

Commodity booms and Incessant Agricultural Subsidies

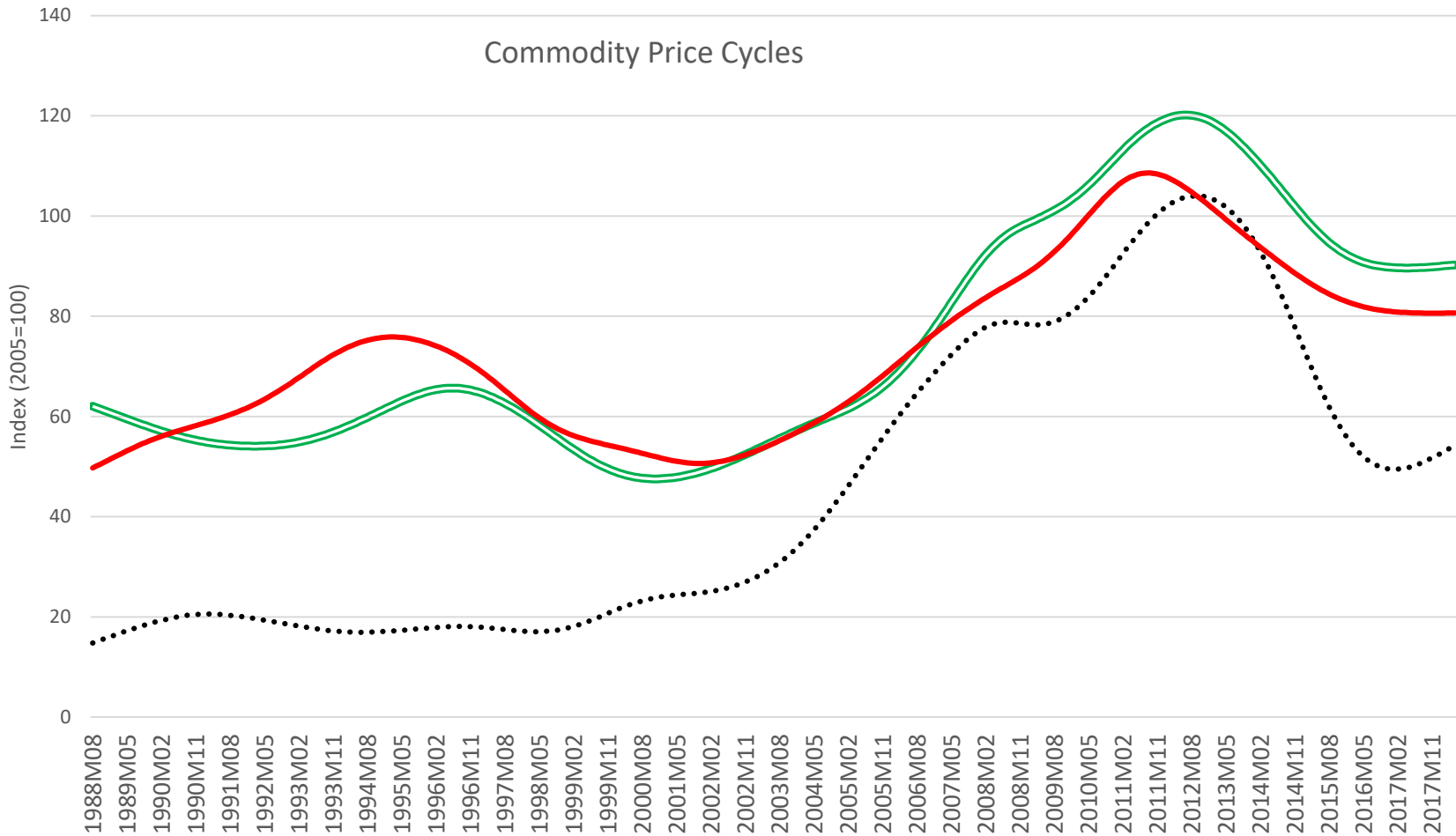
Lecture 12
Bhanupong

Course Syllabus

Lecture 12

- Commodity booms and busts
- Prebisch-Singer hypothesis revisited
- Rice Mortgage Scheme
- Incessant agricultural subsidies

Booms and busts: 1998-2018



Source: Mundi Index

..... Crude oil — Food — Agricultural Raw

Agriculture + inflation: 2008

- A wide range of factors has been blamed for the hike in food prices in 2008.
- *Culprits include slowdown in agricultural productivity growth, climatic and weather-related factors, rising food demand from China and India, higher oil prices and demand for bio-fuels, speculative behavior in financial markets, hoarding, falling grain stocks, dollar depreciation, low interest rates, among others.*

The lucky year for Thai farmers: 2008

Global Food Crisis

- Thai rice farmers only managed to get good prices in 2008 because other main rice-producing countries, such as Vietnam and India, had to cope with natural disasters such as droughts and flooding.
- But when there are no natural disasters in other countries, Thai farmers are not able to compete with them in terms of prices.
- Alas, the spectacularly high price of rice did not last long.

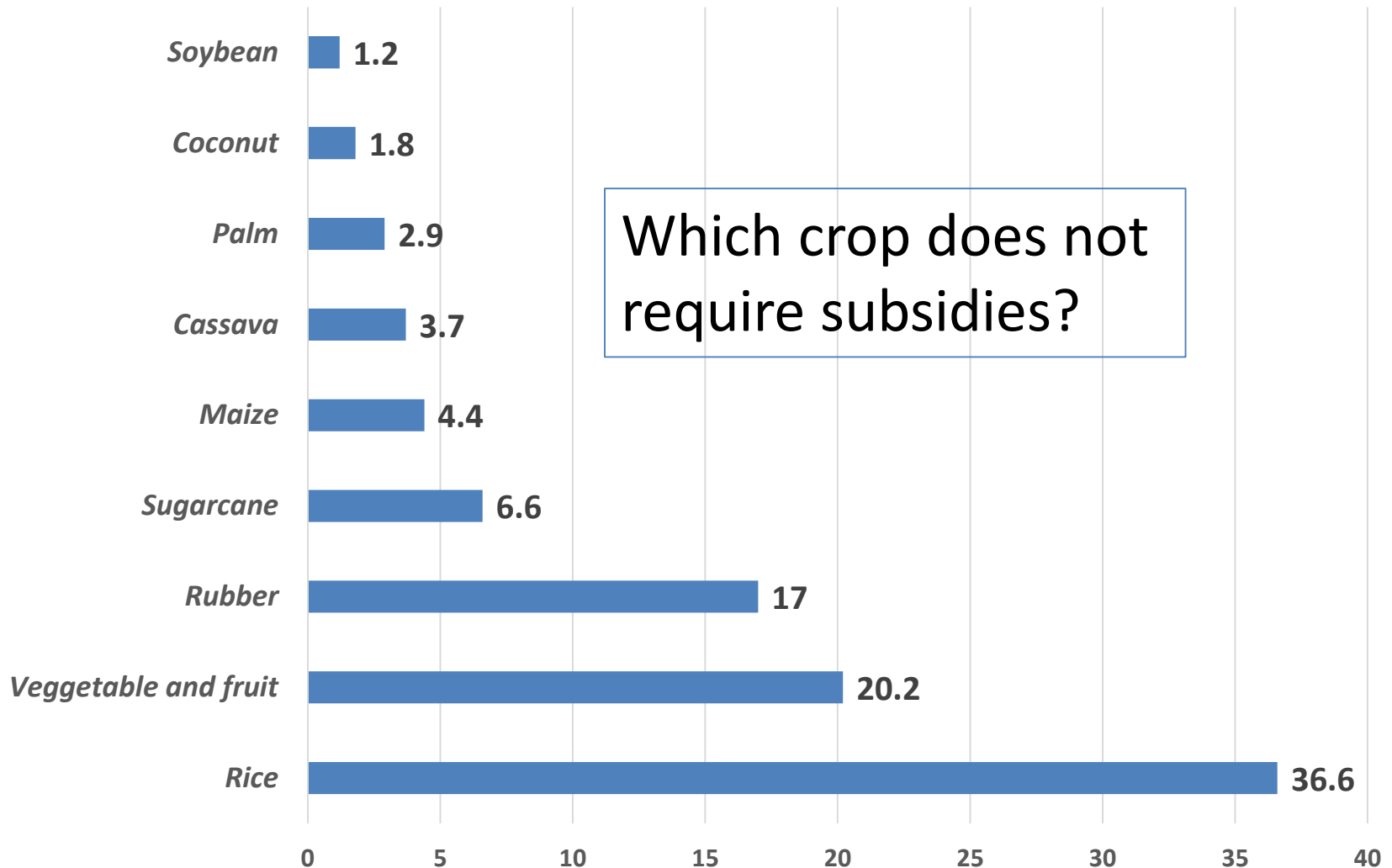
From booms to busts

- From the second half of 2008, global attention shifted from the food shortage.
- The eruption of the global financial crisis and slide of the global economy into recession raised fears that the world economy would plunge into another Great Depression.
- One consequence of the global recession has been a fall in world commodity prices that has also lowered food commodity prices.

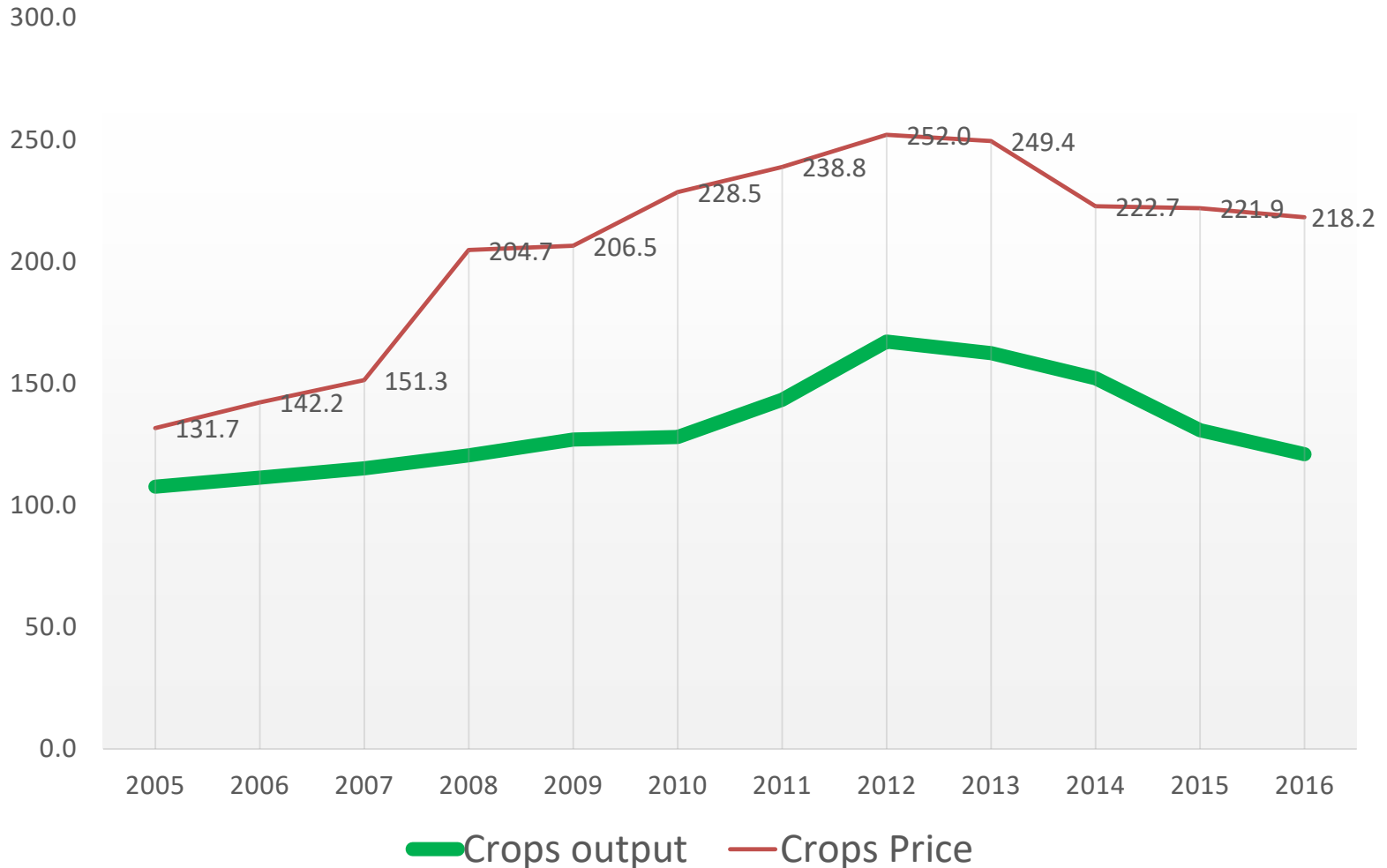
What determines commodity prices

- Because of food security reasons, some countries maintain high level of ***grain stocks***
- Commodity prices depend on stock-to-use ratio, income levels, weather conditions, energy prices, and exchange rates.
- The higher the imported grain dependency, the higher the risk of food insecurity.

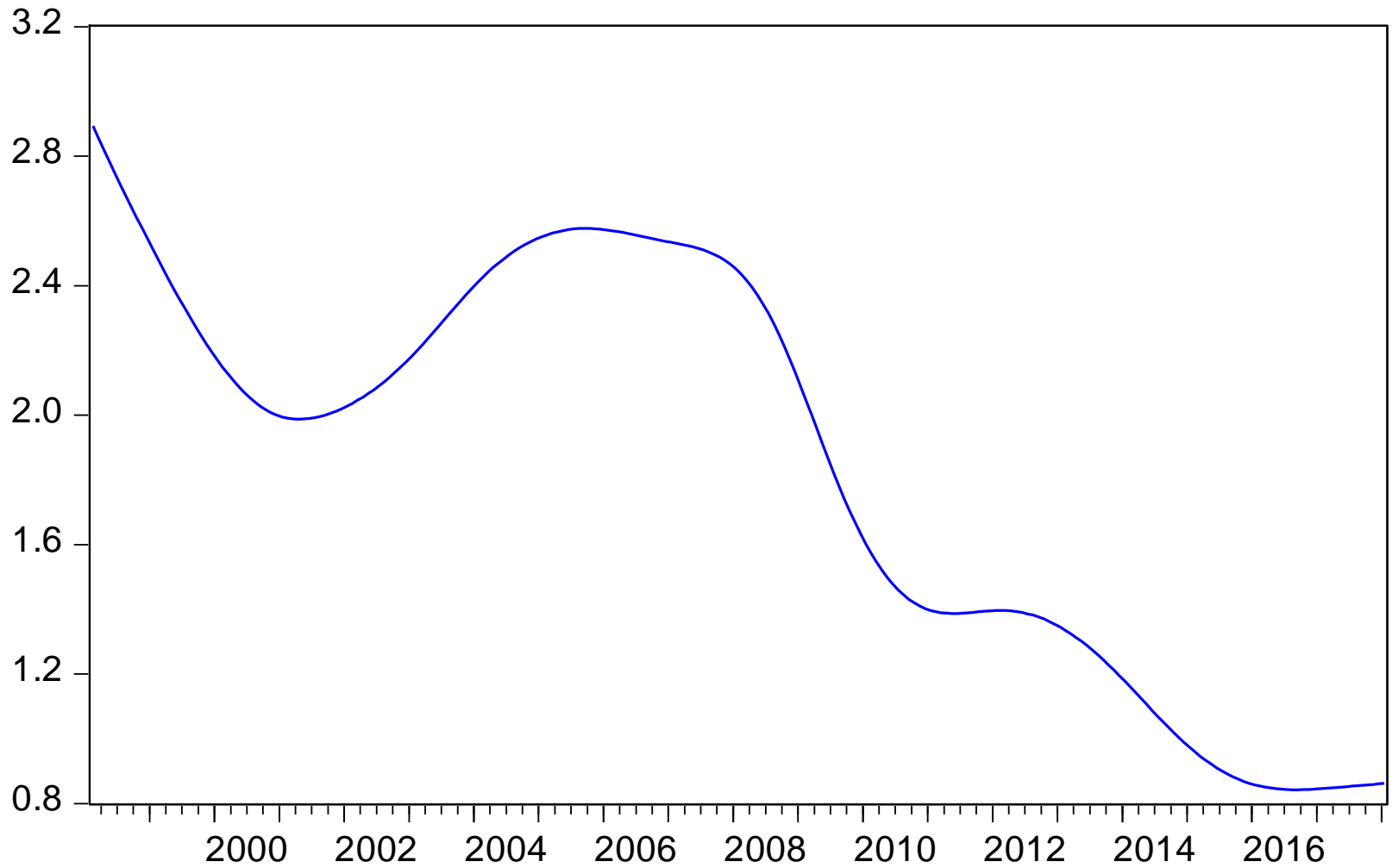
Main Crops in Thai Agriculture
Share of weight in agricultural production index
Source: Bank of Thailand



When *both* prices and output declined, farm income shrank precipitously



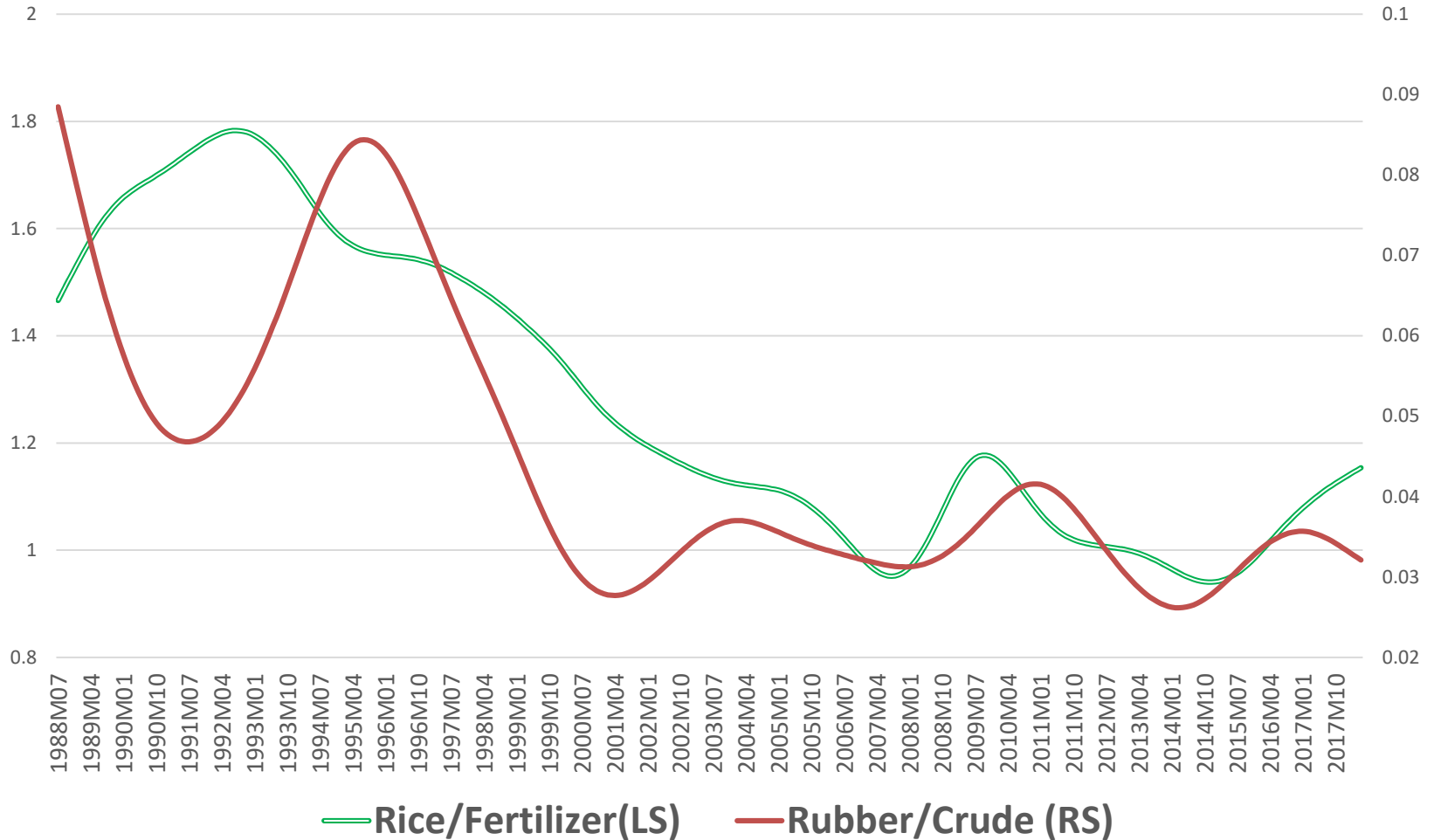
TERMS OF TRADE (Food vs Fuel)



Prebisch-Singer may be right

It's the nut against the nutcracker; the outcome is foreordained

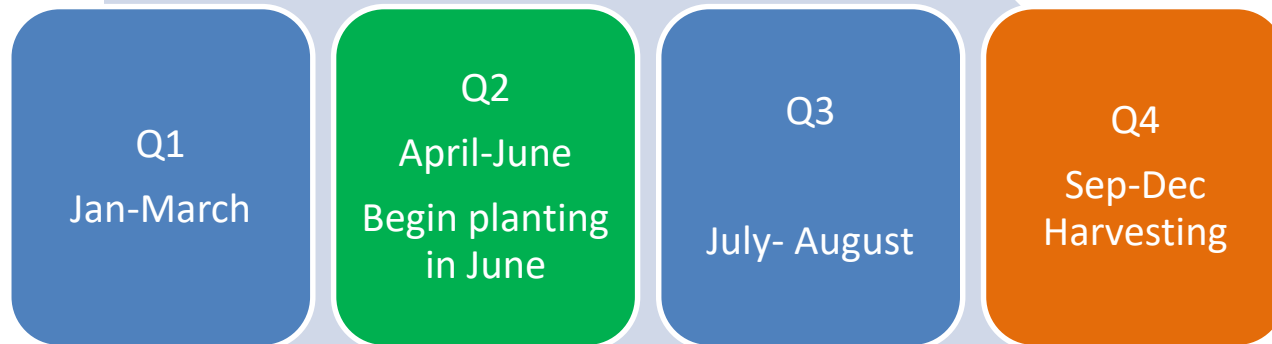
Deteriorating the agricultural Terms of Trade



Rising farm household debt after collapses of commodities

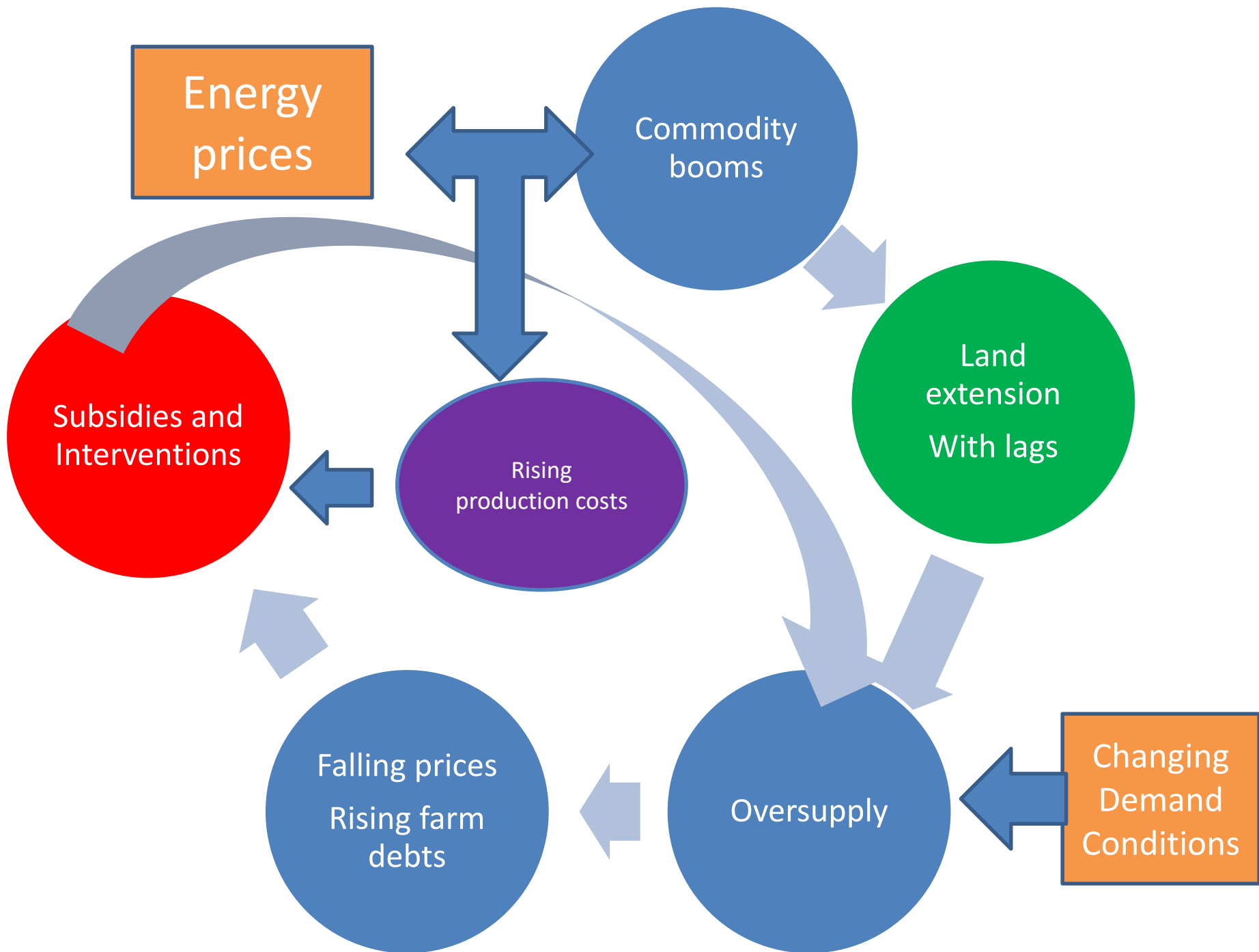
- Thai farmers' debt remains high since they have to borrow money to buy staple goods since the drought in late 2013.
- Loan for cultivation and consumption are needed while waiting for income generated from a new growing season (Q2 and Q3).
- Risk of defaulting is high because of the high debt-service coverage ratio.
- Rubber prices depends on China's growth, while rice prices are depressed due to high inventory.
- Household debt was 81% in 2016--11 trillion baht

Rice farmers begin their main crop at the end of Q2 and harvest in Q4

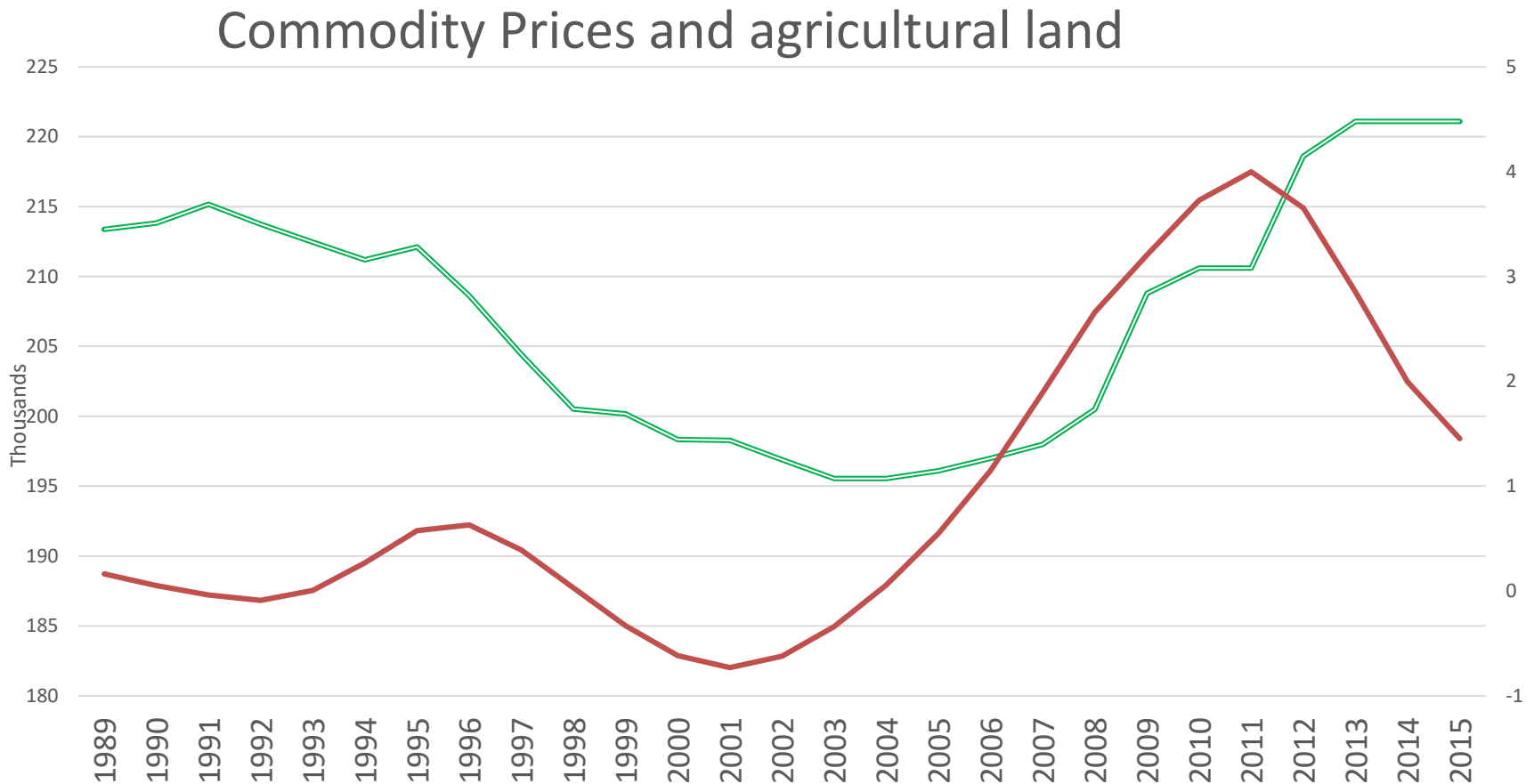


Low paddy prices and high debt service keep farmers from normal spending pattern.

They need to borrow while waiting until Q4, when they can sell paddy rice.



Lag response of agricultural land to price changes

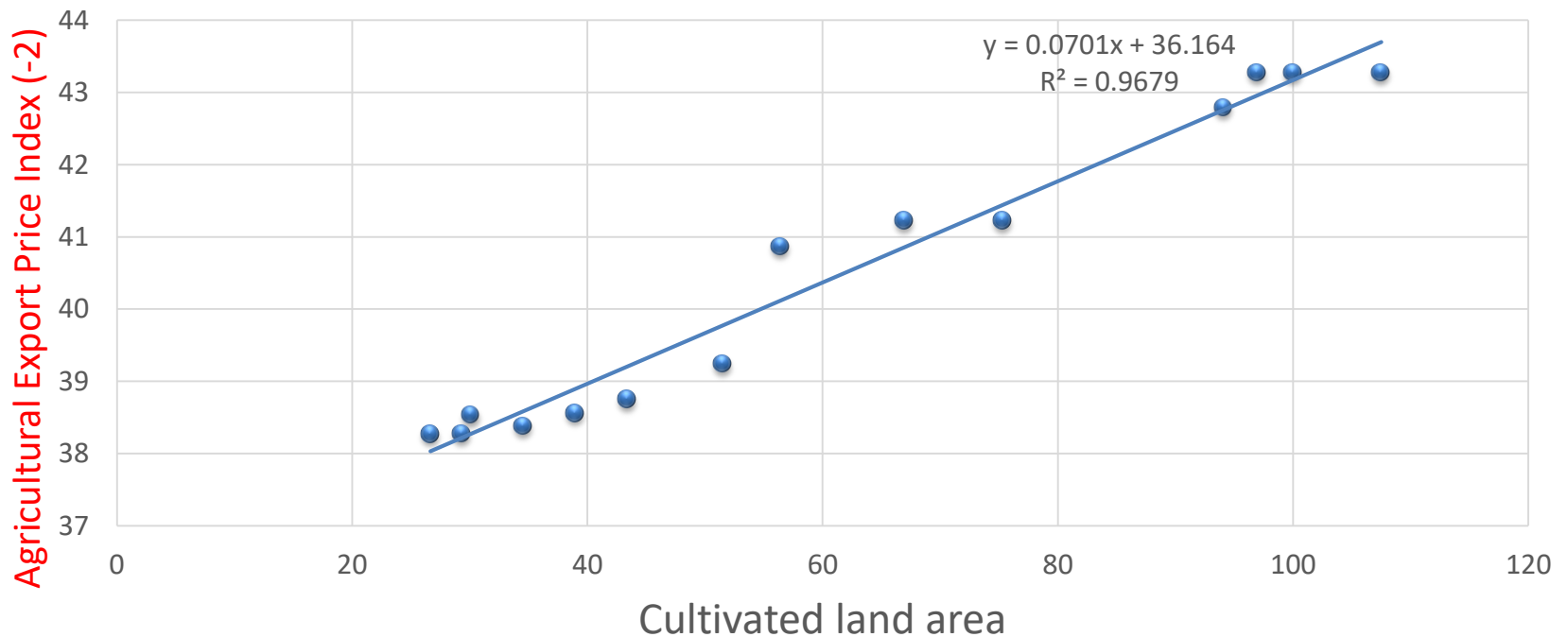


Source: World Bank and Mundi Index

— land (Sqkm: RS) — PC (rice and rubber: LS)

Late is worse than never

It takes two years for supply to respond to changes in
export prices
(2002-2015)
Source: World Bank



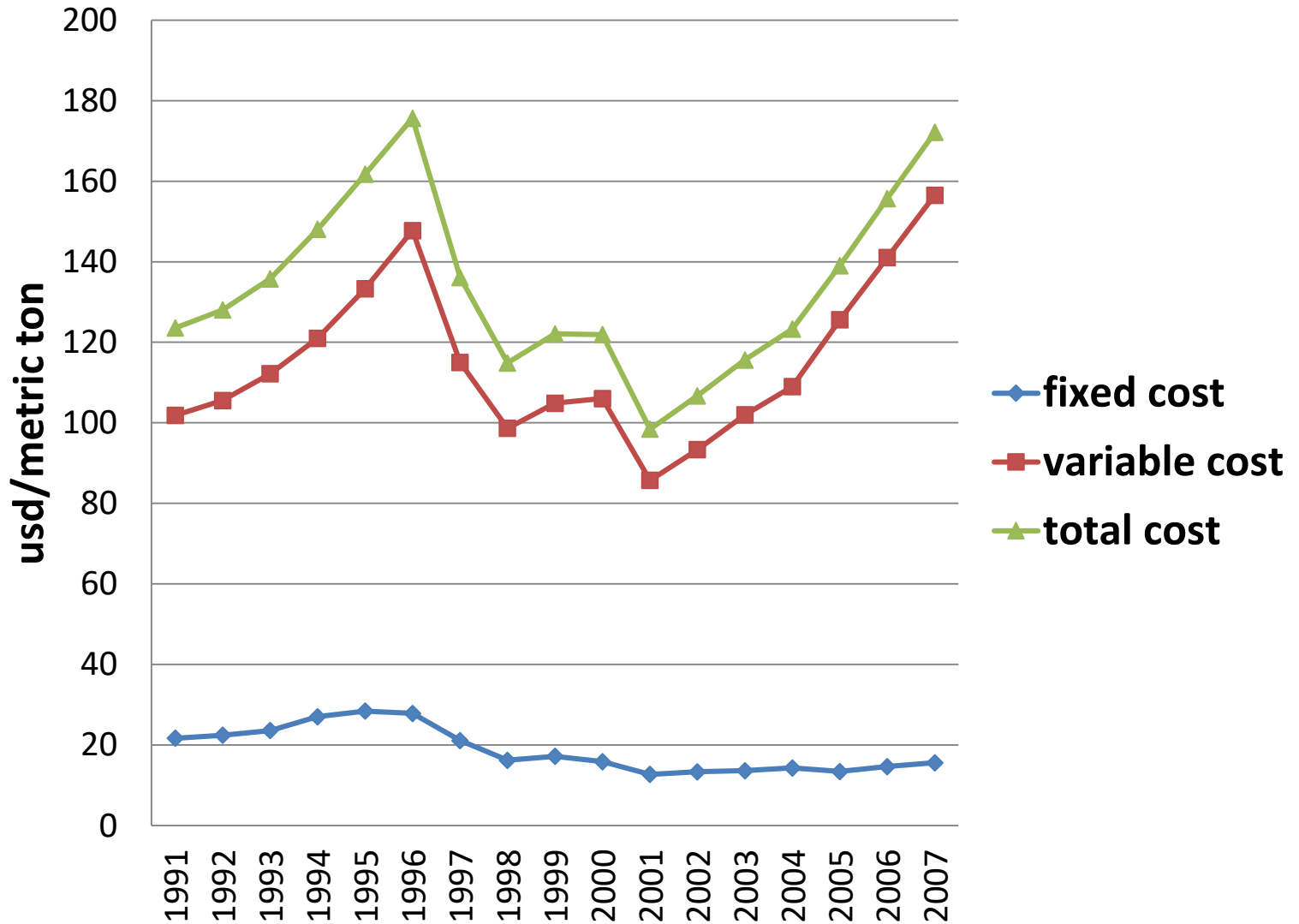
Since you cannot control the price, you must control the cost

- The fall in food prices (and the decline in oil prices) mitigated immediate concerns about food security.
- Our focus is now on cost control of food production: “Smart farming and precision farming”
- Total cost of farming is mainly dictated by variable costs.
- What are fixed and variable cost in rice production?

Transplanting rice in Chaiyaphum



Cost of paddy production in Thailand



Fertilizer application: imprecise and uneven distribution



Insecticide and pesticide spraying



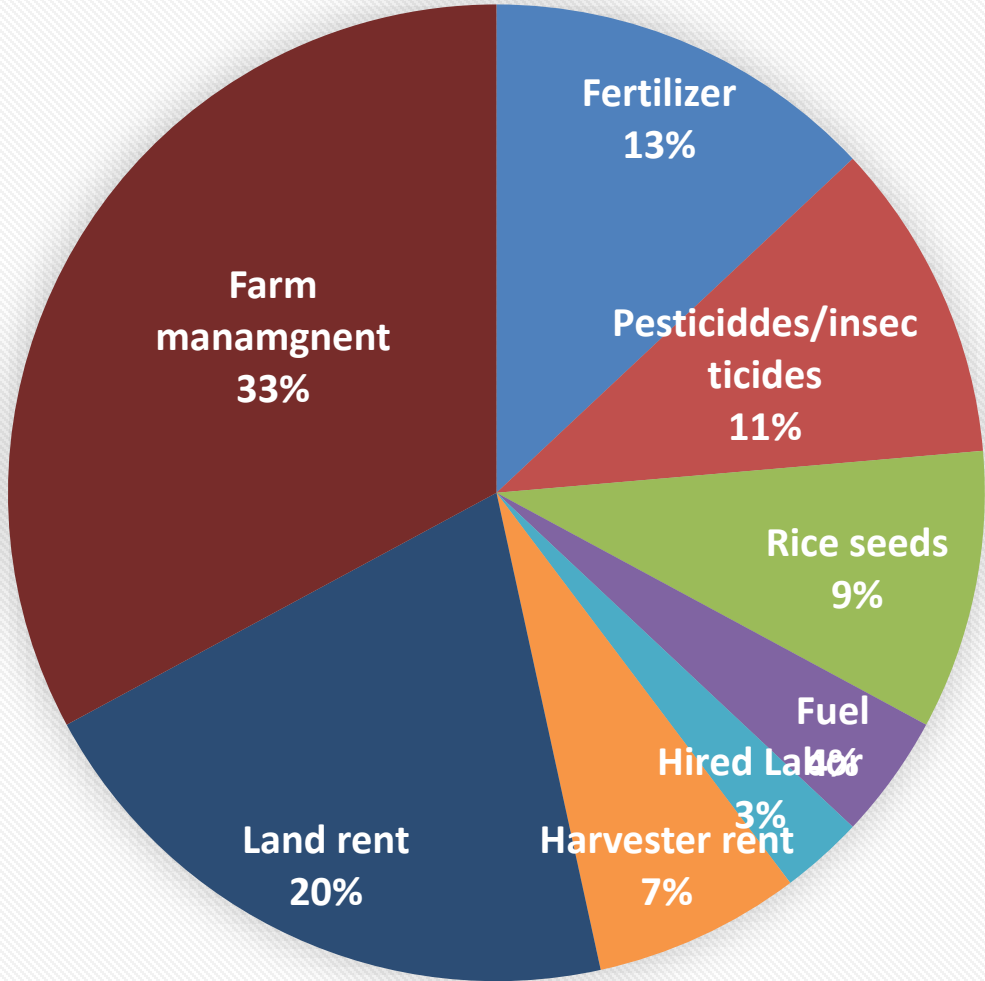
In this 2012 file photo farmers spray pesticide over a paddy field in Ayutthaya province, Thailand. REUTERS/Sukree Sukplang

Cost of chemical farming: 2010 (baht /rai)

Fertilizer	900-1000
Pesticides, insecticides, herbicides	550-1000
Rice seeds	600-750
Fuel	300
Labor	200
Harvester rental price	500
Land rent	1500
Farm management fee	2400
Total cost	7450-8150

If one rai yields 500 kg, would farmers survive at the pledged price of 15,000 baht/ton?

Cost Structure of Rice Farming



- Fertilizer
- Pesticiddes/insecticides
- Rice seeds
- Fuel
- Hired Labor
- Harvester rent
- Land rent
- Farm manamgnent

Dwindling number of Thai buffaloes

- From the last decade, the number of buffaloes declined from 1.5 million to 840,000 heads, representing 56 % decline from 2004.
- Due to disappearing animal farm land, smuggling, and slaughtering of mother buffaloes for meat consumption.
- Department of livestock proposed 5.6 billion baht budget for raising buffaloes to 1 million heads within 10 years.
- Will this plan work?



Organic farming

- ***Higher costs but the organic rice can fetch much higher prices***
- Organic Thai rice recently began appearing at high-end supermarkets in Luxembourg, whose per-capita gross domestic product was a world leader in 2015 at \$103,000.
- The grains, grown in Thailand's central Nakhon Pathom Province without pesticides or chemical fertilizers, have half the yield of regular rice but fetch 10 times the price.

Organic farming in Kyoto



Supply and demand analysis

- Supply of agricultural products is less elastic than manufactured products.
- If both supply and demand for agricultural products are inelastic, we observe more fluctuations in prices.
- A small-country assumption can be applied for some crops which Thailand has low share in the world market.
- Price elasticity of demand depends on availability of substitutes (jasmine rice).
- Note: The more narrowly defined commodities, the higher the price elasticity (because of availability of substitutes)

Innovation and competition: improved varieties

- Jasmine rice exports will soon run into fierce competition in the United States, which has successfully grown and registered a new type of fragrant rice called "Jazzman".
- Louisiana State University's Agricultural Centre has come up with a new variety of aromatic rice, known as LA2125 , with a very similar fragrance, soft grain and quality as Thai jasmine rice.
- The LSU rice breeding took 12 years to obtain a long-grain rice with good milling quality, high yield and the correct Jasmine aroma and flavor.

Jasmine vs. jazzman (1:3)

- Consumers and Asian restaurants in the US may shift to serving Jazzman rice as it tastes the same as Thailand's jasmine rice but is cheaper.
- Another challenge is the yield differences:
- **1260 kilograms** per rai of Jazzman rice, compared to
- **400 kilograms** of Thai jasmine rice production.
- What will be the impact on the elasticity of Thailand's export demand for Jasmine rice?
- **It bodes well for the declining competitive advantage.**

“Jasmine” rice from Vietnam and Cambodia (50% cheaper)

- Vietnam has already come up with rice that tastes similar to Jasmine.
- It is now on sales in supermarkets in London at 1,000 baht for 20 kg bag, compared with 1,500 baht Jasmine rice from Thailand.
- The recent dong devaluation has enabled Vietnam to offer 50% lower price than Thailand.
- In 2014, because of cheap jasmine rice from Cambodia, the share of Thai jasmine rice in Hong Kong dropped from 90% to 45 %.

Incessant Subsidies

- Price guarantees
- Mortgage scheme through Bank of Agriculture and Agriculture Cooperatives(BAAC).
- Direct payments
- Input subsidies (low interest rates on loans)
- Incentives to switch crops

From Iowa to Indochina

Agricultural subsidies are a global norm

The US spends USD 20 billion a year to subsidize farmers.

Corn and soybeans produced in Iowa received direct payments based on farm ownership (before 2014)

- British farmers received direct payments by the EU (Common Agricultural Policy)
- Under “*gentan*” program, Japanese farmers received payments to reduce rice crops since 1971. The tariff on rice is 777.7%.
- Chinese government encourage small farmers to provide “land bank” to more efficient large farmers and they get rent in return for doing nothing.

Thailand's strategies in providing agricultural subsidies

- Cash handout and low interest rates to delay rice sales.
- To increase farm prices, reduce supply and increase domestic demand.
- Ban imports when crop prices fall (coconuts).
- Increase artificial domestic demand by raising stock-to-export ratios (casawa)
- Provide cash incentives for farmers to switch crops
- Rice mortgage schemes

Cash handouts to rice farmers who delayed selling their crops for six months: A delay tactic

- In September 2016, the National Rice Policy Committee, chaired by the PM, approved measures to encourage farmers to *delay rice sales*.
- The measures include 1,000 baht per rai in cash handouts to rice farmers, plus a 4% interest rate subsidy worth of combined 1.24 billion baht to millers and agricultural cooperatives that agree to *hold rice in their warehouses for six months*.

To increase farm prices: Reduce supply and increase the domestic demand

- In January 2015, the cabinet approved 2,760 million baht to subsidize 3 % interest rate loan for each farmers who **postpones harvesting** in order to push up the price at the beginning harvest season.
- The interest subsidy at 3% also goes to ***processing factories, exporters, and ethanol producers*** to purchase tapioca at the high supply seasons to shore up the price

Alter cropping patterns

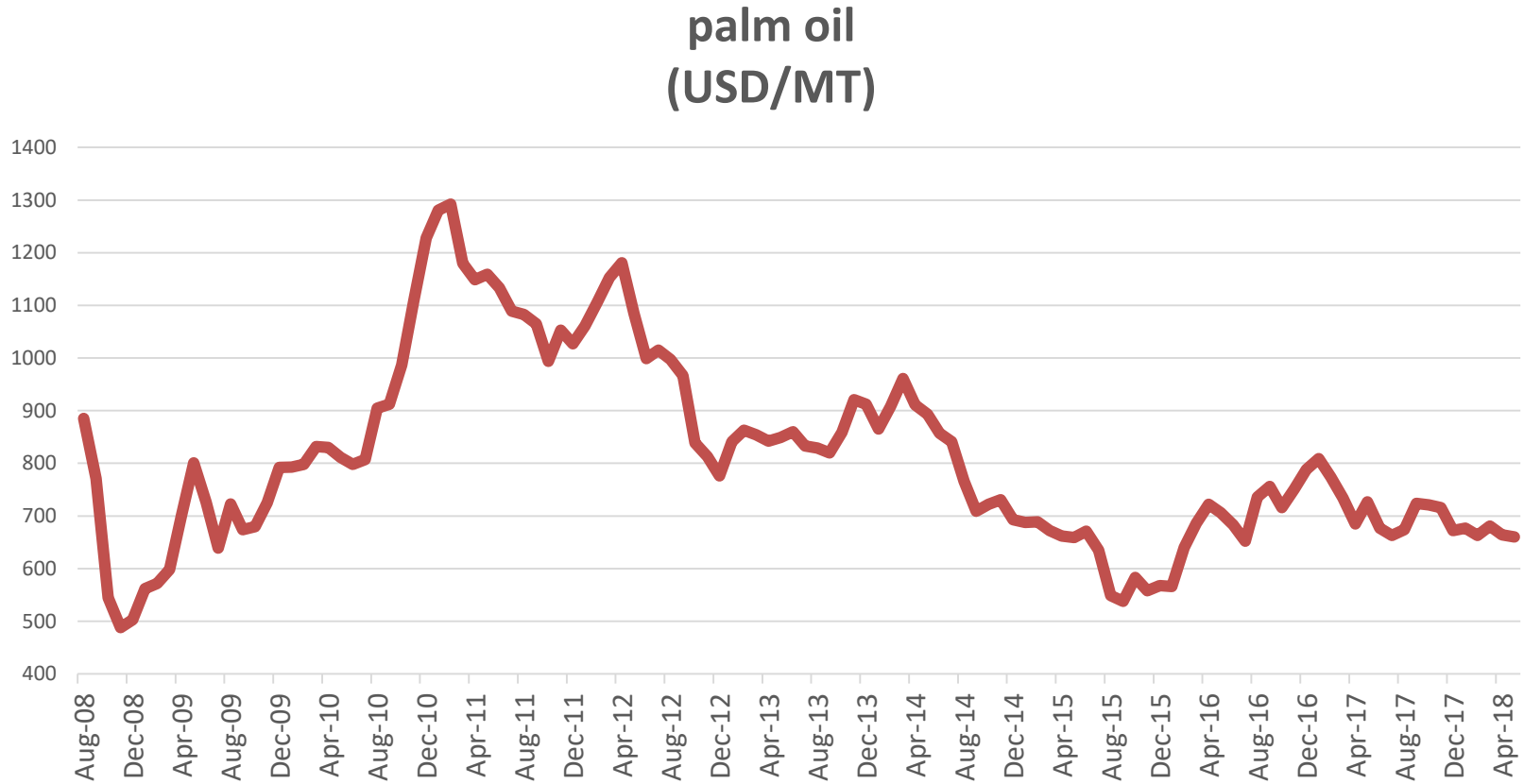
- Switch from the second rice crop to maize
- Switch from rubber to oil palm trees
- But the problem of low prices does not go away because some of these prices have high correlations.

Due to the oversupply of natural rubber and the rising demand for *synthetic petroleum-based rubbers*, **many rubber farmers expand into the more profitable palm tree** business to produce palm oil.

Results: Oversupply of palm fruits

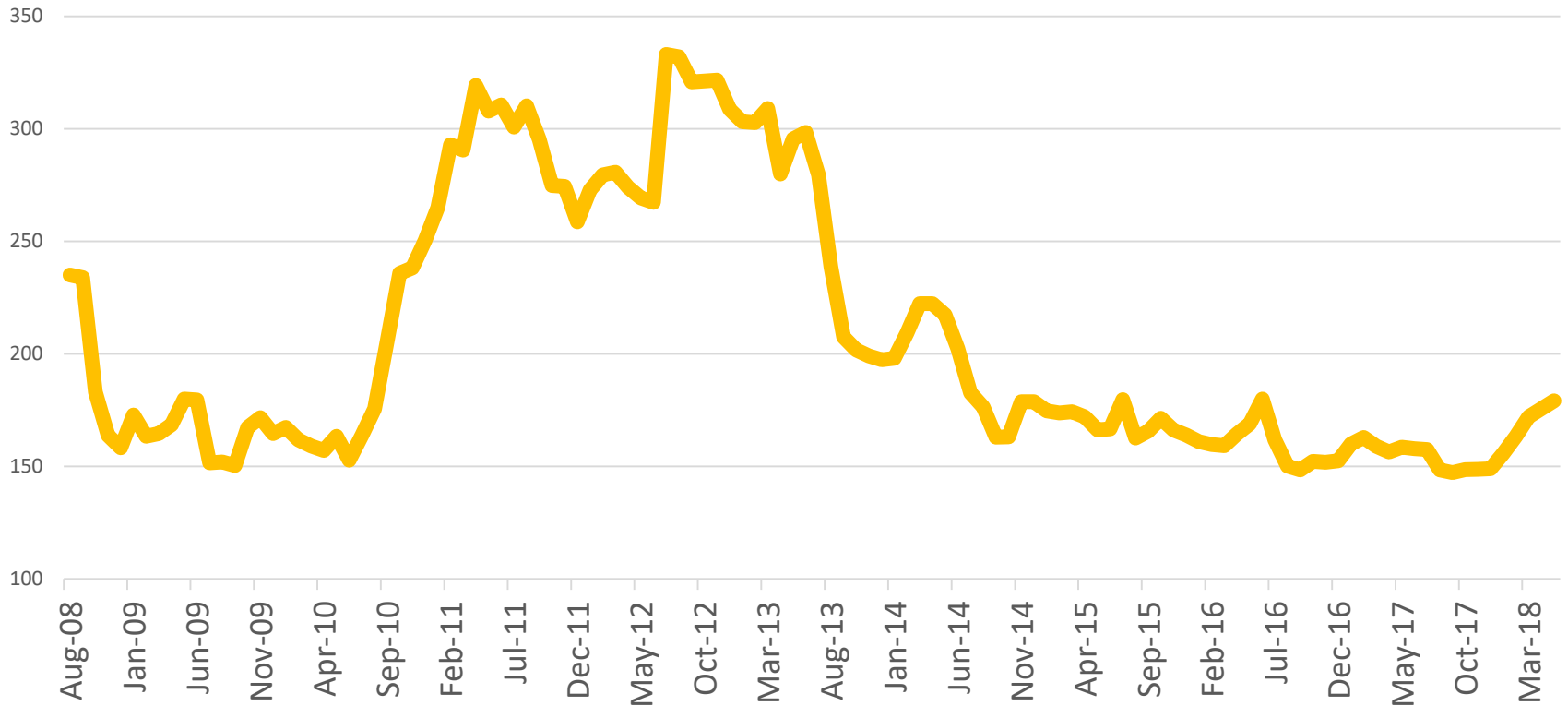


Palm oil price in the last decade



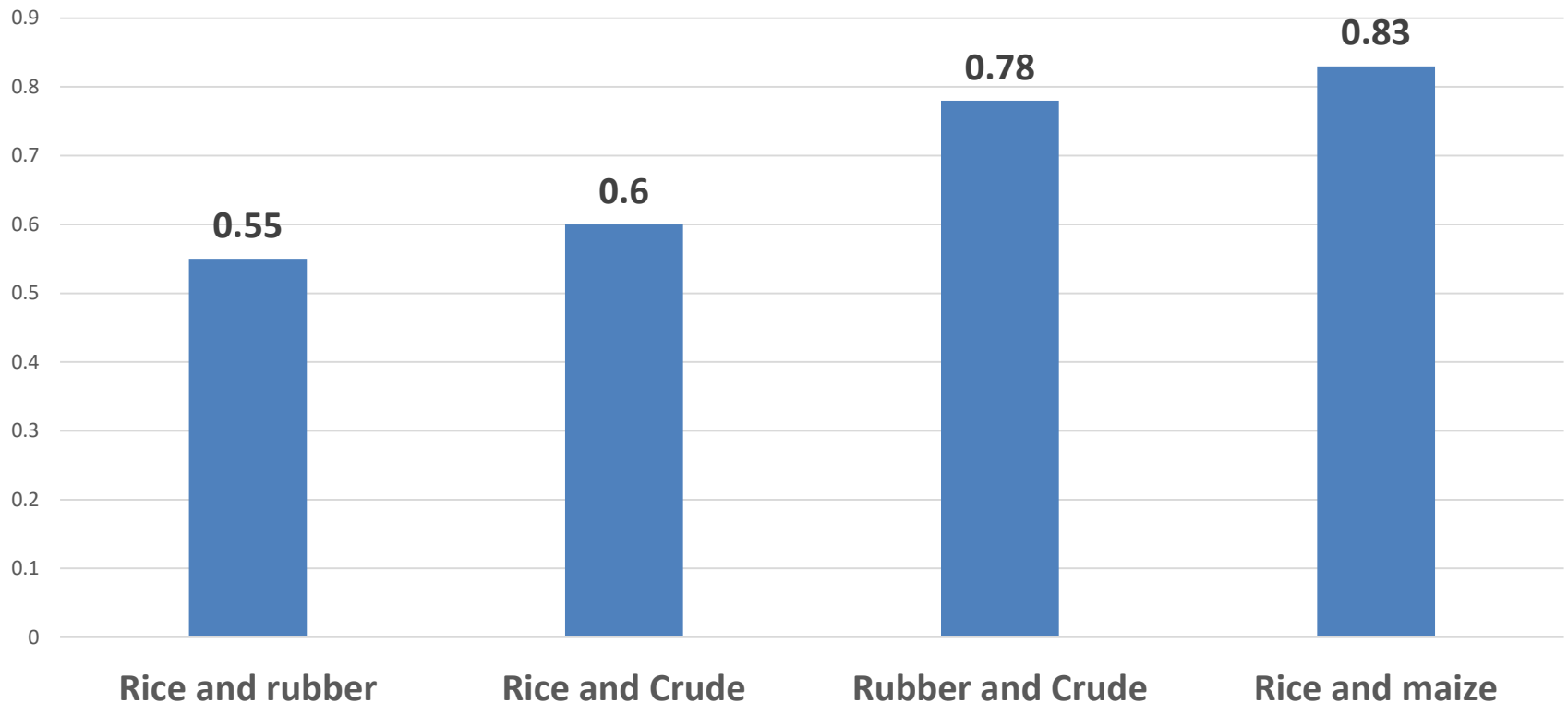
The government paid paddy farmers to abstain from growing the second paddy crop by switching to maize
(Reduce supply of rice and increase supply of maize)

maize
(USD/MT)



Correlates of commodity prices

Commodity monthly price correlates
(1988 - 2018)



Paddy farmers



What can rice mortgage schemes do?

- It is supposed to keep prices stable: Not too low at the beginning season and not too high at the end of the harvest.
- At the beginning of the harvest period, the glut of rice hitting the market drives them down.
- The subsidy works by allowing farmers to “sell” their rice to the government at a fixed price.
- It’s actually **a loan secured by rice inventory (mortgage)**.
- Later in the season, the farmers can reclaim their rice for sale at a better market rate and repay the “loan” to the government, or they can walk away when the strike price in the future is lower than the pledged prices.

What should be the level of the support price?

- The government must set the appropriate buying price, which is higher than what the millers are offering to farmers at the beginning of the season when the market is oversupplied.
- But the pledged price must be lower than the price at the end of the season to stabilize the price during the four months of harvesting season.
- But is the price stability is the only thing the farmers want? It is the total sales that matter more.

Facts

- Price-pledging subsidy has been implemented by Thai governments since the 1980s, long before Yingluck's election in 2011.
- Rice exports declined after the government of Prime Minister Yingluck Shinawatra introduced a price support program in October, 2011.
- After a long absence, India began exporting rice and became a major player.

Facts

- If paddy rice is wet, millers would press for lower buying prices.
- Whether conditions affect the shape of the supply of paddy. Farmers have to rush to sell when weather turns against their fortune.
- Inelastic supply of paddy results in a forced sales and substantially low prices.

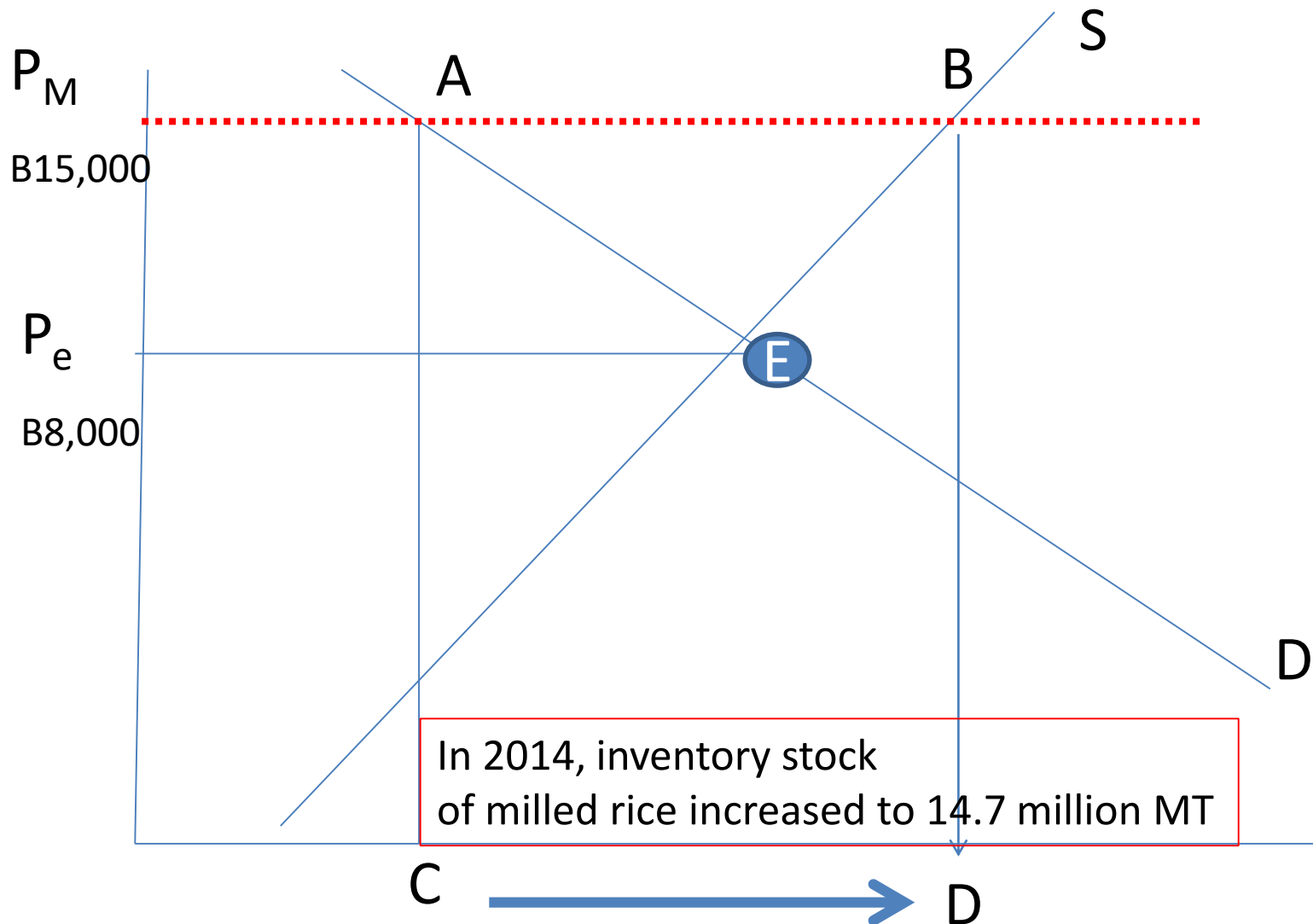
Drying rice grains in Buriram



Paddy **Mortgage** Policy

- The government bought the grains from farmers above market prices to boost domestic prices and to lift rural incomes.
- Analytical diagram (Total subsidies: Area ABCD)
- Excess supply of rice is caused by the higher pledged than export prices.

Mortgage Rice Program for paddy white rice: Oversupply



Consequences of the rice mortgage scheme

- The government spent 689 billion baht in 2011 and 2012 buying rice from farmers.
- The government rice inventories reached 14.7 million tons in 2014, compared with 6.1 million in 2010.
- Storage cost and steep depreciation rate of old rice stock (from consumer uses to industrial uses)

Consequences of the rice mortgage scheme

- Smuggled rice from neighboring countries to get higher price under the mortgage program,
- Reflecting the law of one price. We must quantify the smuggling volumes to estimate the impact:
- “ Don’t let the best be the enemy of the good.”
- Loss of international competitiveness, reflecting the more elastic demand for Thai rice.

Good intention, bad outcomes

- The governments have good intentions in helping farmers earn more from their crops even though they also expected to win their votes during the election.
- Others also receive benefited: millers, brokers, corrupt politicians and officials.
- A “put option” is an option contract giving the owner the right, but not the obligation, to sell a specified amount of an underlying stock at a specified price (strike price) within a specified time frame.
- The mortgage program helps the farmers when the export price is low and offer good returns when export price is higher than the pledged price.

How the rice mortgage system works And why didn't it work as planned?

- Farmers kept their rice in their own granary and got money from the Bank of Agriculture (BAAC) at low interests.
- If the price rose, the farmers could sell their rice and ***return the money with interests*** to BAAC.
- But there was a technical glitch, Yingluck Government could not to pay farmers as it would be in breach of the constitution to borrow money while being a ***caretaker*** government.
- Then came the 2014 military coup...

From The Nation: February 20, 2015

- Public prosecutors indicted ex-PM Yingluck Shinawatra on February 19, 2015 for negligence and filed criminal charges at the Supreme Court.
- The charges stem from the Yingluck government's controversial rice-pledging scheme, which caused Bt600 billion losses to the state.

Is it really a loss?

- Losses? What losses? Since when the government is interested in making profits from agricultural subsidies?
- “History repeats itself”, said Karl Marx. The first is a disaster, the second is a farce.
- We should have learned from the past mistake and take it as an expensive lesson.

All money is gone, and so is she..



Rice is a very thirsty crop

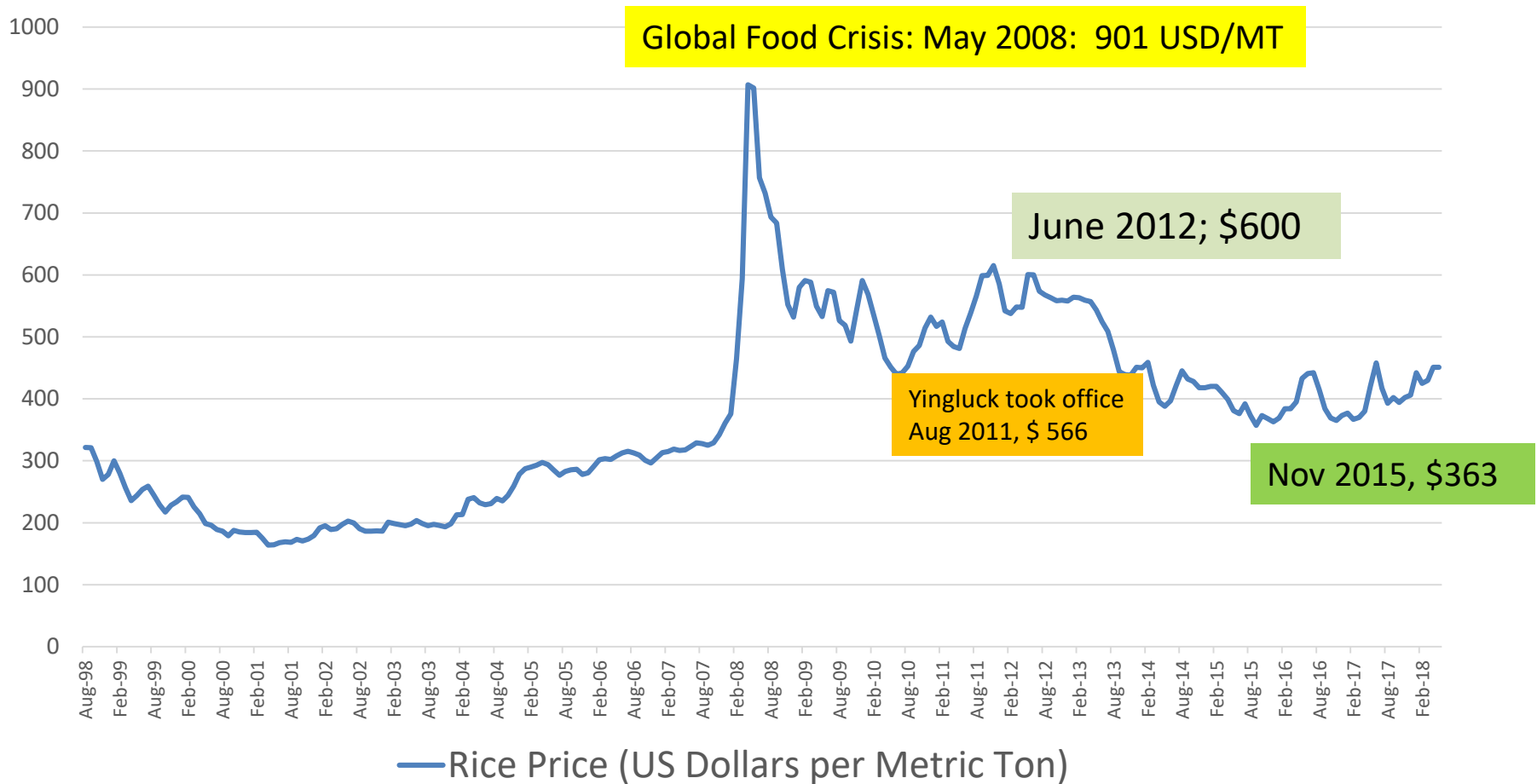
- Some economists suggest the government charges farmers for using water as a way to reduce rice farming.
- When draught comes, the government has to provide help.
- When floods come, the governments need to provide flood relief budget.
- Either too much or too little water for rice farming cost government budgets.

In 2015, Thai government set \$240 million budget to combat drought

Source: Reuters - Wed, 18 Feb 2015

- Thailand's cabinet has approved a 7.8 billion baht (\$240 million) budget to alleviate drought in the country and tackle "water emergencies"
- Thailand is battling drought in eight of its 76 provinces.
- The cabinet approved a 7.8 billion baht budget to be disbursed for 1,712 projects and to be used for water emergencies.
- The funds would be used to provide mobile water tanks and to install water pumps in affected areas,

Rice Prices for the last twenty years



Incessant subsidies:

2015: PCOC pledged paddy price at 13,000 baht per ton

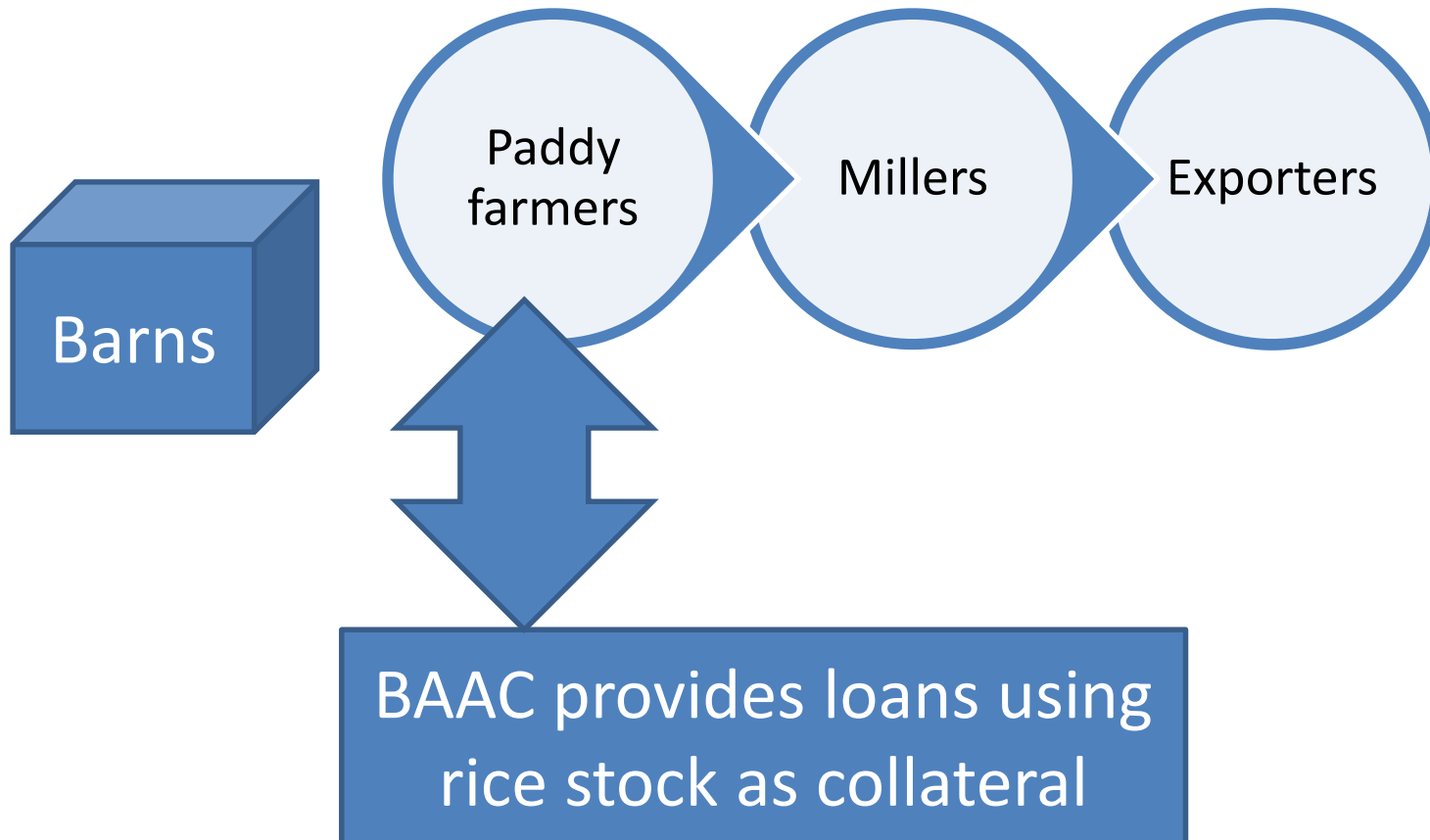
- The rice plantation covers 5.8 million rai
- ***The PCOC government spent at least 20 billion*** baht to guarantee prices for struggling rice farmers in 2015/2016.
- Under the structure approved, the government will pay **13,000** baht per metric ton of jasmine rice, a figure about 1,500 baht over what was proposed by the country's rice management committee that Prayuth chairs.

September 2016

Cash handouts to rice farmers who delayed selling their crops for six months

- The National Rice Policy Committee, chaired by the PM, approved measures to persuade farmers to delay rice sales.
- The measures include 1,000 baht per rai in cash handouts to rice farmers, plus a 4% interest rate subsidy worth of combined 1.24 billion baht to ***millers and agricultural cooperatives*** that agree to hold rice in their warehouses for six months.

“The worst price for rice in years was caused by market manipulation by millers in cahoots with the political opposition.” said the PM



The PM even dispatched soldiers to the provinces to investigate.
Soldiers inspect a mill in Phichit



November 2016

- Under pressure and accused of being responsible for the plummeting prices, the Thai Rice Mills Association dissolved its executive committee.
- “I don’t have the competence to collude with millers nationwide,” said President Manus Kitprasert as he announced his resignation, explaining it was impossible to control the thousands of mills nationwide.
- Manus said millers base their prices to buy from farmers on what exporters are willing to pay.
- Experts agree the pricing situation was out of the control of the millers.
- In fact, they had long expected this year to be the worst for one simple reason: an oversupply of rice.

Yingluck's scheme

- Her government also committed to buying an **unlimited amount** of any type of grain at that price, regardless of its market value.
- The result was that at the end of the season, when prices were still low, a lot of farmers didn't reclaim their rice and default on their loans.
- The government was left with silos full of aging stock.

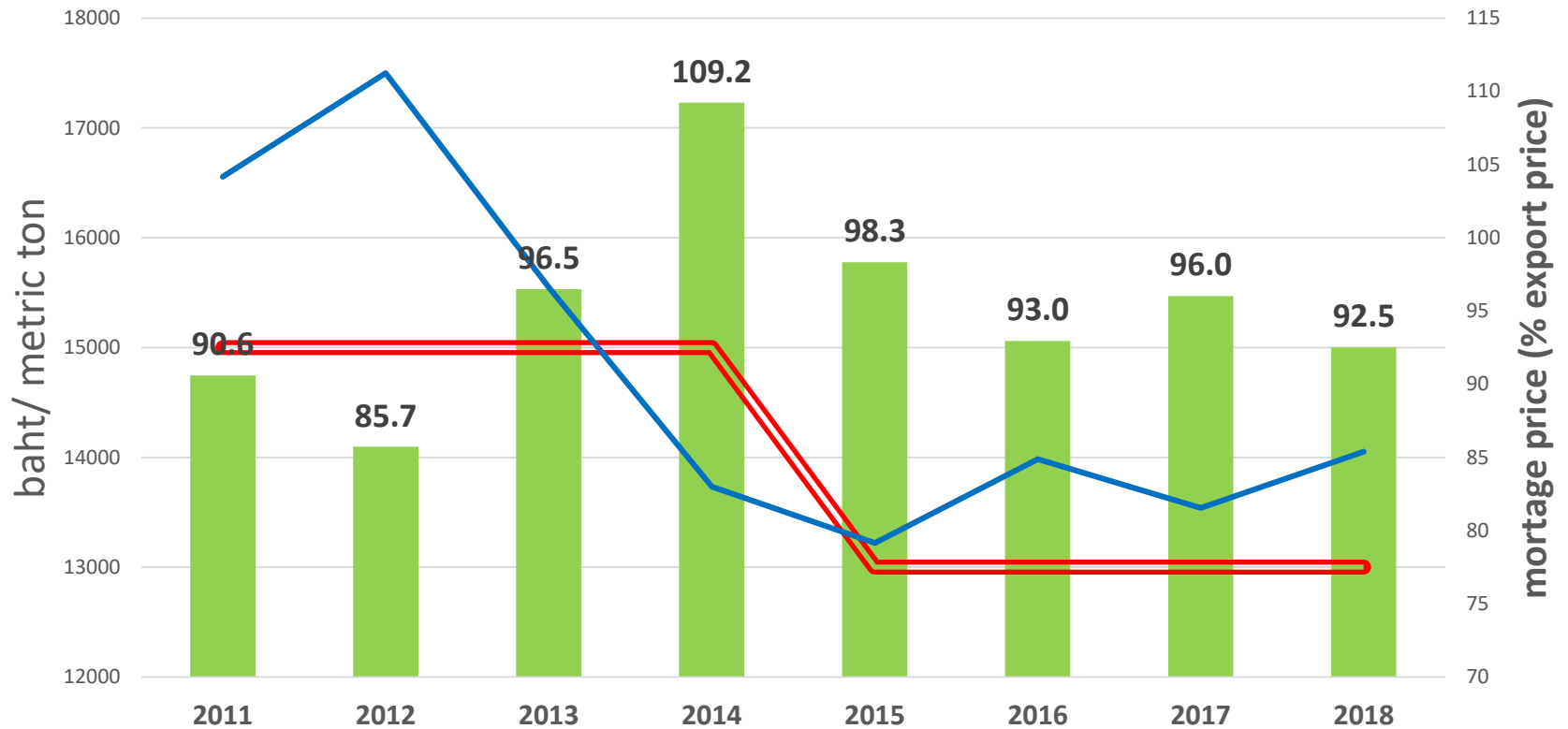
Compare and contrast

- Unlike Yingluck's subsidy, the junta is *capping* the amount of rice per household.
- Two million farmers signed up for the program, which is in effect from November through February.
- The subsidy is managed by the Bank of Agriculture and Agricultural Co-Operatives.
- Farmers will be paid 90 percent of current market price at 9,500 per metric ton, plus 2,000 baht for harvesting costs and 1,500 baht for storage. (**Total: 13,000 baht per ton**)
- Those who don't have barns to store rice will not receive the storage cost.

The rice mortgage schemes under the two government share similarities

- Ineffective, inefficient, and costly (this time it is not considered as “loss.”)
- Rice mortgage schemes cannot change the price or help the farmers in the long run because they tend to keep farmers trapped in the farm.

When export price fell after 2013, farmers gained at the expense of tax payers



Source: Index Mundi

■ Mortgage/Export Price

— Mortgage Price

— Export price

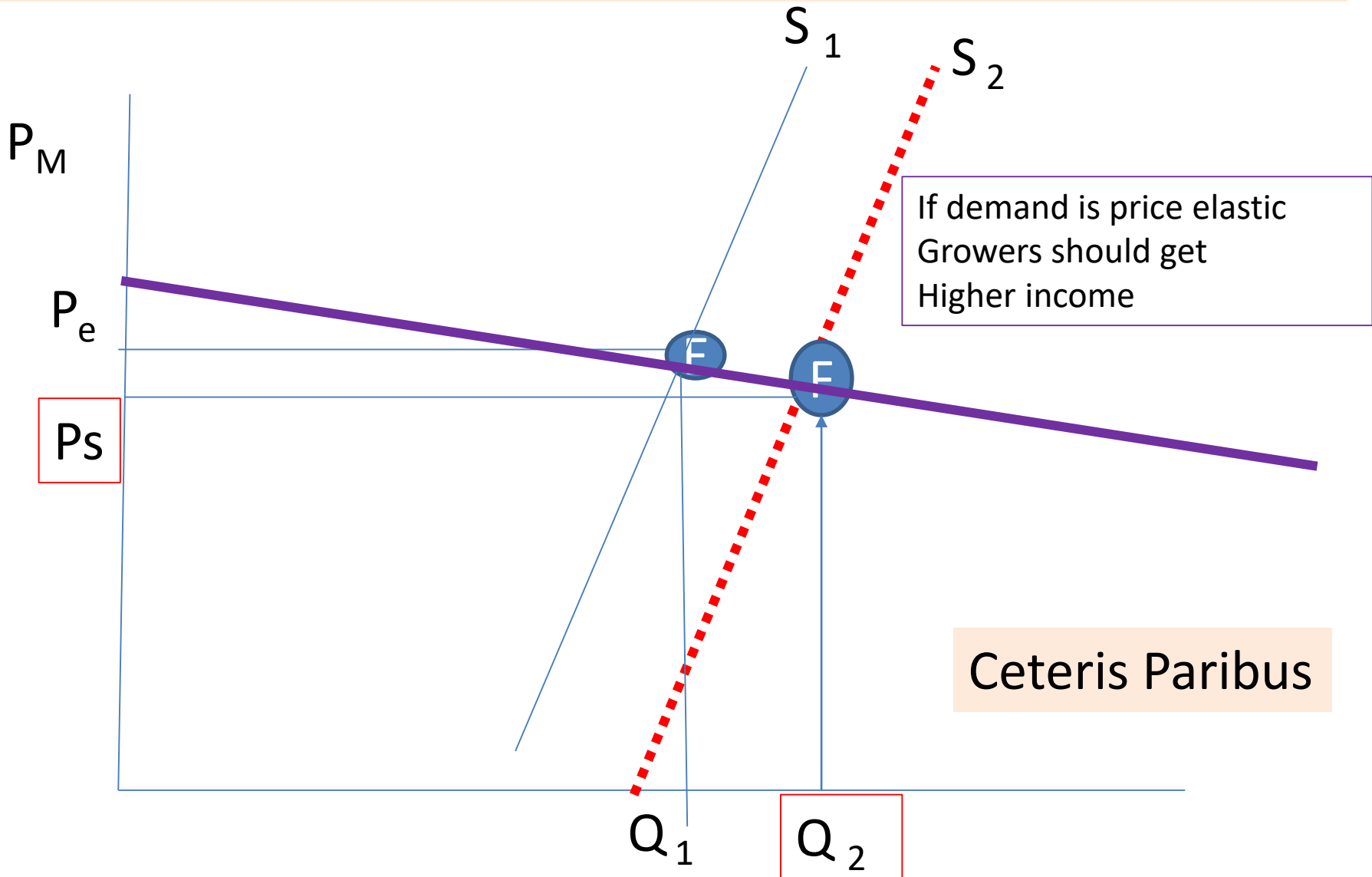
Cassava: Another subsidized crop



Incentives for postponing the harvest of cassava: low cost interest rate

- In January 2015, the cabinet approved 2,760 million baht to subsidize 3 % interest rate for BAAC's 50,000 baht loan for each farmers who **postpones harvesting** in order to push up the price to 2.80 baht/kg at the beginning harvest season.
- The interest subsidy at 3% also goes to processing factories, exporters, and ethanol producers **to purchase tapioca at the high supply seasons** to shore up the price and to farmers who adopt the water dripping system and sand and soil-separated screening system for clean and high quality tapioca. This is a desperate attempt to raise the price during the ample supply reason through raising artificial demand and restraining supply of cassava to the market at the harvest season.
- Recall the warning of Dale Johnson: "It is the bad agricultural policy that hurts farmers."

To subsidize inputs for cassava growers



Another 1.2 billion baht subsidy: 2016

- Ministry of Commerce (September 2016) sought Cabinet approval for a Bt1.2-billion budget to help 500,000 cassava farmers,
- Bank for Agriculture and Agricultural Cooperatives (BAAC) released Bt20 billion loans to help increase financial liquidity for farmers.
- The Bt1.2-billion budget used to pay the 1.5 per cent interest rate for 500,000 cassava farmers for 24 months (Another low interest scheme).

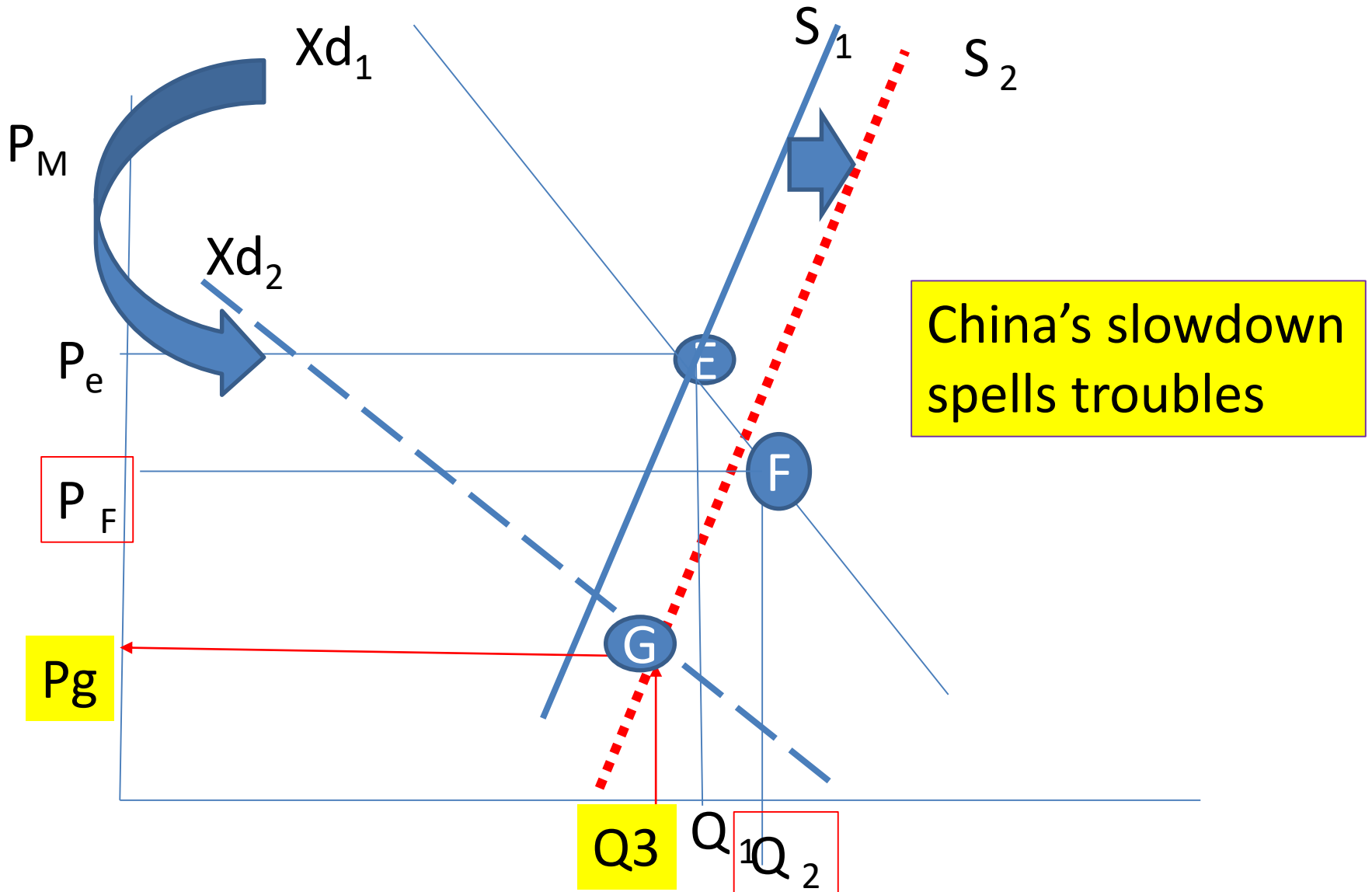
Cheap loans for 500,000 cassava farmers

- In addition, the BAAC will **waive** interest of 1.5 per cent due from the farmers during the same period.
- The government also asked the BAAC to provide soft loans to help some 500,000 farmers.
- The budget allocation will cover soft loans of Bt20,000 to each farmer.
- Farmers will be charged only 0.5 per cent per month for the 12-month tenure of the loan.

Bad news for cassava growers

- In 2016, the export price of tapioca decreased 10 per cent from \$289 per ton in 2015 to \$264.
- The government *has asked* tapioca traders to purchase cassava at Bt1.90 per kilo to protect farmers from the falling prices.
- Cassava is currently traded at Bt1.60 to Bt1.70 per kilogram, lower than last year's price of Bt2.50 per kilo.
- **It is estimated that cassava production in 2016 reached 31 million tones, of which 21 million tones grown from November to April.**
- ***But more supply does not mean higher export revenues.***

But other things do not remain unchanged: no more Ceteris Paribus assumption



Revenue declined as both P and Q fell precipitously

In 2017, tapioca stock-export ratio is raised to from (0.5 to 1.5) 50% to 150 %

- The first 11 months of 2016, tapioca exports declined to 10.1 million ton (5.1 %) and 2.7 \$ billion (17.4 %)
- Previously, Ministry of Commerce required tapioca exports to maintain previous month of stock at least 50% of export quantity.
- The MoC reacted to falling the falling price by raising the required stock export ratio to 150% of exports.
- The idea is to raise the domestic demand for cassava to shore up the price level.
- Don't forget that cassava is a traded good.
- What are the consequences of this scheme?

The PCOC government shall lend a helping hand in 2018/19

- Price guarantees
- Soft loans (0.1 % from BAAC)
- Crop insurance (premium of 45-50 baht per rai)
- A 50 % haircut of NPL from BAAC
- Low interest rate: MLR minus 3% (about 4 %) for 15 years

Conclusions

- Changing weather pattern disrupts the regular supply of grains.
- Cyclical movements in world business cycles affect demand for agricultural raw materials.
- Imbalances in supply and demand of agricultural commodities lead to booms and busts of primary products.

Conclusions

- Because of the lag responses of agricultural production, the resulted excess supply and demand necessitate governments to regularly intervene to stabilize farm incomes through various commercial policies and farming subsidies.
- Rural poverty and rising farm debts provide incumbent governments an excuse to intervene, enhancing the opportunity to please voters and pacify the less well-off.
- Enormous budgets are allocated for subsidies, at the expense of other long-term agricultural investment, which turns out to be inefficient and ineffective.

Review Questions

- Discuss the costs and benefits of the rice-pledging program in short-run and long-run impact on the Thai economy.
- Should the government intervene to support commodity prices such as tapioca and sugarcane?
- How should the government subsidize farm inputs?
- What should be a sustainable scheme to help farmers in the long run?

EE460 Midterm March 16, 2018

March 13, 2018: 9:30-11:00

Open book exam

Answer all questions

- (1) During the early development, Thailand experienced economic stability and several external shocks. Explain how energy subsidies, multiple exchange rates, and world business cycle are relevant during this period.
- (2) To what extent was Thailand's "original sin" responsible for the financial crisis in 1997?
- (3) Has the military government delivered "happiness" to the Thais after the 2014 coup? Use the concept of happiness defined by Richard Layard when answering this question.