EE460: Competitiveness and resilience of Thai Manufacture

Bhanupong

Lecture 14

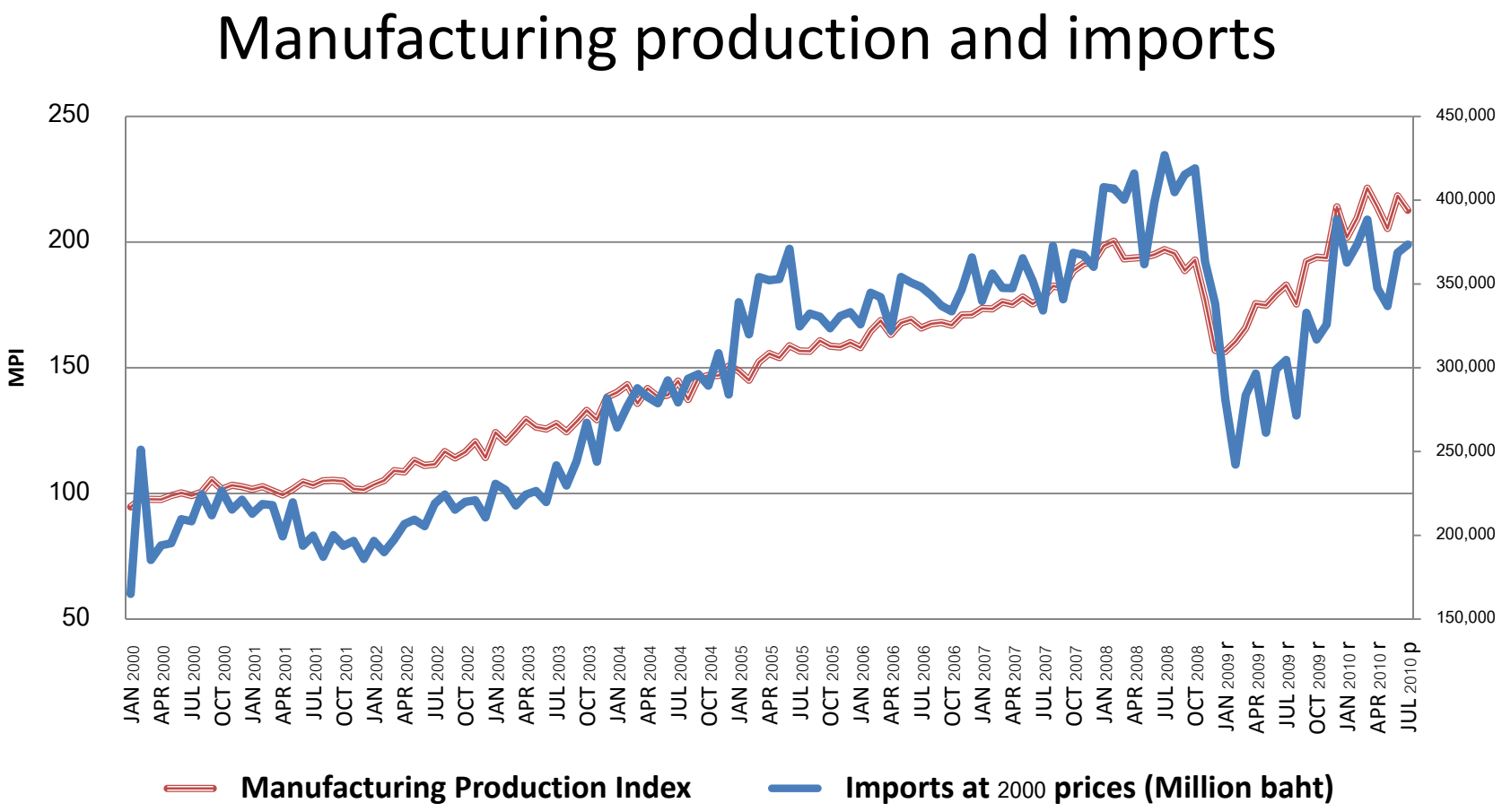
Outline

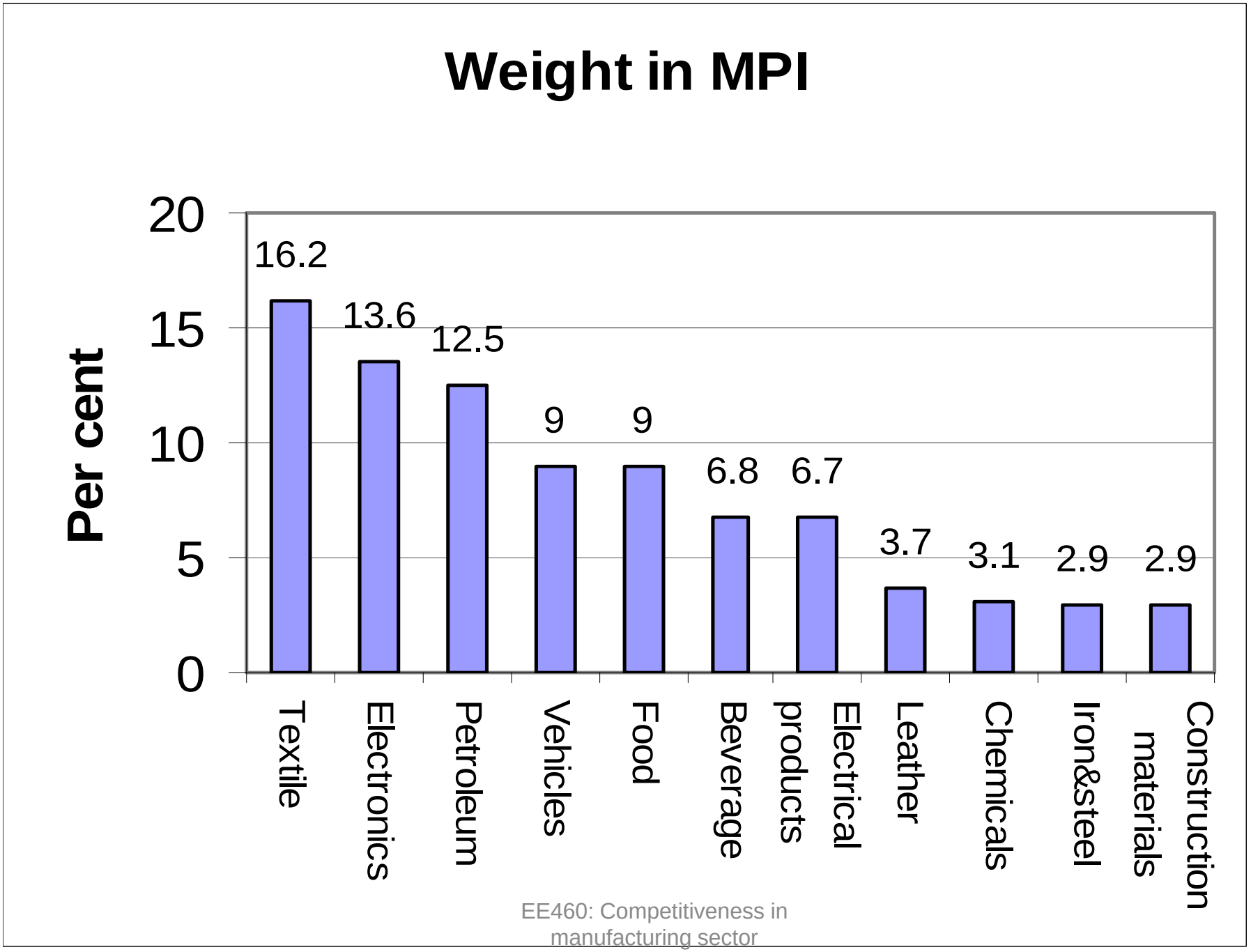
- Overview of the industry
- Global competitiveness
- Competitiveness and positioning of Thai manufacturing
- Diversification of exports
- Competitive wage and exchange rates
- R&D revisited

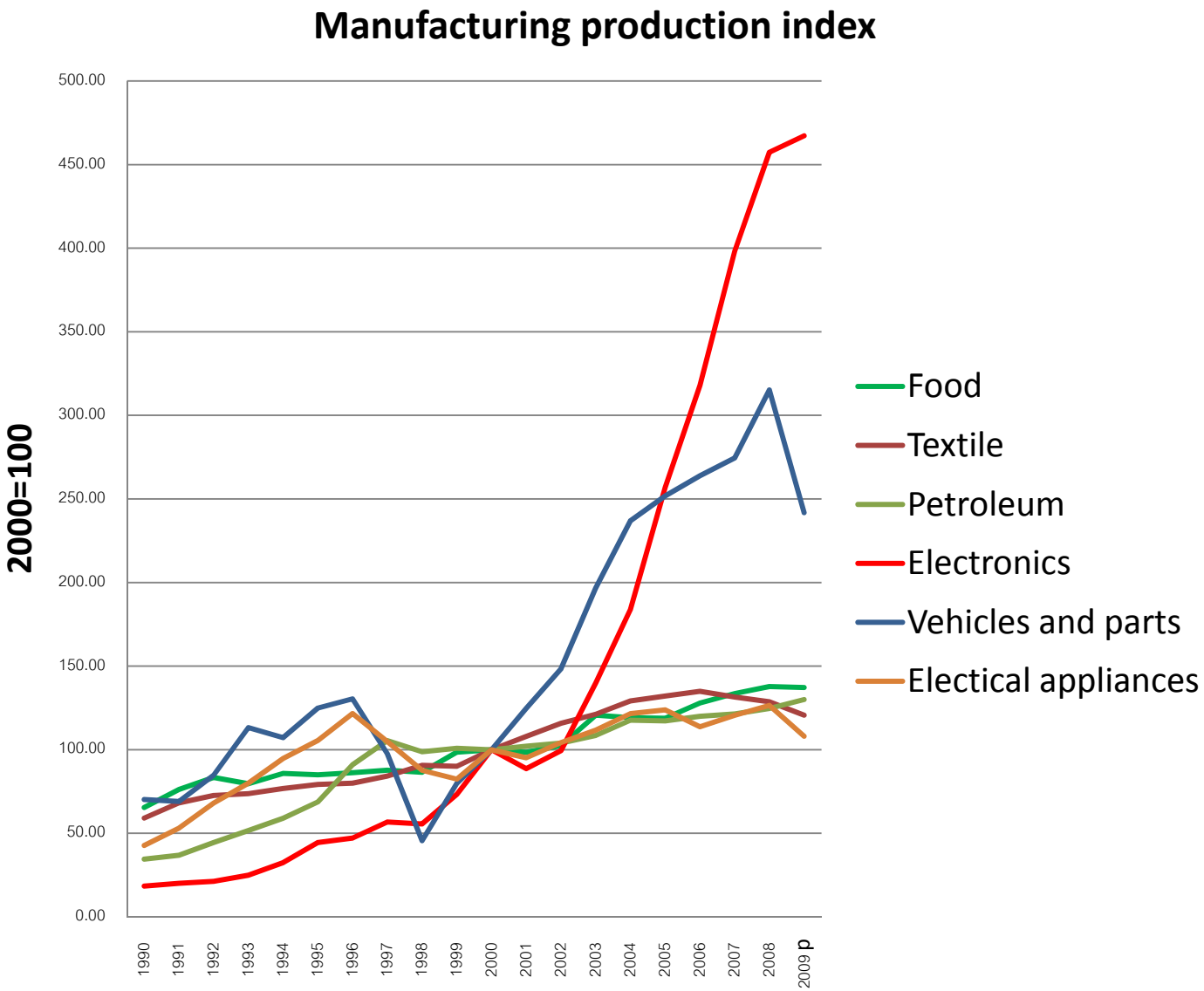
1. Overview

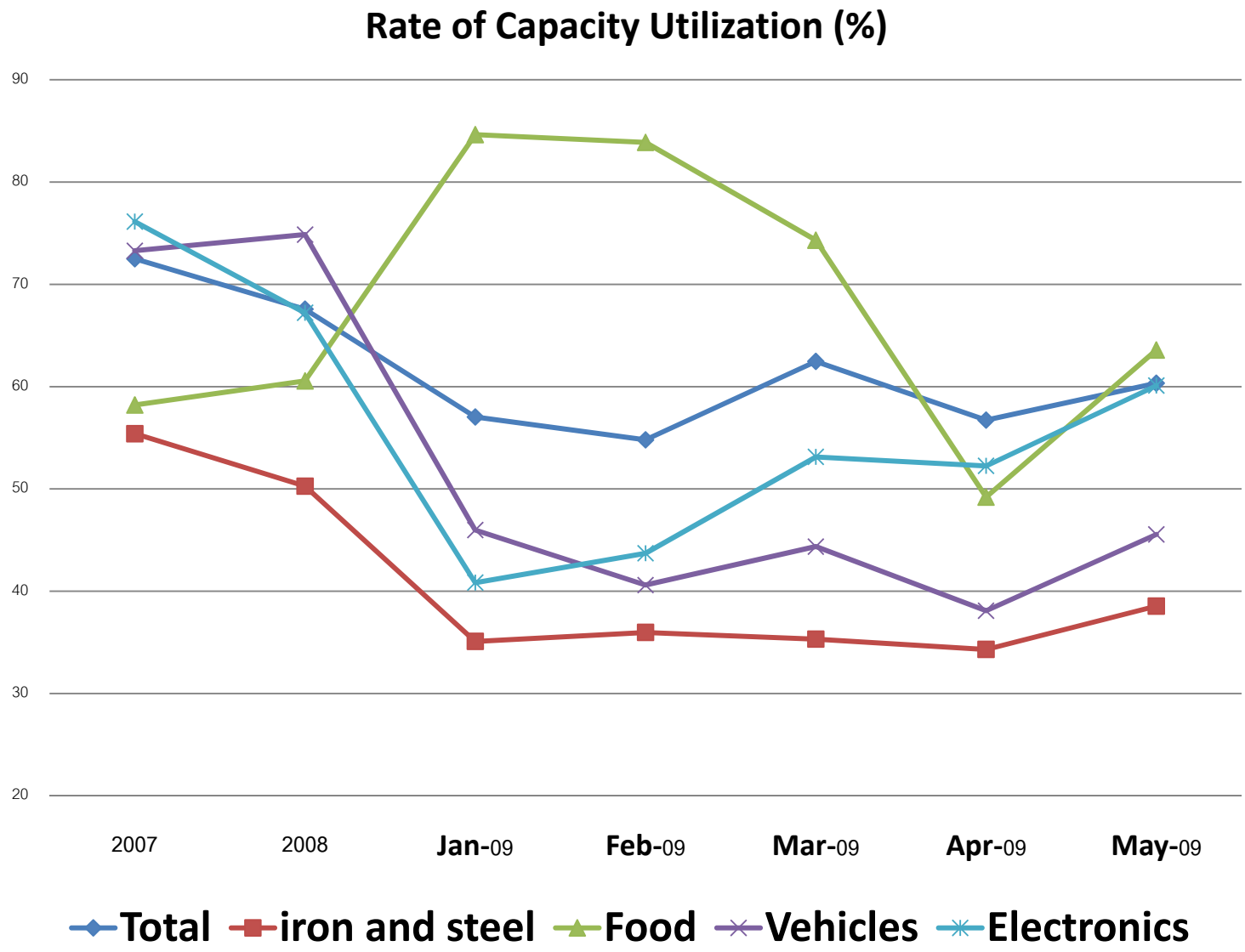
- Trend growth of industrial production
- Identify major industrial goods
- Analyze the cyclical pattern
- Characterize products by market orientation

Recession and recovery

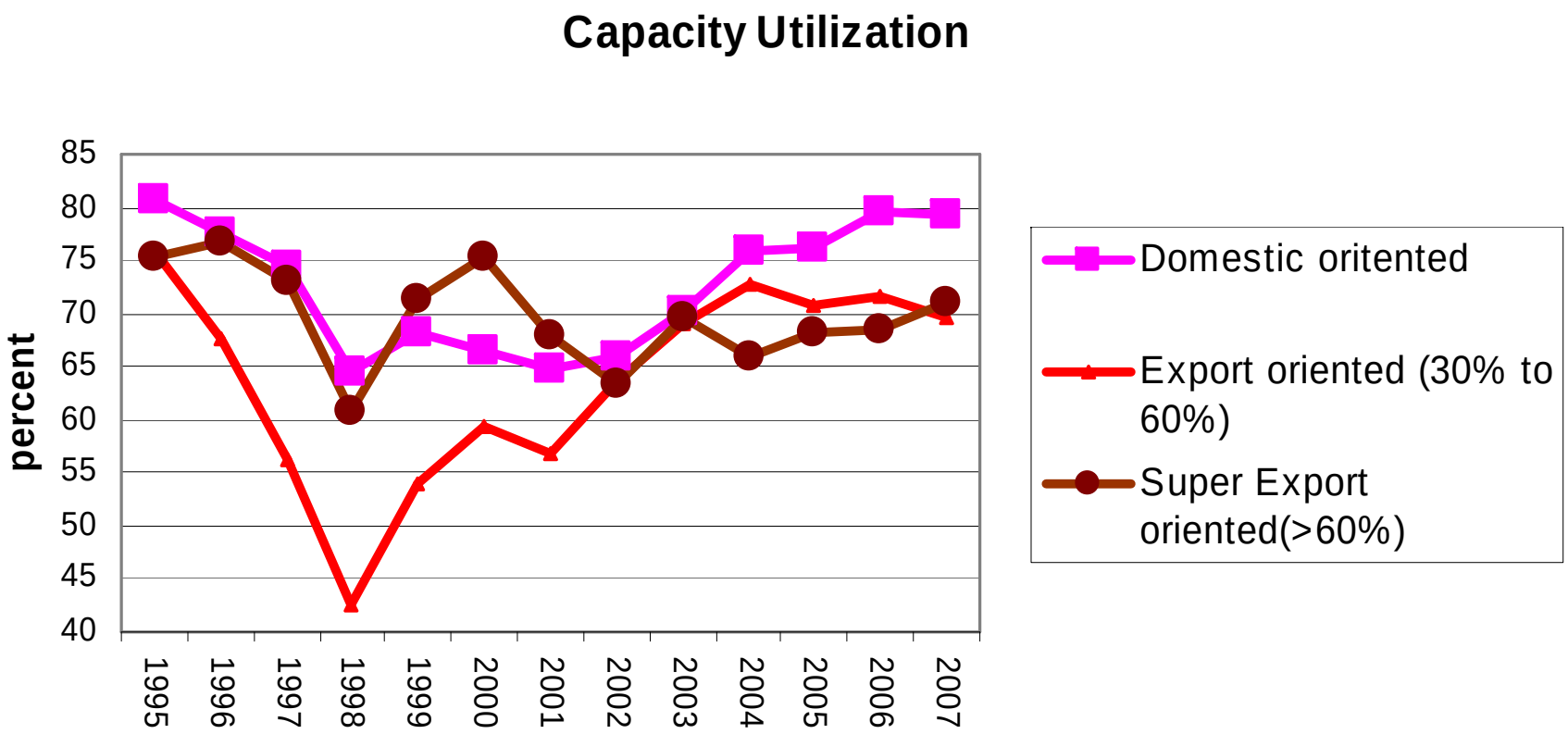



Weight in MPI
Per cent
20
15
10
5
0
16.2
13.6
12.5
9
9
6.8
6.7
3.7
3.1
2.9
2.9
Textile
Electronics
Petroleum
Vehicles
Food
Beverage
products
Electrical
Leather
Chemicals
Iron&steel
materials
Construction


Manufacturing production index
2000=100
500.00
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009 p
Food
Textile
Petroleum
Electronics
Vehicles and parts
Electical appliances

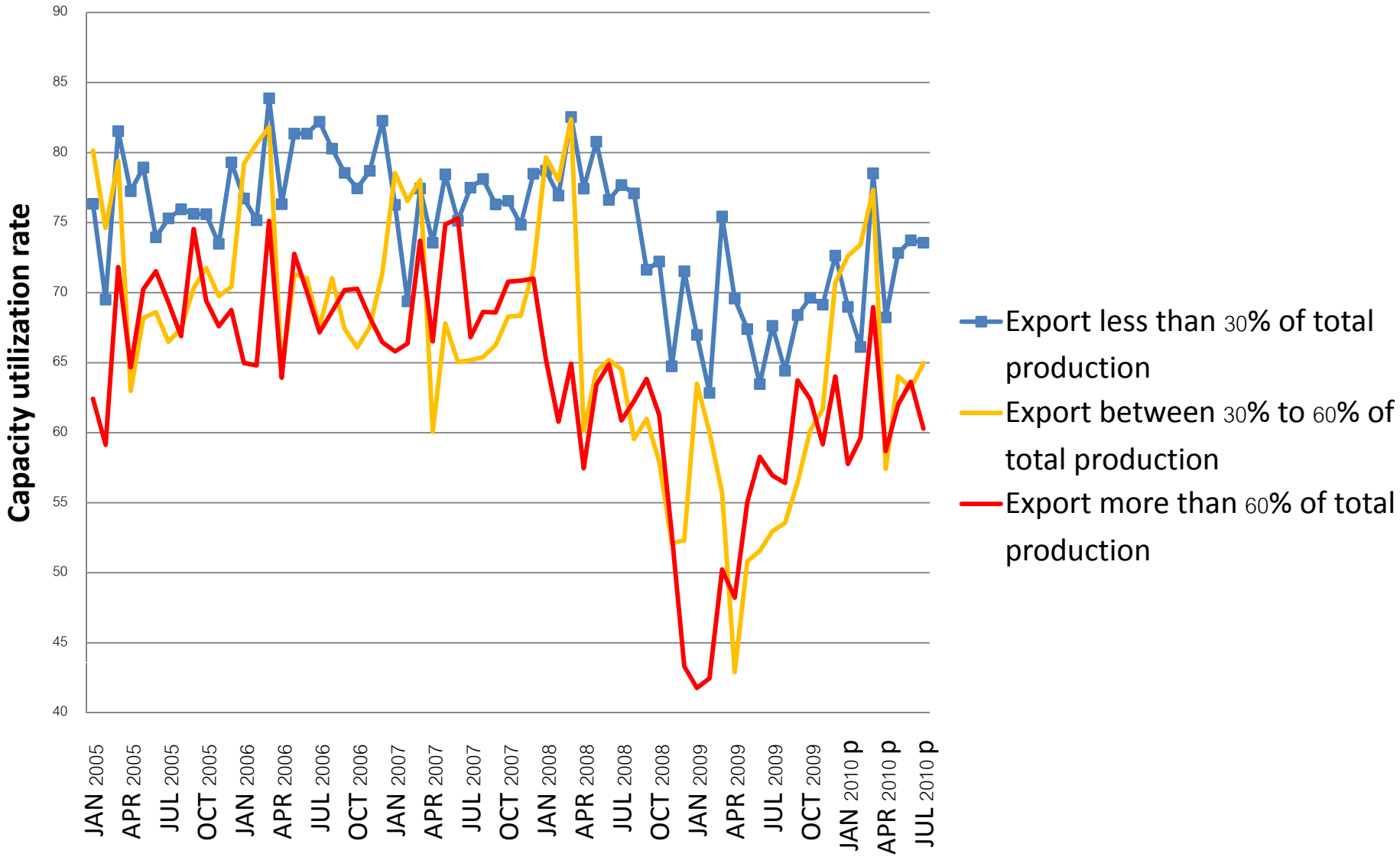

Rate of Capacity Utilization (%)
90
80
70
60
50
40
30
20
2007
2008
Jan-09
Feb-09
Mar-09
Apr-09
May-09
Total
iron and steel
Food
Vehicles
Electronics

Capacity utilization by type of market orientation



Source: BOT

Global recession and manufactured exports



Domestic Market oriented Products

(exported less than 30% of total production)

	Weight in MPI
Total weight	34.01
Petroleum products	12.52
Beer	5.08
Passenger car	3.74
Downstream Petrochemical	1.62
Tobacco	1.58
Clinker	0.96
Motorcycle	0.87
Craft paper	0.83
Pulp	0.80
Vegetable oil	0.68
Carbonate water	0.56
Energy drink	0.54

Export Oriented Products

(X/Q between 30% to 60%)

Total 30.87 %	weight in MPI
Garment	8.57
Weaving	3.16
Commercial car	2.74
Spinning	2.24
Sugar	1.95
Hot & cold-rolled sheet	1.50
Rice	1.19
Cement	1.14
Tire	1.14
Synthetic fiber	1.10

Ultra Export oriented products: (X/Q > 60%)

Total Weight in MPI	**35.11%**
Hard Disk Drive	6.14
Integrated circuit	4.96
T.V.	4.48
Products of Leather & Leather	3.68
Setting jewelry	3.53
Frozen seafood	2.18
Canned seafood	1.72
Printer	1.31
Wood furniture	1.27
Air-conditioners	1.12
Leather Footwear	0.91
Monitor	0.75
Block rubber	0.60
Canned Pineapple	0.58
Glass Sheet	0.45
Computer Keyboard	0.43
Rubber glove	0.40

2. Global Competitiveness

- A country's future prosperity depends on its growth in productivity, which government policies can influence.
- Nations compete to choose policies to promote higher living standards.
- International Institute for Management Development (IMD) and World Economic Forum (WEF) have their own ways of measuring competitiveness.

Paul Krugman

- International trade is not a zero-sum game.
- Countries do not compete in the same way as companies.
- When two countries compete through trade, they both win.
- Is “Competitiveness” a meaningless word?

Trade and growth relationship

- Jeffrey Sachs (Columbia) found a fairly strong correlation between recent growth rates and the competitiveness index.
- Critique: Correlation between the two variables does not guarantee that the competitive index will be a good predictor of economies' future growth prospects.
- Sachs' definition of competitiveness: The *ability of a country to achieve sustained high rates of growth in GDP per capita.*

World Economic Forum
Global Competitive Index

- The rankings are calculated from both publicly available data and the Executive Opinion Survey, a comprehensive annual survey conducted by the World Economic Forum together with its network of Partner Institutes (leading research institutes and business organizations) in the countries covered by the Report.
- Over 11,000 business leaders were polled in a record 131 countries.

Components of weighted index of competitiveness

- Openness of an economy to trade and investment,
- Role of government (public spending, low marginal tax rates),
- Efficiency of the financial sector,
- Levels of education and skills (two-thirds of the total index)
- Quality of management, infrastructure and technology, the effectiveness of legal and political institutions (the rule of law).
- Thailand's judicial system ranks 9th from the total of 12 countries in the region.

Global Competitive Index: 2007-2008

Rank		Score	Rank		Score
1.	**United States**	5.67	19.	Taiwan	5.25
2.	Switzerland	5.62	21.	Malaysia	5.1
3.	Denmark	5.55	**28.**	**Thailand**	4.7
4.	Sweden	5.54	30.	Kuwait	4.66
5.	Germany	5.51			
6.	Finland	5.49			
7.	**Singapore**	**5.45**			
8.	Japan	5.43			
9.	United Kingdom	5.41			
10.	Netherlands	5.40			
11.	Korea, Rep.	5.40			
12.	Hong Kong SAR	5.37			
13.	Canada	5.34			

Source: World Economic Forum

World Economic Forum's Global Competitiveness Index 2010-2011

- **Thailand, at 38th position in the World Economic Forum's Global Competitiveness Index 2010-2011, has fallen two places this year and 10 ranks since 2006, mainly because of the domestic turbulence.**
- According to the WEF, the assessment of public institutions - mainly the administration - continues to languish at 70th place among 139 countries, a drop of 30 places over the past four years, likely related to recent problems of social unrest and political instability in the country.

World Economic Forum's Global Competitiveness Index 2010-2011

- Thailand's ranking is supported by the relatively large domestic and export markets (23rd), its transport infrastructure (23rd), the efficiency of its labour market (24th), and a relatively well-functioning goods market (41st).
- In addition, the country's business environment is relatively sophisticated, with developed clusters (34th) and companies operating across the value chain.

- "In addition to urgently improving its institutional framework, the country needs to step up its effort to improve its health and educational systems and encourage wider adoption of new technologies for productivity enhancements.
- Such efforts will then buttress the country's innovation potential, which will become increasingly important as it moves towards the most advanced stage of economic development," WEF said in its report.

12 pillars

- The index is based on the ranking in 12 pillars: institutions (the strength of public and private institutions in creating sound and fair environment to generate income and wealth in the economy), infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation

Countries on the top 10

- This year, the index showed that all of the countries in the top 10 remain the same as last year, with some changes in ranking.
- Switzerland tops the overall rankings, while the US has dropped two places to fourth position, overtaken by Sweden (second) and Singapore (third), after already ceding the top place to Switzerland last year.

- In addition to the macroeconomic imbalances that have been building up over time, there has been a weakening of the United States' public and private institutions, as well as lingering concerns about the state of its financial markets.

- The Nordic countries continue to be well positioned in the ranking, with Sweden, Finland (seventh) and Denmark (ninth) among the top 10, and with Norway at 14th.
- Sweden overtakes the US and Singapore this year to be placed second overall.
- The United Kingdom, after falling in the rankings over recent years, moves back up by one place to 12th position.
- The People's Republic of China (27th) continues to lead the way among large developing economies, improving by two more places this year, and solidifying its place among the top 30.

- Among the three other BRIC economies, Brazil (58th), India (51st) and Russia (63rd) remain stable.
- Several Asian economies perform strongly, with Japan (sixth) and Hong Kong (11th) also in the top 20.
- In Latin America, Chile (30th) is the highest-ranked country, followed by Panama (53rd) Costa Rica (56th) and Brazil.

Asian Competitiveness

Leaders in Asia are:

Singapore

Japan

Republic of Korea

Hong Kong

What do these countries have in common?

Competitive characters

high-quality infrastructure,

flexible and efficient markets,

healthy and well-educated workforces,

high levels of technological readiness,

innovative capacity

3. Competitiveness of Thai Manufacturing sector

- Characteristics of manufactured products
- Growth of exports in each product group
- BCG model

Competitive Positioning

Reveal competitiveness ($\dot{Z}>0$)and income elasticity of **demand** (η)

Export the right commodity

Export the commodity right

	Rising share of that product in world trade ($\eta>1$)	Declining share that product in world trade ($\eta<0$)
Gaining world market share ($\dot{Z}>0$)	**Rising stars** (Stars)	**Falling stars** (Cash Cows)
Losing world market share($\dot{Z}<0$)	**Lost Opportunity** (Problem Child)	**Retreat** (Dog)

The 2004 OIE Study

Office of Industrial Economics employed the Boston Consulting Group Model (BCG)

- **RISING STARS**: air conditioners
- **FALLING STARS:** garments
- **LOST OPPORTUNITY**: plastic, cargo transportation vehicles, pulp and paper, primary petrochemicals
- **RETREAT**: medicine, artificial fiber, chicken
- What export products were rising stars in 2010?

Two opposing views: Quo Vadis?

- **“Thailand does not necessarily have to compete in the manufacturing, since it can specialize in the production of agricultural commodities and in tourism, where it has a definite comparative advantage.**”

- “Thailand has to continue its industrialization drive to generate additional industrial employment and incomes, and to raise general living standards through linkages with other sectors, particularly agriculture and service.”

- ***Which view would you endorse?***

Michael Porter (1990) *The Competitive Advantages of Nations*

- **There are two basic types of competitive advantages: lower cost and product differentiation.**
- **Pure cost advantages are less sustainable than differentiation: any new source of lower costs can nullify a firm's cost advantage.**
- **Differentiation is the ability to provide unique and superior value to buyers in terms of product quality, special features, or after-sale service.**
- **Examples: differentiation in services provided by banks, supermarkets, and gasoline stations.**

More advice from Michael Porter

- **Differentiation allows a firm to command a premium price, which leads to superior profitability provided costs are comparable to those of competitors.**
- **Pure cost advantages are more vulnerable because new product designs or other forms of differentiation can eliminate a cost advantage.**
- **The government can raise the odds of gaining competitive advantage but lacks the power to create advantage itself.**

Manufacturing value-added and exports

- **Despite impressive performance, Thai manufacturing sector did not generate net foreign exchange earnings between 1980 and 1996 before the crisis.**
- **Thailand's nature of rapid industrialization is characterized by its heavy and persistent reliance on imported capital goods, intermediate inputs and technology, contributing to the widening trade deficit in the manufactured goods.**
- ***How about now?***
- **Thailand's future growth pattern may exhibit significant balance of payments deficit, unless the import-dependent pattern of industrialization is altered.**
- ***Is it true?***

Net user of foreign exchanges

- **The manufacturing sector exported nearly 40% of its product in 1997, but because of the heavy reliance on imported intermediate inputs, the net export was just 16% (10% if resource-based food and rubber products are excluded).**
- ***What are implications of currency depreciation and appreciation?***
- **If imports of capital equipment are included, the manufacturing sector as whole was a net users of foreign exchanges.**

4. Diversification of Thai exports

- **A country is considered competitive in products in which it is increasing its world market share.**
- **An export product is considered dynamic in world trade if it is *growing faster* than the average for all products (either rising or falling stars).**
- **Thailand's exports were in the rising stars category for 54% in 1996, but they *fell* to 15% by 2000.**
- **Ten years after this study, the figures were totally different in 2006.**
- **Thailand did not do as well as its major competitors during the 1996-2000 boom in electronic exports.**
- **Thus the share of loss opportunity category *increased* from 3% to 43% of total exports.**

Export Product Diversification

- Electronics 31%
- Food and beverages 15%
- Chemicals and plastics 7%
- Electrical goods 6%
- Machinery , garments 5%
- jewelry and furniture 5%
- Vehicle and parts 4%

De-concentration

- **The reliance on top five export products (50%) diminished in the 1988-2000 period.**
- **The reliance on labor-intensive food, garments, jewelry and furniture has declined.**
- **But the reliance on the top exports, electronic products, increased significantly from 11 to 31 percent.**
- **Manufacturing exports accounted for 86% of total exports of $70billion in 2000.**

Vulnerability to external shocks

- **Electronic products such as computer parts, integrated circuits concentrated in five major markets accounted for 70% of total exports.**
- **Thai garment's exports to USA accounted for 54% of total market.**
- **Top five importers of Thailand’s electrical and plastic products accounted for 55%.**
- **Need to diversify to lessen vulnerability and to upgrade productivity.**
- **But diversification would not help if business cycles are synchronized all over the world.**

Can the government help?

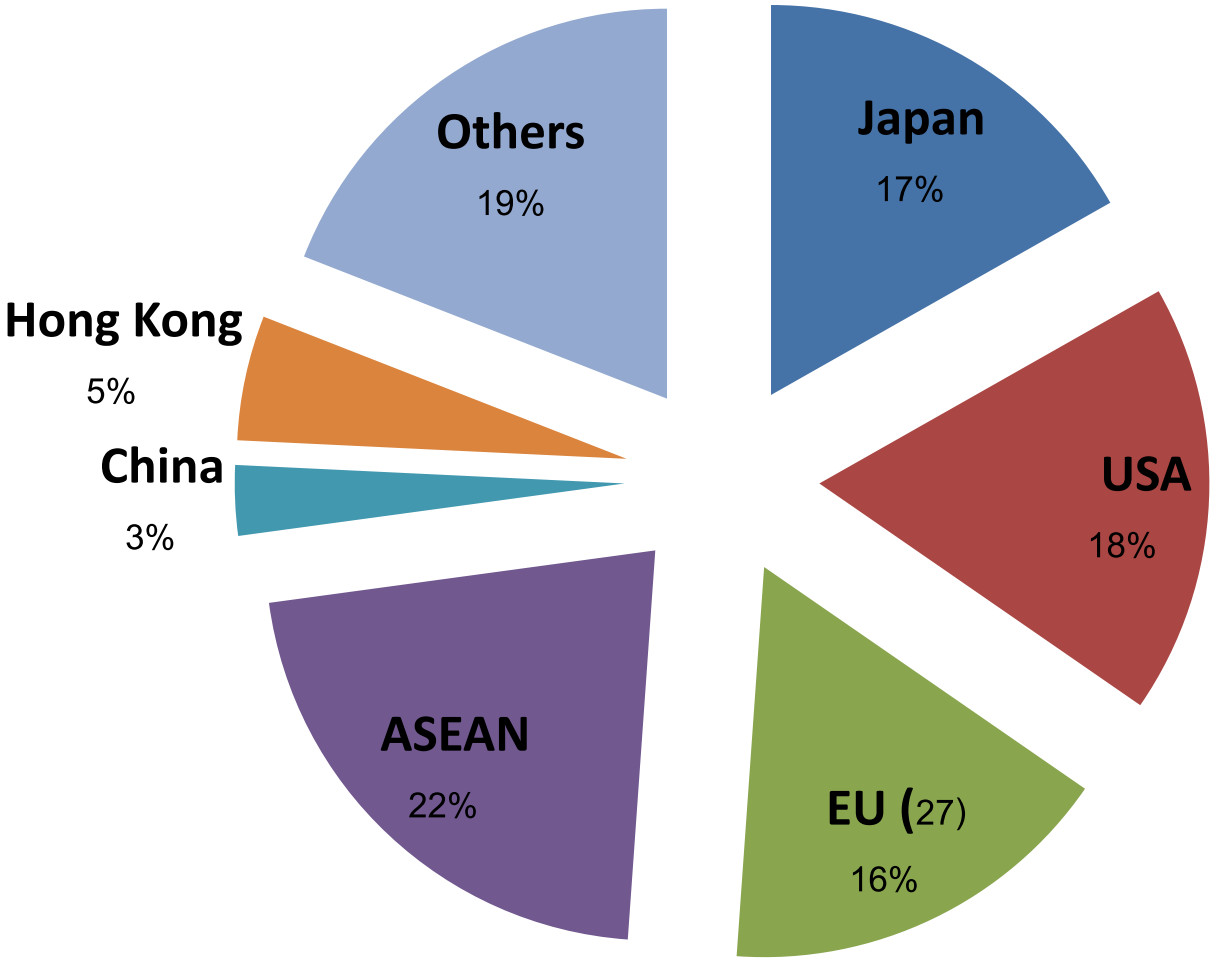
- The government research and technology institutes in Thailand do not have a clear mandate to provide technology services at firm levels.
- There is also low demand for the services from the firm themselves.
- The demand for technology services is influenced by competitive environment.
- Removal of tariff can alter the prices of inputs and final products.
- Tariffs on parts and component can raise prices of locally assembled products, slowing down technology development.

Geographical Diversification

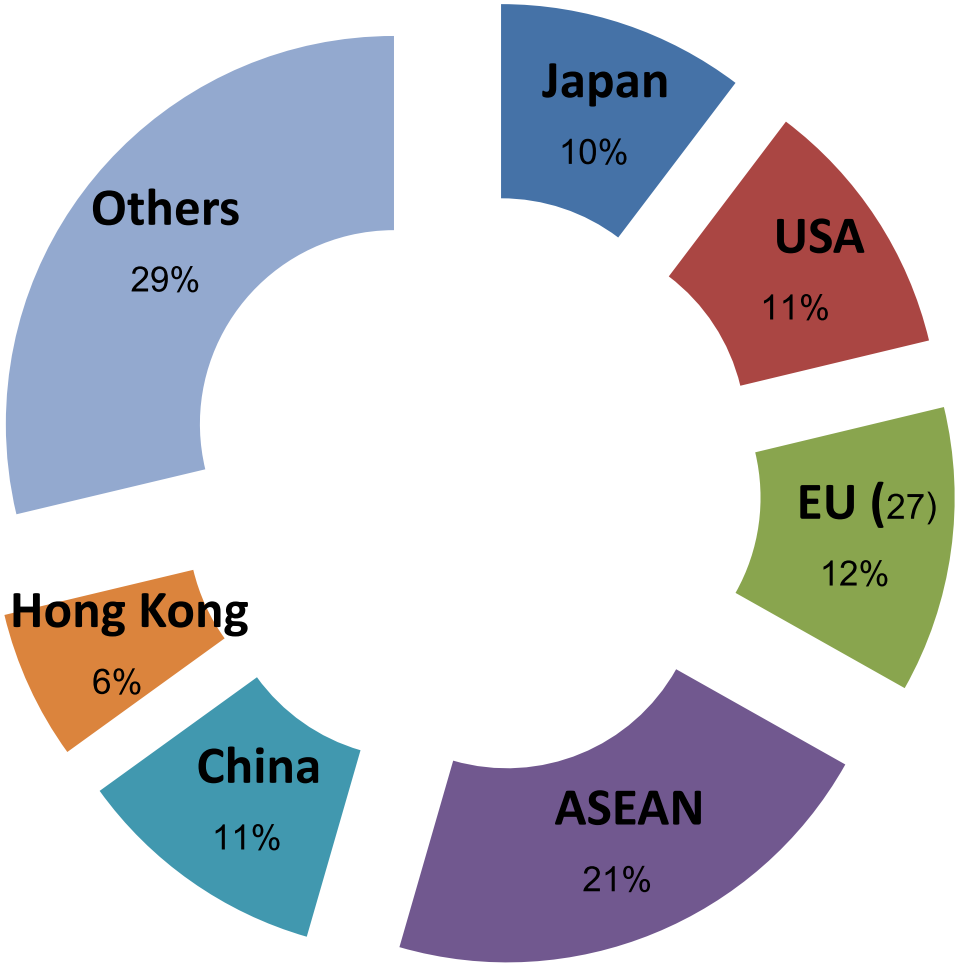
- Thailand was dependent on just three countries for nearly of its half exports in 2000.
- USA 21%
- Japan 15%
- Singapore 9%

- ***What was the geographical diversification of Thai exports in 2010?***
- ***How was the manufacturing sector be affected by the global recession in 2010?***
- ***Did free trade agreements prevent Asian countries from global recession?***

Market exports shares: 1995



Export market diversification in 2009



Competitiveness and wages

- If the subpanels on minimum wages in Bangkok and Phuket have their proposals to hike the wage rates given the green light by the National Wage Committee (NWC), a tripartite made up of representatives of employees, employers and the government, workers in Bangkok will get a new wage of 213 baht a day, up from 206 baht now, and those in Phuket 214 baht a day, up from 204 baht.
- The NWC normally announces the wage review before the New Year as a gift for all workers. (BKK Post, 16 Sep 2010)

Competitiveness and the exchange rate

Strong baht may curb output (Bangkok Post, 16 Sep 2010)

- “An exchange rate of 31-32 baht to the US dollar is considered sufficient for local exporters to survive”.
- Chairman of the Federation of Thai Industries said exporters in the agro-industrial, textile and furniture sectors are possibly unable to receive orders from abroad due to severe price competition from regional competitors.
- "The possibility is high that we'll see export value contract in the fourth quarter even if we meet the target volume”
- "The current situation is worrisome, especially for food processing manufacturers, which normally use low import content and thus do not benefit from the strong baht"

R&D once more

- Thailand has been slow to expand its research and development (R&D) capability, placing it in danger of losing out to global competition in its quest for economic growth via the production of higher value-added goods.

Thailand R&D indicators

	2004	2005	2006	2007
R&D expenditure (% of GDP)	0.26	0.24	0.25	0.21
(million bt)	16,571	16,667	19,549	18,225
In manufacturing (% of GDP)	n.a.	0.094	0.10	0.096
(million bt)	n.a.	6,133	6,620	6,724
In service sector (million bt)	n.a.	546	1,379	1,485
Full-time research personnel per 10,000 population	n.a.	5.92	n.a.	6.76
Patent registrations	2,044	1,322	1,878	1,824
Patent applications	8,942	10,885	9,821	10,339

Source: Ministry of Science & Technology, National Science Technology and Innovation Policy Office, National Science and Technology Development Agency

Thailand's Rankings

	2004	2005	2006	2007	2008	2009	2010
Innovation	n.a.	38/117	33/125	36/131	54/134	57/133	52/139
Source: World Economic Forum (WEF)							
Science Infrastructure	46/51	47/51	45/53	49/55	37/55	40/57	40/58
Technology Infrastructure	38/51	37/51	41/53	48/55	43/55	36/57	48/58

Source: International Institute for Management Development (IMD)

POSTgraphics

- The Siam Cement Group (SCG) as a successful case study in increasing revenue from higher value-added products via R&D. Half of its gross revenue for last year - 46 billion baht - was generated by such products after it spent almost 800 million baht on R&D in 2009.
- The number of SCG employees holding doctoral degrees increased from only 40 in 2004 to 1,000 in 2009.
- A recent success in agricultural innovation was the modification of aromatic rice that can tolerate longer periods underwater. In medical science, an advanced testing kit for HIV and blood diseases was created.

NESDB's view

- According to a deputy secretary-general of the National Economic and Social Development Board, R&D investment at 1% of national revenue and a rate of 6.7 full-time R&D personnel per 10,000 could lead to a staggering performance in terms of global competitiveness.
- One reason there is no demand for R&D locally is we just act like an assembly house.
- We fill orders by multinational companies based on their blueprint for the products.

- "We should move to higher value-added products and a knowledge- and creativity-based economy. We should be our own boss in production. This requires R&D."
- Promotion of R&D and innovation in the economy is a focus of the NESDB's 11th national plan to be finalized in the coming months and part of the goal of striking a balance between an export-reliant economy and self-sufficiency.

- China's economic advances have seen it surpass middle-income regional countries such as Thailand and Malaysia in terms of value-added products.
- "Innovation and a healthy entrepreneurial environment such as financial access, regulatory efficiency and management are the key characteristics to combine with the ability to innovate in order to increase the value added to the output”