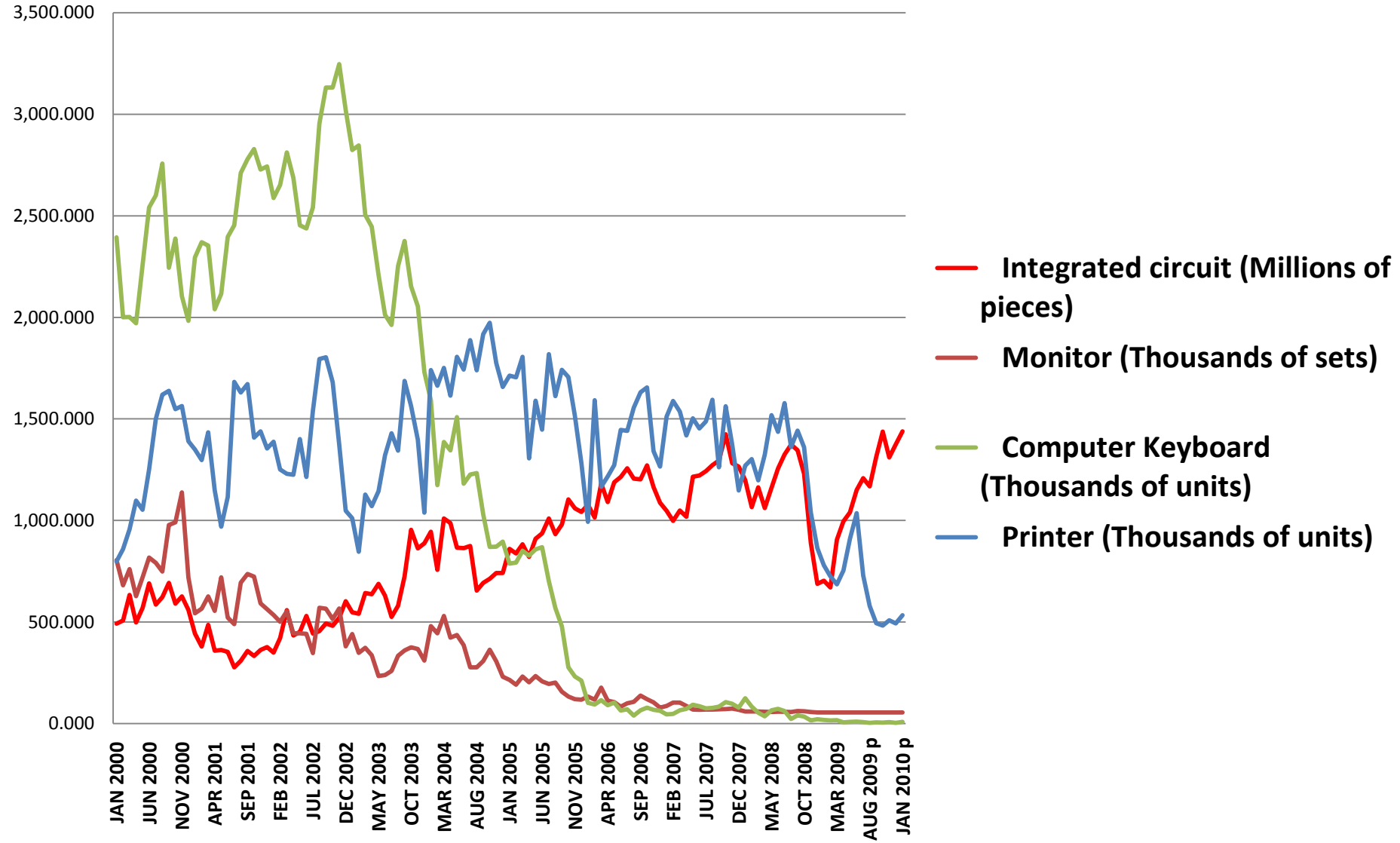
MAY 2010
Resource-based products
High-tech products
Labor intensive products

Domestic production of IT products 2000-2010



Changing comparative advantage

- **The changing comparative advantage has made some of Thailand's IT products become less competitive.**
- **Product fragmentation in manufacturing process generates intra-industry trade, where firms in different countries engaging in trading parts and components.**

International product fragmentation

- Cross-border dispersion of component production within *vertically integrated* production process.
- Each country specializes in a particular stage of production processes.
- Deepening structural interdependence of the world economy
- Rapid growth of trade in parts and components at a rate exceeding that of trade in final goods because a good crosses multiple borders while in the process.

Trade fragmentation (Network Trade)

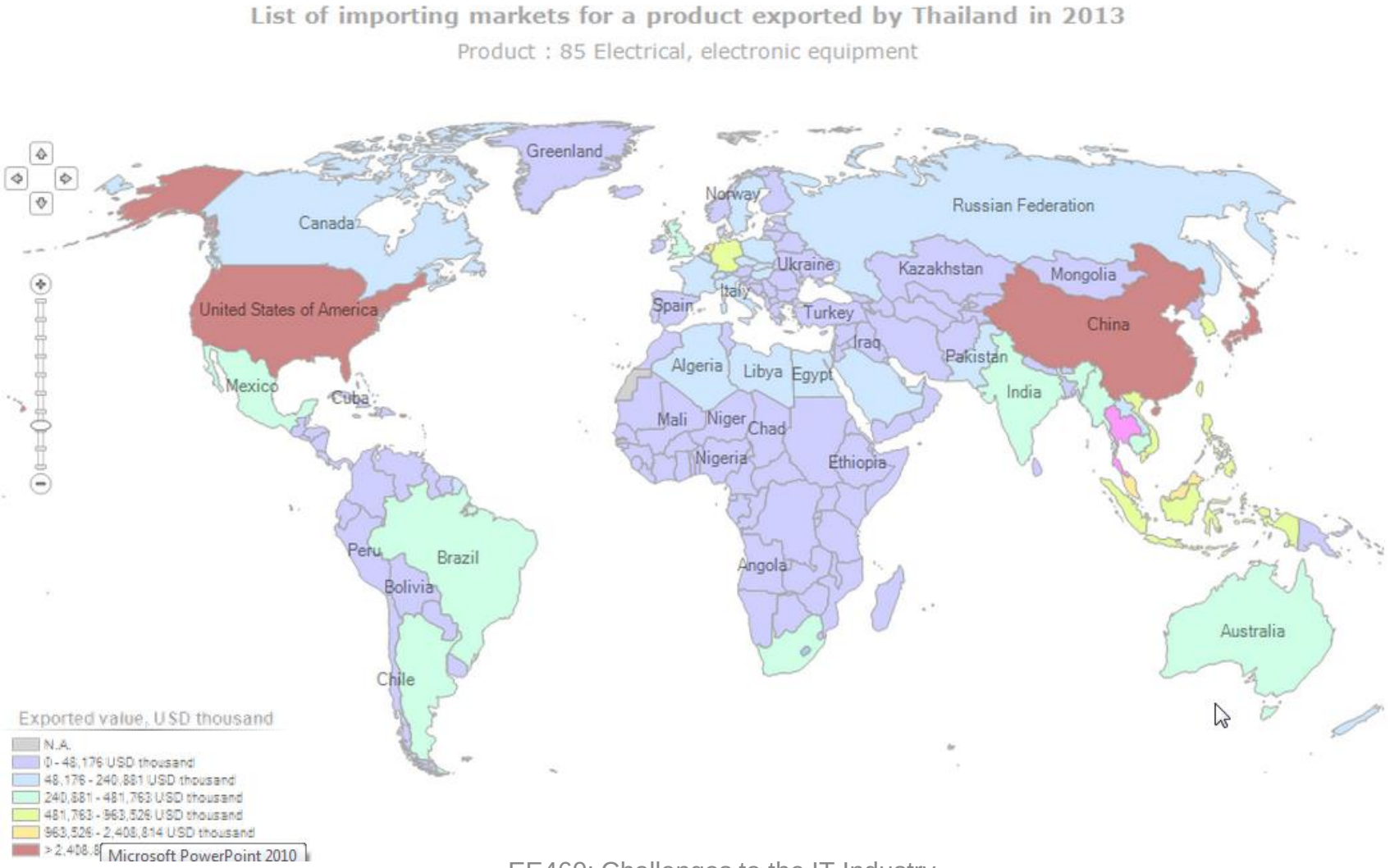
- Production and trade networks result from strategies of firms which shifted from exporting from home countries to international production in FDI host countries to reduce costs and react to market and technological changes
- *Is decoupling possible?*

Vertical infra-industry trade

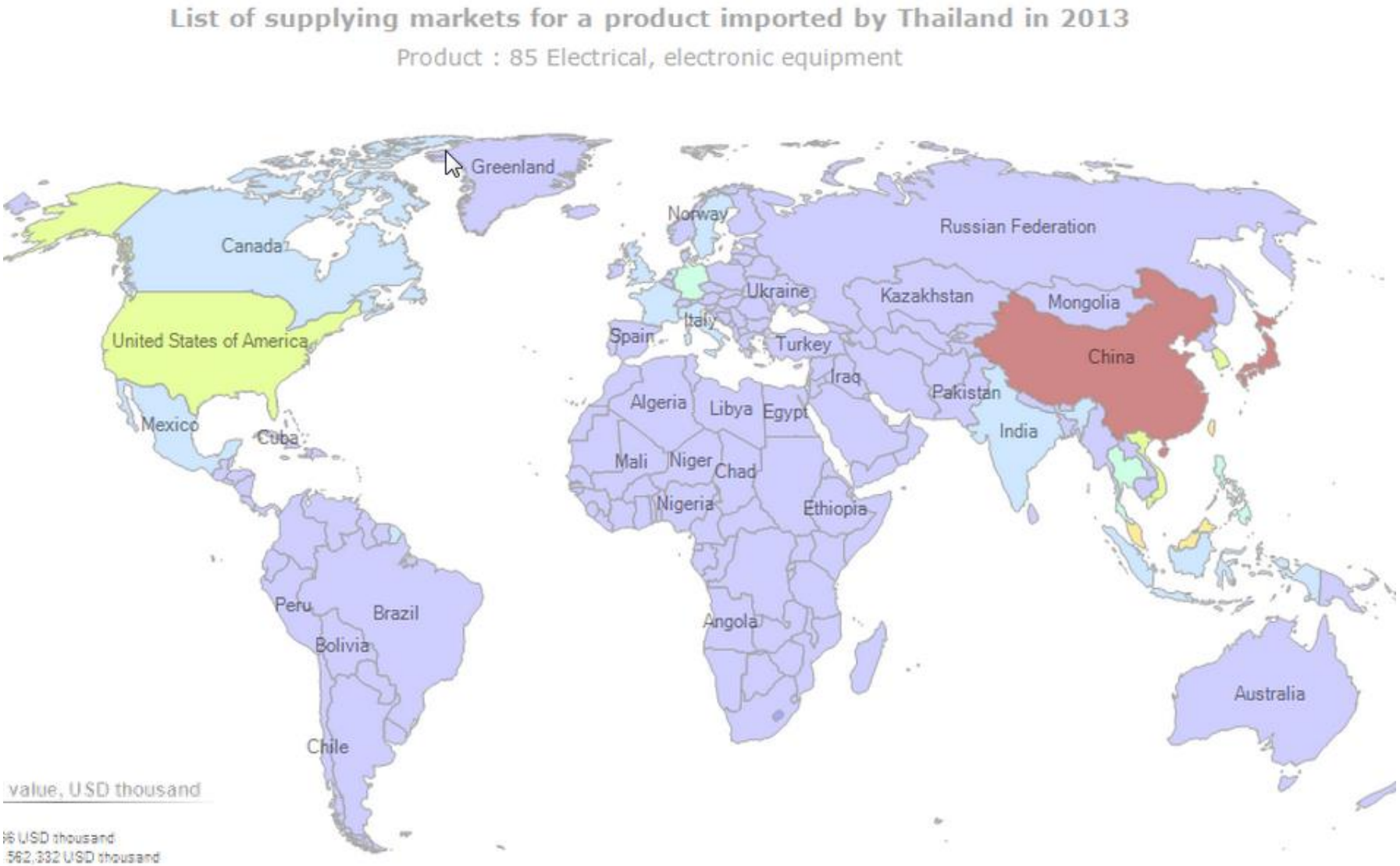
- The new trade pattern differs from the inter-industry trade pattern where trade of different final goods or intra-industry trade where same intermediate goods with different attributes are traded.
- Electronics and electrical machinery industries can be fragmented because they are manufacturing industries which technology allow “slicing the value chain” to different production stages and sites in different countries.

List of importing markets for Thailand's exports product 85 in 2013

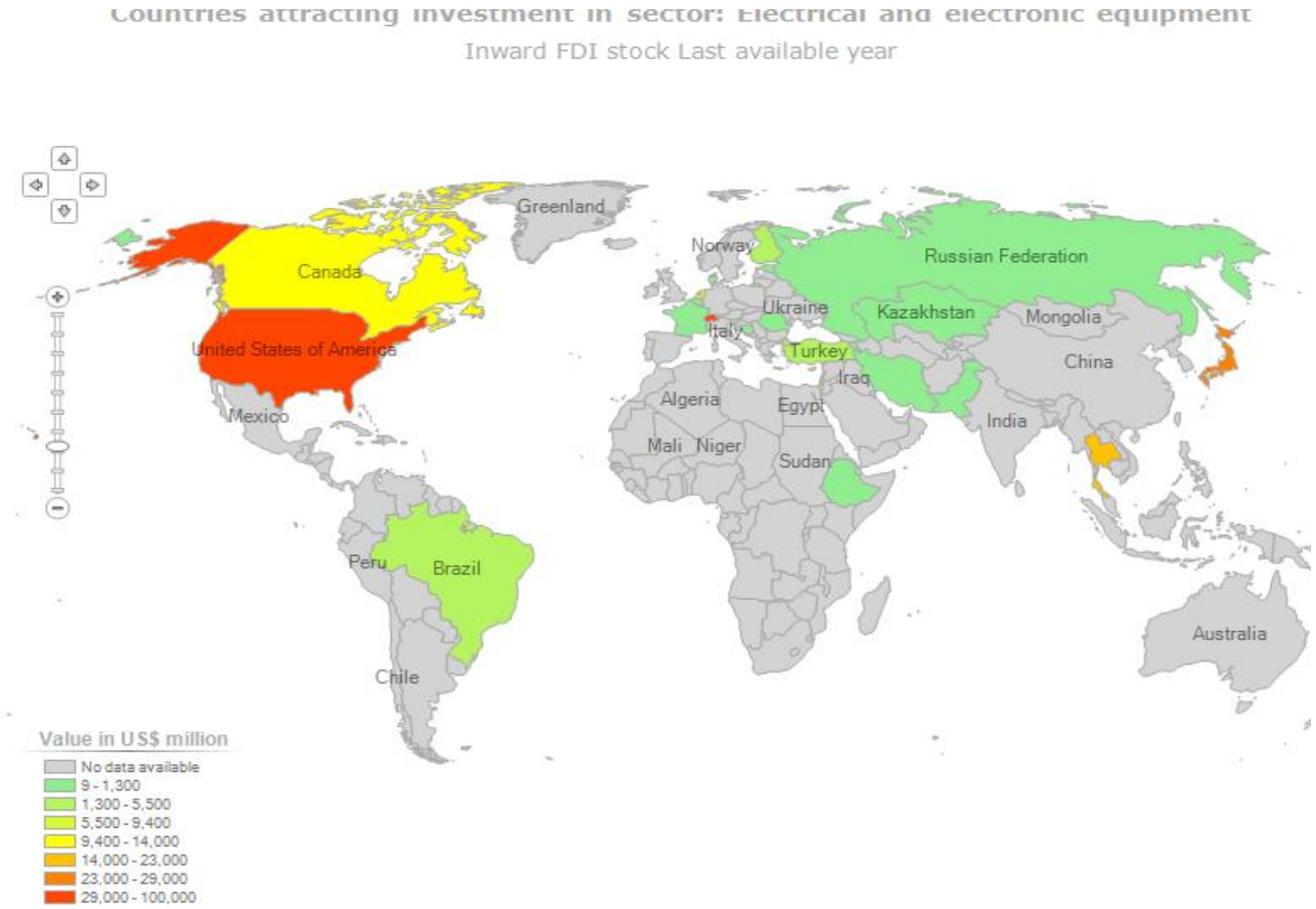
Electrical, electronic equipment



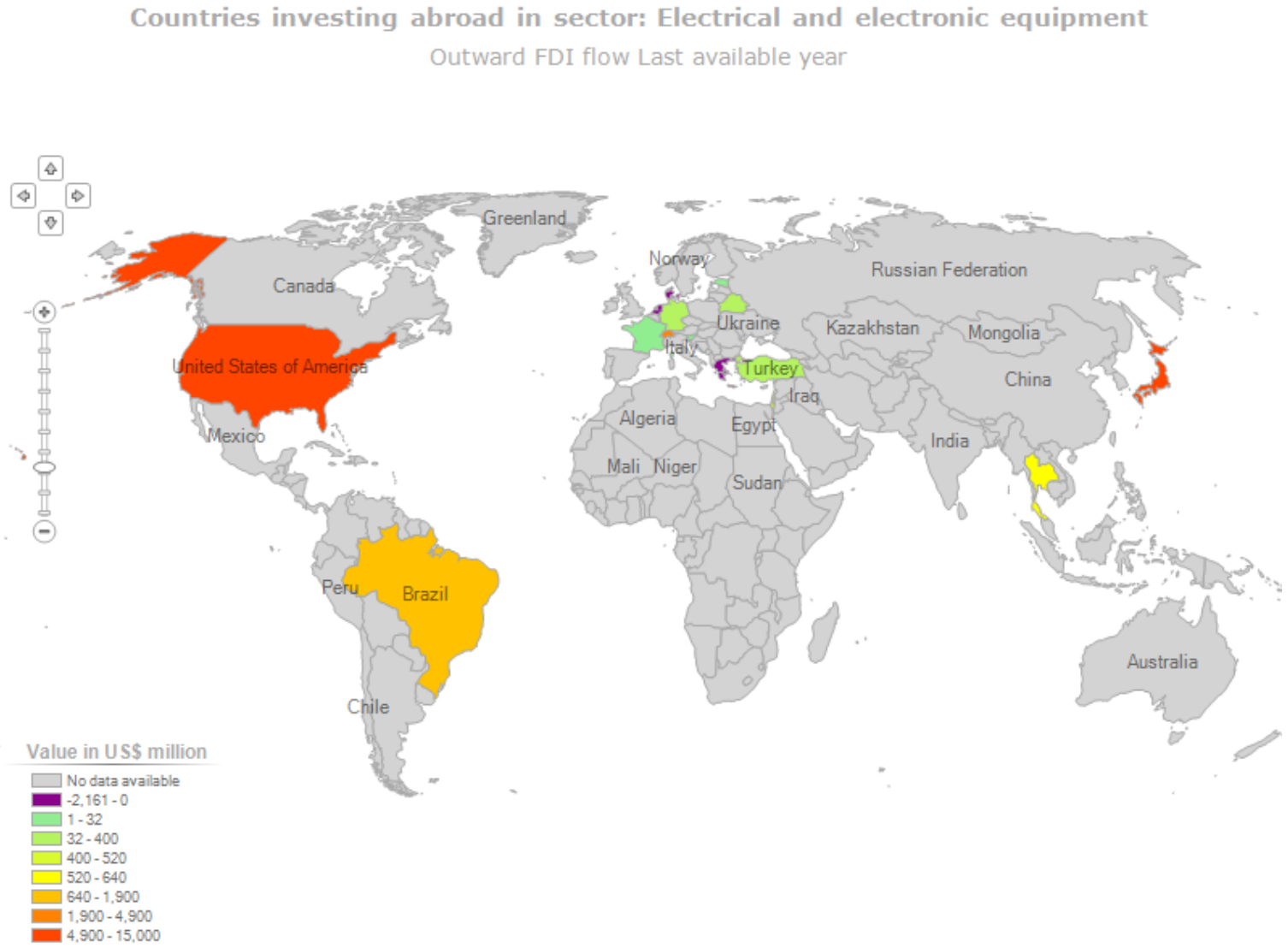
Sources of imports by Thailand
Product 85: Electrical, electronic equipment

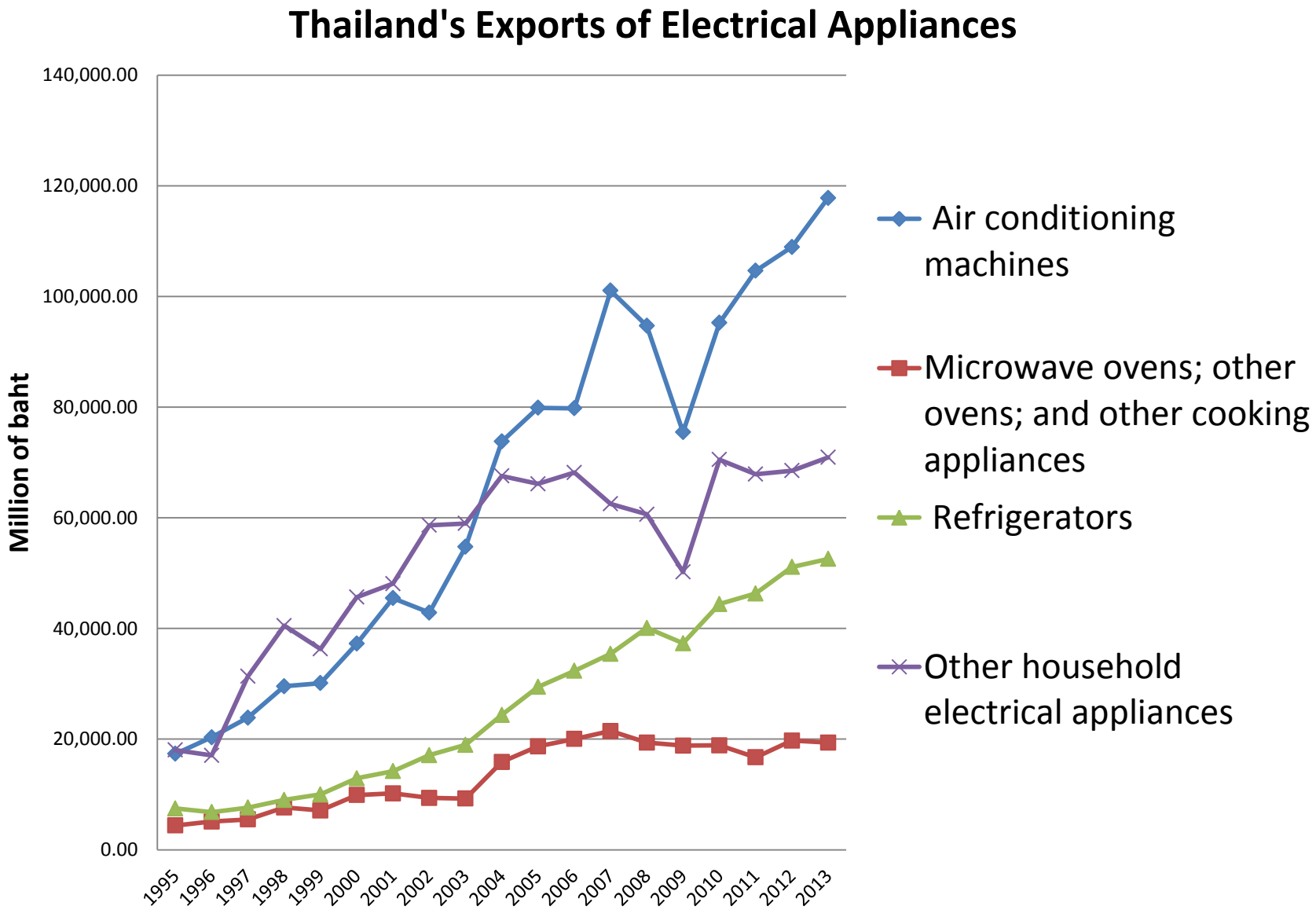


Inward FDI stock in sector: electrical and electronic equipment



Countries investing abroad in sector: Electrical and Electronic equipment



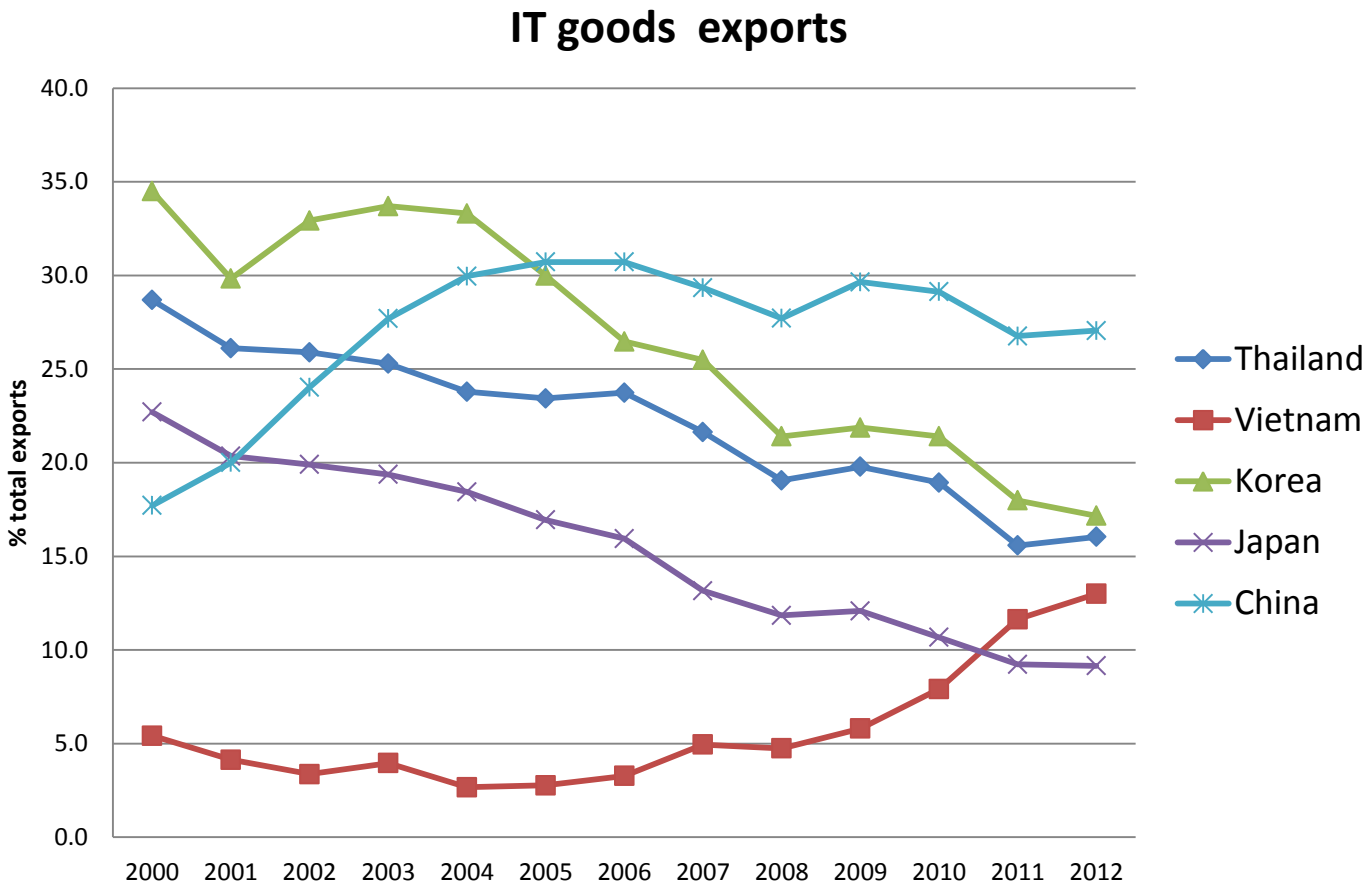

Thailand's Exports of Electrical Appliances
Million of baht
140,000.00
120,000.00
100,000.00
80,000.00
60,000.00
40,000.00
20,000.00
0.00
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Air conditioning machines
Microwave ovens; other ovens; and other cooking appliances
Refrigerators
Other household electrical appliances

Changing pattern of exports

- The share of high-tech exports rose from 45 percent in 1993 to about 60 percent of total Thailand's exports in 2000.
- The rising share in total exports of the high-tech products and the declining importance of labor intensive products demonstrate the changing pattern of comparative advantage of Thailand's industry.
- **Electronic products require only 13.6 percent of their input locally, resulting in heavily depending on imported raw materials.**

A big challenge

- Exports cannot take place without the flows of foreign direct investment in the IT industry.
- Since 2000, the rising trend of the high-tech products has been stabilized.
- Without continuing flows of foreign direct investment in to the IT sector, the trend might be reversed in the future.
- Another challenge in the IT industry: how to attract flows of foreign investment when large parts of FDI have been diverted to other countries in Asia.


IT goods exports
% total exports
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Thailand
Vietnam
Korea
Japan
China

Can FTAs help?

- Will the formation of free trade agreements between Thailand and other countries win back some parts of FDI that might have gone to China?
- What are fundamental factors determining the inflows of FDI into the IT industry?

Greater Volatility

- Exports of IT products rely mainly on the strength of the world economy.
- Thailand's exports of IT products fluctuate along the world trade volume.
- Their volatility is far greater than the volatility of the world trade growth.

Export orientated products
60%> X/Q> 30%

- ***IC, Computer, Monitor, HDD, Printer***
- Canned pineapple and seafood
- Leather product
- TV, air conditioner, washing machine
- Rubber block and rubber gloves
- Wood furniture, glass sheet, leather footwear

As a price taker

- Dynamic ***supply response*** is the key to success to take the opportunity of the boom.
- Declining IT prices would return after the world glut of IT products.
- How to deal with temporary declining prices and excess supply: quantity adjustment is required.

Synchronization Problem

- The three major export markets whose shares exceed 10 percent of total exports are: USA, Singapore, and Japan.
- Thailand has already exported IT products to more than 200 countries in the world.
- Market diversification **cannot** solve the problem of market fluctuations as long as those exports markets are interrelated and subject to the same business and technology cycles.
- But India and China were growing rapidly during the global slowdown in 2009.

Technical barriers to trade: WEEE and ROHS

- Among the top importers of IT products from Thailand, the EU has the market share around 15 percent.
- The EU legislations that electronics manufacturers must comply are:

(1) Reduction of Hazardous Substances (ROHS),

(2) Waste Electrical and Electronic Equipment (WEEE)

(3) Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

How to REACH Europe

- Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
- REACH contains regulations that control the manufacture and use of chemicals in goods imported into Europe.
- These products need to be registered, evaluated, and authorized for production or use within the EU (European Union) without harming human health or the environment.

Is Thailand just an IT assembler?

- FDI in the IT industry brought along imported machinery as well as imported raw materials.
- The industry produces according to the specification of the multinational corporations that have chosen Thailand as assembly plants.

Innovation and originality is needed

- Similar to the automobile industry, the Thai IT industry does not have its original designs that can create its own market or brand names.
- The ability to do so depends on quality of human resources and telecommunication infrastructure.
- The effectiveness of the government policy in enhancing competition in the telecommunications so that they can provide efficient infrastructure for IT users and development.

The seven-second syndrome

- Should the government subsidize the IT industry?
- Any room for market intervention?
- Is there any justification by market failures and strategic intervention?
- Say goodbye to the 3G system..

Sophisticated interventionism

- *"Industrial polices in High Asian Performing Economies are responsible for successful performance: policies that favor particular industries over others"*.
- These policies include, in addition to tariffs, import restrictions, and export subsidies, more complex policies such as low-interest loans and government support for R&D.

Skeptical view on industrial policy

A wide range of industrial policy

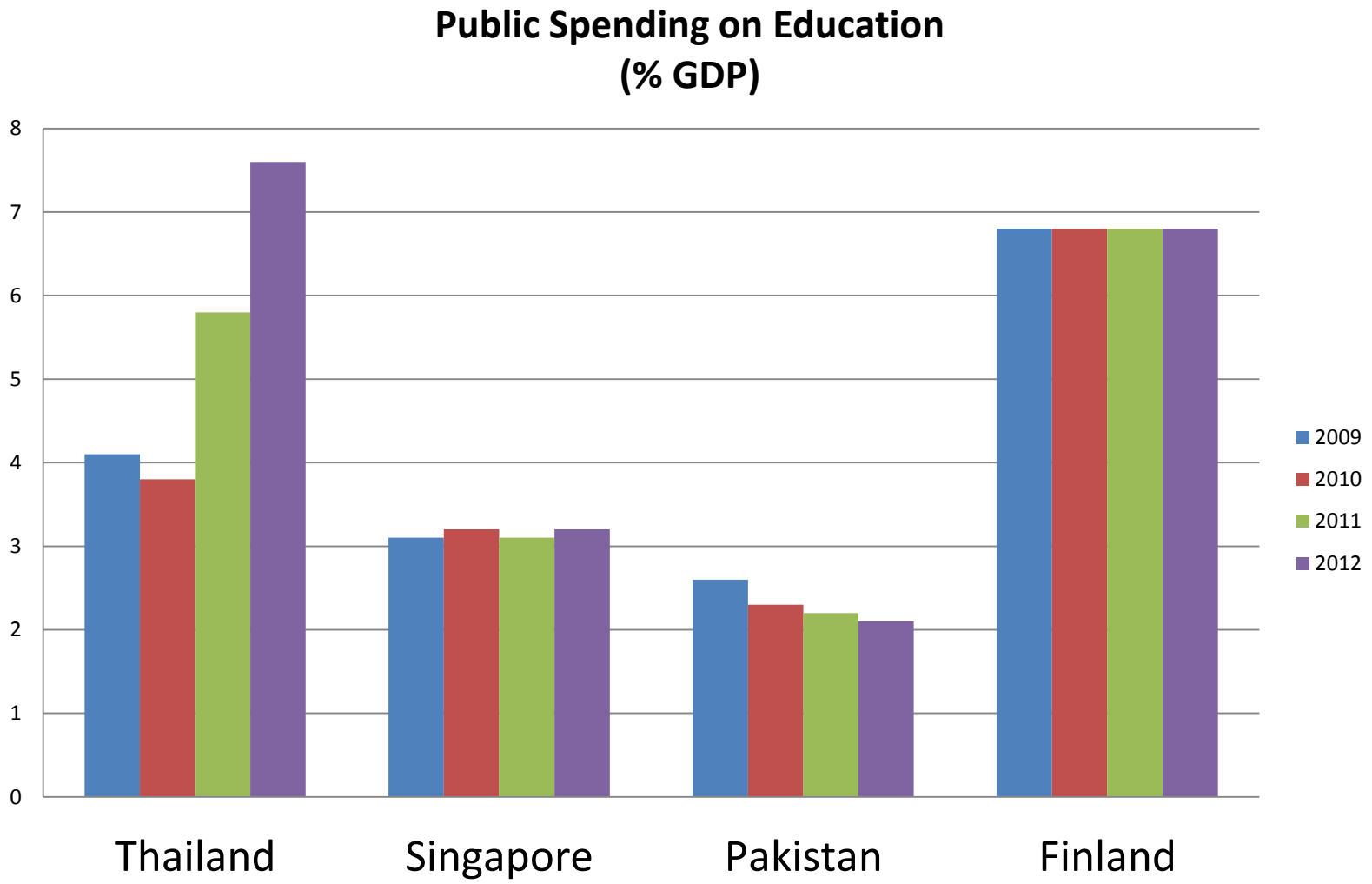
- Singapore: detailed government direction
- Virtual laissez-faire in Hong Kong
- South Korea: large industrial firms
- Taiwan: small and family-run companies
- Singapore: Logistics
- With different emphasis on industry, yet these economies have achieved similar high growth rates.

Overrated

- Actual impact of industrial policies may not have been large, according to the World Bank.
- Little evidence that countries with explicit industrial polices have moved into the targeted industries any faster than those which have not.
- From 1973 to 1979, Korea followed a policy for promoting heavy and chemical industries, which were proved to be costly and judged to be premature and was later abandoned.
- Industrial policy was not a key driving force behind Asian success.

Growth drivers

- These successful Asian economies have very high saving rates which can be used to finance high rates of investment.
- Most of these countries have made great strides in public education.
- The combination of high investment and rapidly improving education levels explains a large part of the rapid growth in East Asia.
- Trade policy has permitted rapid growth, but it is overstating the importance of trade policy if we say that it caused growth.


Public Spending on Education
(% GDP)
8
7
6
5
4
3
2
1
0
Thailand
Singapore
Pakistan
Finland
2009
2010
2011
2012

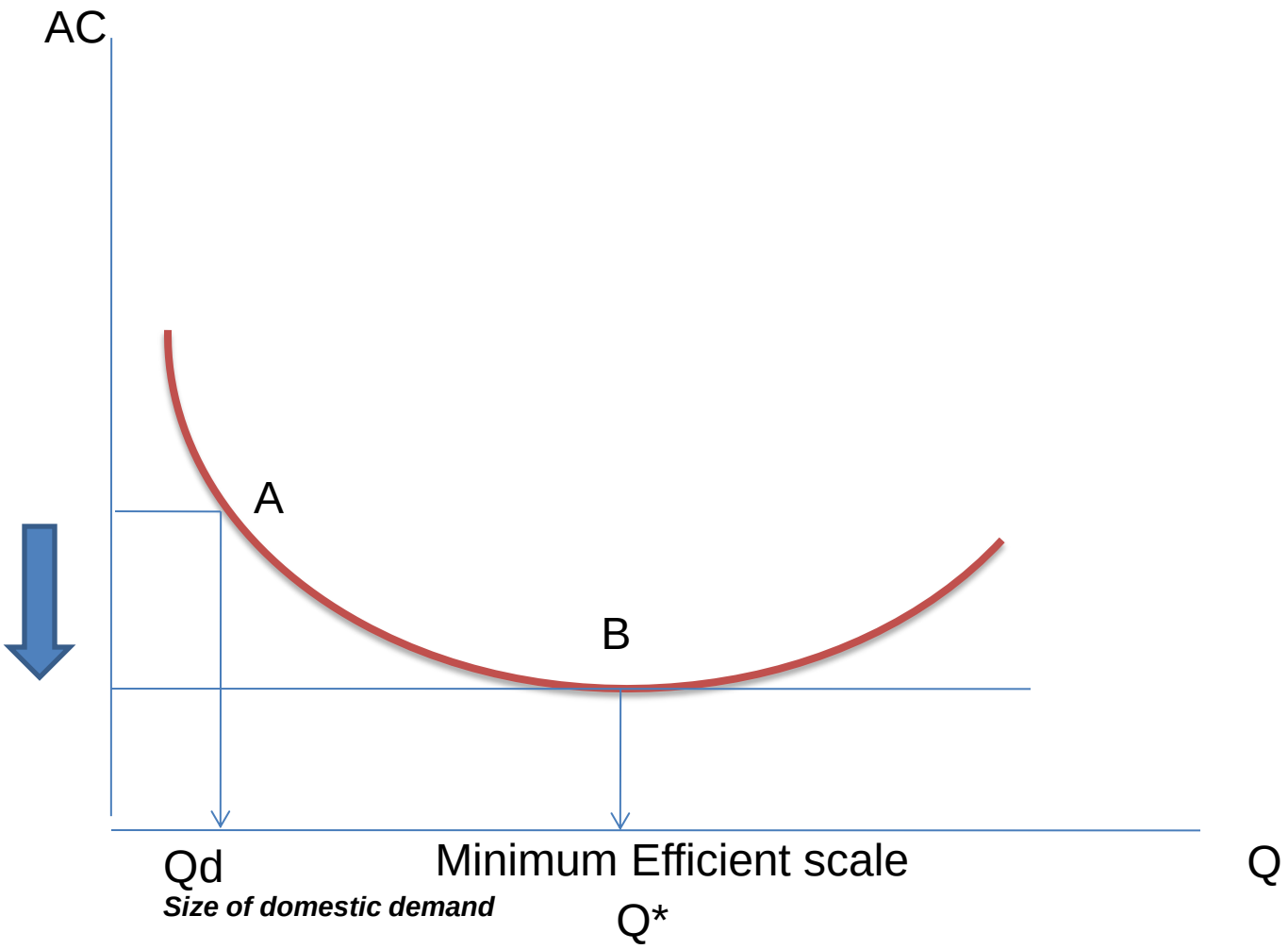
Challenges

- The industry cannot rely on the *undervalued* baht to offset the dollar price disadvantage.
- When the dollar has to perform its role in correcting the US's huge current account deficit, the IT industry in Thailand might face another crisis as the baht would appreciate significantly against the dollar.
- The industry must prepare for the strengthening of the baht as a result of the weakening of the dollar in the future (29 baht?).

Liquidity injection

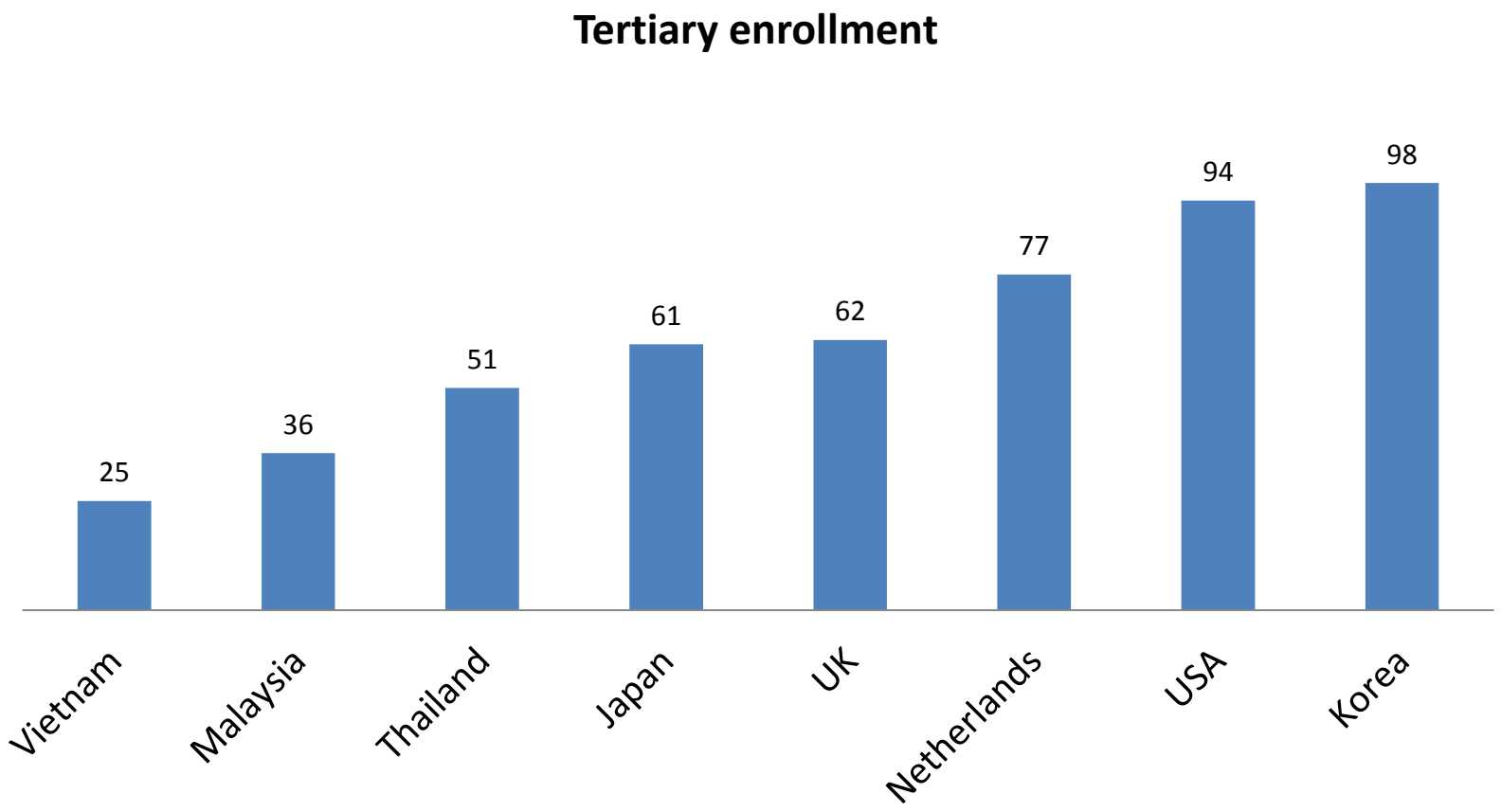
- The industry must focus also on creating domestic demand to generate their income to partially mitigate the impact of global recession in 2009.
- How to deal with a temporary demand shock?
- Is there a limit to relying on domestic demand?

Inward-looking and self-sufficiency policy



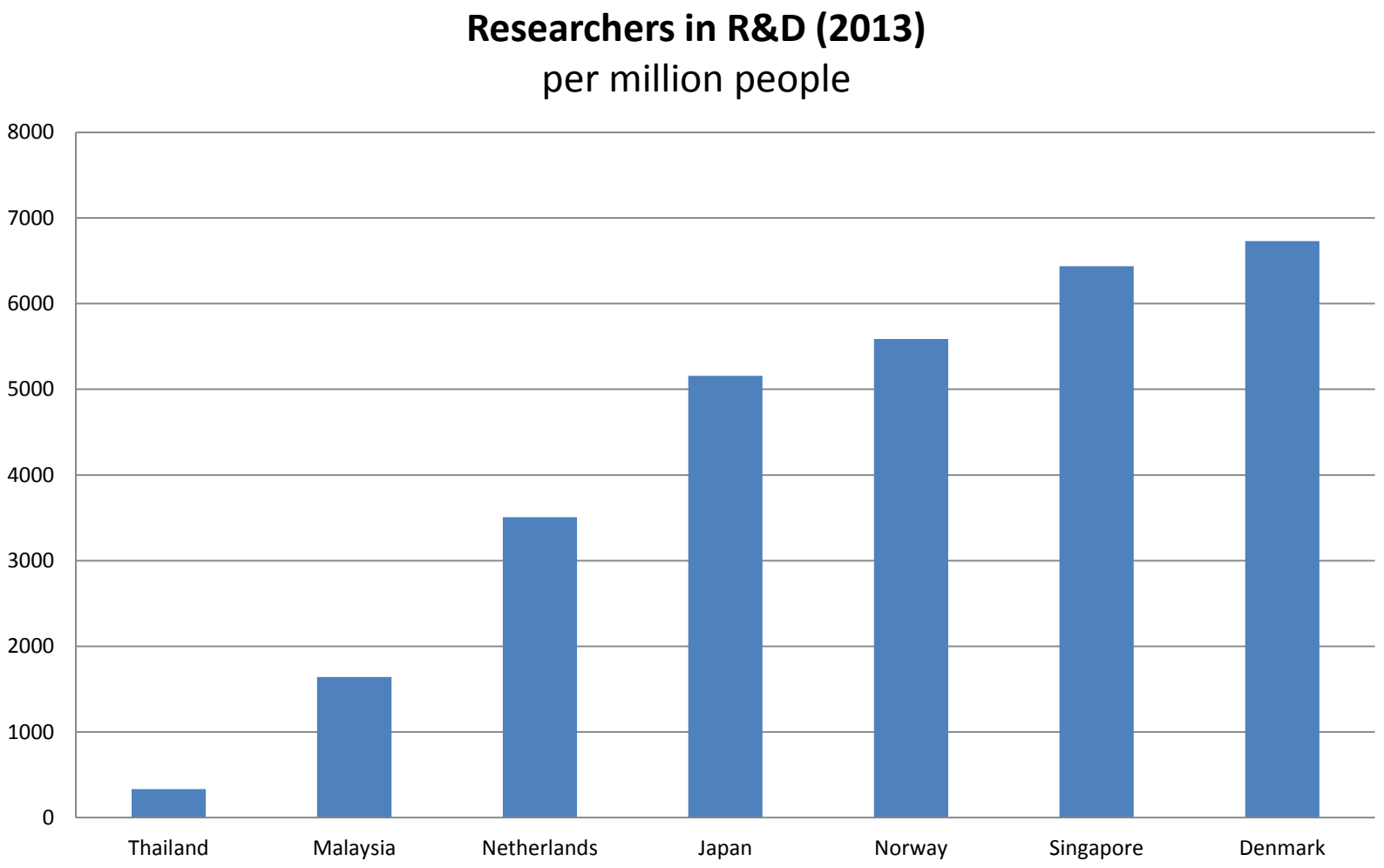
Quality of human capital

- Large parts of ICT workforce are in low skilled labors such as technicians, while the percentage of high-skilled computer professional is very small.
- The average years of schooling for the Thais above 15 years old is only 7.8 years.


Tertiary enrollment
25
36
51
61
62
77
94
98
Vietnam
Malaysia
Thailand
Japan
UK
Netherlands
USA
Korea

Science and Technology vs. Social science

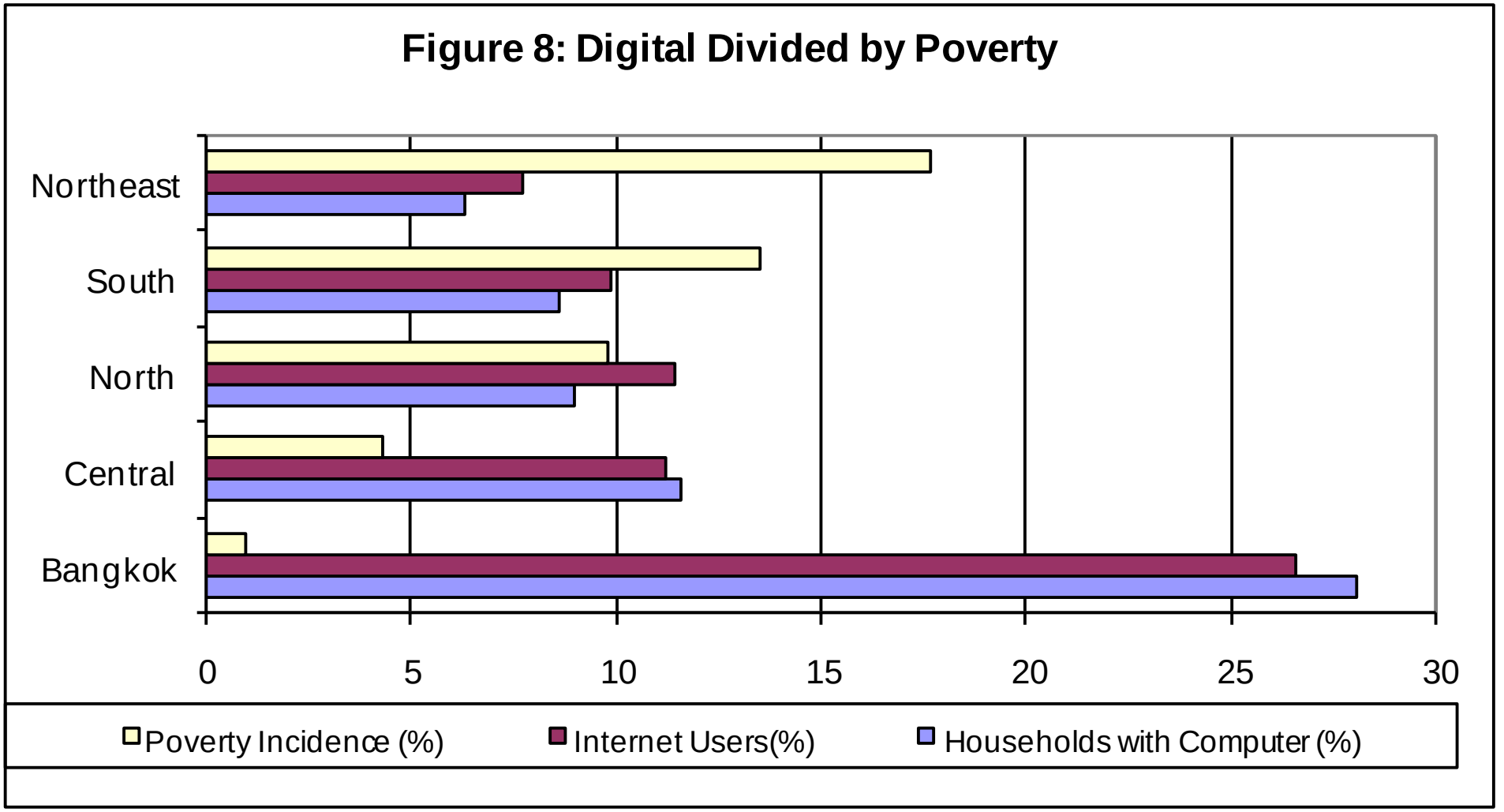
- Thai universities produce only 32 percent of graduates in the filed of science and technology.
- More social science and humanities are produced because of their lower unit cost.


Researchers in R&D (2013)
per million people
8000
7000
6000
5000
4000
3000
2000
1000
0
Thailand
Malaysia
Netherlands
Japan
Norway
Singapore
Denmark

Poverty and Digital Divide

- Poverty and access to IT products are negatively correlated.
- Since education and labor productivity are related, solving the problem of digital divide requires a long-term solution through providing equal opportunities for education for the whole country.

Figure 8: Digital Divided by Poverty



Digital Economy

PCO government

- *The digital economy policy is a major effort to transform business practice to drive economy growth for the innovative-driven future.*

- Digital economy draws skepticism because internet access still too low.

Bangkok Post: 15 Oct 2014

"As long as the country's internet penetration rate remains as low as 25% and telecommunications infrastructure is still not spreading nationwide, the digital economy is unlikely to get off the ground," said one industry veteran.

Another industry figure said: "While this government will not stay in power for long, developing the digital economy necessarily requires a long-term plan and a long time to implement it successfully. It'll be hard for this government to get this project off the ground."

ACM Thares Punsri, chairman of the National Broadcasting and Telecommunications Commission, agreed the ability to access the internet nationwide would be the critical factor for the digital economy.

Given poor public telecom facilities and internet tariff rates that are still not affordable for all people, it is too early to talk about full-scale implementation of the digital economy, he said.

"Personally, I support the state's digital economy and low-cost broadband internet mission, as it could boost the country's economic growth," ACM Thares said.

Conclusion

- Policy must foster the expansion of the domestic demand for IT investment at all potential segments of society to bridge the digital gap between urban and rural areas.
- Both external and internal liberalization of the IT industry is necessary for Thailand to reap the benefit of the fast changing trend in the IT technology
- Do you still remember the 3G fallout?
- The 2009 global recession adversely affected IT exports, but its resilience has been demonstrated by a sharp rebound in 2010.