# AN OVERVIEW OF THE STRUCTURE OF THAI ECONOMY

*The economy-wide analysis of key characteristic and propagation mechanism*

EE 460: Thai Economy
Semester 1 / 2018
Faculty of Economics, Thammasat University

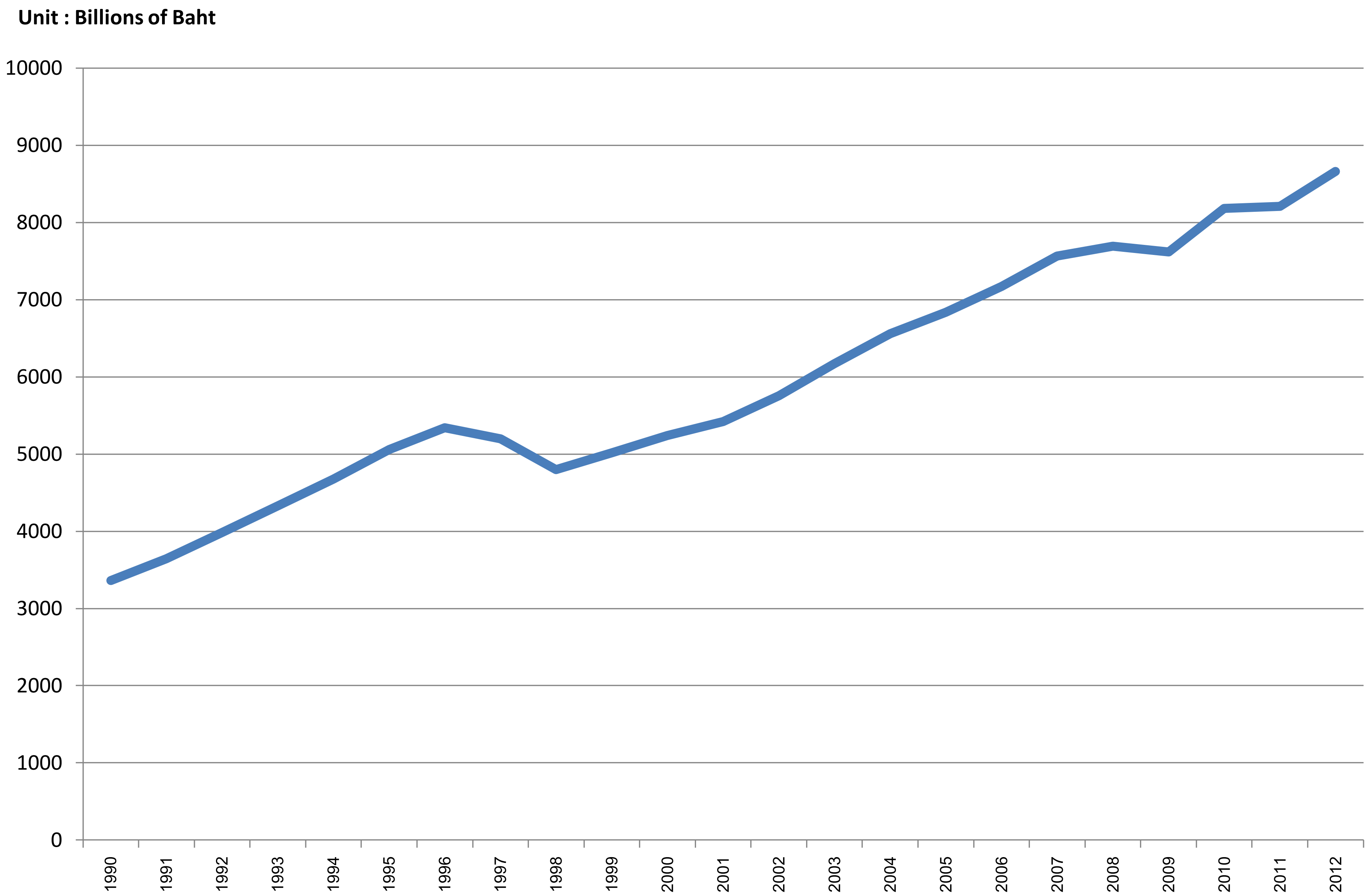
# Overview

- The World Bank has upgraded Thailand's income categorization from a lower-middle income economy to an upper-middle income economy in 2011. Despite facing a number of political challenges, Thailand has made great progress in social and economic issues. As such, Thailand has been one of the great development success stories, with sustained strong growth and impressive poverty reduction.

- In the decade that ended in 1995, the Thai economy was one of the world's fastest growing at an average rate of 8-9% per year. After recovering from the "Asian Crisis" of 1997-1998, the Thai economy took off again. From 2002-2007, Thailand's growth averaged at around 5%.

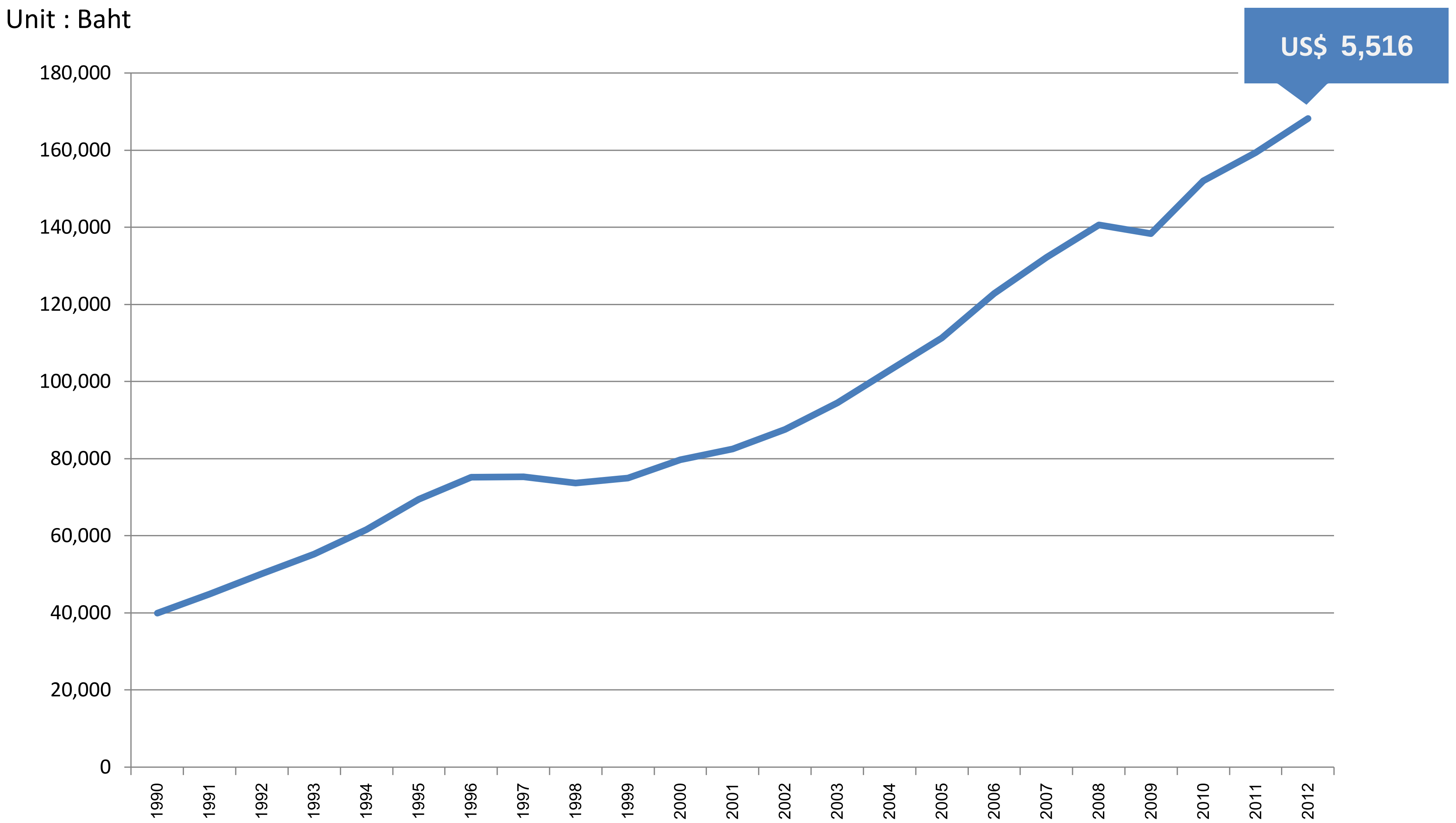
**Source:** www.worldbank.org/en/country/thailand/overviewa

# Thailand’s GDP



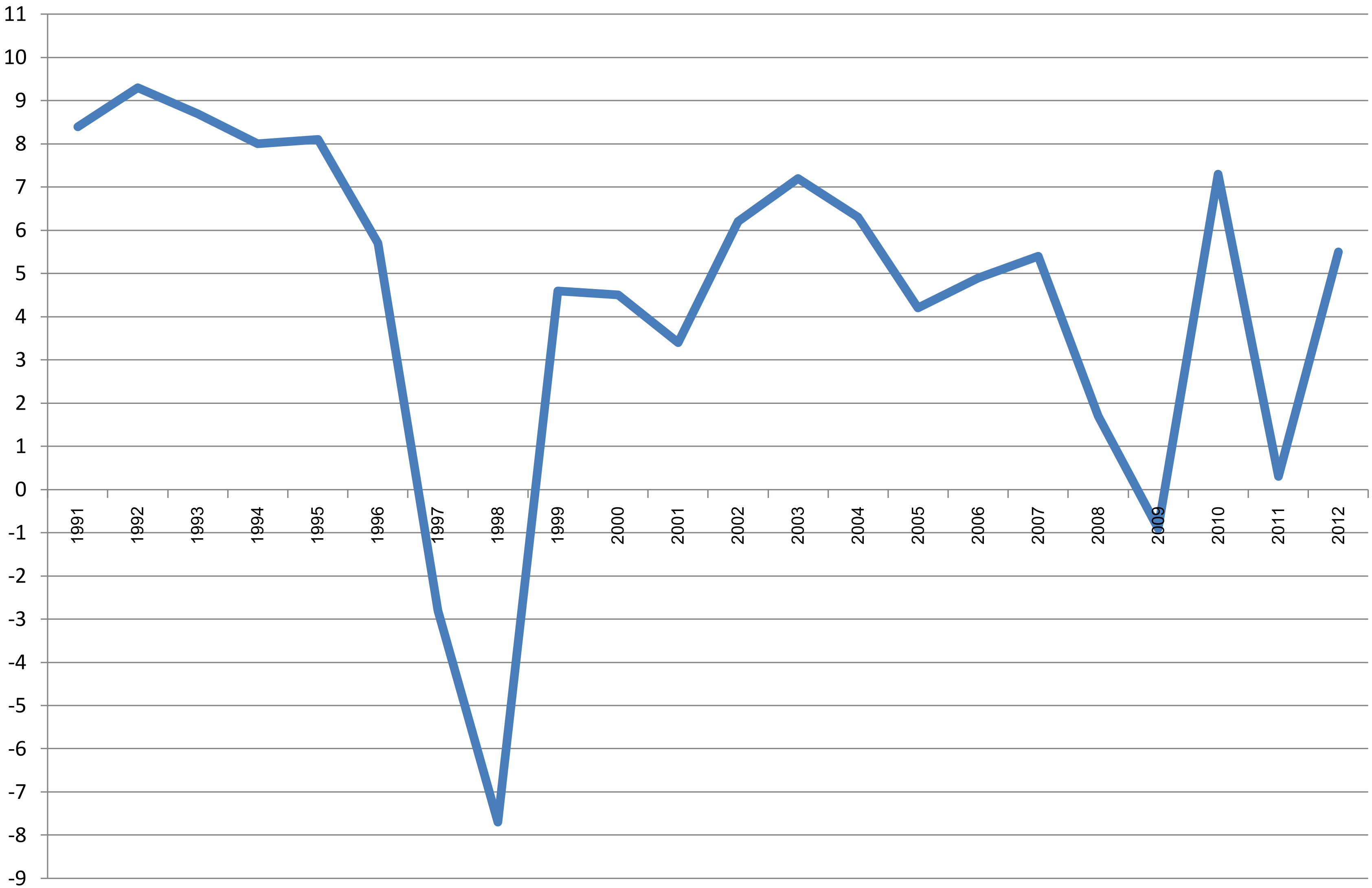

Source: NESDB

# Income per Capita



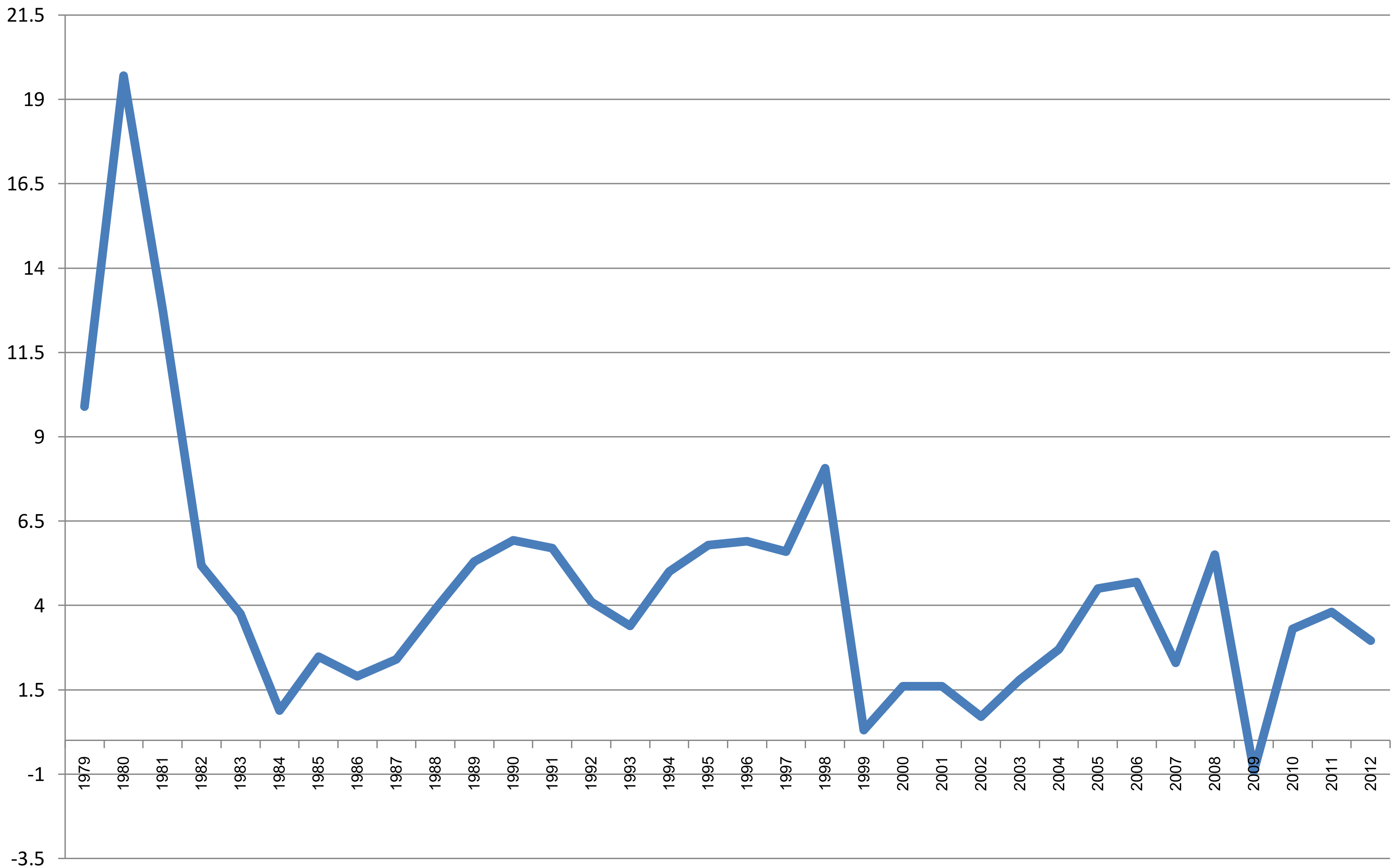

Source: NESDB

# Thailand's GDP Growth



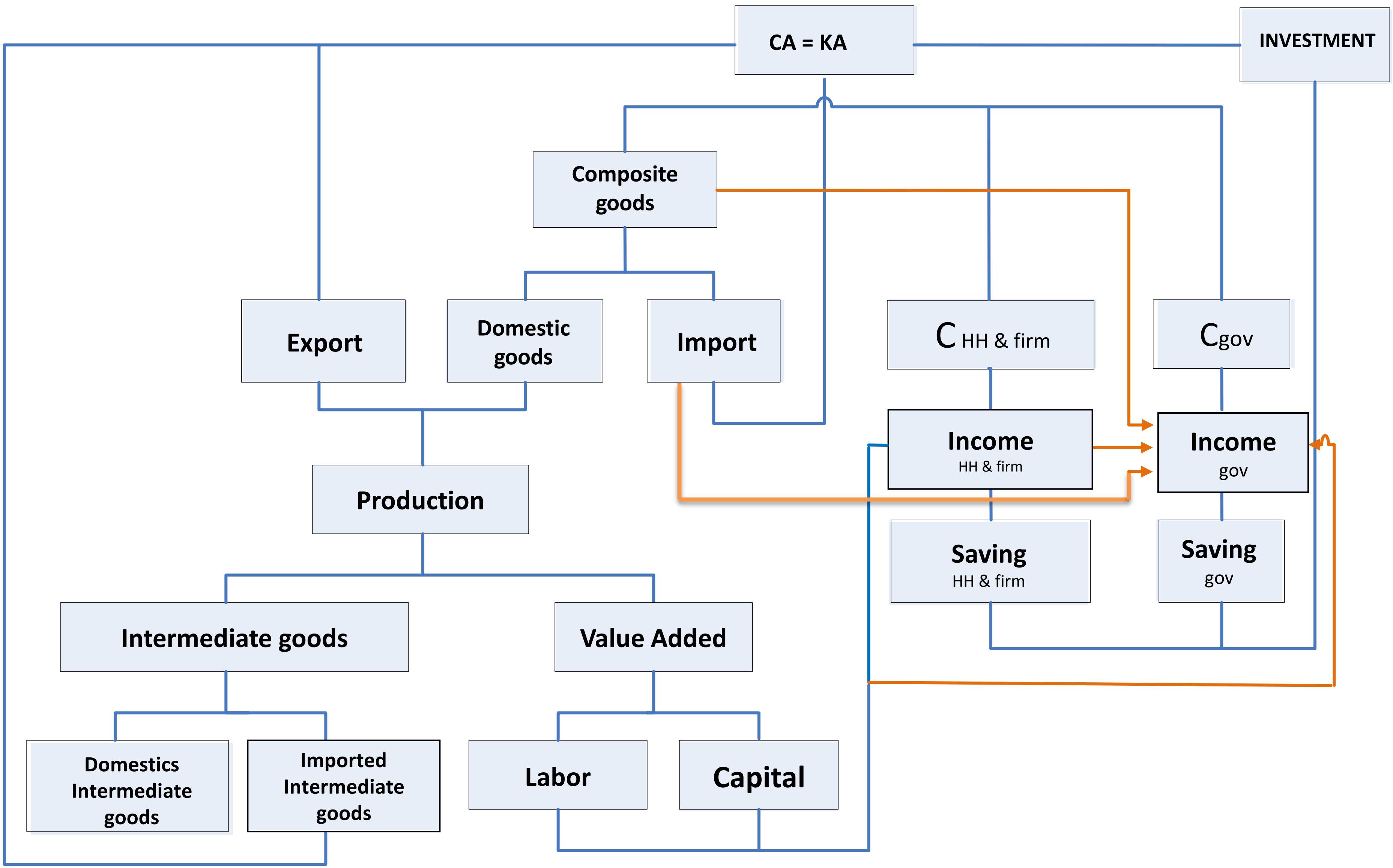

**Source: NESDB**

# Thailand : Inflation

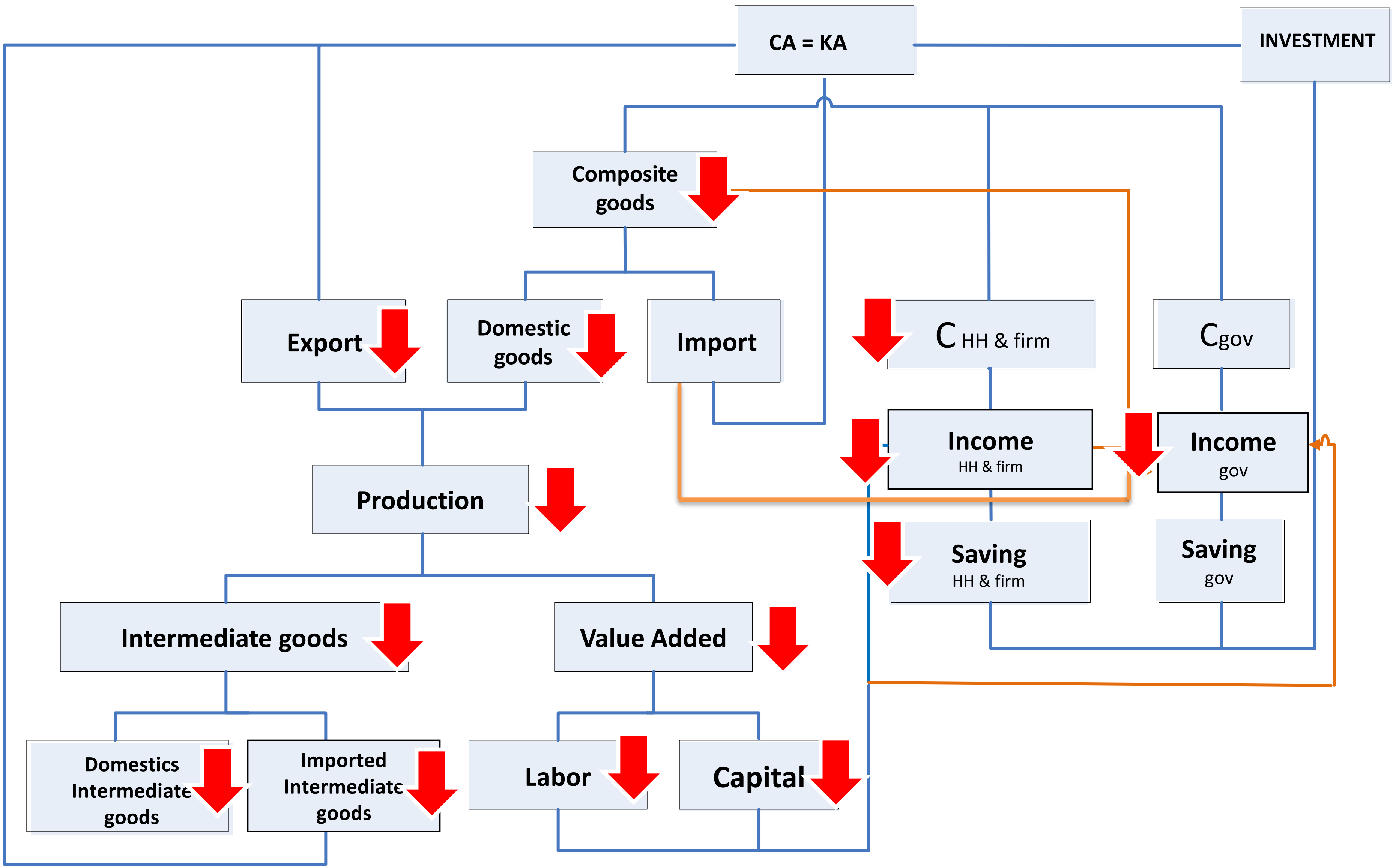



**Source: Bank of Thailand**

# The Structure of Thai Economy




Source : Puttanapong et al. (2017)

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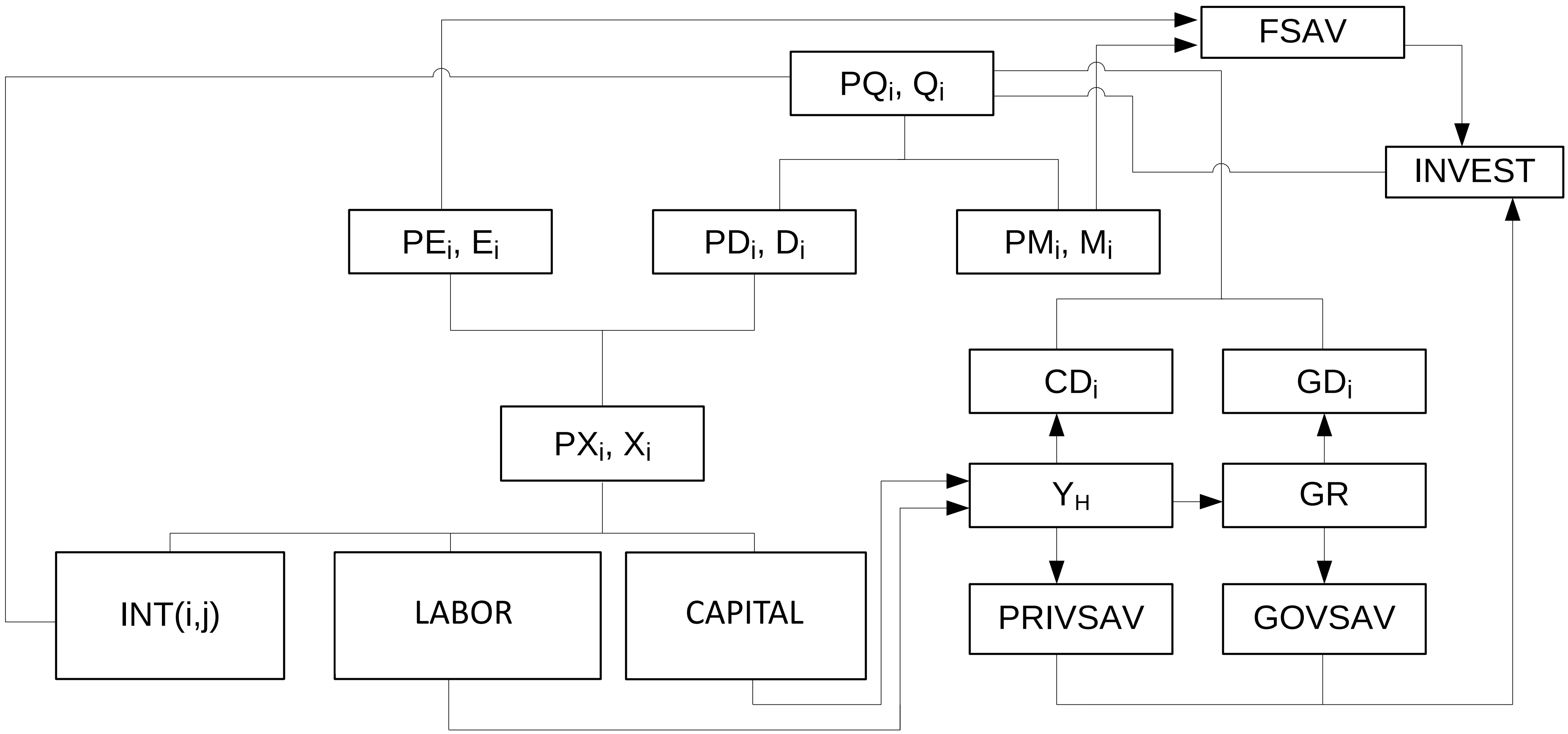
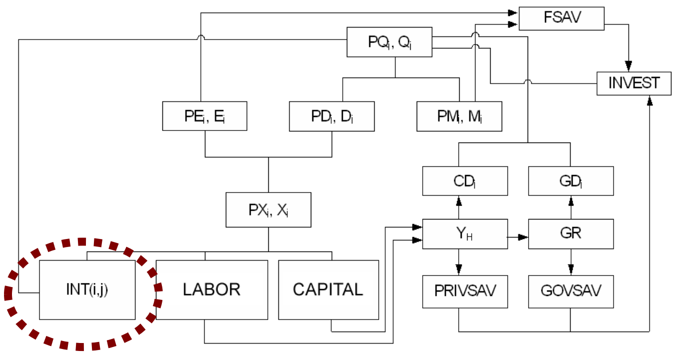


# The Structure of Thai Economy - Intermediate Input




## (1) Intermediate inputs

**Data source:** NESDB (สศช)

**Frequency of data:** Every 5 years

### Key Empirical Evidences

• Structure of production's inputs has been gradually evolved. Manufacturing has the highest value-added, especially in capita return.
• Trade and Service yield the highest return on labor.
• High-tech production increasingly depends on imported intermediates. This sector also the country's main exporter.

# The Structure of Thai Economy - Intermediate Input

## I/O Table & Social Accounting Matrix of Thailand (2004)

Unit: Billion Baht

| | Agri | Manf | Cnstr | Util | Trnsprt | Trade | FIRE | PubAdm | Service | Labor | Capital | VAT | Tariff | ExcsTax | IncmTax | HH | Biz | Gov | Invst | ROW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agri | 22.69 | 108.91 | - | - | - | - | - | - | 19.89 | | | | | | | 74.20 | - | 0.35 | 0.32 | 15.29 |
| Manf | 44.86 | 1,076.75 | 33.37 | 63.45 | 33.40 | 97.86 | 3.28 | - | 123.61 | | | | | | | 425.51 | - | 14.78 | 260.79 | 886.93 |
| Cnstr | 0.63 | 41.65 | 17.01 | 0.03 | 16.96 | 2.49 | 4.33 | - | 4.15 | | | | | | | 21.26 | - | 3.49 | - | 2.92 |
| Util | 0.05 | 54.92 | 0.30 | 2.73 | 2.22 | 1.57 | 0.27 | - | 2.87 | | | | | | | 0.45 | - | 0.37 | 90.60 | 4.96 |
| Trnsprt | 12.45 | 130.81 | 0.66 | 13.07 | 439.22 | 8.94 | 1.85 | - | 28.28 | | | | | | | 148.43 | - | 2.67 | 55.32 | 18.85 |
| Trade | 4.19 | 47.20 | 0.49 | 28.79 | 41.83 | 106.07 | 4.22 | - | 6.45 | | | | | | | 58.99 | - | 3.04 | 9.05 | 71.15 |
| FIRE | 3.58 | 37.64 | 0.24 | 0.21 | 11.76 | 7.71 | 6.72 | - | 2.21 | | | | | | | 61.43 | - | 0.26 | 3.84 | 5.31 |
| PubAdm | - | - | - | - | - | - | - | - | - | | | | | | | - | - | 57.78 | - | 1.01 |
| Service | 4.80 | 27.15 | 0.28 | 2.09 | 98.32 | 10.71 | 10.68 | - | 16.97 | | | | | | | 113.62 | - | 78.68 | - | 67.77 |
| Labor | 98.07 | 106.51 | 29.92 | 4.48 | 42.15 | 112.00 | 33.56 | 30.35 | 109.14 | | | | | | | | | | | |
| Capital | 31.33 | 419.34 | 18.77 | 43.09 | 163.76 | 9.66 | 67.62 | 26.83 | 85.98 | | | | | | | | | | | |
| VAT | - | 20.37 | 3.20 | 1.14 | 10.96 | 1.21 | 7.92 | - | 8.45 | | | | | | | - | - | | | |
| Tariff | 0.38 | 28.61 | 0.00 | - | - | - | - | - | - | | | | | | | - | - | | | |
| ExcsTax | - | 64.37 | - | - | - | 2.94 | - | - | 0.25 | | | | | | | - | - | | | |
| IncmTax | - | - | - | - | - | - | - | - | - | | | | | | | 37.90 | 24.19 | | | |
| HH | | | | | | | | | | 566.17 | 325.53 | | | | | - | 71.54 | | | |
| Biz | | | | | | | | | | - | 511.18 | | | | | - | - | | | (127.41) |
| Gov | | | | | | | | | | - | 29.66 | 53.24 | 28.99 | 67.56 | 62.09 | - | 22.82 | | | (8.78) |
| Invst | | | | | | | | | | | | | | | | 21.45 | 265.21 | 94.16 | | 39.09 |
| ROW | 18.61 | 900.35 | 10.70 | 2.22 | - | 20.31 | 0.46 | 1.61 | 22.82 | | | | | | | - | - | - | | - |

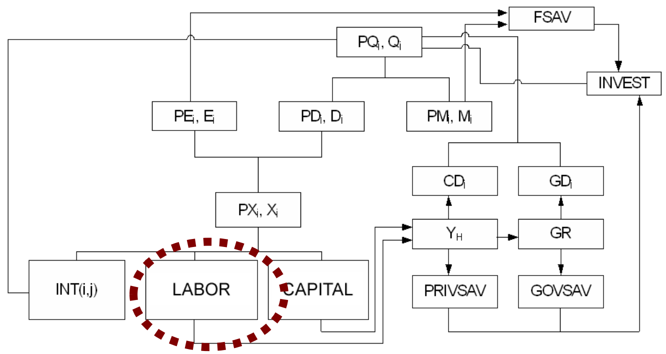
*agri*: Agriculture
*manf*: Manufacturing
*cnstr*: Construction
*util*: Electricity and Water Supply
*trnsprt*: Transportation and Communication
*trade*: Wholesale and Retail Trade
*fire*: Finance, Insurance and Real Estate
*pubadm*: Public Administration and Defense
*service*: Other Service Sectors

*labor*: Labor
*capital*: Capital
*VAT*: Value-Added Tax
*Tariff*: Tariff
*ExcsTAX*: Excise Tax
*IncmTAX*: Corporate and Personal Income Tax
*HH*: Household
*Biz*: Business Sector
*Gov*: Government

*Invst*: Investment and Saving
*ROW*: Rest of the World

Source: NESDB

# The Structure of Thai Economy - Labor




## (2) Labor

**Data source:** NSO (สำนักงานสถิติแห่งชาติ)

**Frequency of data:**

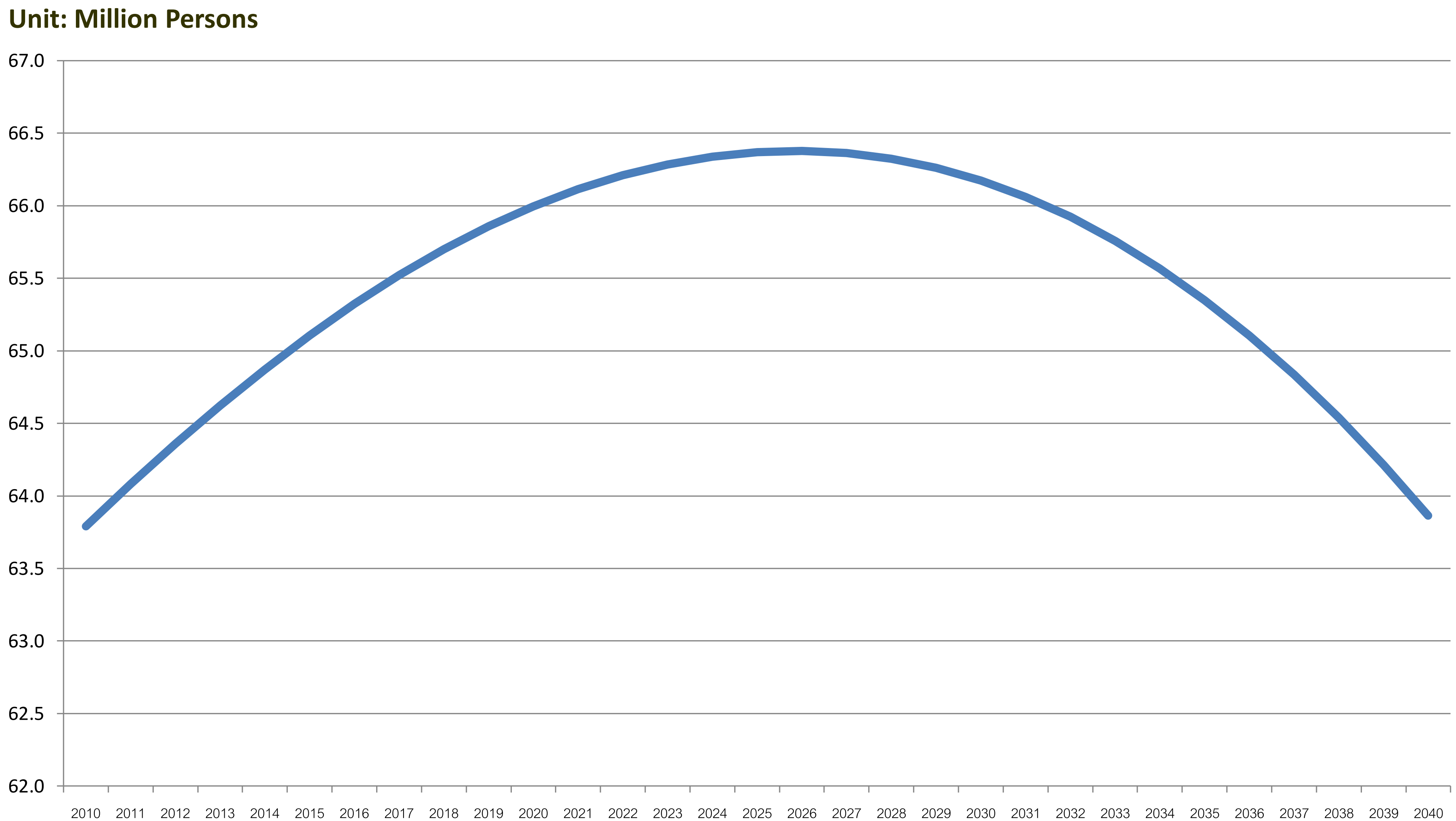
Socio-Economic Survey ➢ every 2 years

Labor Force Survey ➢ every 2 years

## Key Empirical Evidences

- The average population growth is only 1.2% during 2001 – 2006, implying that the population structure will reach the aging society within 25-30 years
- The Labor supply is limited, leading the declining unemployment and the influx of immigration
- The proportion of employees with high-level education (i.e. higher then senior high school level) has been rising, while the portion of those with less than primary education is declining. However, the proportion of employees with other education levels are constant. This implies that there has been a substitution between the above-high-school employees and the less-than-primary workers.
- Enforced by the law, the wage setting in formal sectors follows the adjustment of the minimum wage
- There is a seasonal migration between agri and non-agri sectors. Its annual pattern follows the crop season. Mathematically this migration behavior can modeled by using Harris-Todero's expected wage equilibrium.

# Thailand: Population

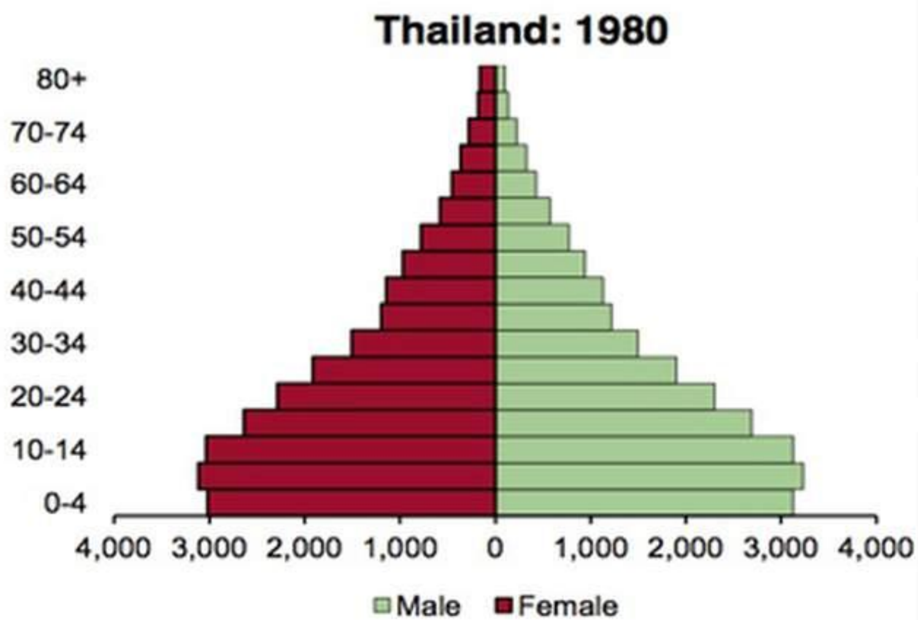



Source: NSO

# Population Pyramid

## Population pyramid of Thailand, 1980

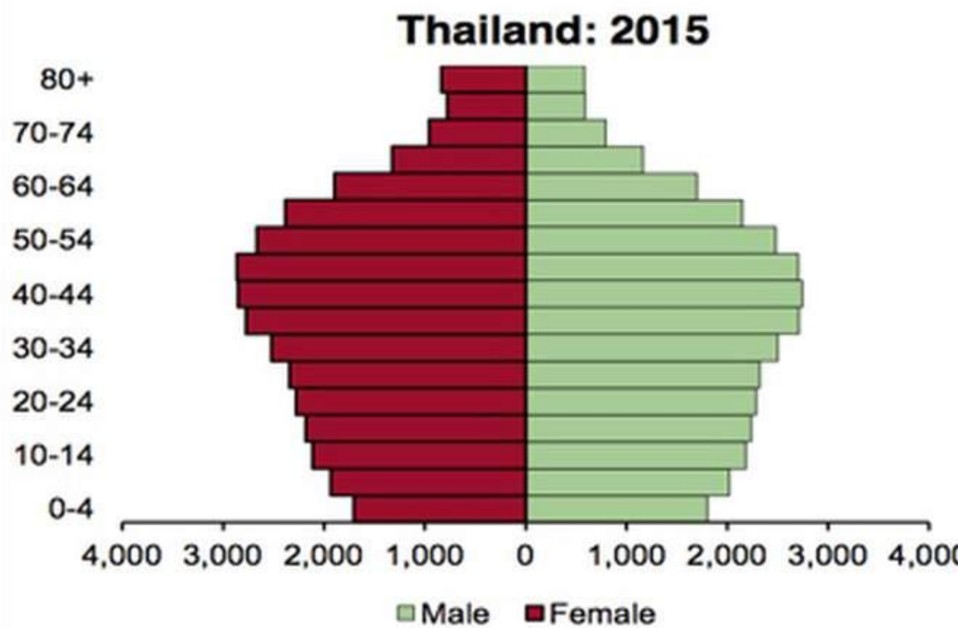
In thousands




Source: UN, Credit Suisse

## Population pyramid of Thailand, 2015

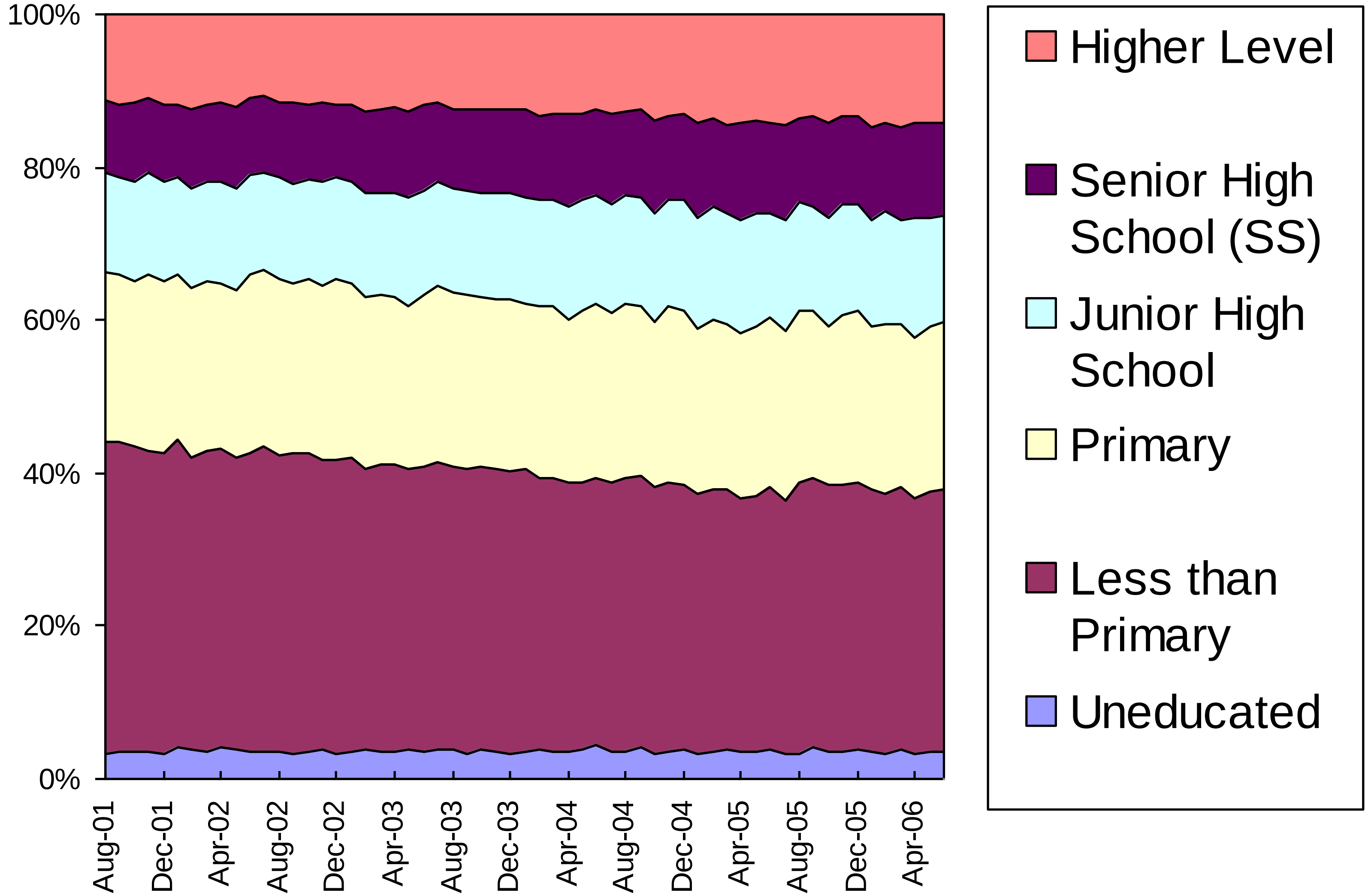
In thousands




Source: UN, Credit Suisse

# The Structure of Thai Economy - Labor

## **Qualitative View:** Education of labors



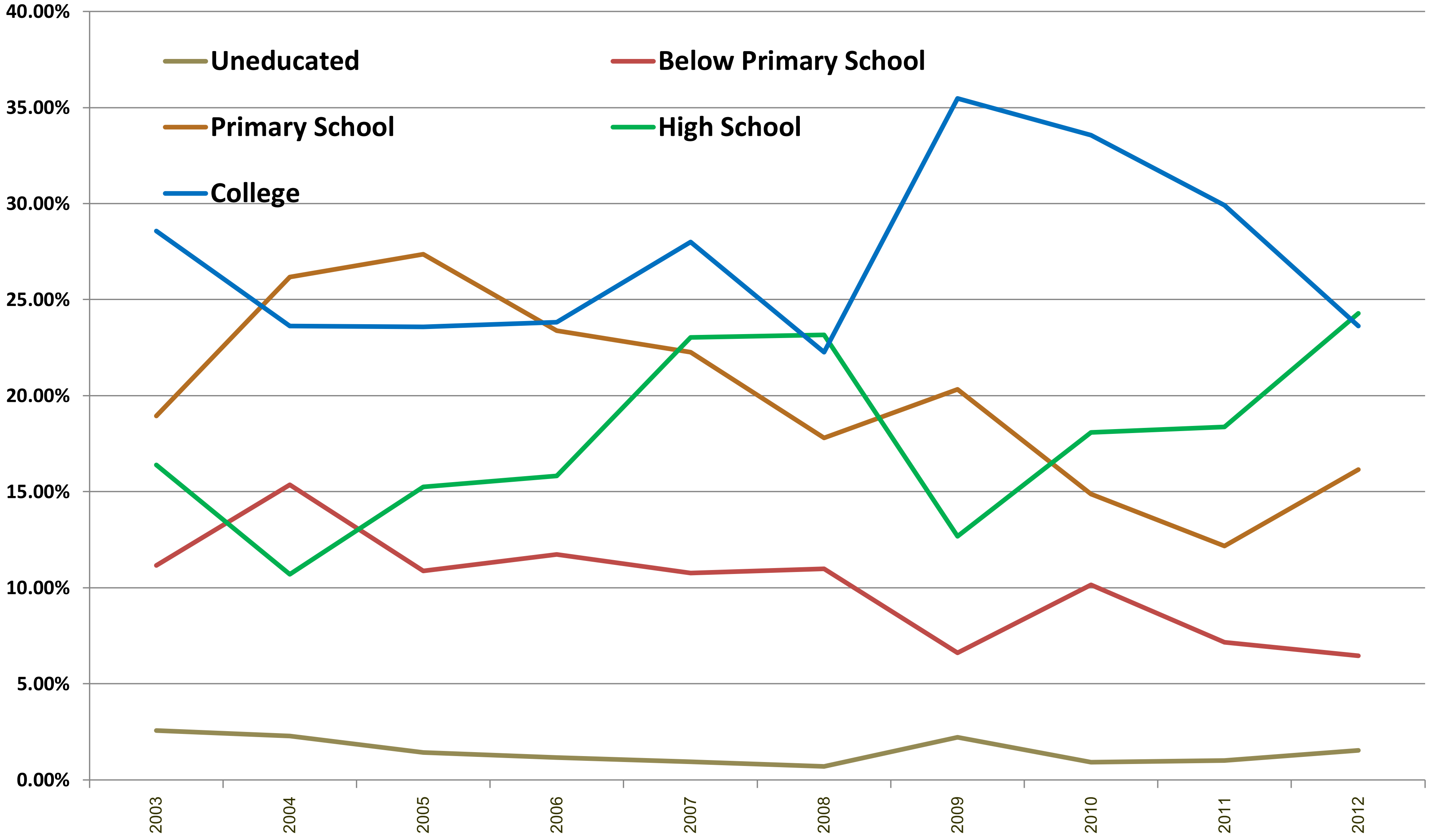
# Thai Population : Education

## Data as of December 2012

| % of total | Overall | Bangkok | Central | North | Northeast | South |
|---|---|---|---|---|---|---|
| **Uneducated** | 4.4 | 2.0 | 3.7 | 9.2 | 2.6 | 5.6 |
| **Below primary** | 28.1 | 12.2 | 24.0 | 33.4 | 38.6 | 24.4 |
| **Primary** | 19.3 | 13.1 | 16.9 | 18.1 | 24.0 | 22.6 |
| **High school** | 33.1 | 39.2 | 36.6 | 29.6 | 28.3 | 33.7 |
| **College** | 9.0 | 20.9 | 9.0 | 6.7 | 5.3 | 7.7 |
| **Graduate school** | 1.1 | 3.7 | 0.9 | 0.8 | 0.6 | 0.6 |
| **Undefined** | 5.0 | 8.9 | 8.9 | 2.2 | 0.6 | 5.4 |
| **Total** | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

**Source: NSO**

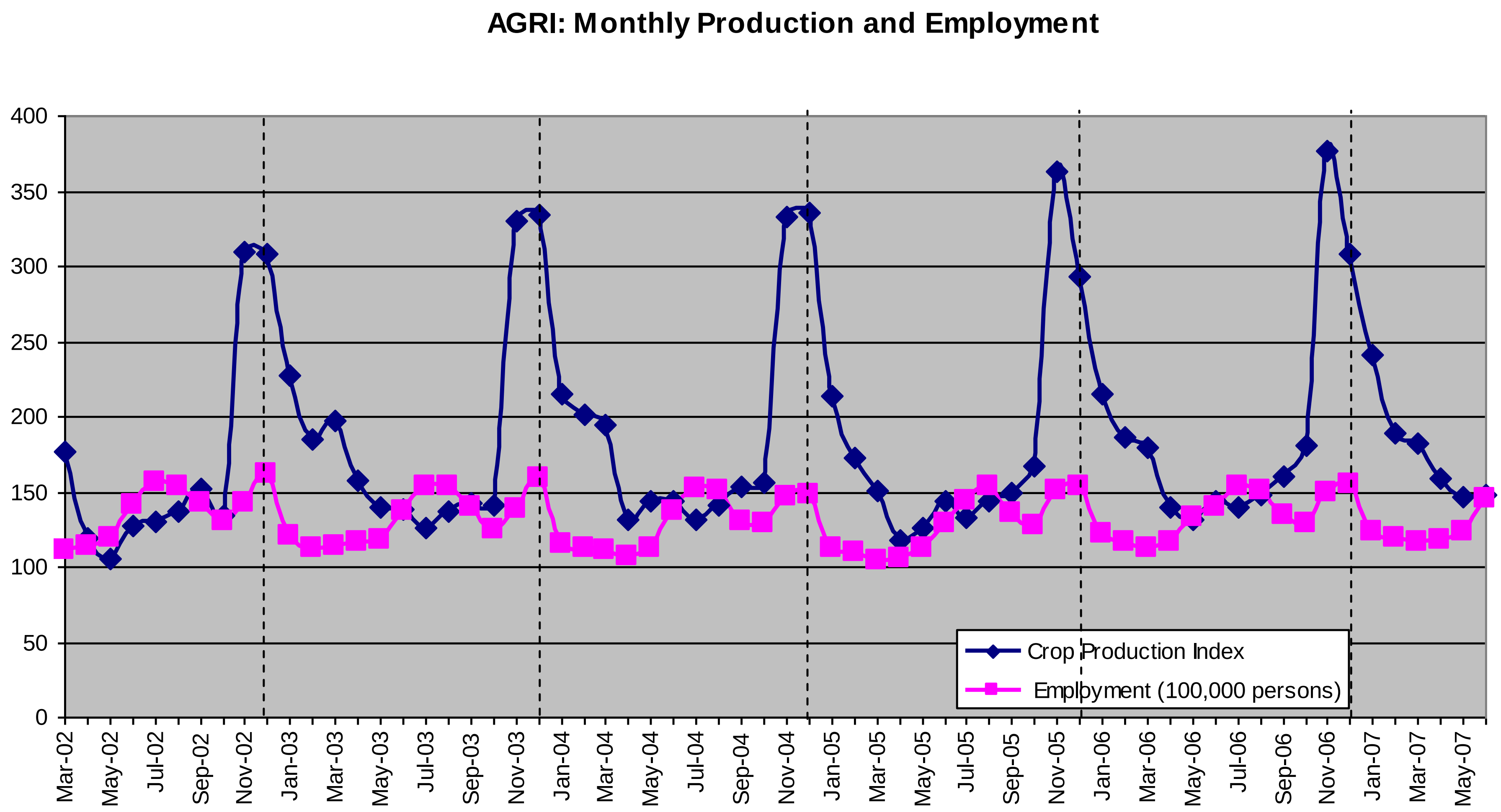
# Composition of Unemployment: Classified by Education




Source: NSO

# The Structure of Thai Economy - Labor

## The Unique Characteristic of Thai Labor Market: Seasonal Migration



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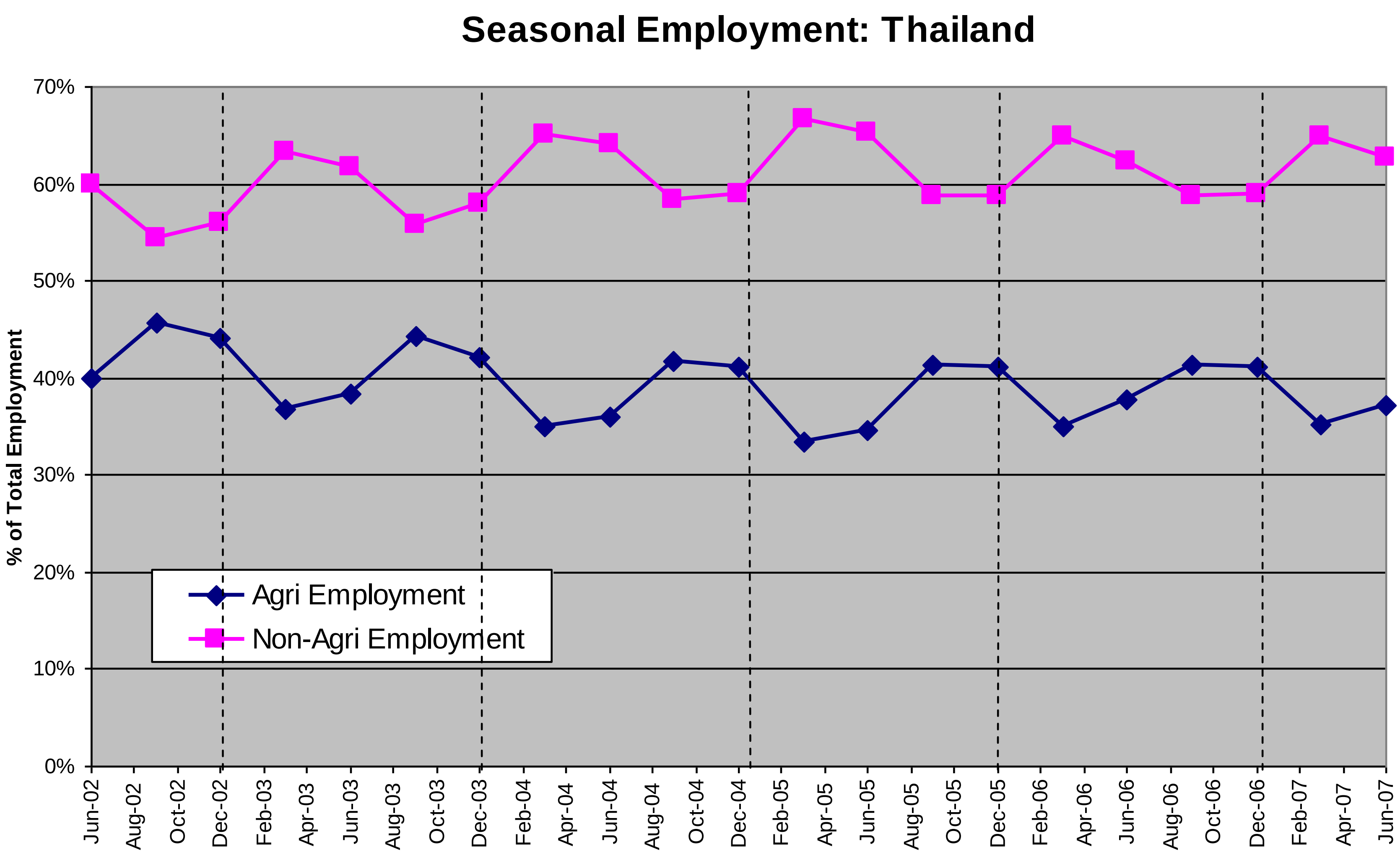
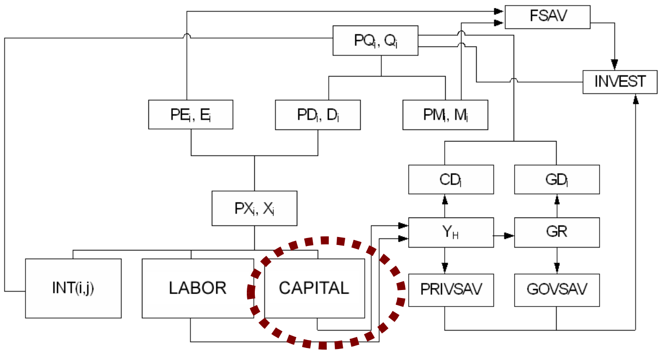


# The Structure of Thai Economy – Capital




## (3) Capital

**Data sources:**

Capital Stock - NESDB (สศช) ➢ Annual

Capacity Utilization – BoT (ธปท) ➢ Monthly

### Key Empirical Evidences

- The growth of net capital stock has been increasing since 2001. The annual expansion is at rate of 3.47%, which is 3.1 time higher than the population growth.
- Ownership of Dwelling, Transportation & Communication and Manufacturing posses the highest share of capital stock, respectively.
- Compared to the labor-intensive sectors, capital-intensive industries usually have a higher rate of capacity utilization, roughly above 55% (except steel). On the contrary, the labor-intensive industries have the rate as low as 20% – 30%.

# The Structure of Thai Economy – Capital

## **Capital Stock:** Net Value (Annual Growth)

| Sector | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average |
|---|---|---|---|---|---|---|---|
| Agriculture | 2.54% | 3.22% | 3.26% | 3.69% | 4.14% | 4.66% | *3.585%* |
| Mining and Quarrying | 0.63% | 1.47% | 2.83% | 4.65% | 4.85% | 5.39% | *3.302%* |
| Manufacturing | 1.24% | 2.03% | 2.79% | 4.03% | 4.05% | 5.16% | *3.217%* |
| Construction | 0.26% | 0.02% | 1.93% | 4.97% | 5.02% | 5.41% | *2.937%* |
| Electricity and Water Supply | 2.93% | 3.51% | 2.75% | 3.38% | 3.47% | 3.93% | *3.327%* |
| Transportation and Communication | 2.20% | 2.03% | 2.72% | 2.66% | 3.30% | 3.63% | *2.757%* |
| Wholesale and Retail Trade | -1.01% | -0.62% | 0.52% | 1.93% | 2.24% | 2.73% | *0.965%* |
| Banking, Insurance and Real Estate | -0.77% | 1.40% | 1.12% | 3.26% | 3.14% | 4.05% | *2.033%* |
| Ownership of Dwellings | 0.05% | 0.63% | 1.09% | 1.75% | 2.08% | 2.12% | *1.287%* |
| Public Administration and Defence | 1.12% | 0.37% | 1.31% | 2.26% | 3.07% | 3.29% | *1.904%* |
| Services | 0.14% | 0.30% | 0.95% | 1.46% | 1.53% | 1.76% | *1.024%* |
| **TOTAL** | 0.99% | 1.40% | 1.96% | 2.73% | 3.03% | 3.47% | *2.265%* |

**Source: NESDB**

# The Structure of Thai Economy – Capital

## **Capital Stock:** Depreciation (Annual Rate)

| Sector | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average |
|---|---|---|---|---|---|---|---|
| Agriculture | 4.090% | 4.029% | 3.980% | 3.966% | 3.998% | 3.996% | *4.013%* |
| Mining and Quarrying | 4.427% | 4.386% | 4.416% | 4.468% | 4.510% | 4.499% | *4.441%* |
| Manufacturing | 4.823% | 4.783% | 4.780% | 4.816% | 4.850% | 4.865% | *4.810%* |
| Construction | 5.598% | 5.521% | 5.550% | 5.663% | 5.730% | 5.721% | *5.612%* |
| Electricity and Water Supply | 2.584% | 2.589% | 2.528% | 2.517% | 2.493% | 2.485% | *2.542%* |
| Transportation and Communication | 5.178% | 5.074% | 5.069% | 5.060% | 5.123% | 5.137% | *5.101%* |
| Wholesale and Retail Trade | 5.159% | 5.111% | 5.163% | 5.263% | 5.362% | 5.407% | *5.211%* |
| Banking, Insurance and Real Estate | 6.112% | 6.154% | 6.108% | 6.237% | 6.296% | 6.337% | *6.182%* |
| Ownership of Dwellings | 2.039% | 2.048% | 2.054% | 2.064% | 2.068% | 2.068% | *2.055%* |
| Public Administration and Defence | 4.483% | 4.248% | 4.141% | 4.082% | 4.070% | 4.063% | *4.205%* |
| Services | 4.208% | 4.132% | 4.119% | 4.141% | 4.183% | 4.211% | *4.157%* |
| **TOTAL** | **4.031%** | **3.979%** | **3.964%** | **3.978%** | **4.008%** | **4.017%** | ***3.992%*** |

**Source: NESDB**

# The Structure of Thai Economy - Capital

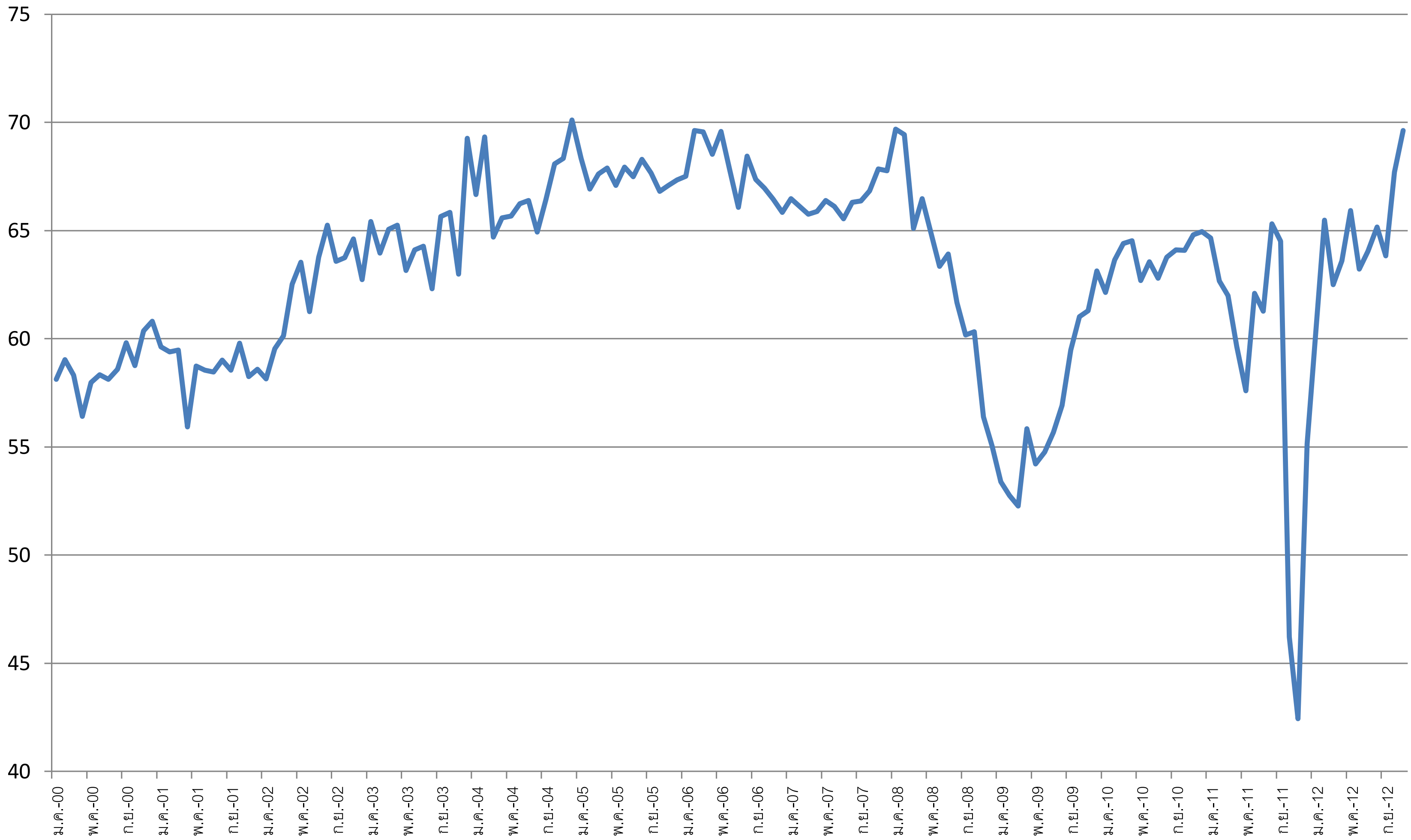
## Capacity Utilization

| | 2549<br>2006 | 2550<br>2007 | 2551<br>2008<br>ส.ค.<br>Aug | ก.ย.<br>Sep | ต.ค.<br>Oct | พ.ย.<br>Nov | ธ.ค.<br>Dec | เฉลี่ยตั้งแต่<br>ม.ค.<br>Average<br>from Jan. | |
|---|---|---|---|---|---|---|---|---|---|
| **อัตราการใช้กำลังการผลิตรวม** | **73.9** | **74.0** | **70.0** | **68.3** | **67.1** | **59.4** | **58.9** | **69.3** | **Total** |
| **อัตราการใช้กำลังการผลิต(ไม่รวมสุรา)** | **74.0** | **74.1** | **70.0** | **68.4** | **67.2** | **59.5** | **58.9** | **69.4** | **Total (Exclude Liquor)** |
| อาหาร | 59.5 | 58.2 | 44.4 | 42.9 | 50.3 | 44.3 | 63.6 | 60.6 | Foods |
| เครื่องดื่ม | 77.1 | 81.3 | 84.1 | 77.7 | 69.0 | 76.5 | 101.8 | 82.4 | Beverages |
| ยาสูบ | 50.0 | 53.7 | 58.9 | 57.7 | 45.5 | 44.5 | 55.8 | 53.2 | Tobacco |
| ผลิตภัณฑ์เครื่องหนัง | 40.2 | 53.4 | 26.1 | 30.1 | 29.5 | 28.2 | 23.4 | 25.8 | Products of Leather & Leather |
| รองเท้า | 47.1 | 43.7 | 39.1 | 39.3 | 43.8 | 41.5 | 38.3 | 41.9 | Footwear |
| เยื่อและผลิตภัณฑ์กระดาษ | 91.0 | 90.8 | 89.6 | 85.7 | 77.4 | 53.3 | 59.6 | 83.9 | Pulp & Paper Products |
| ผลิตภัณฑ์เคมี | 93.8 | 95.9 | 91.8 | 89.7 | 81.7 | 65.4 | 69.7 | 88.5 | Chemical Products |
| ผลิตภัณฑ์ทำความสะอาด | 68.2 | 70.1 | 67.8 | 70.4 | 71.2 | 59.5 | 57.9 | 65.9 | Cleaning Preparation |
| ผลิตภัณฑ์ปิโตรเลียม | 87.2 | 88.2 | 85.8 | 76.2 | 90.1 | 74.5 | 83.3 | 86.1 | Petroleum Products |
| ยางและผลิตภัณฑ์ยาง | 64.6 | 61.0 | 61.3 | 64.2 | 64.0 | 52.8 | 46.7 | 60.8 | Rubber & Rubber Products |
| วัสดุก่อสร้าง | 81.6 | 78.4 | 79.0 | 67.5 | 72.3 | 63.8 | 65.7 | 73.3 | Construction Materials |
| เหล็กและผลิตภัณฑ์เหล็ก | 58.9 | 56.1 | 52.9 | 41.7 | 34.4 | 31.9 | 31.5 | 51.1 | Iron and Steel Products |
| ยานยนต์และอุปกรณ์ | 79.0 | 72.6 | 72.3 | 80.3 | 74.7 | 71.7 | 51.6 | 74.3 | Vehicles and Equipments |
| ผลิตภัณฑ์อิเล็กทรอนิกส์ | 76.1 | 76.5 | 75.0 | 75.6 | 71.1 | 58.7 | 44.0 | 68.6 | Electronic Product |
| ผลิตภัณฑ์เครื่องใช้ไฟฟ้า | 68.1 | 70.6 | 62.1 | 65.8 | 56.9 | 52.4 | 44.7 | 62.0 | Electrical Appliance |
| เครื่องเรือน | 60.2 | 52.5 | 28.8 | 35.9 | 29.9 | 29.2 | 29.1 | 30.1 | Furniture and fixtures |
| ผลิตภัณฑ์อื่น ๆ | 80.3 | 74.7 | 78.6 | 72.2 | 70.5 | 60.7 | 57.0 | 73.3 | Others |

**Source:** Bank of Thailand

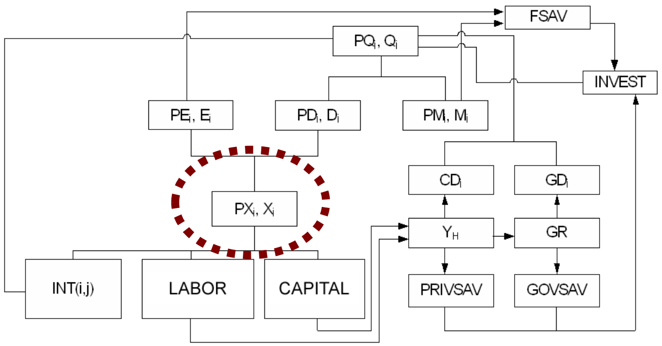
# The Structure of Thai Economy - Capital

## Capacity Utilization




Source: Office of Industrial Economic , Ministry of Industry

# The Structure of Thai Economy – Capital



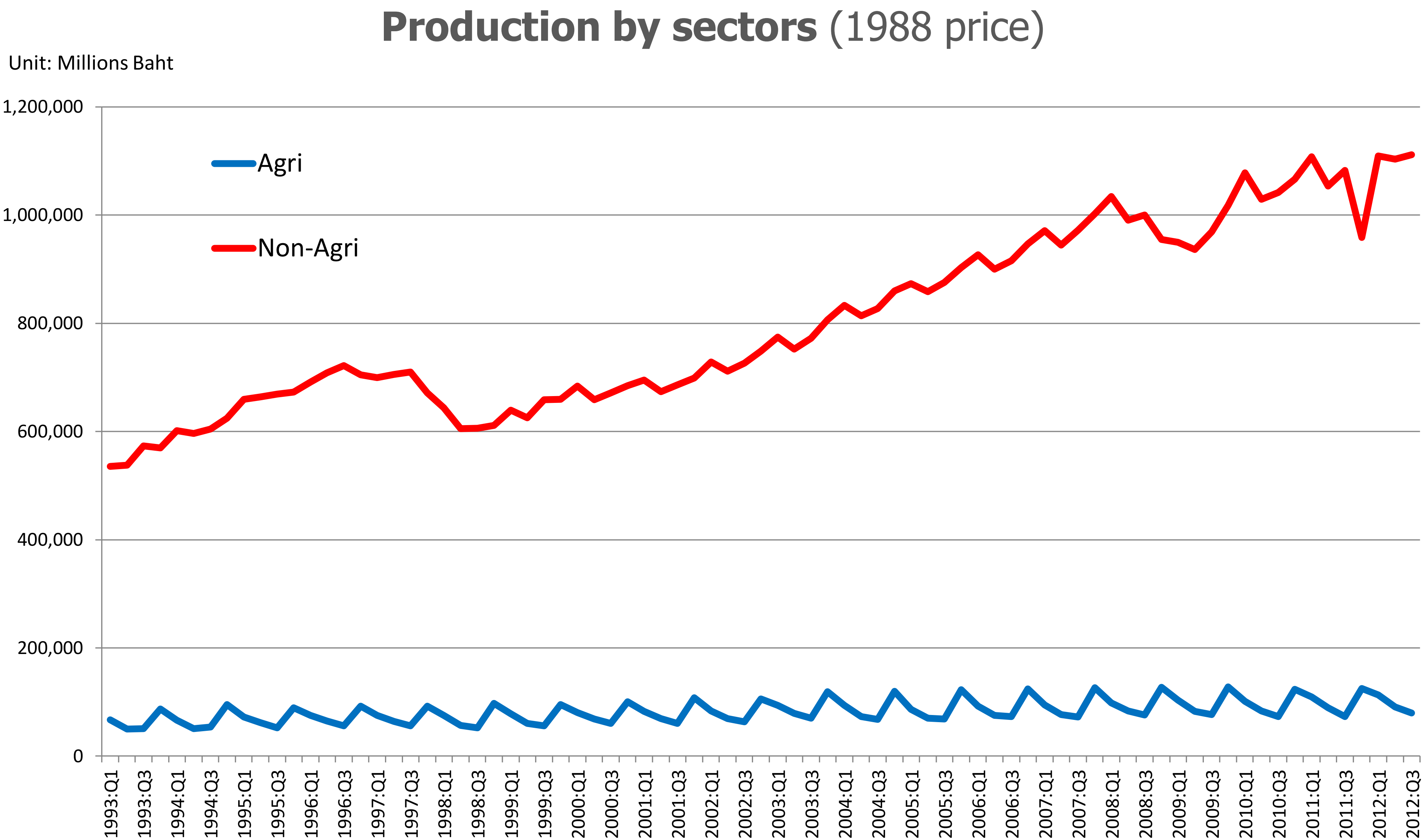

## (4) Production

**Data sources:** NESDB
**Frequency of data:** Quarterly

### Key Empirical Evidences

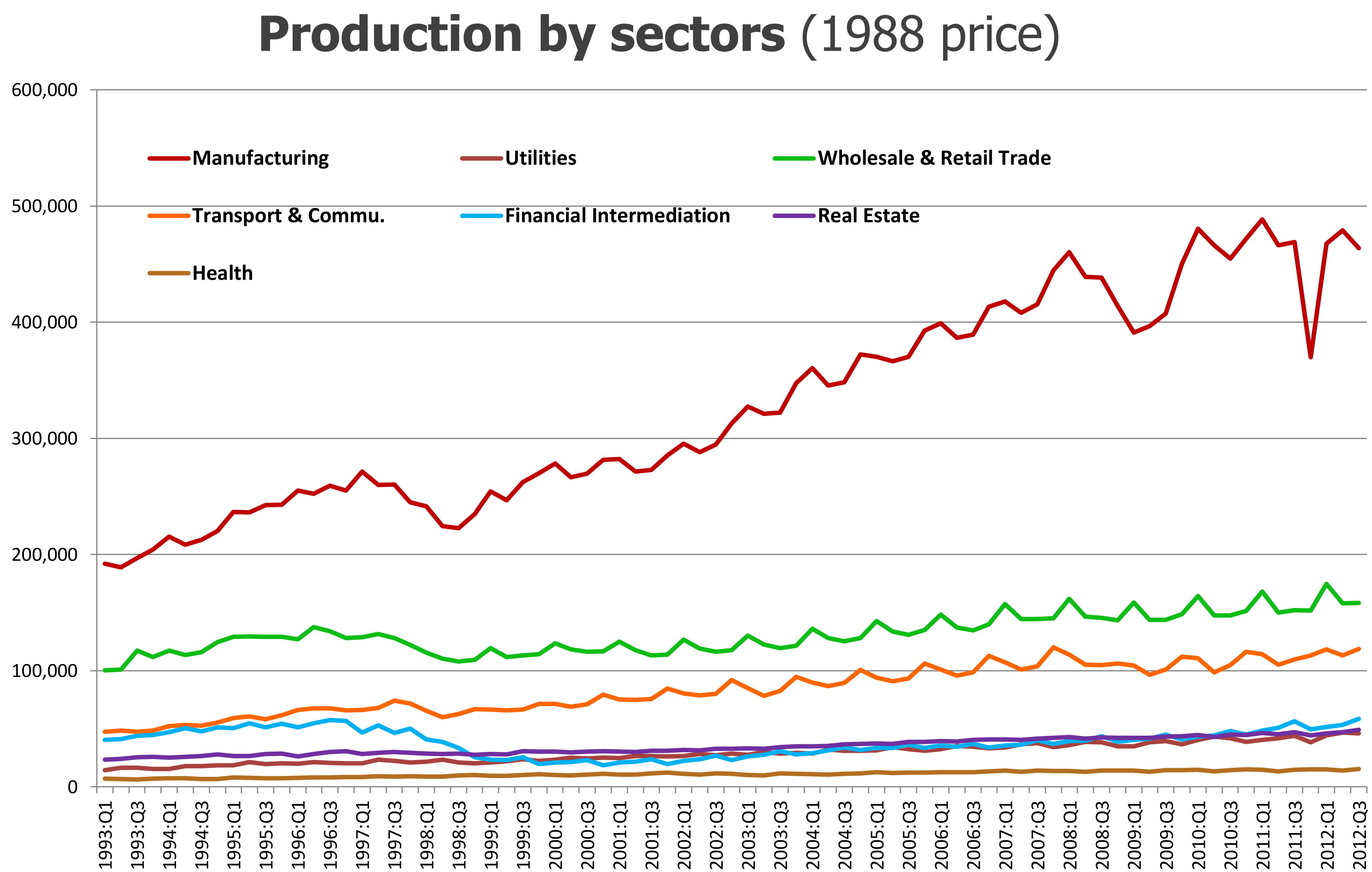
•Structure of production has changed since late 1990s. The manufacturing has become the largest sector and the trade, transportation and communication are the second and second and third largest ones.
• The main manufacturing for export is centered on automotive and electronic parts
• Driven by the world demand, the agri production has continuously expended. However, the agri production concentrates on key products, e.g. rice, sugar, tapioca, frozen shrimp, chicken, rubber.

# The Structure of Thai Economy – Production

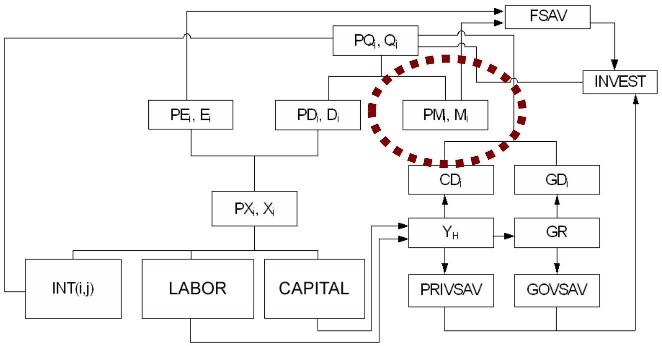



Source: Bank of Thailand

# The Structure of Thai Economy – Production



# The Structure of Thai Economy – Imports




## (5) Imports

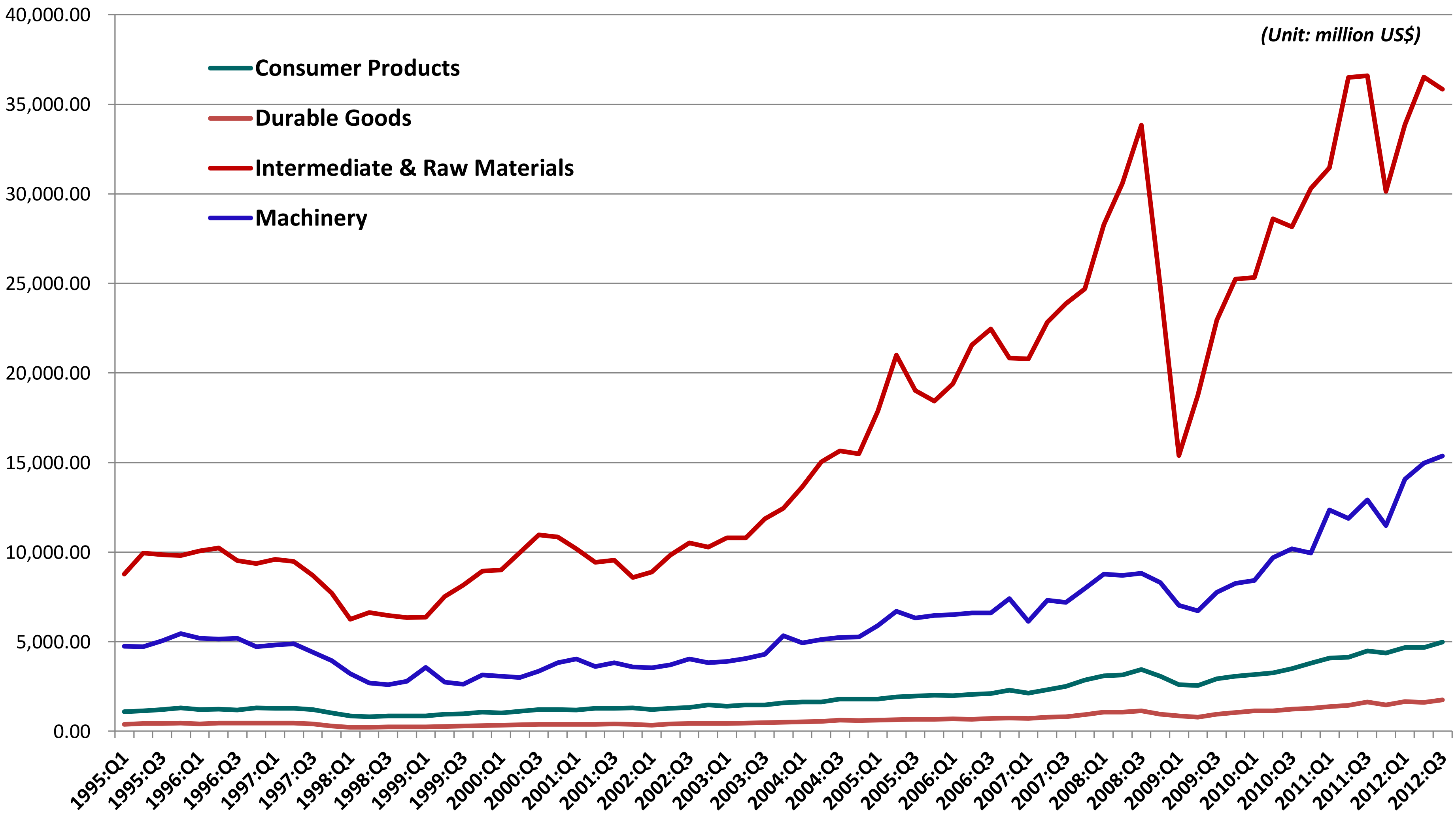
**Data sources:** BoT (recalculated from Department of Custom's data)
**Frequency of data:** Monthly

## Key Empirical Evidences

- There are 3 key components of imports; (1) intermediate goods, (2) machinery and capital goods, and (3) fuels
- The US$ value of imported intermediate goods follows the pattern of exports of hi-tech products
- The US$ value of fuels had continuously increased. In the first half of 2008, it reached its peak, roughly the same value of machinery imports

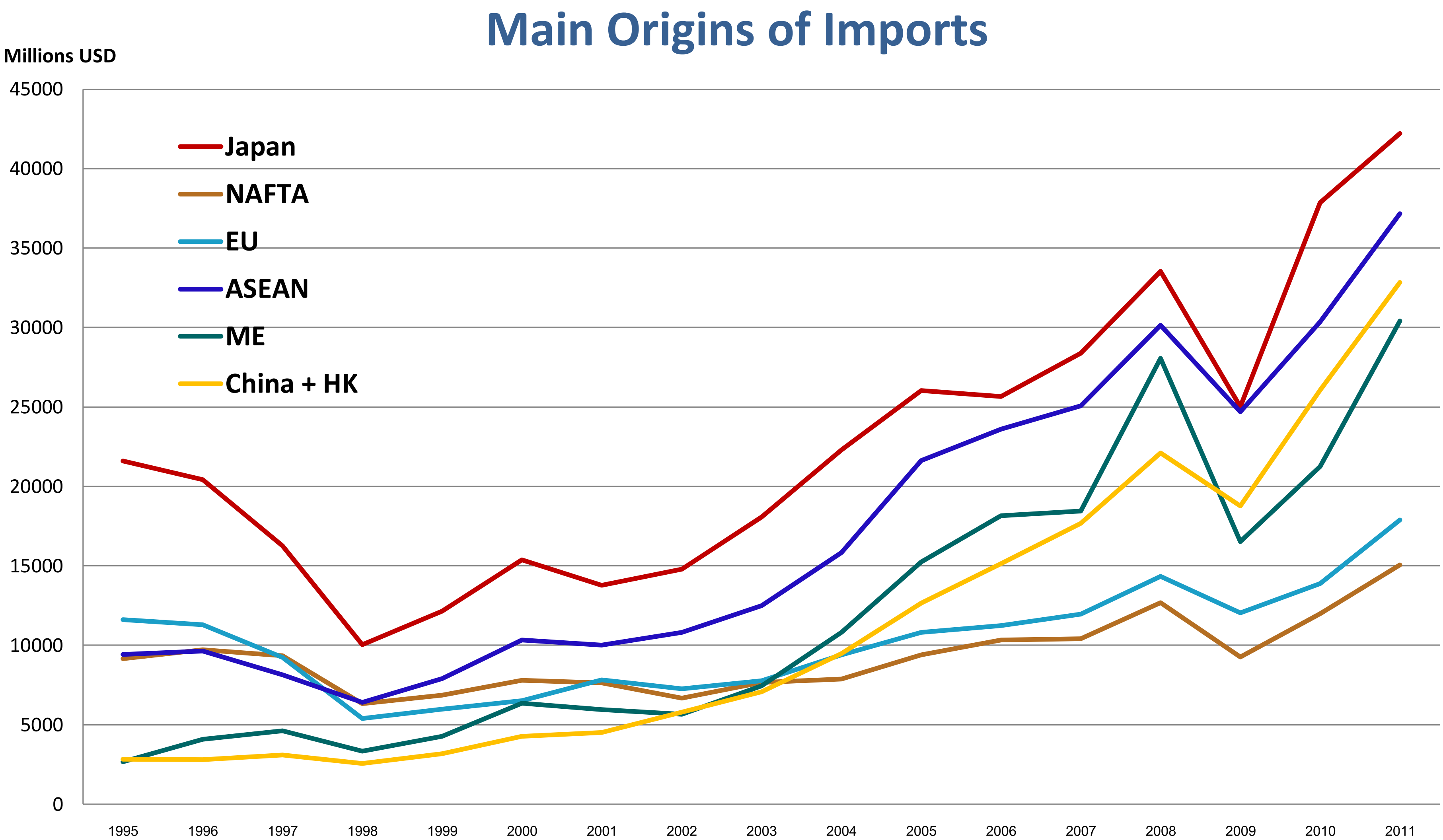
# The Structure of Thai Economy – Imports

## Structure of Imports



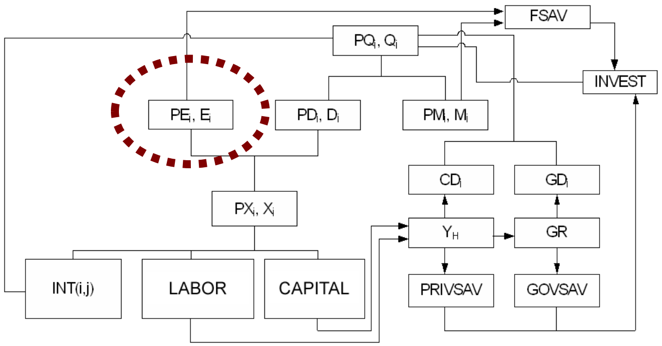

Source: Bank of Thailand

# The Structure of Thai Economy – Imports




Source: Bank of Thailand

# The Structure of Thai Economy – Exports



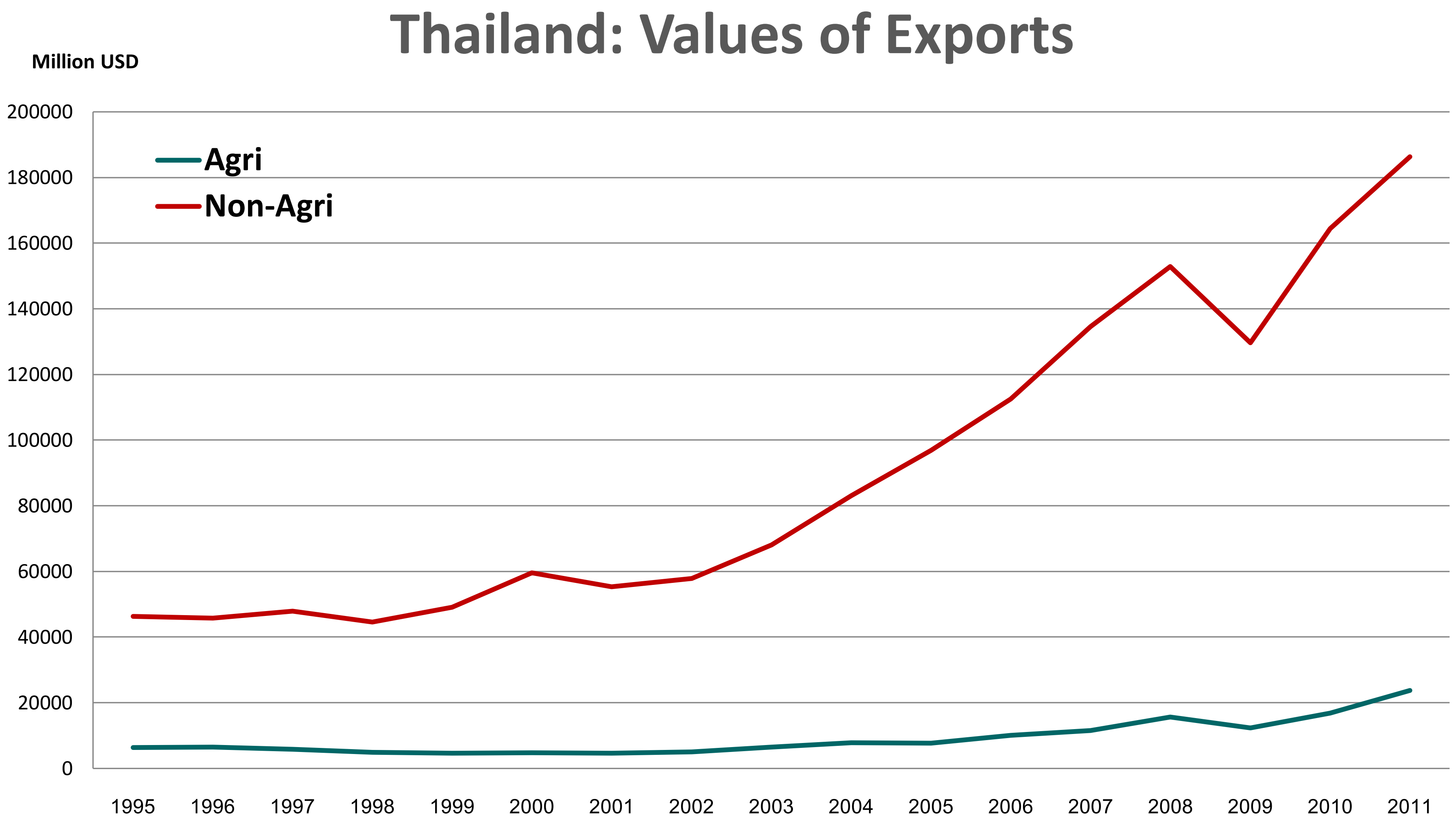

## (6) Exports

**Data sources:** BoT (recalculated from Department of Custom's data)
**Frequency of data:** Monthly

### Key Empirical Evidences

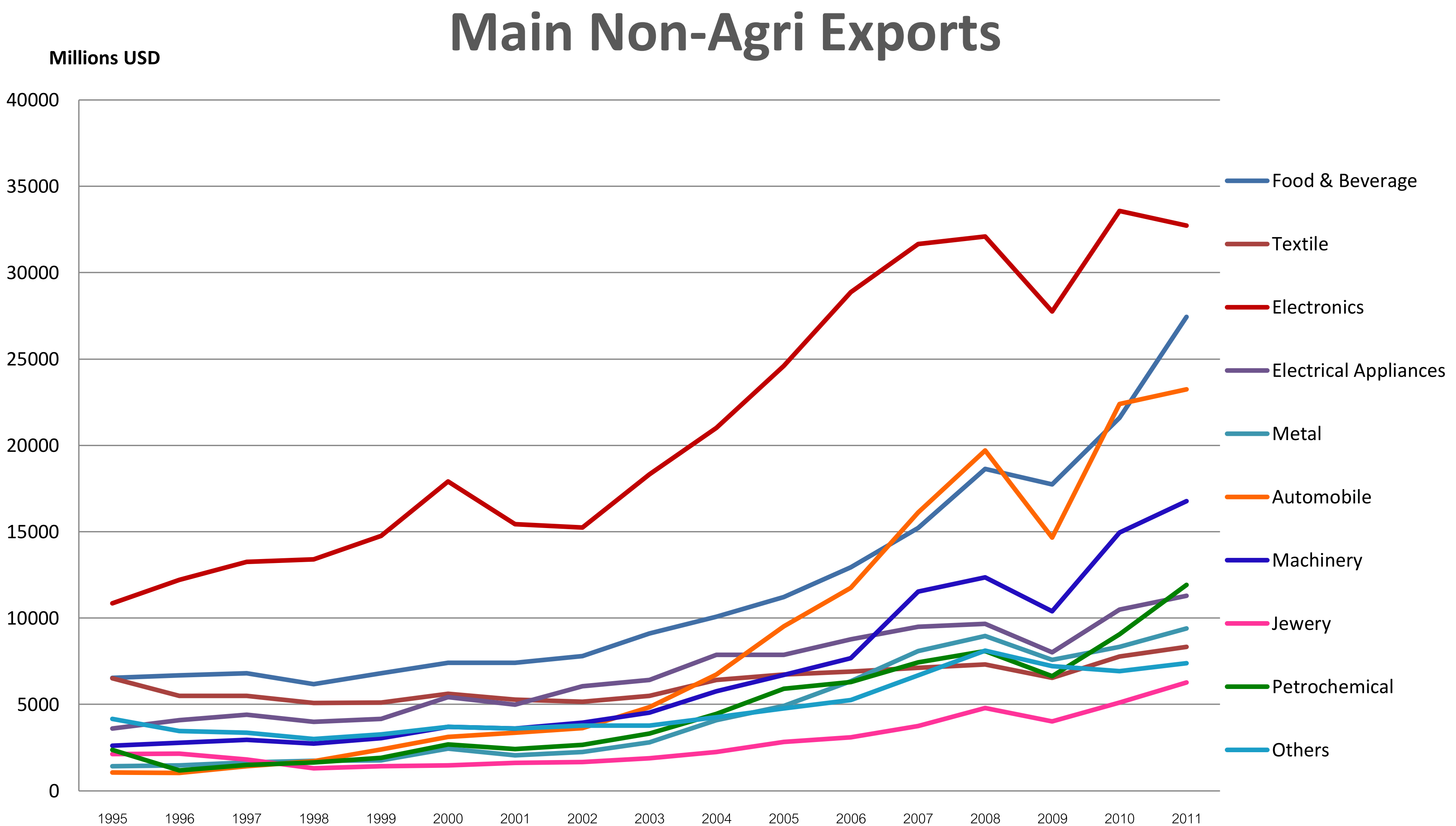
- The industrial products have been the main exports since 1990s. And the volume of the hi-tech products have constantly increased.
- As shown on the import data, the hi-tech products contain large value of imported contents.
- Classified by destinations, the market of exports has been diversified. The share of the US, EU and Japan has been declining.

# The Structure of Thai Economy – Exports

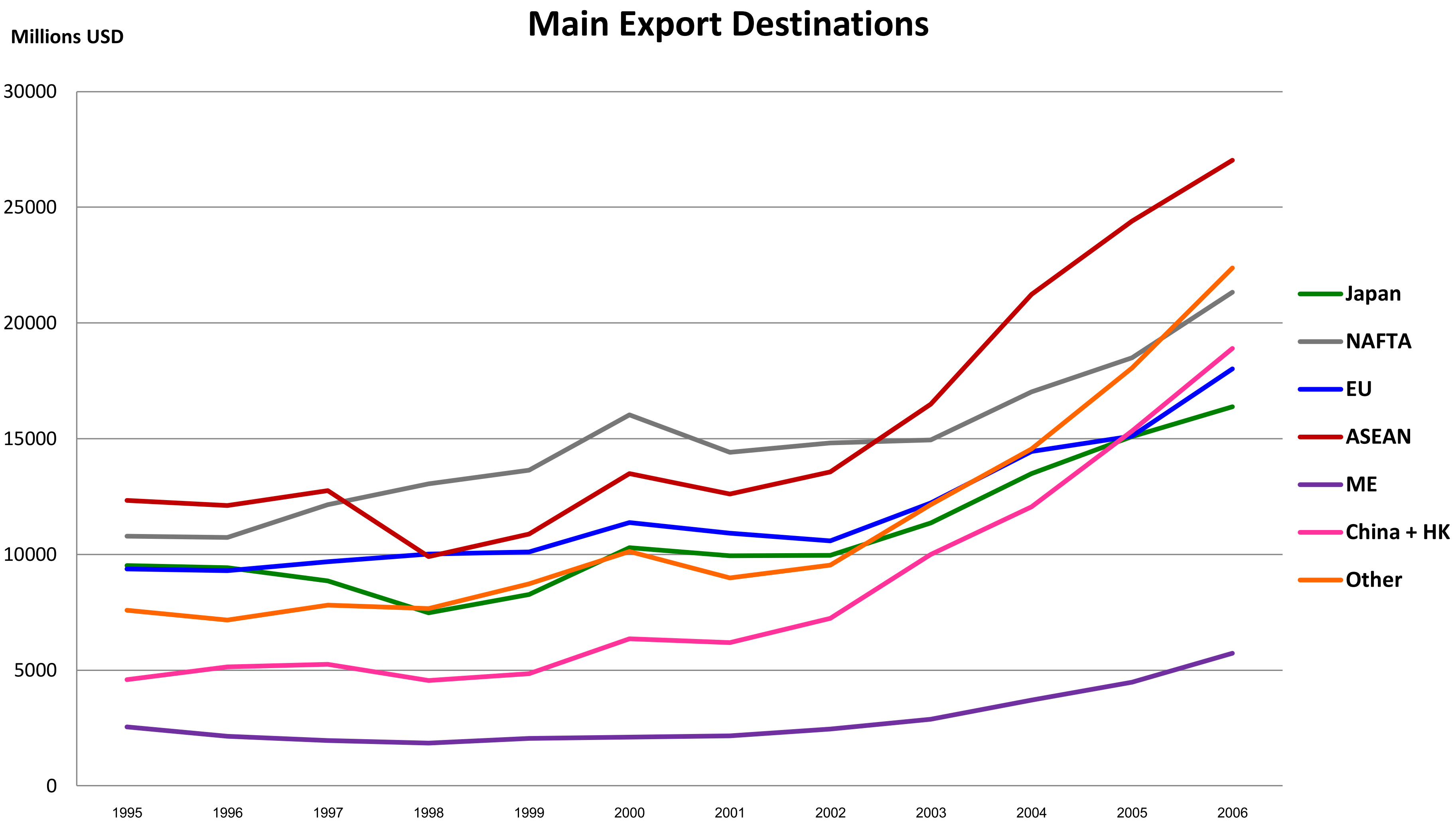



Source: Bank of Thailand

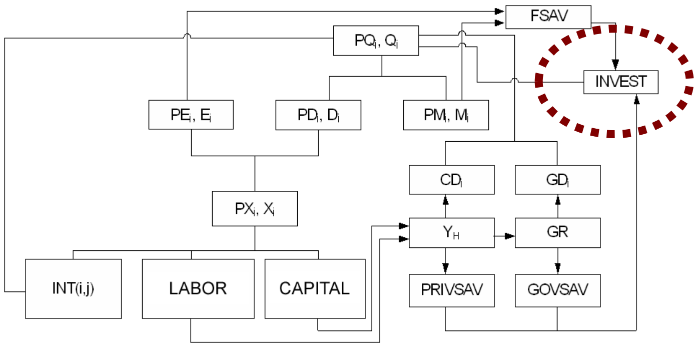
# The Structure of Thai Economy – Exports



# The Structure of Thai Economy – Exports



# The Structure of Thai Economy – Investment



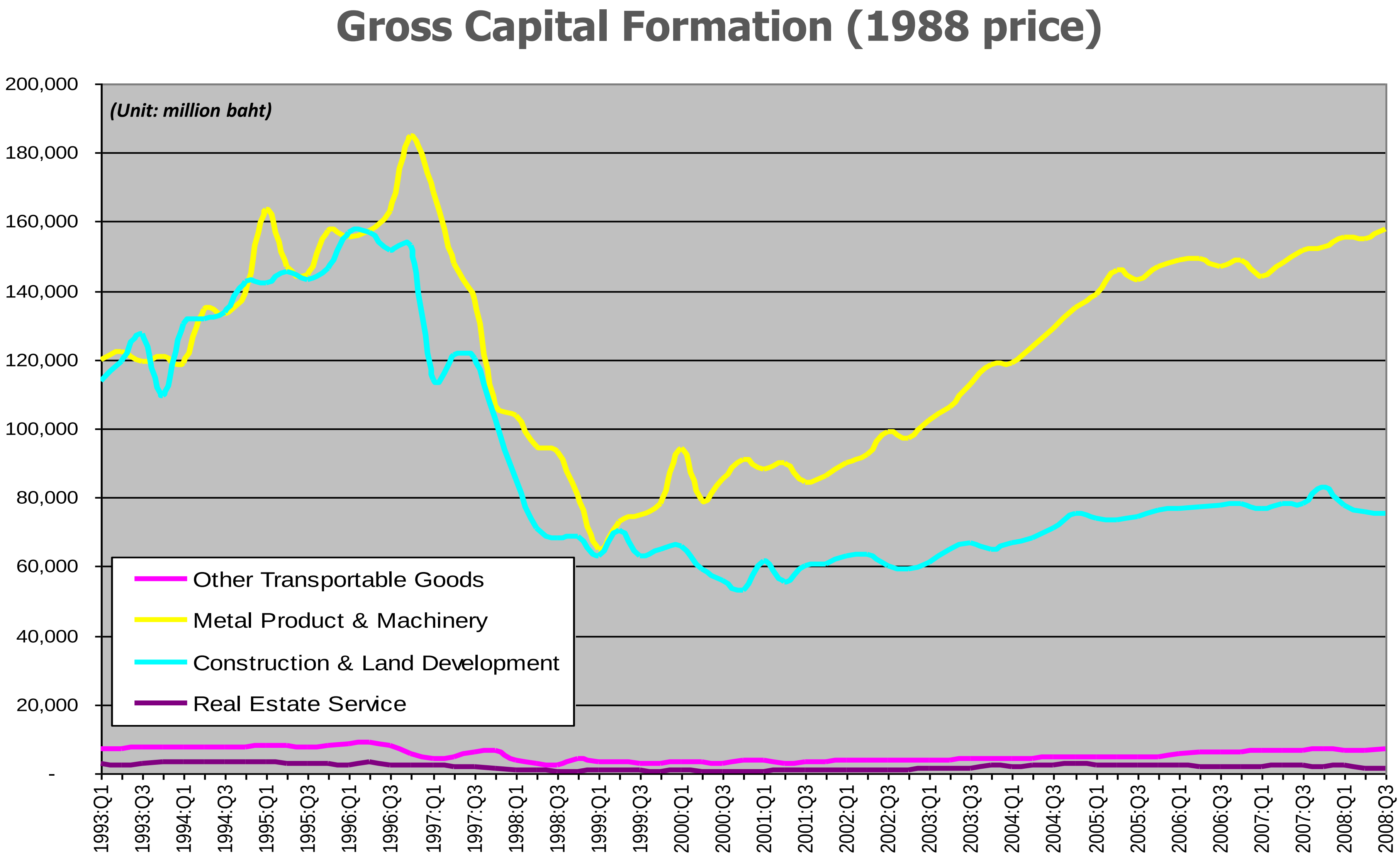

## (7) Investment

**Data sources:** NESDB
**Frequency of data:** Quarterly

## Key Empirical Evidences

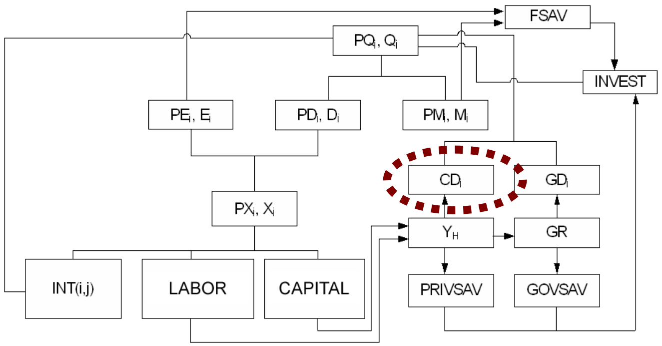
- Pre - 1997 Crisis: the equipment and construction investment were roughly equal, and increased sharply.
- Post – 1997 Crisis: the equipment investment has surpassed the construction. This follows the rapid expansion in manufacturing.
- It is noted that the post-crisis construction projects were changed, the project owners have shifted from private to government.

# The Structure of Thai Economy – Investment




Source: NESDB

# The Structure of Thai Economy – Private Consumption




## (8) Private Consumption

**Data sources:** NESDB
**Frequency of data:** Quarterly

### Key Empirical Evidences

•Consumption on basis needs (foods and apparels) are the main expenditure. The second largest is the material-related products (e.g .paper, plastic and rubber products). The third largest is the consumption on machinery and electronic devices.

# The Structure of Thai Economy – Private Consumption