EE460: Resilience of the Thai Agricultural Exports

Bhanupong

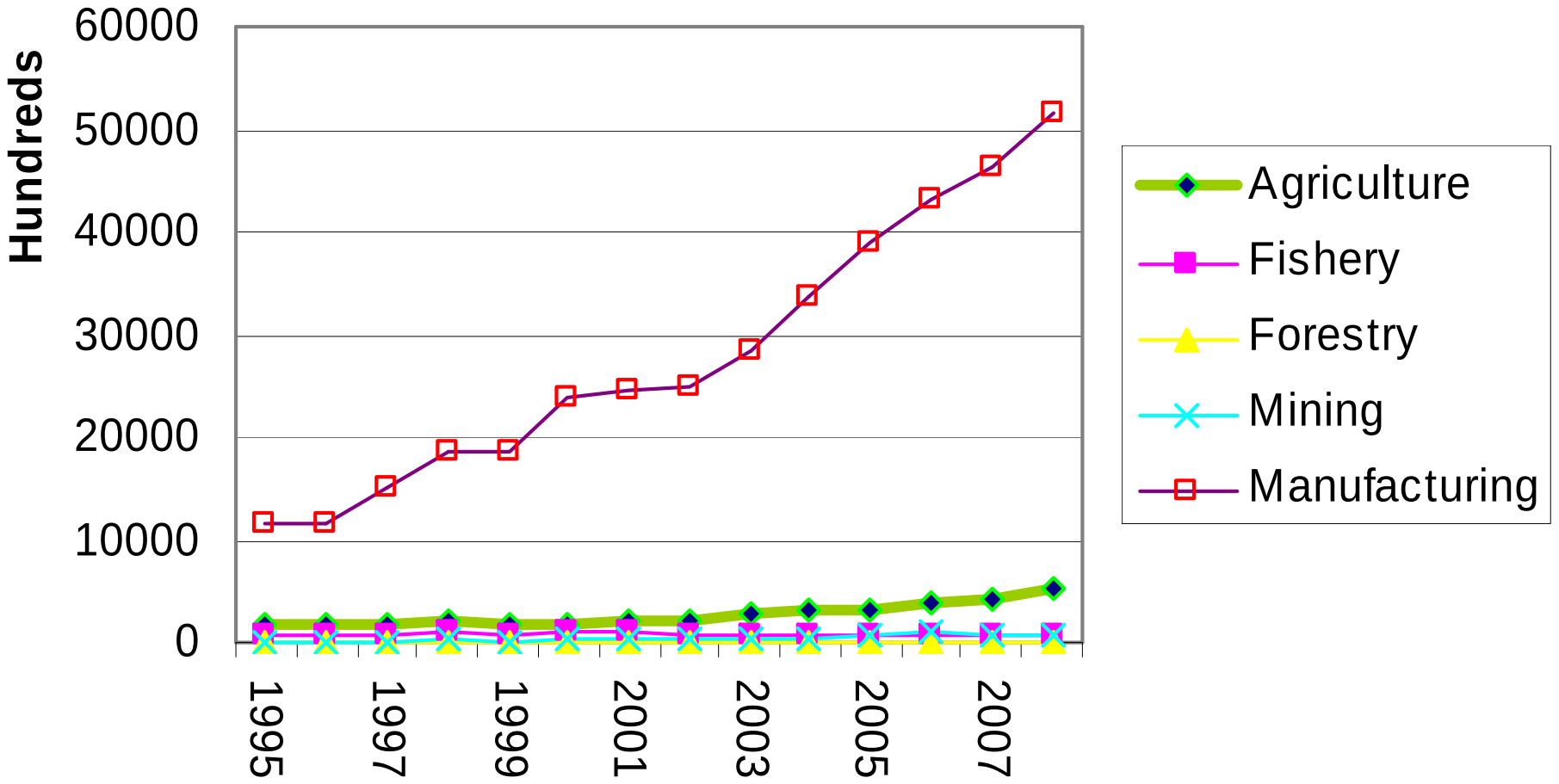
Lecture 12

Trend of agricultural exports

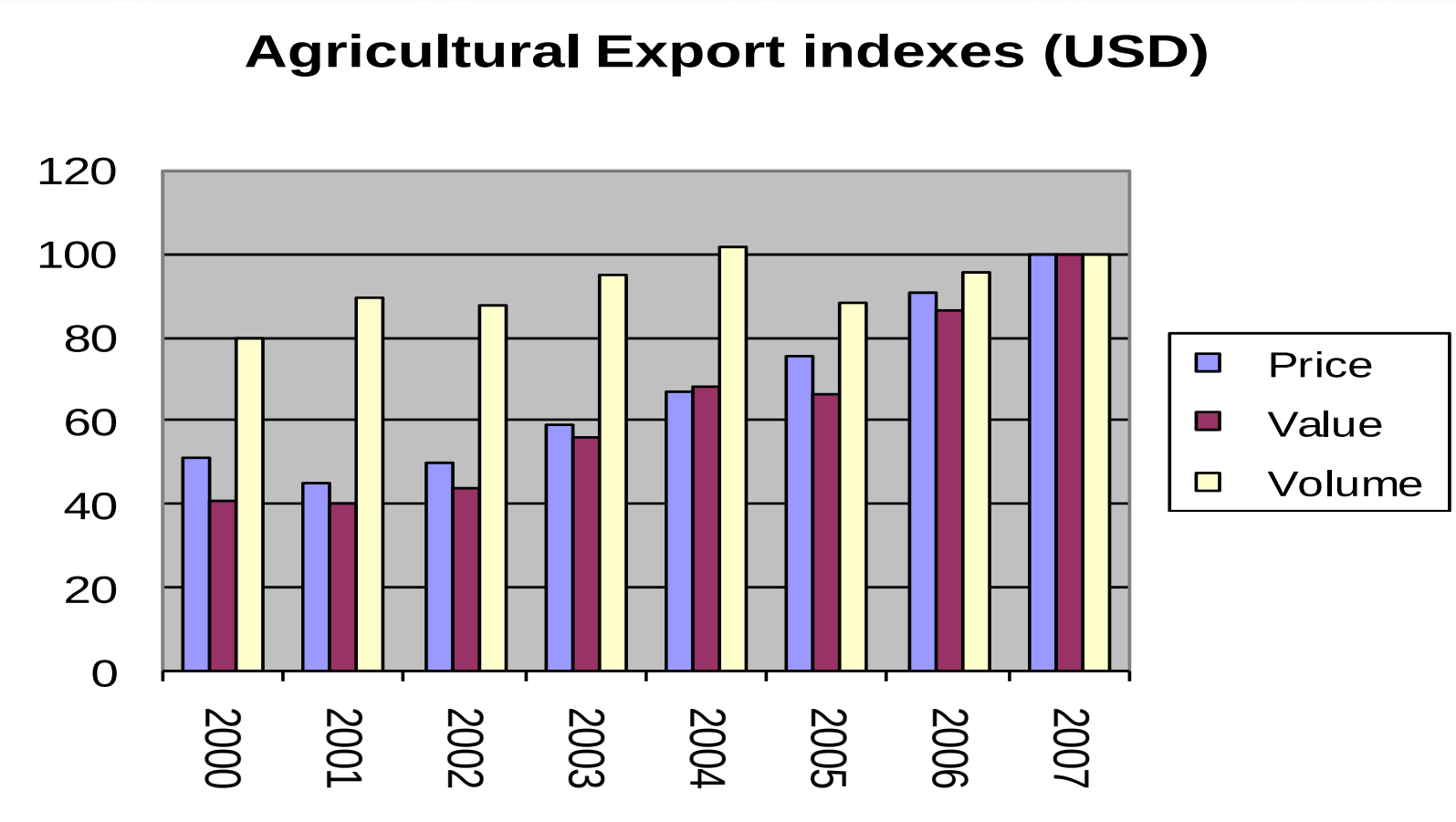
The rise and fall of commodities

Diversification and dynamism

Exports by product group (mil baht)



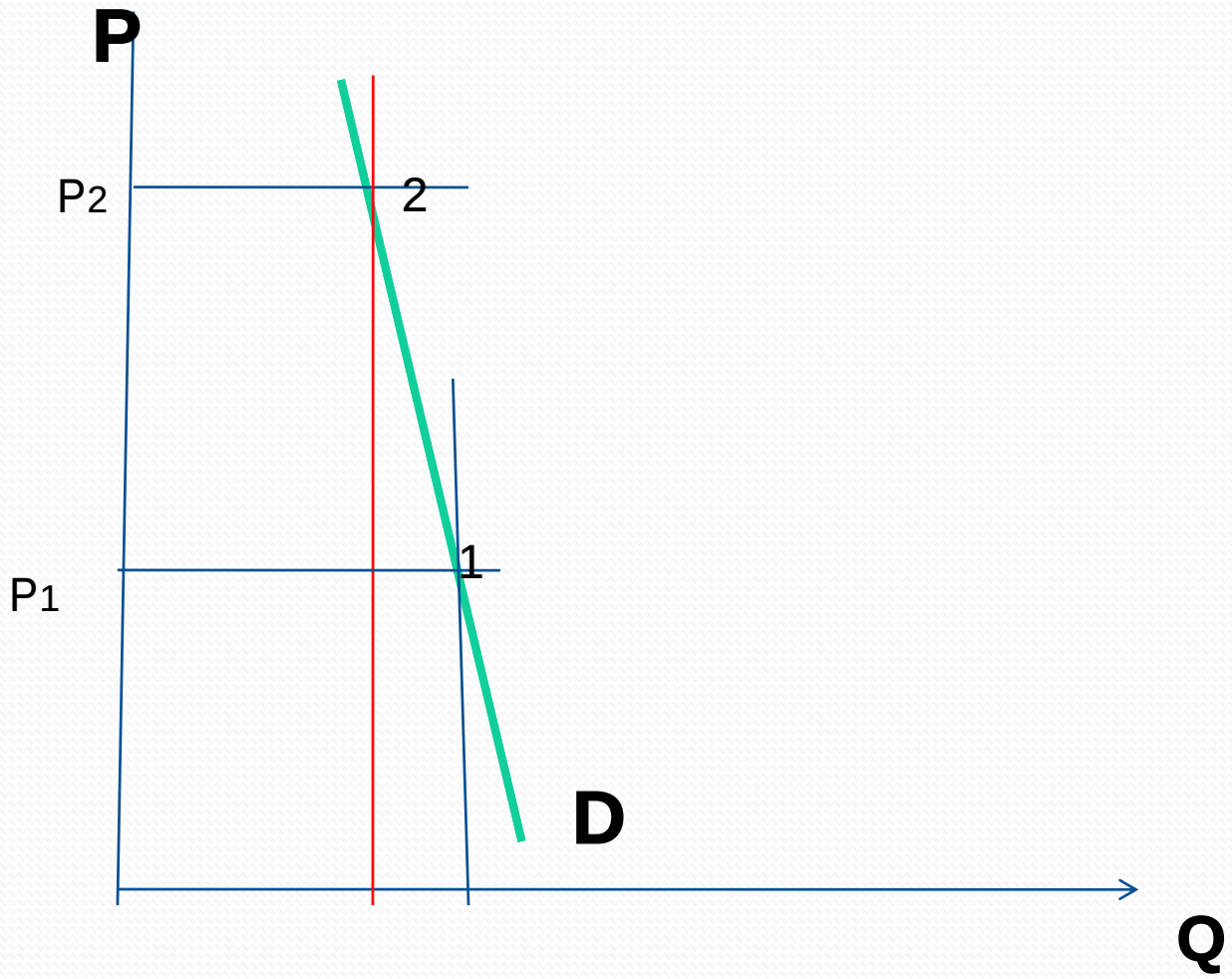
Value(income)= Price * Volume



Inelastic demand

- The value index tracks more closely the price rather than the quantity index.
- Exports values are largely determined by price movements rather than volatile quantity.
- Positive correlation between total revenue and prices.
- Can Thai exporters set their own prices?

Nature of agricultural products markets



Worsening terms of trade

- Since 1996, the terms of trade had been *unfavorable* to Thai exports.
- But agriculture suffered more than other commodities, experiencing a sharp decline by 50 percent in 2001 from the 1995 level.
- But 2008/9 was a different story.

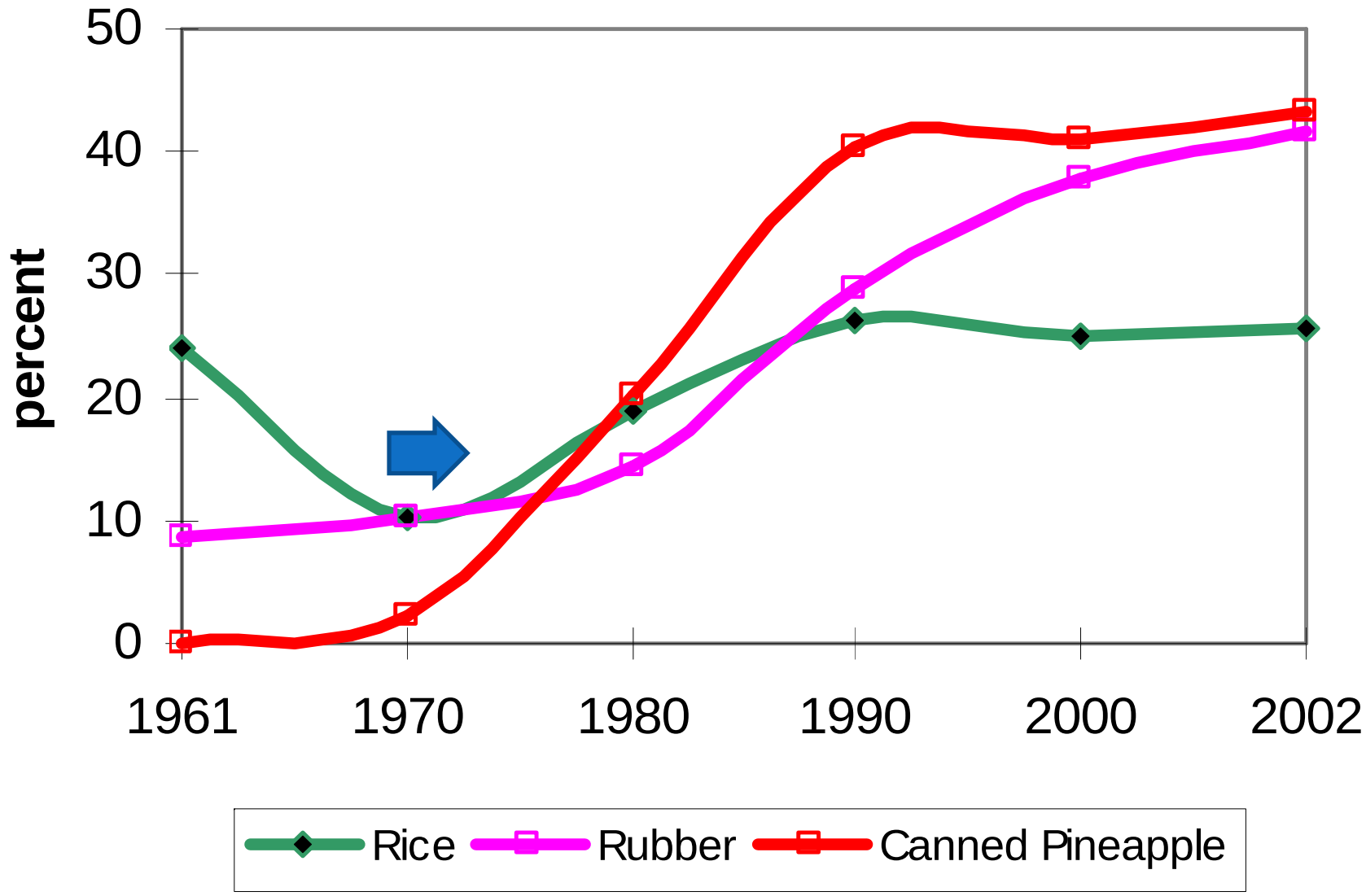
Worsening terms of trade

- Export prices of fisheries and resource-based products suffered the same fate—albeit less severe reduction.
- Manufactured goods (labor-intensive and high-tech related products) also suffered from the declining trend, but there were some improvements after a brief world economic slump in 2001.

Saved by baht depreciation, Hurt by baht appreciation

- When expressed in terms of baht, agricultural export prices did not decline as much as in the dollar terms.
- A one-shot exchange rate depreciation helped propel agricultural exports for a few years because of the continued weakening of the dollar.
- What matters for the exporters most is the baht value of their exports which has been on the increasing trend, except for 1999 when the baht sharply appreciated against the dollar.
- This is the reason why the government wants the baht to remain weak.

Shares of Thai Exports in the World



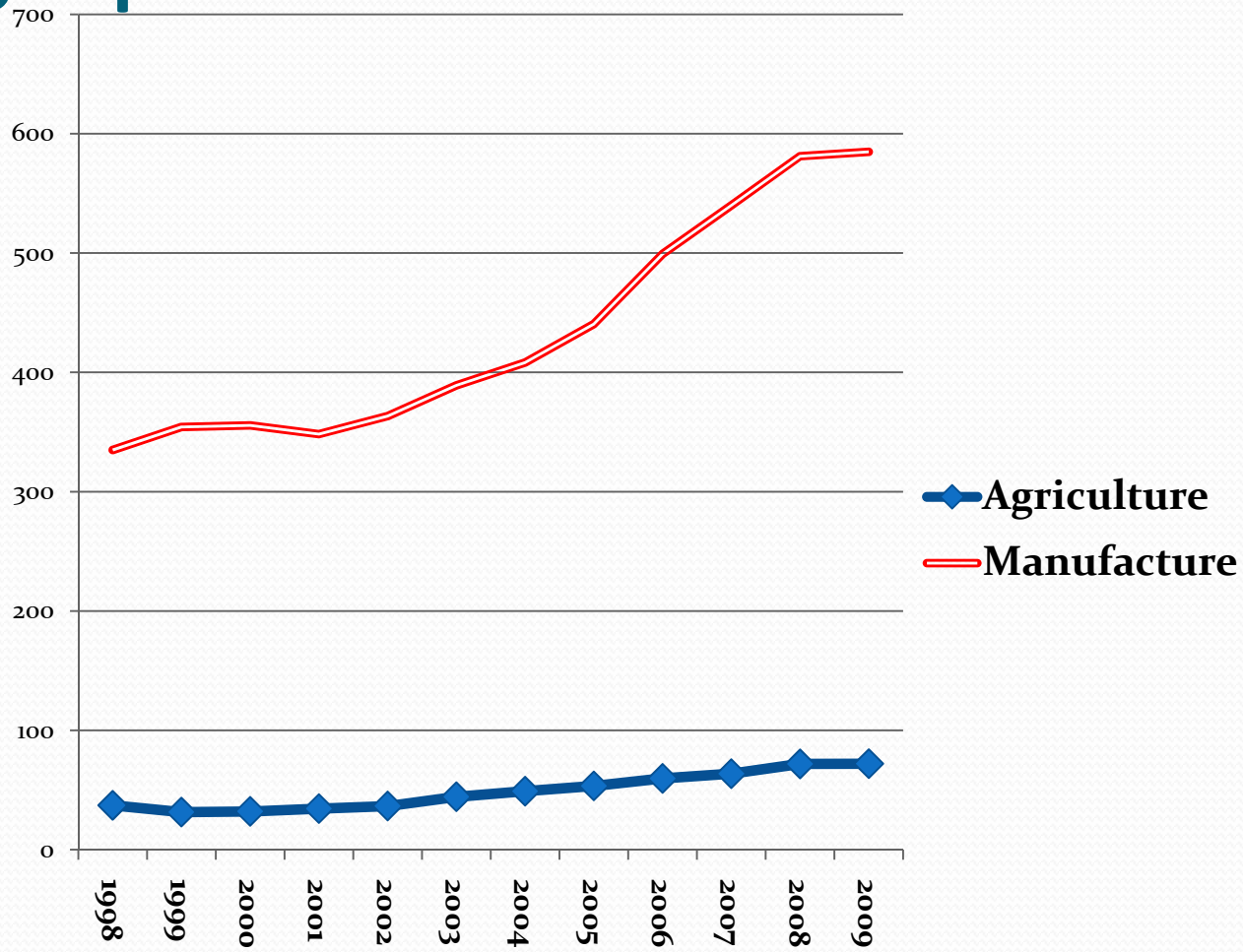
Robust rice: productivity is the key

- **Traditional exports such as rice and rubber have been robust for some reasons.**
- **Both commodities have experienced improvement in productivity.**
- **Rice, as a major staple food, has considerable productivity growth,**
- **Natural rubber is a business-cycle sensitive products relating to industrial growth.**

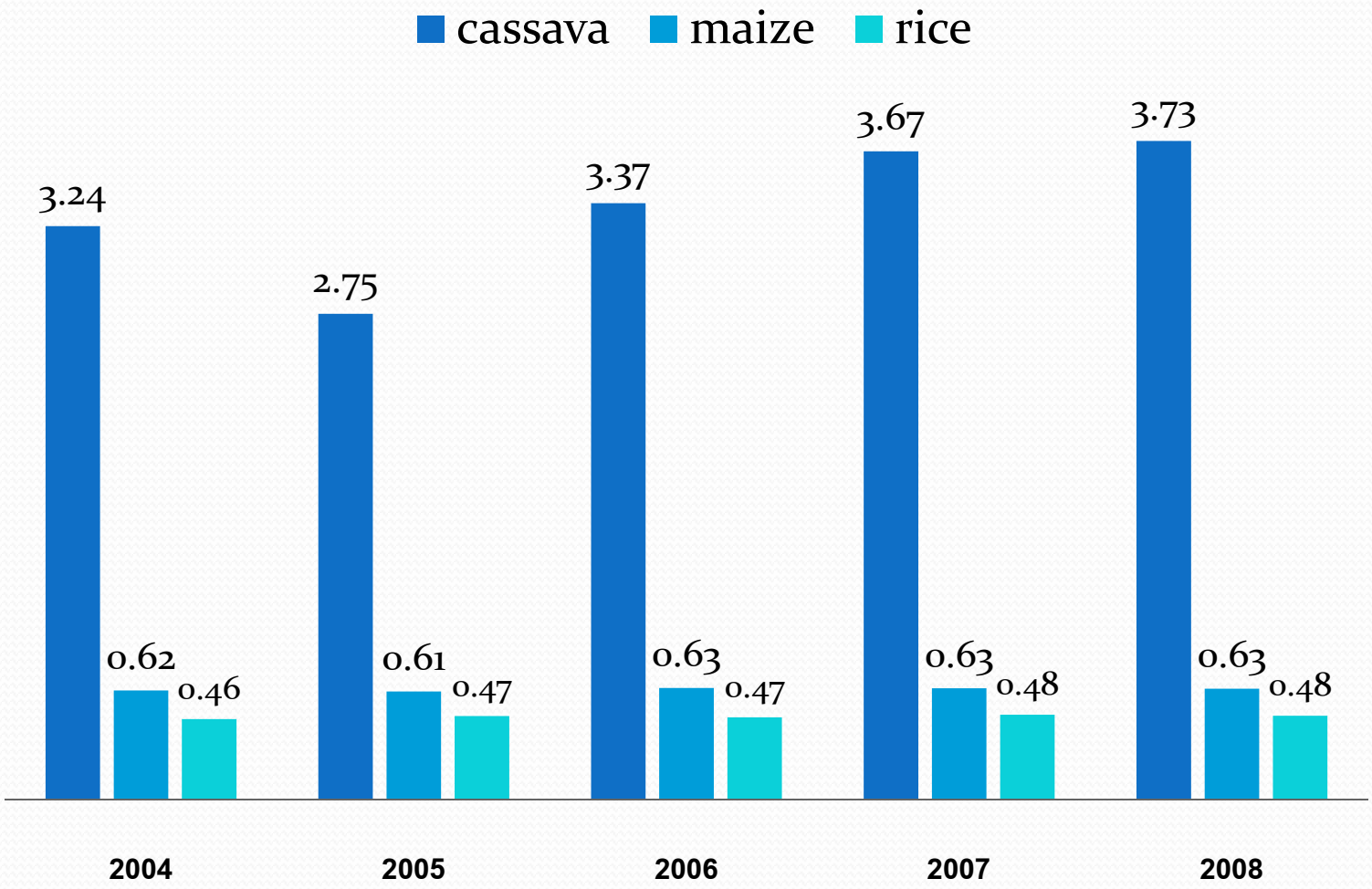
Baumal-Bowen Hypothesis

- In the rising productivity sector, output per man-hour increases more rapidly than the money wage rate.
- The labor cost per unit of output in the progressing sector must fall.
- The faster the pace of technological advance, the greater will be the rate of increase in the overall wage rate
- Labor is free to move between the two sectors and the real wage rises according to the average rate of change of productivity.

Average product of labor



Output per land (ton/rai)



Baumal-Bowen Hypothesis

- To join the rank of rising productivity industries, the agricultural sector would have to learn to increase output per man and to continue to do so into the indefinite future.
- The rising productivity and wage rates in the urban areas put upward pressure on the costs in sectors that lag behind in productivity improvement.
- **Live performing arts belong to the stable productivity sector of the economy.**


Spot the opportunity
Average monthly wage, $
Malaysia
Thailand
Philippines
China
Indonesia
Vietnam
600
500
400
300
200
100
0
1990
95
2000
05
09
Source: Economist Intelligence Unit

Resilient rice and rubber

- The world market share of Thai rice suffered from a decline from 24 percent in 1961 to only 10 percent in 1970.
- But its ***resilience*** was demonstrated by the recovery of the market share: rising from 19 percent in 1980 to 26 percent in 2000.
- Rubber gained a significant market share from 8.6 percent in 1961 to 38 percent in 2000.

Shares in the world market of non-traditional exports

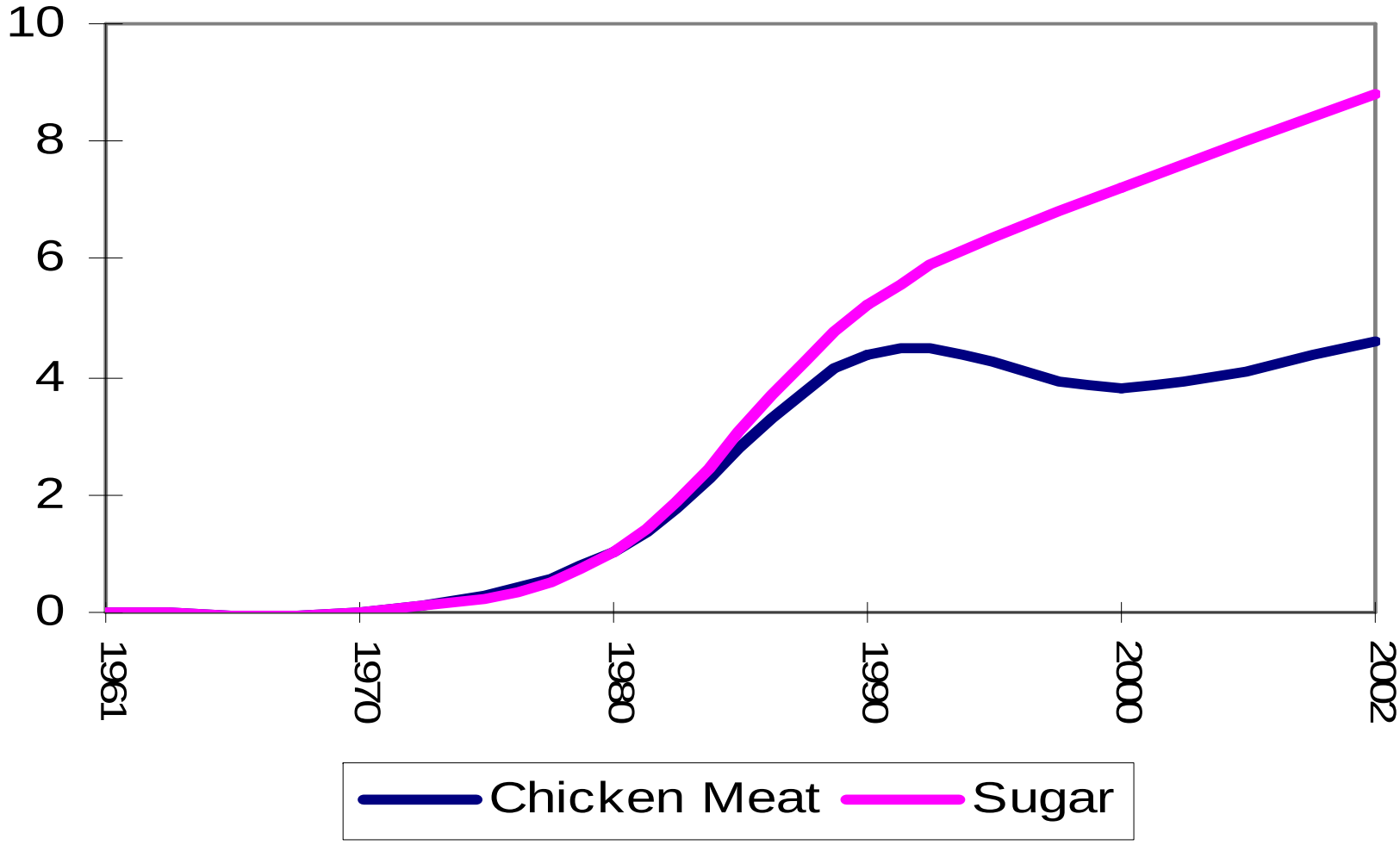


Table 1: World Markets and Thailand's Exports Growth Rates

	1961-1980		1981-2003	
	World	Thailand	World	Thailand
Rice	9	8.6	3.8	3.2
Rubber	7.5	10.2	1.8	6.3
Chicken Meat*	13.7	80	8.6	12
Sugar	12.1	45.7	-0.22	5.1
Canned Pineapple**	9.4	49.7	2.4	4.8
Cassava Dry	31.4	42.2	-5.9	-5.5
Maize	15.4	13.8	0.34	-15.5
Jute-fibers***	-1.8	-3.3	-3.8	-4

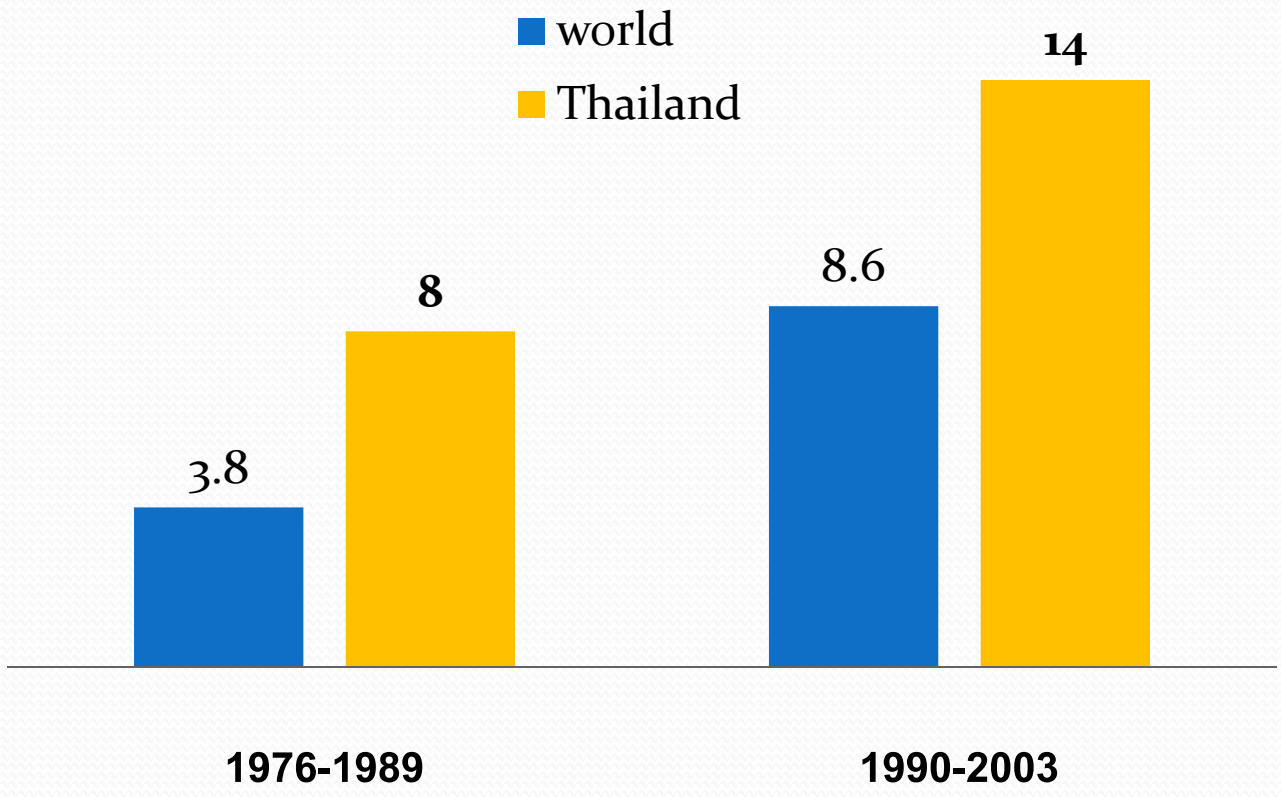
$$\eta = \frac{\partial \ln X}{\partial \ln Y} < 0$$

- **Commodities with low income elasticity of demand like jute disappeared completely in the period 1981-2003.**
- **Maize was a commodity boom in the period 1961-1980, Thailand's exports of maize also grew by 13.8 percent.**
- **Its world growth rate declined to 0.34 percent in the period 1981-2003, when Thailand's exports of maize also declined sharply by 15 percent.**
- **Cassava also turned from rising stars in the period 1961-1980 into retreat in the second period.**
- **Thailand's exports of cassava also adjusted accordingly to the negative price incentives and the world market retreat.**

Nothing remains unchanged

- **Canned pineapple exports of Thailand also adjusted its position from rising stars into falling stars in the second period.**
- **The top five agricultural exports commodities followed the same pattern of other successful commodities.**
- **In the future some of these top products would soon be disappearing and they would be replaced by newly emerging agricultural commodities.**
- ***This is an element of dynamism and resilience of the Thai agriculture.***

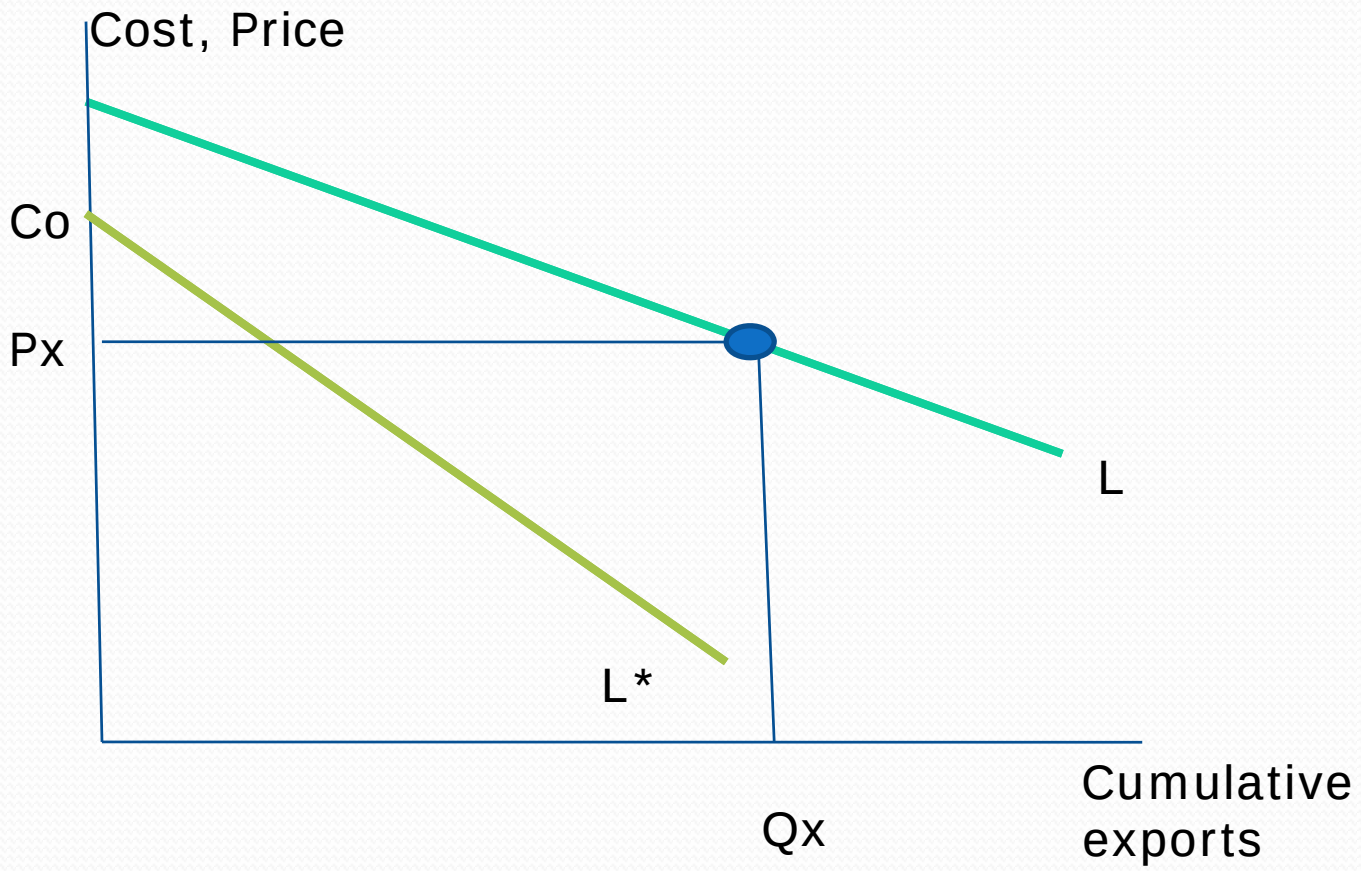
Fresh vegetable exports (% growth)



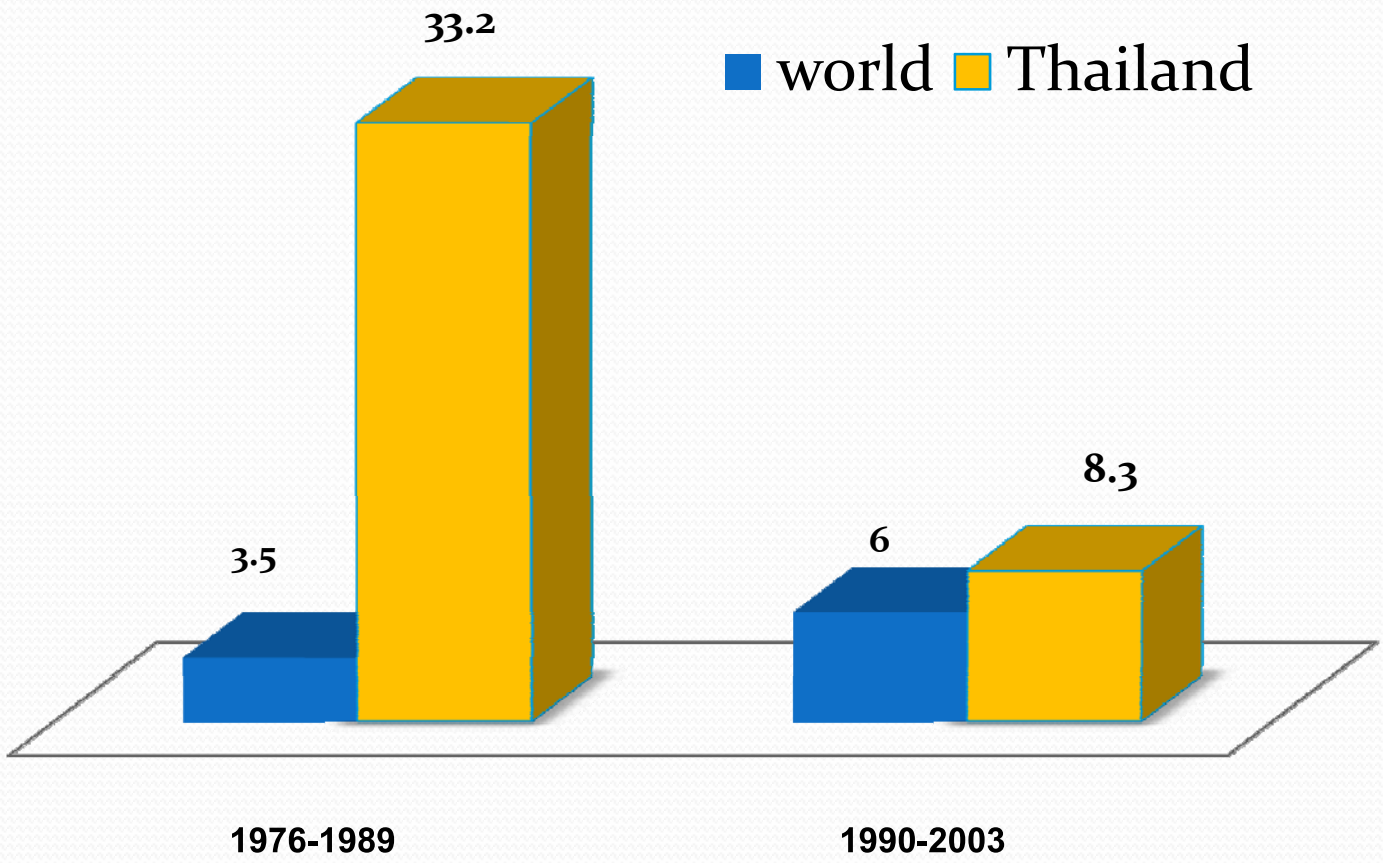
The learning curve

- The learning curve shows that unit cost is lower the greater the cumulative output of a country's industry to date.
- A country that has extensive experience in an industry (e.g. rice production) may have lower unit cost than other countries with little or no experience, even if the second country's learning curve (L*) is lower, for example, because of lower wage.

Learning by exporting



Frozen vegetable exports (% growth)



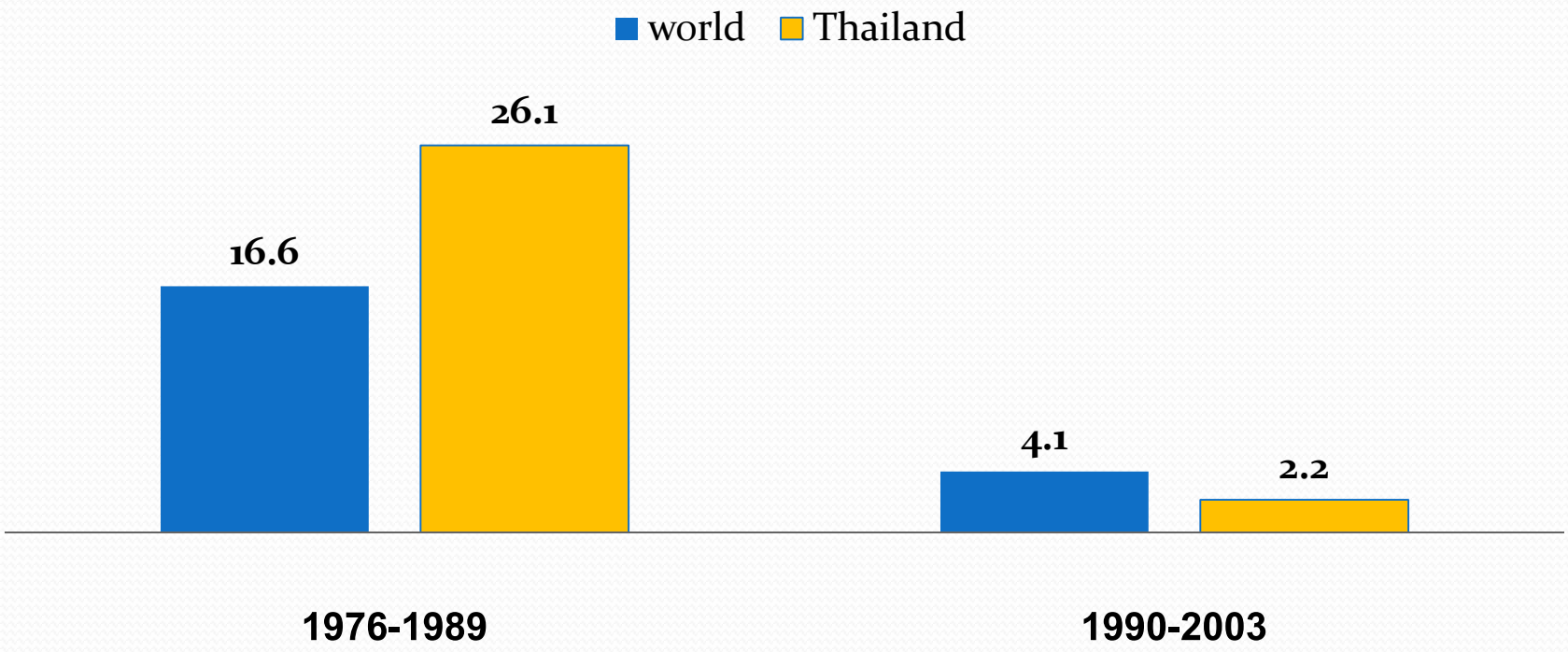
New products

- Vegetable and fruit exports are chosen to illustrate the flexibility of the agricultural export sector.
- When the world market expanded during the period 1976-1989, the Thai industry responded at high growth rates in both value and quantity terms.

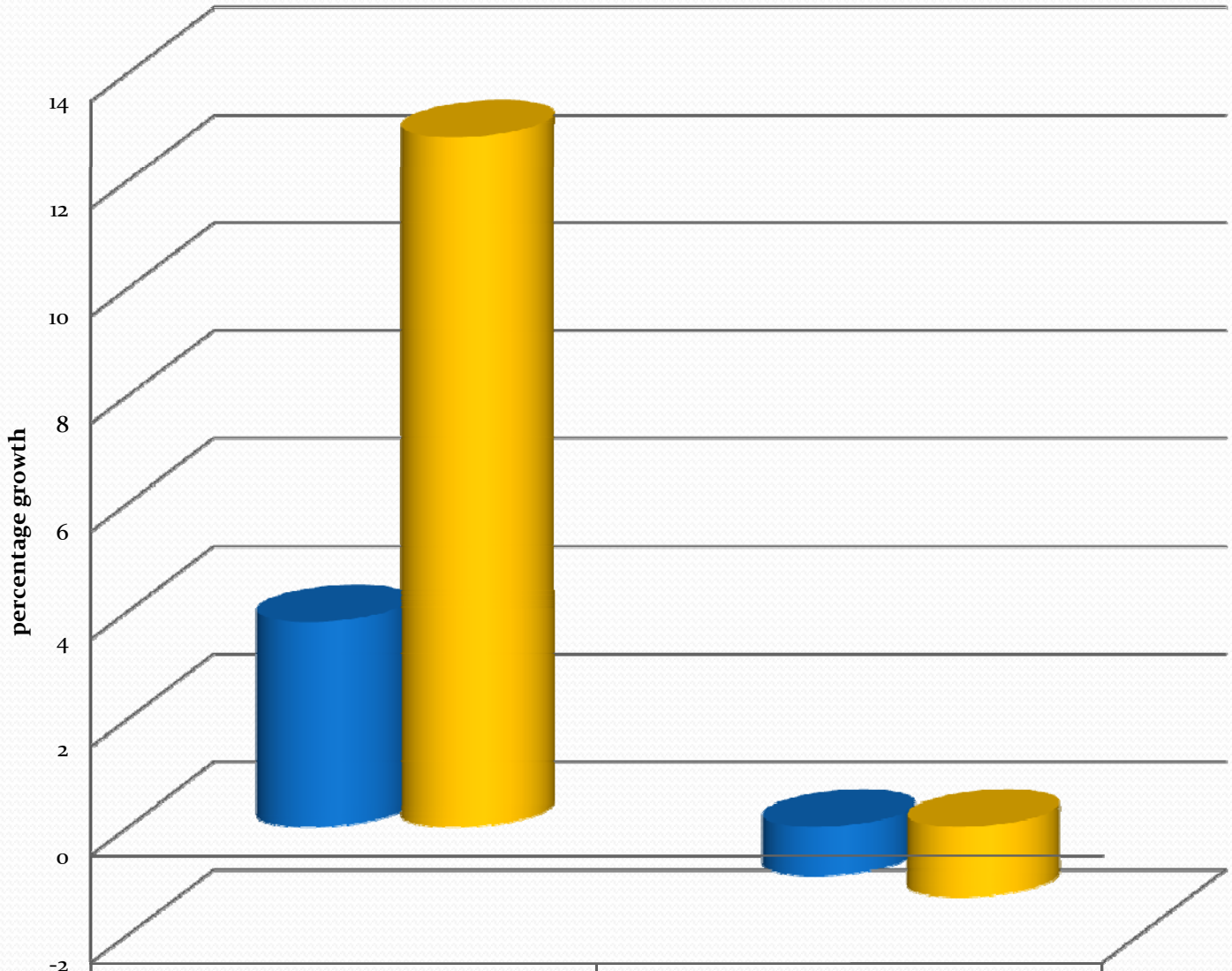
Learning by exporting

- Starting from low bases, growth rates in the first period would always be greater than after the commodities have firmly established their positions and exported in large volumes.
- Thus in the second period between 1990 and 2003, the growth rates slowed down appreciably from the first period.

Pineapple juice exports (% growth)



Canned pineapple exports



	1976-1989	1990-2003
world	3.8	-0.9
Thailand	12.8	-1.3

Snapshots from the past

- The changing pattern of Thailand's agricultural exports in the last four decades is shown by snapshots of top five agricultural commodities.
- Shares of rice and natural rubber in total agricultural exports have been declining gradually as new products have emerged and old products have faded away.
- Jute, maize, and cassava are no longer the principal agricultural commodities as there have little productivity improvement.

Principal Agricultural Exports: 1961

(percent of total Agricultural exports)

Items	Share
Milled Paddy Rice	42.7
Rubber Natural Dry	25.7
Jute	7.5
Maize	7.3
Cassava Flour	5.2
Total of top five:	**88.4**

High Concentration

- Back in 1961, milled paddy rice and natural rubber were main export products.
- Jute, maize, and cassava flour were other items on the top five items accounting for 88.4 percent of total agricultural exports.

Principal Agricultural Exports: 1970

(percent of total Agricultural exports)

Items	Share
Milled Paddy Rice	24.3
Rubber Natural	21.7
Maize	18
Cassava Dried	9.8
Jute	6.9
Total Share	**80.7**

Principal Agricultural Exports: 1980

(percent of total Agricultural exports)

	Share
Milled Paddy Rice	28.1
Cassava	19.8
Rubber Natural	18.1
Maize	10.5
Sugar (Raw)	4.3
Total top five:	**80.8**

Principal Agricultural Exports: 1990

(percent of total Agricultural exports)

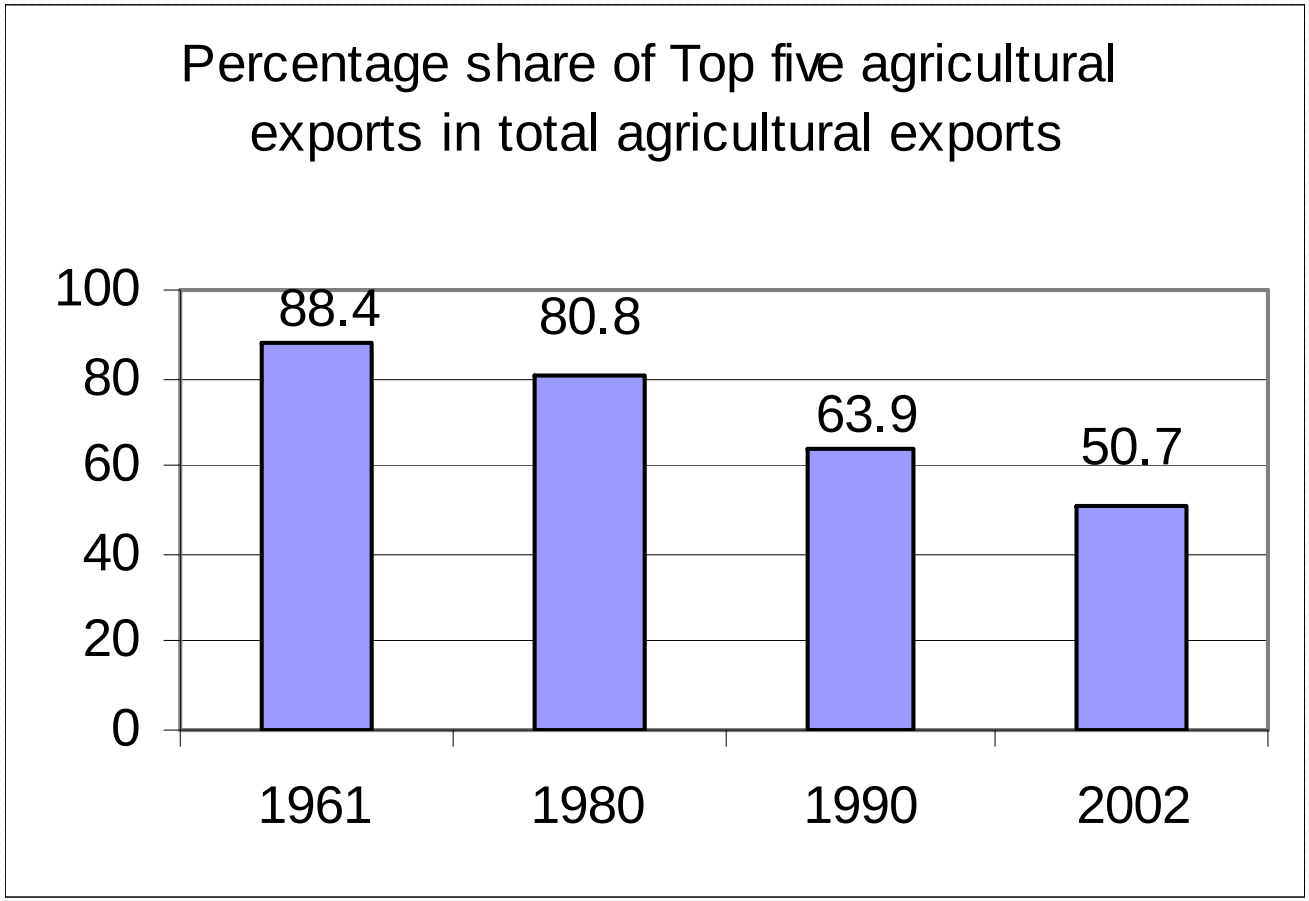
	Share
Milled Paddy Rice	18.5
Rubber Natural Dry	16.2
Cassava Dried	14.7
Sugar (centrifugal raw)	9
Chicken Meat	5.5
Total sum of top five:	**63.9**

Principal Agricultural Exports: 2002

(percent of total Agricultural exports)

Items	Share
Rubber Natural Dry	17.3
Milled Paddy Rice	17.1
Chicken Meat	6.5
Meat Canned chicken	5.2
Sugar refined	4.6
Total share	**50.7**

Diversification of agricultural exports
Bonus question: the share in 2009?



Conclusion

- Being resilient requires flexibility.
- Minimizing export instability can be done through product and market diversification.
- Like doing the right thing and doing the thing right, what and where you export matter.
- Dynamisms is demonstrated by creating new products.

Questions

- **What would be the pattern of Thai agricultural exports in 2020? Would rice and rubber still be the principal agricultural exports?**
- **How is *Baumol-Bowen* cost disease related to the performance of the Thai agriculture?**
- **How long can Thailand maintain its export market shares in rice and rubber?**

Product	Value (Million Baht)			
	2006	2007	2008	2009
Computer and parts	565,806	597,059	605,313	545,521
Automobile and parts	362,374	447,109	513,154	378,374
Raw Rubber	205,483	194,338	223,628	146,263
I.C.	267,598	290,349	237,972	219,508
Rubber Products	117,269	125,960	149,894	152,800
Iron and Steel	134,035	157,685	176,877	169,056
Rice	98,179	119,215	203,219	172,207
Machinery and parts	100,867	149,901	139,367	113,337
Plastic Pellets	171,394	179,511	181,158	151,979
Chemical	130,475	135,072	141,693	152,208
Gems and Jewelry	139,864	185,149	274,093	333,719
Refined fuel	138,785	140,716	259,739	184,670
Canned Seafood	113,050	109,024	128,923	126,711
Electrical appliance and parts	95,521	128,988	123,852	113,835
Television and components	131,548	105,908	103,665	107,741
Air conditioner and part	87,460	110,262	107,112	84,567
Newspaper and print matter	3,922	25,351	47,809	53,312
Garment	121,882	105,227	101,842	88,697
Plastic products	71,728	79,291	88,586	78,232
Cassava	43,396	48,552	47,764	51,602
TOTAL 20 products	3,100,636	3,434,667	3,855,660	3,424,339
Others	1,836,728	1,867,441	1,995,701	1,772,772
Total Export Products	4,937,364	5,302,108	5,851,361	5,197,111