EE460: Competitiveness of Thai Manufacture

Bhanupong

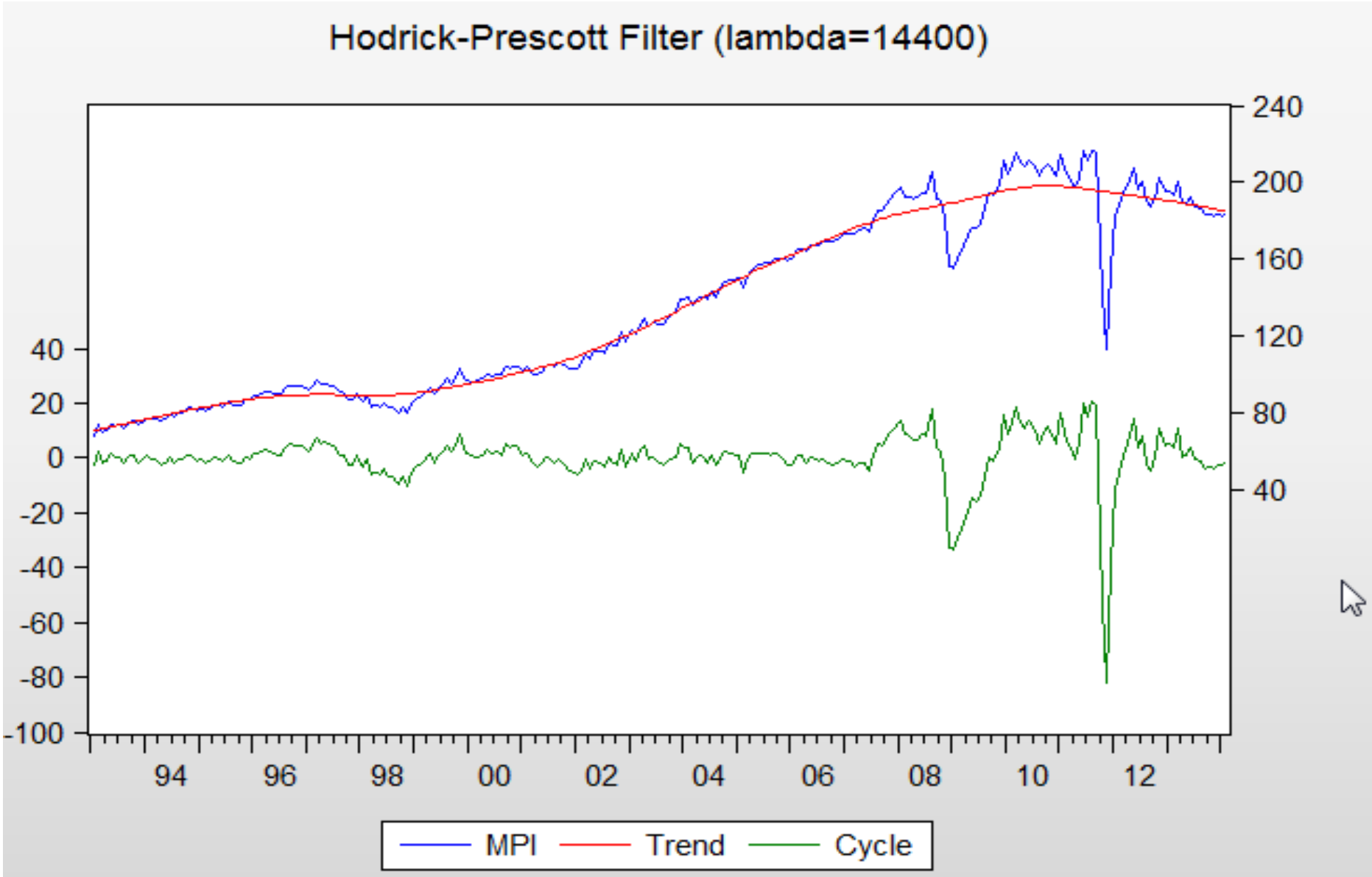
Lecture 13

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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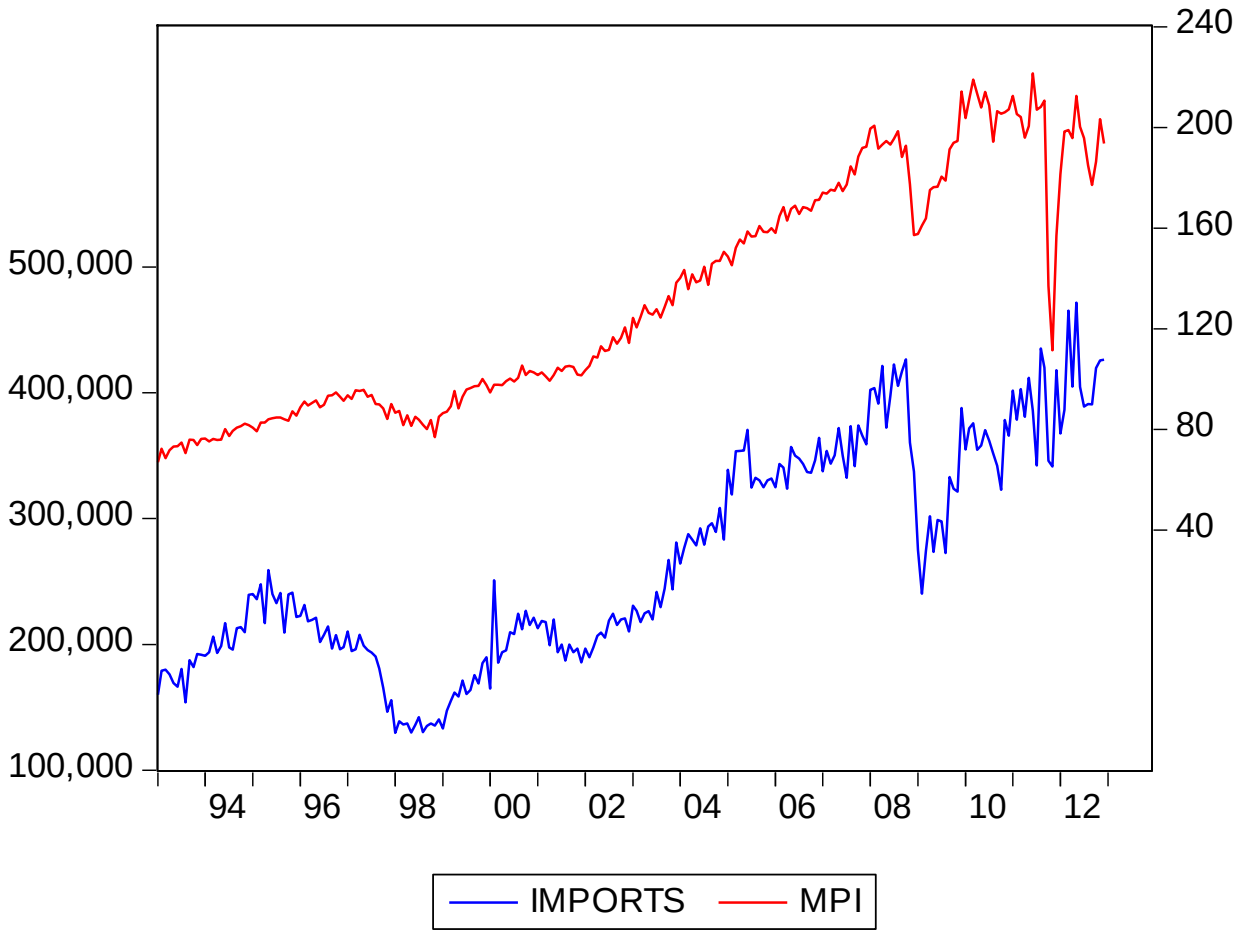
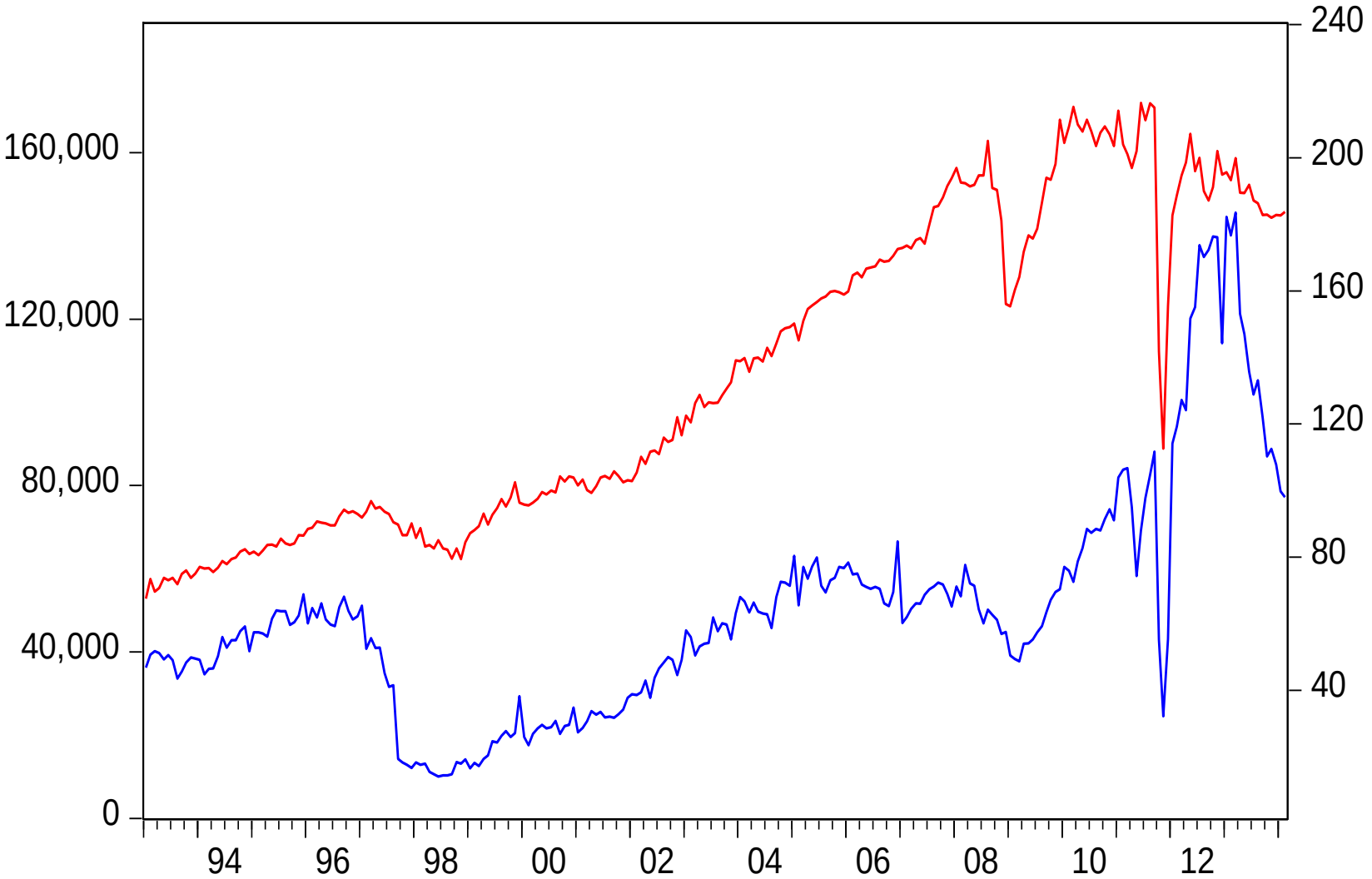
MPI
Trend
Cycle

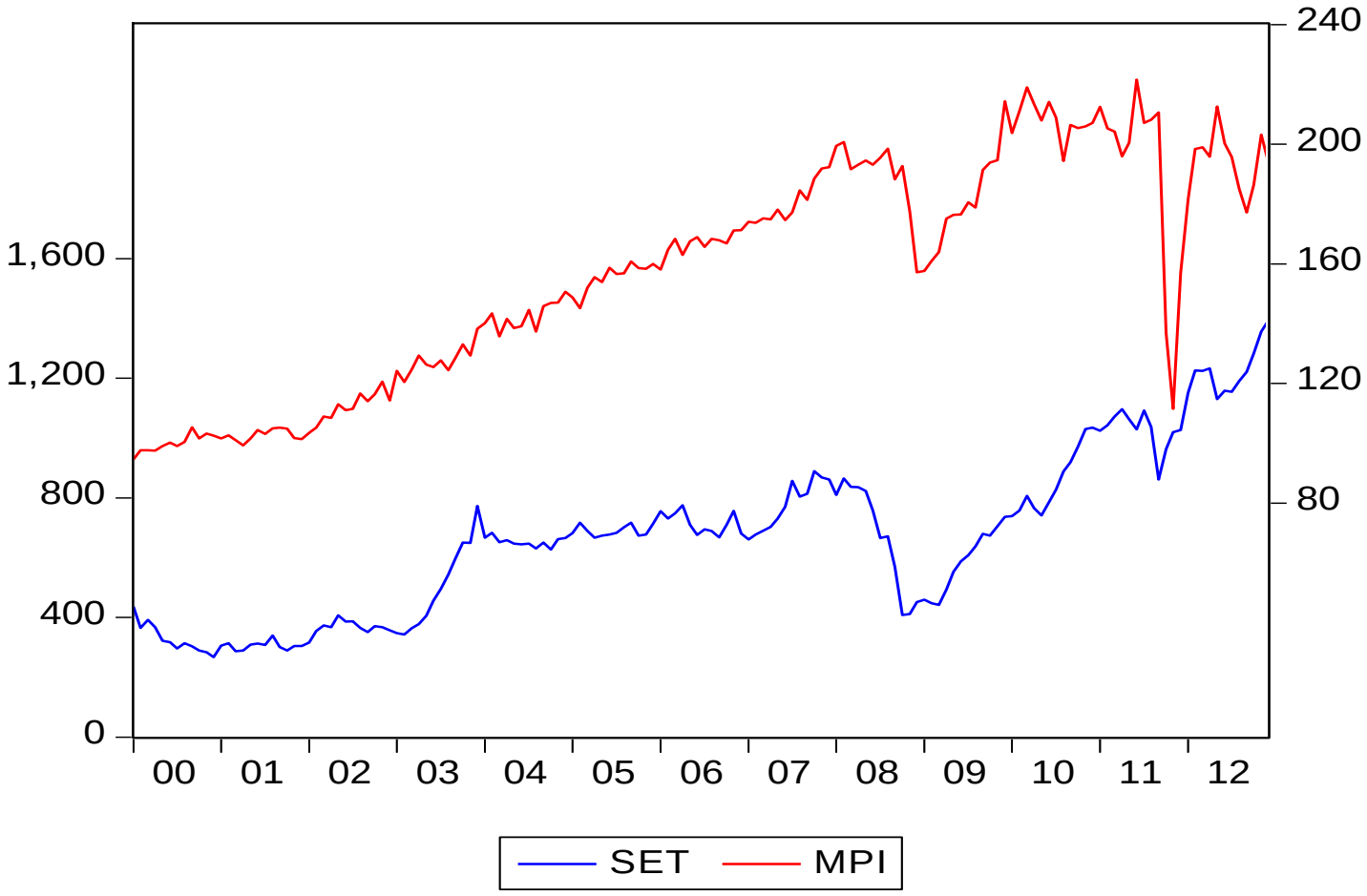
Manufactured products and imports



Consumer durables

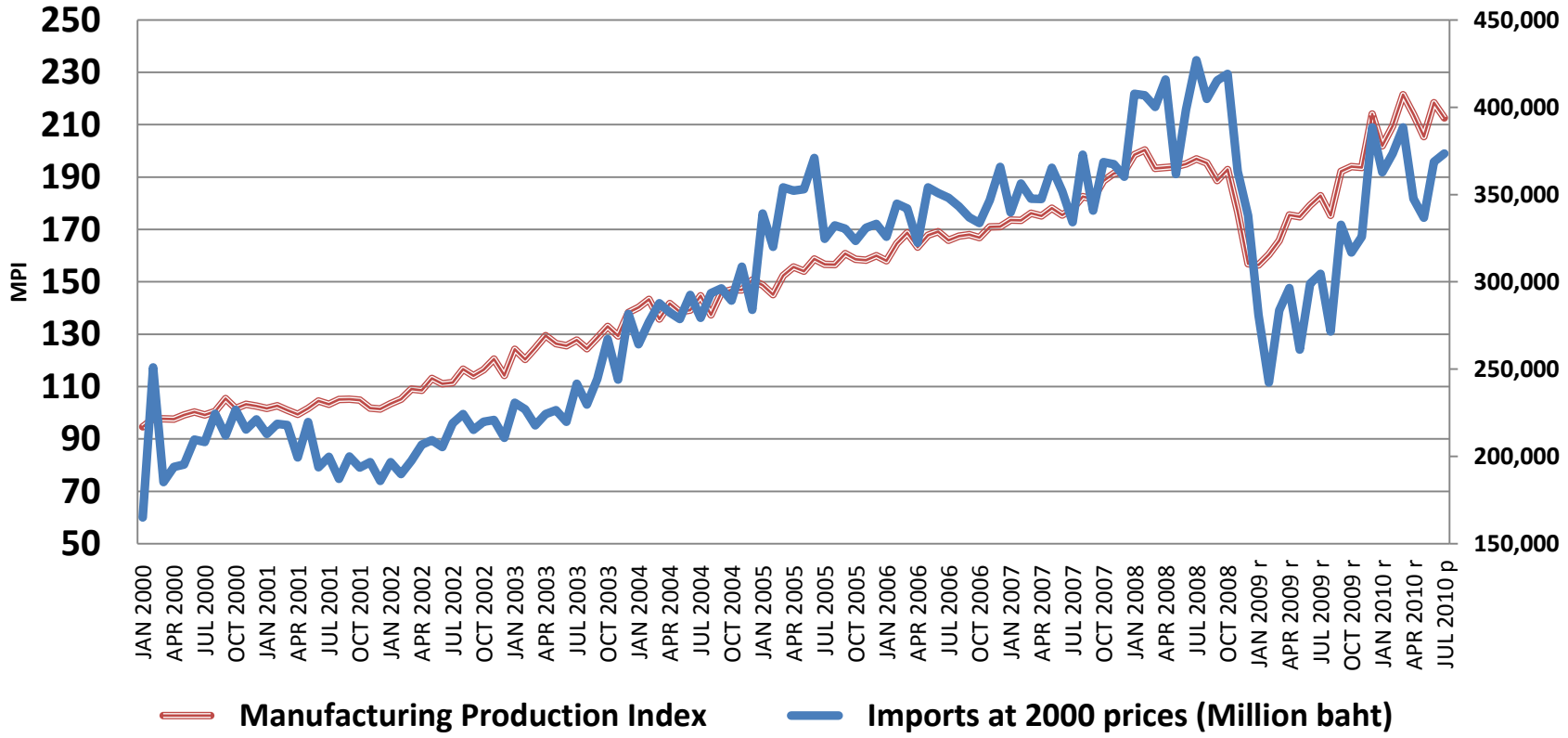


Economic activity and stock prices

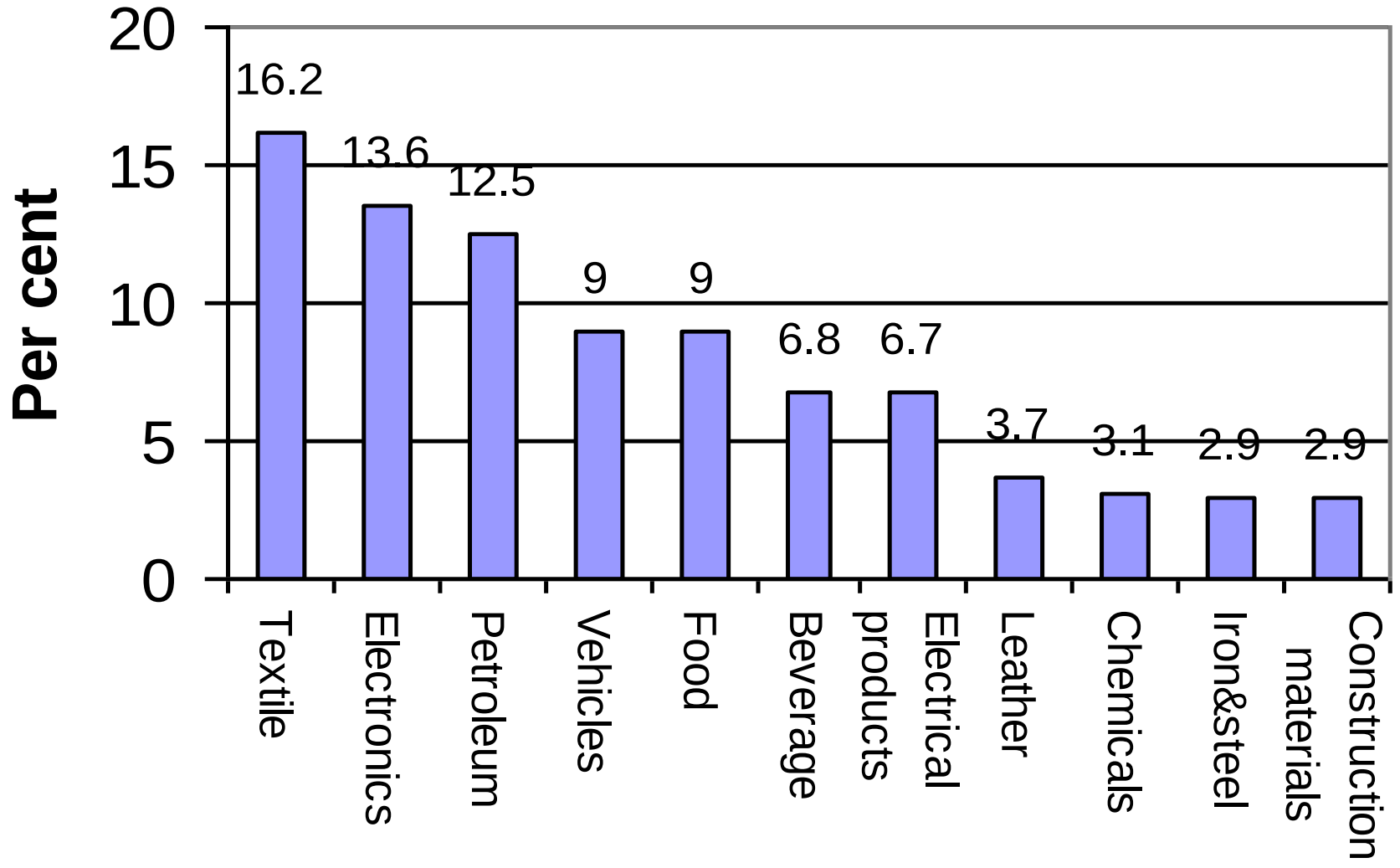


Recession and recovery

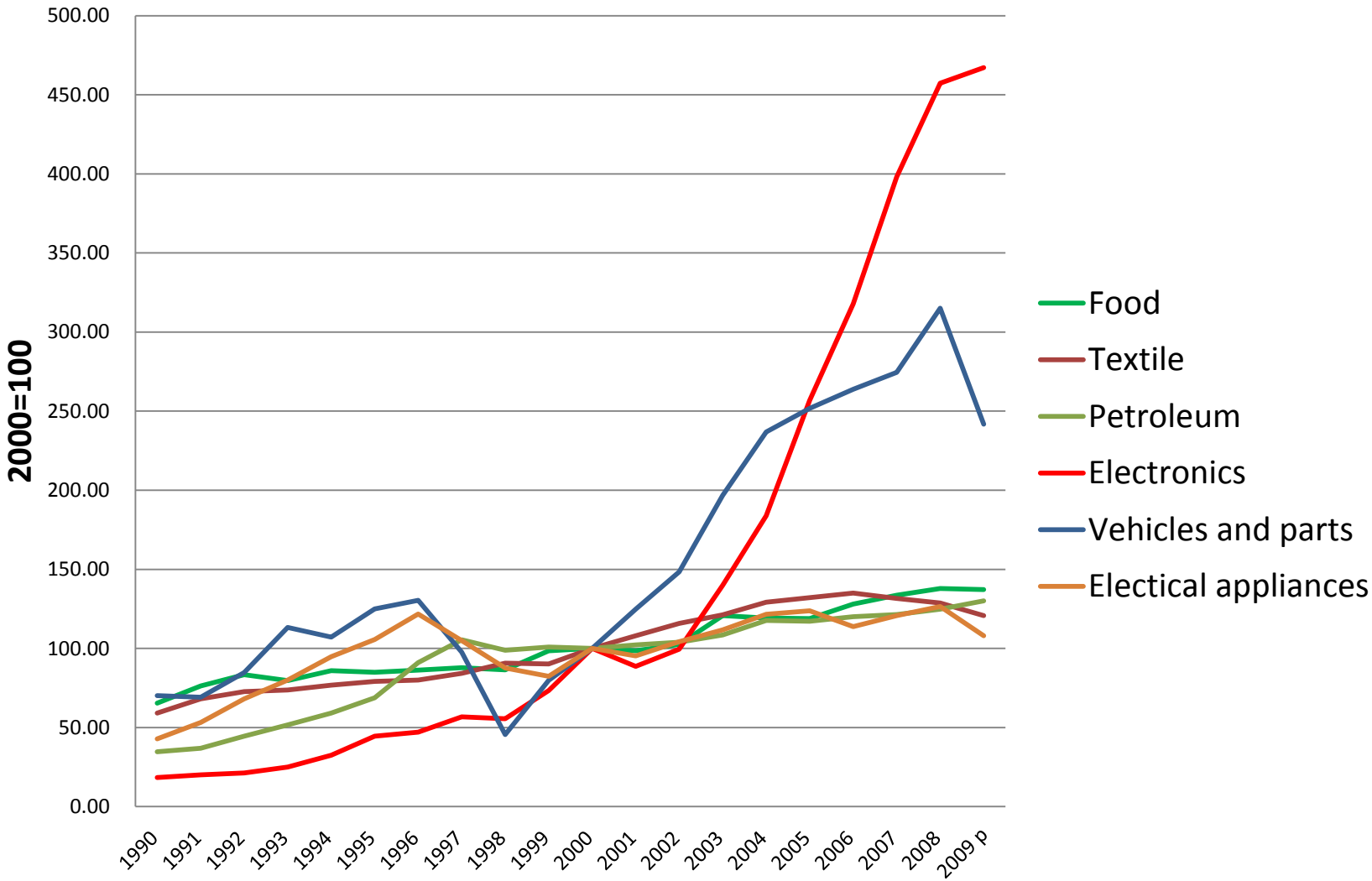
Manufacturing production and imports



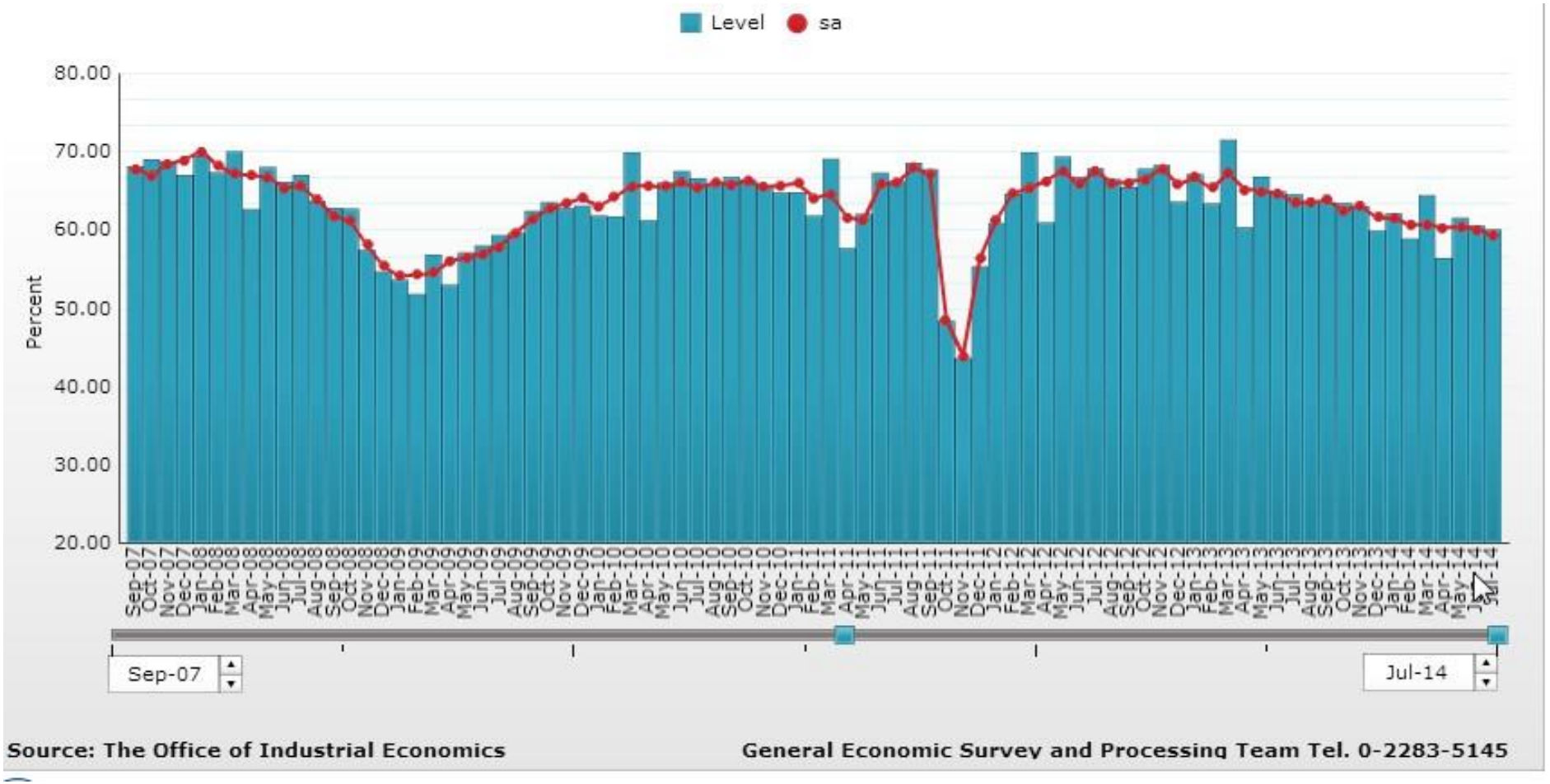
Weight in MPI



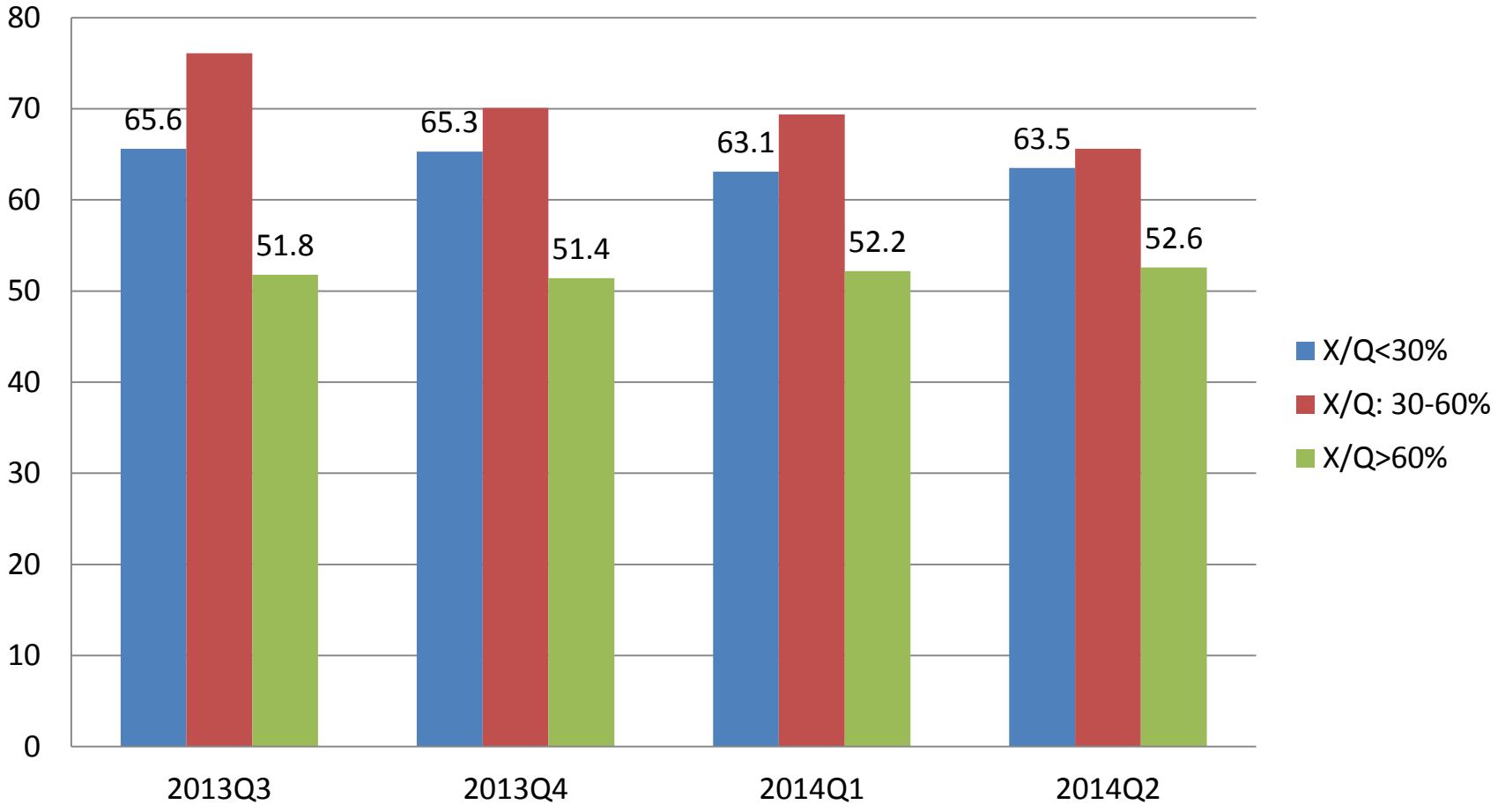
Manufacturing production index



Capacity Utilization: 2007-2014



Capacity utilization by type of market orientation



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 (WEF)
Global Competitiveness 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.

How the index was constructed

- 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

WEF Report

- "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.

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,

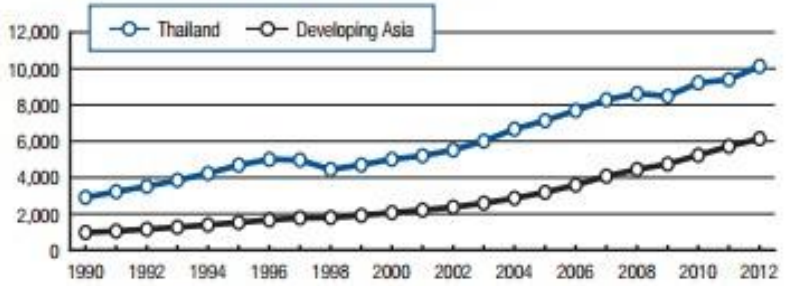
innovative capacity

Thailand

Key indicators, 2012

Population (millions)	69.5
GDP (US$ billions)	365.6
GDP per capita (US$)	5,678
GDP (PPP) as share (%) of world total	0.78

GDP (PPP) per capita (int'l $), 1990–2012



Global Competitiveness Index

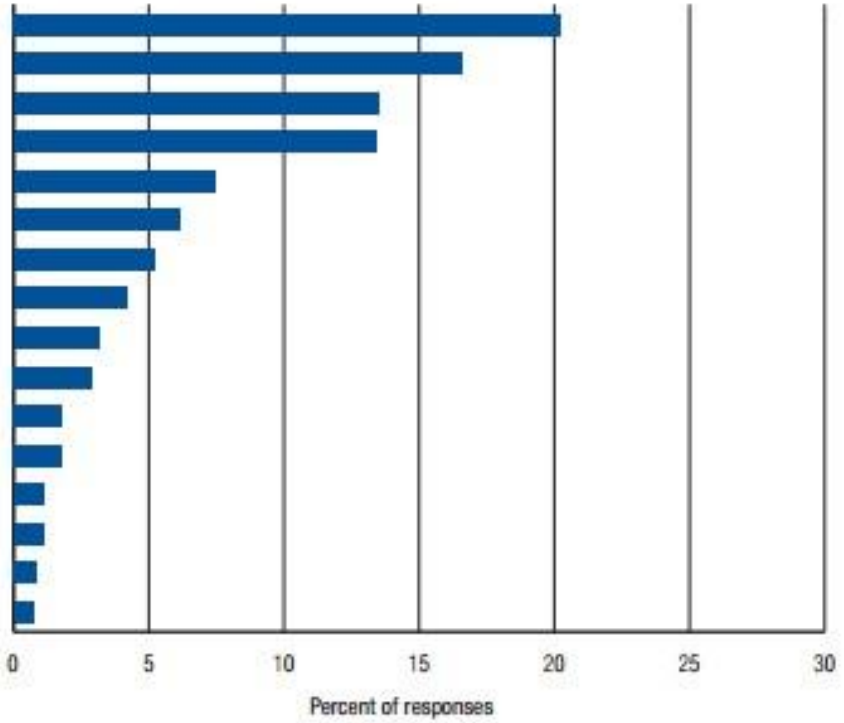
	Rank (out of 148)	Score (1–7)
GCI 2013–2014	**37**	**4.5**
GCI 2012–2013 (out of 144)	38	4.5
GCI 2011–2012 (out of 142)	39	4.5
Basic requirements (40.0%)	**49**	**4.9**
Institutions	78	3.8
Infrastructure	47	4.5
Macroeconomic environment	31	5.6
Health and primary education	81	5.5
Efficiency enhancers (50.0%)	**40**	**4.4**
Higher education and training	66	4.3
Goods market efficiency	34	4.7
Labor market efficiency	62	4.3
Financial market development	32	4.6
Technological readiness	78	3.6
Market size	22	5.1
Innovation and sophistication factors (10.0%)	**52**	**3.8**
Business sophistication	40	4.4
Innovation	66	3.2

Stage of development

Thailand's maior problems

The most problematic factors for doing business

Corruption	20.2
Government instability/coups	16.5
Policy instability	13.5
Inefficient government bureaucracy	13.4
Insufficient capacity to innovate	7.5
Inadequately educated workforce	6.1
Inadequate supply of infrastructure	5.2
Access to financing	4.2
Poor work ethic in national labor force	3.1
Tax regulations	2.9
Restrictive labor regulations	1.8
Tax rates	1.8
Crime and theft	1.1
Foreign currency regulations	1.1
Inflation	0.9
Poor public health	0.7



Note: From the list of factors above, respondents were asked to select the five most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their rankings.

Thailand

The Global Competitiveness Index in detail

	INDICATOR	VALUE	RANK/148
	1st pillar: Institutions		
1.01	Property rights	4.1	78
1.02	Intellectual property protection	3.1	102
1.03	Diversion of public funds	2.7	101
1.04	Public trust in politicians	2.0	127
1.05	Irregular payments and bribes	3.8	77
1.06	Judicial independence	3.8	67
1.07	Favoritism in decisions of government officials	2.8	93
1.08	Wastefulness of government spending	2.7	107
1.09	Burden of government regulation	3.3	90
1.10	Efficiency of legal framework in settling disputes	3.9	60
1.11	Efficiency of legal framework in challenging regs.	3.5	62
1.12	Transparency of government policymaking	3.9	93
1.13	Business costs of terrorism	4.5	120
1.14	Business costs of crime and violence	4.6	73
1.15	Organized crime	4.8	82
1.16	Reliability of police services	3.5	109
1.17	Ethical behavior of firms	4.0	68
1.18	Strength of auditing and reporting standards	5.1	42
1.19	Efficacy of corporate boards	4.6	62
1.20	Protection of minority shareholders' interests	4.7	34
1.21	Strength of investor protection, 0–10 (best)*	7.7	13
	2nd pillar: Infrastructure		
2.01	Quality of overall infrastructure	4.5	61
2.02	Quality of roads	4.9	42
2.03	Quality of railroad infrastructure	2.6	72
2.04	Quality of port infrastructure	4.5	56
2.05	Quality of air transport infrastructure	5.5	34
2.06	Available airline seat km/week, millions*	2,464.2	14
2.07	Quality of electricity supply	5.2	58
2.08	Mobile telephone subscriptions/100 pop.*	120.3	49
2.09	Fixed telephone lines/100 pop.*	9.1	96
	3rd pillar: Macroeconomic environment		

	INDICATOR	VALUE	RANK/148
	6th pillar: Goods market efficiency *(cont'd.)*		
6.06	No. procedures to start a business*	4	20
6.07	No. days to start a business*	29	106
6.08	Agricultural policy costs	3.2	121
6.09	Prevalence of trade barriers	4.5	50
6.10	Trade tariffs, % duty*	6.6	83
6.11	Prevalence of foreign ownership	4.7	69
6.12	Business impact of rules on FDI	5.2	21
6.13	Burden of customs procedures	3.9	80
6.14	Imports as a percentage of GDP*	82.1	22
6.15	Degree of customer orientation	5.4	15
6.16	Buyer sophistication	4.2	25
	7th pillar: Labor market efficiency		
7.01	Cooperation in labor-employer relations	4.8	37
7.02	Flexibility of wage determination	4.5	111
7.03	Hiring and firing practices	4.4	31
7.04	Redundancy costs, weeks of salary*	36.0	135
7.05	Effect of taxation on incentives to work	4.0	44
7.06	Pay and productivity	4.4	31
7.07	Reliance on professional management	4.4	57
7.08	Country capacity to retain talent	4.3	27
7.09	Country capacity to attract talent	4.1	32
7.10	Women in labor force, ratio to men*	0.82	65
	8th pillar: Financial market development		
8.01	Availability of financial services	5.4	26
8.02	Affordability of financial services	5.0	32
8.03	Financing through local equity market	4.7	14
8.04	Ease of access to loans	3.6	23
8.05	Venture capital availability	3.1	41
8.06	Soundness of banks	5.7	39
8.07	Regulation of securities exchanges	5.0	31
8.08	Legal rights index, 0–10 (best)*	5	89

3rd pillar: Macroeconomic environment

3.01	Government budget balance, % GDP*	-1.7	54
3.02	Gross national savings, % GDP*	30.6	24
3.03	Inflation, annual % change*	3.0	52
3.04	General government debt, % GDP*	44.3	78
3.05	Country credit rating, 0–100 (best)*	61.2	44

4th pillar: Health and primary education

4.01	Business impact of malaria	5.8	89
4.02	Malaria cases/100,000 pop.*	202.6	106
4.03	Business impact of tuberculosis	5.1	88
4.04	Tuberculosis cases/100,000 pop.*	124.0	102
4.05	Business impact of HIV/AIDS	4.8	95
4.06	HIV prevalence, % adult pop.*	1.20	116
4.07	Infant mortality, deaths/1,000 live births*	10.6	60
4.08	Life expectancy, years*	74.1	65
4.09	Quality of primary education	3.6	86
4.10	Primary education enrollment, net %*	89.7	101

5th pillar: Higher education and training

5.01	Secondary education enrollment, gross %*	78.2	94
5.02	Tertiary education enrollment, gross %*	46.4	55
5.03	Quality of the educational system	3.6	78
5.04	Quality of math and science education	4.0	80
5.05	Quality of management schools	4.5	53
5.06	Internet access in schools	4.4	65
5.07	Availability of research and training services	4.3	64
5.08	Extent of staff training	4.2	50

6th pillar: Goods market efficiency

6.01	Intensity of local competition	5.3	41
6.02	Extent of market dominance	3.7	76
6.03	Effectiveness of anti-monopoly policy	4.1	69
6.04	Effect of taxation on incentives to invest	3.9	57
6.05	Total tax rate, % profits*	37.6	73

6.06	Legal rights index, 0–10 (best)	[illegible]	[illegible]

9th pillar: Technological readiness

9.01	Availability of latest technologies	4.9	75
9.02	Firm-level technology absorption	5.0	50
9.03	FDI and technology transfer	5.0	36
9.04	Individuals using Internet, %*	26.5	97
9.05	Fixed broadband Internet subscriptions/100 pop.*	6.2	75
9.06	Int'l Internet bandwidth, kb/s per user*	25.0	62
9.07	Mobile broadband subscriptions/100 pop.*	0.1	131

10th pillar: Market size

10.01	Domestic market size index, 1–7 (best)*	4.8	22
10.02	Foreign market size index, 1–7 (best)*	5.9	16
10.03	GDP (PPP$ billions)*	651.9	24
10.04	Exports as a percentage of GDP*	76.1	21

11th pillar: Business sophistication

11.01	Local supplier quantity	5.2	23
11.02	Local supplier quality	4.9	42
11.03	State of cluster development	4.3	33
11.04	Nature of competitive advantage	3.9	43
11.05	Value chain breadth	4.4	30
11.06	Control of international distribution	4.3	43
11.07	Production process sophistication	4.2	47
11.08	Extent of marketing	4.5	44
11.09	Willingness to delegate authority	4.0	45

12th pillar: Innovation

12.01	Capacity for innovation	3.4	87
12.02	Quality of scientific research institutions	3.8	60
12.03	Company spending on R&D	3.2	60
12.04	University-industry collaboration in R&D	3.9	51
12.05	Gov't procurement of advanced tech products	3.1	105
12.06	Availability of scientists and engineers	4.4	56
12.07	PCT patents, applications/million pop.*	1.0	71

Notes: Values are on a 1-to-7 scale unless otherwise annotated with an asterisk (*). For further details and explanation, please refer to the section "How to Read the Country/Economy Profiles" on page 97.

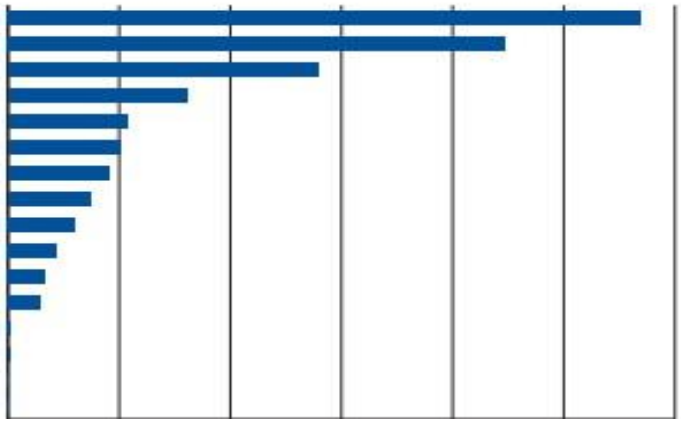
Which country is this?

Global Competitiveness Index

	Rank (out of 148)	Score (1–7)
GCI 2013–2014	**2**	**5.6**
GCI 2012–2013 (out of 144)	2	5.7
GCI 2011–2012 (out of 142)	2	5.6
Basic requirements (20.0%)	**1**	**6.3**
Institutions	3	6.0
Infrastructure	2	6.4
Macroeconomic environment	18	6.0
Health and primary education	2	6.7
Efficiency enhancers (50.0%)	**2**	**5.6**
Higher education and training	2	5.9
Goods market efficiency	1	5.6
Labor market efficiency	1	5.8
Financial market development	2	5.8
Technological readiness	7	6.0
Market size	34	4.7
Innovation and sophistication factors (30.0%)	**13**	**5.1**
Business sophistication	17	5.1
Innovation	9	5.2

The most problematic factors for doing business

Restrictive labor regulations	28.5
Inflation	22.4
Insufficient capacity to innovate	13.9
Inadequately educated workforce	8.1
Tax rates	5.4
Inadequate supply of infrastructure	5.1
Poor work ethic in national labor force	4.5
Access to financing	3.7
Tax regulations	3.0
Inefficient government bureaucracy	2.2
Foreign currency regulations	1.7
Policy instability	1.5
Government instability/coups	0.1
Crime and theft	0.1
Corruption	0.0
Poor public health	0.0



	GCI 2012-2013		GCI 2011-2012
Country/Economy	Rank	Score	Rank
Switzerland	1	5.72	1
Singapore	2	5.67	2
Finland	3	5.55	4
Sweden	4	5.53	3
Netherlands	5	5.50	7
Germany	6	5.48	6
United States	7	5.47	5
United Kingdom	8	5.45	10
Hong Kong SAR	9	5.41	11
Japan	10	5.40	9

	GCI 2012-2013		GCI 2011-2012
Country/ Economy	Rank	Score	Rank
Denmark	12	5.29	8
Korea, Rep.	19	5.12	24
Australia	20	5.12	20
Malaysia	25	5.06	21
China	29	4.83	26
Spain	36	4.60	36
Kuwait	37	4.56	34
Thailand	38	4.52	39
Czech Republic	39	4.51	38
Panama	40	4.49	49
Poland	41	4.46	41

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 2013?

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?***

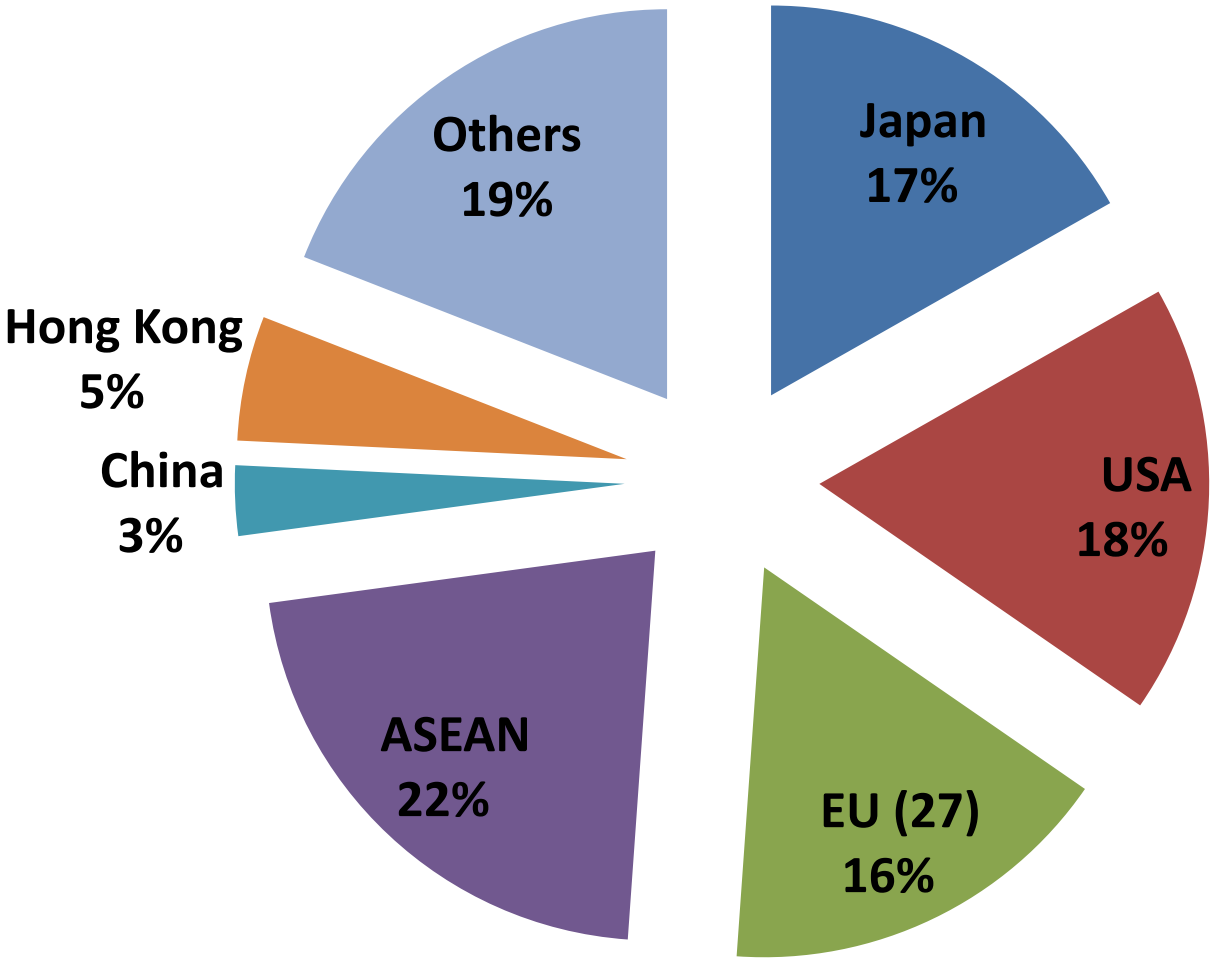
Net user of foreign exchanges

- **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.**

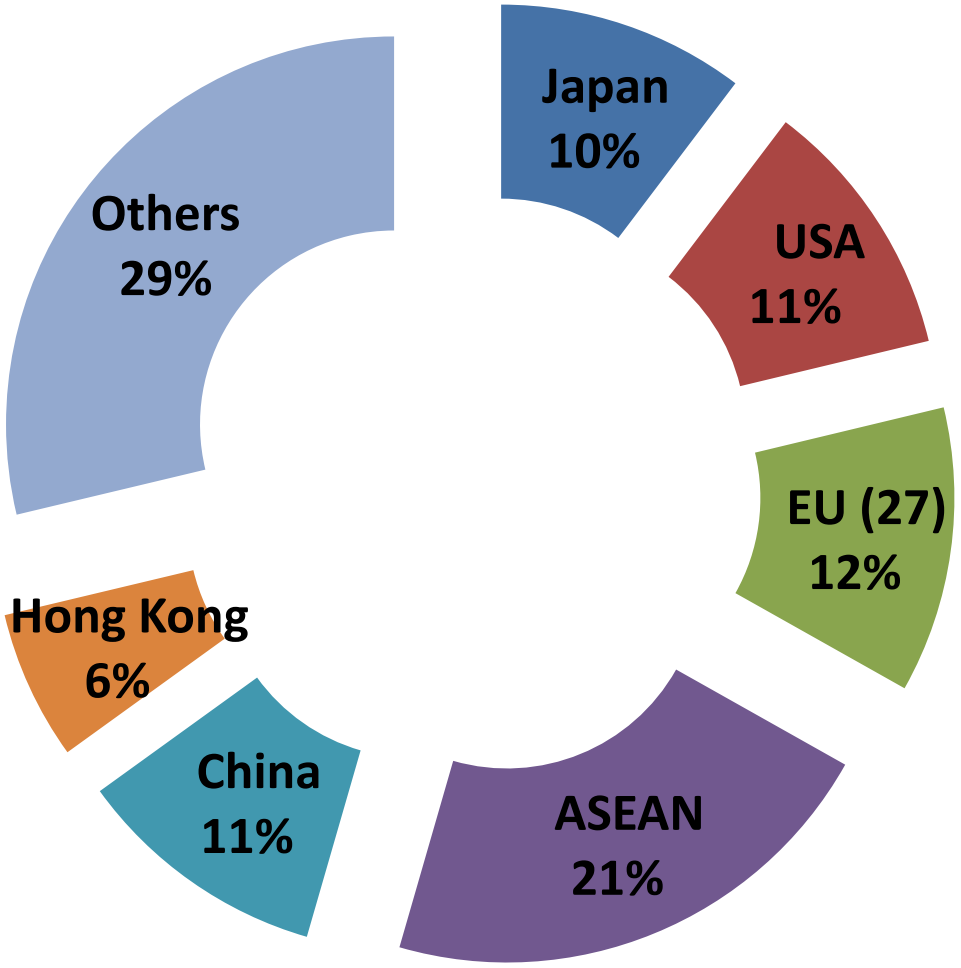
4. Diversification of Thai exports

- **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.**

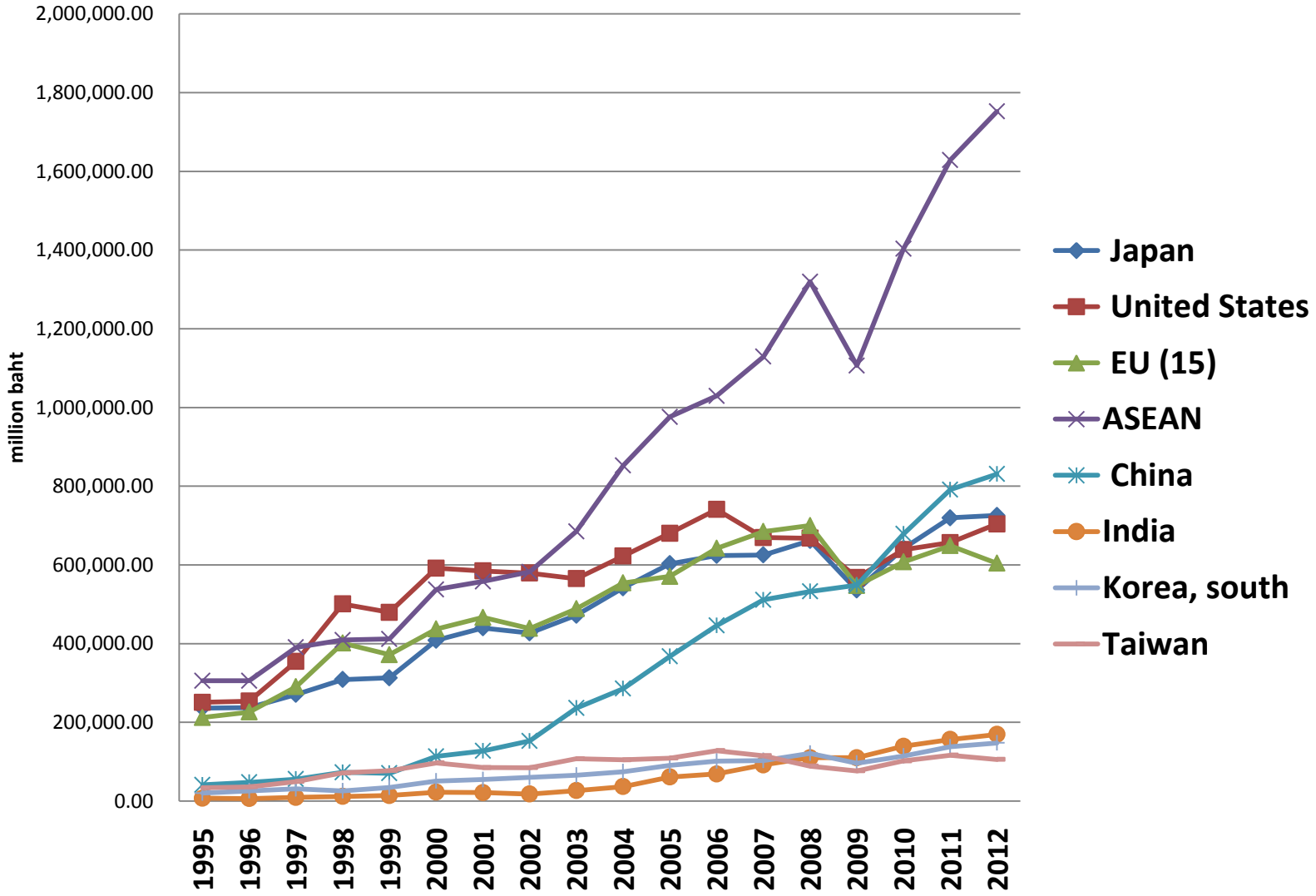
Exports market diversification: 1995



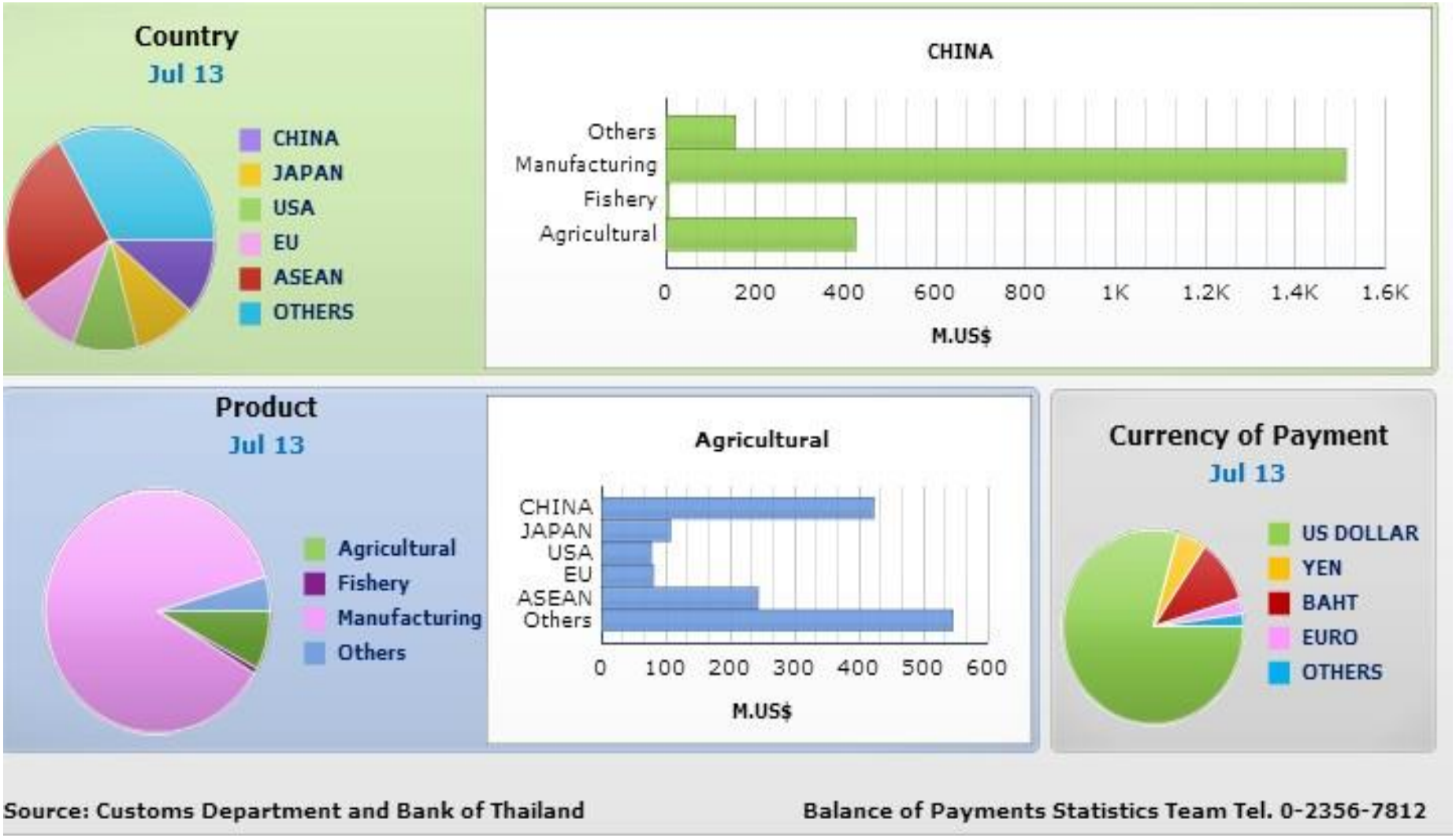
Export market diversification in 2009

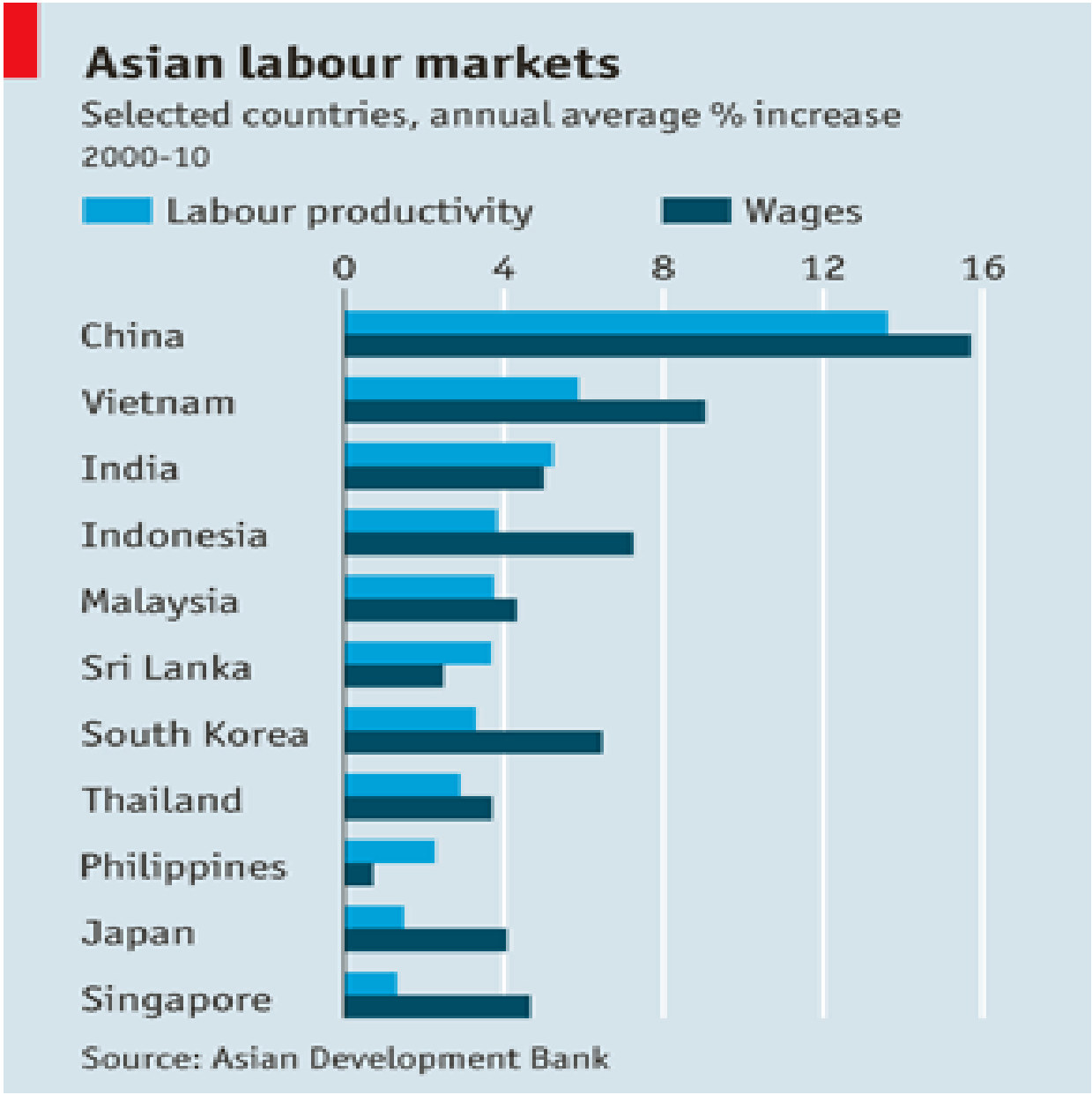


Thailand's Changing Export Destinations



Geographical and product diversification in 2013




Asian labour markets
Selected countries, annual average % increase
2000-10
Labour productivity
Wages
0
4
8
12
16
China
Vietnam
India
Indonesia
Malaysia
Sri Lanka
South Korea
Thailand
Philippines
Japan
Singapore
Source: Asian Development Bank

Questions

- ***What was the geographical diversification of Thai exports in 2013?***
- ***How was the manufacturing sector affected by the global recession in 2009?***
- ***Did free trade agreements prevent Asian countries from global recession?***