

Energy efficiency improvement Group ~proposal for new fuel economy standard~

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Energy efficiency improvement Group

能源効率堤高組

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Overview

【1】 Necessity of Improving Energy Efficiency

【2】 Approaches to Improving fuel economy

【3】 TR vs Chinese fuel economy standard

【4】 Conclusion

Overview

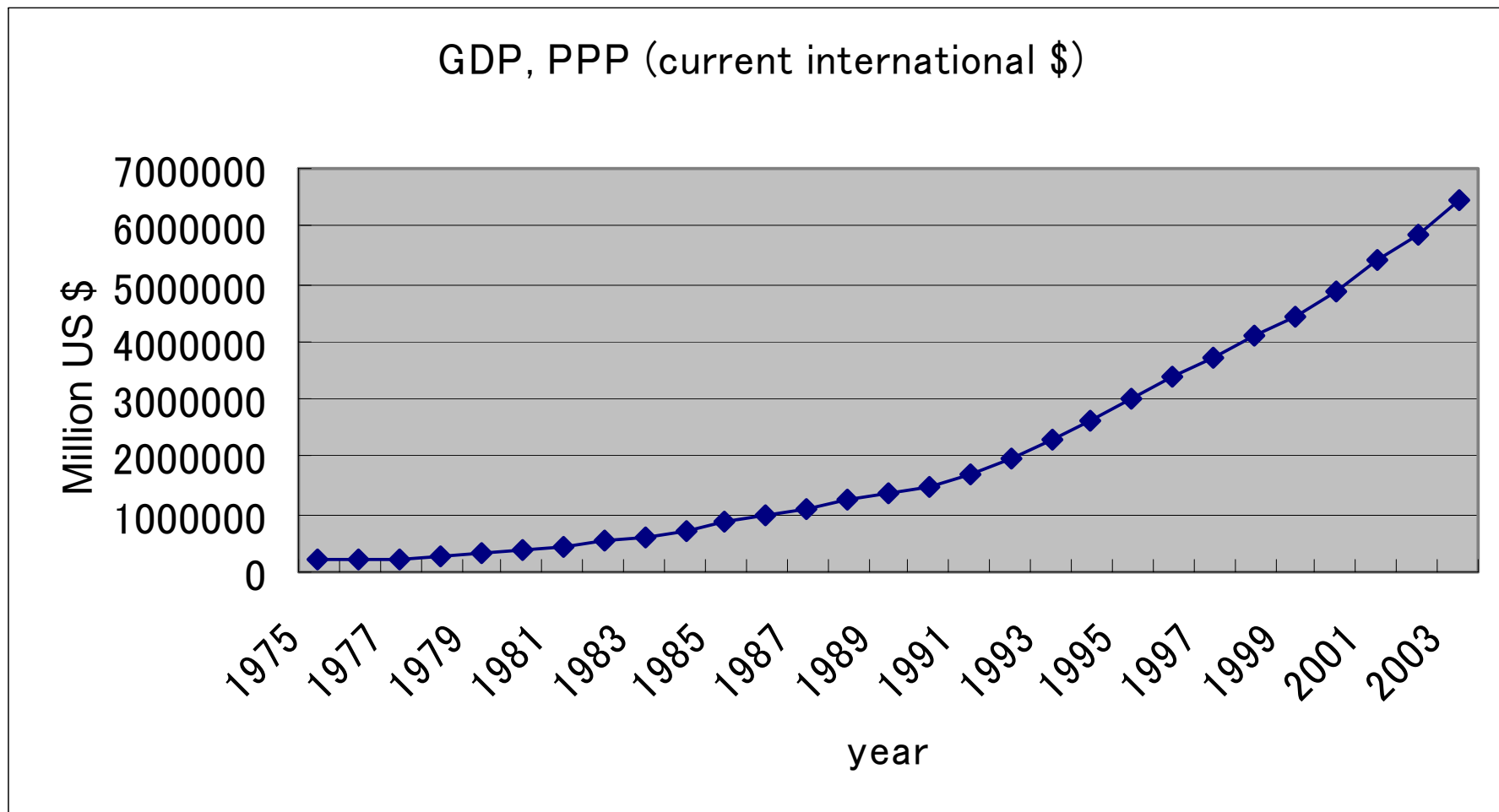
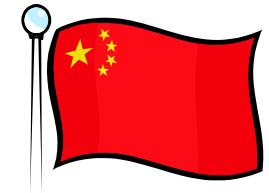
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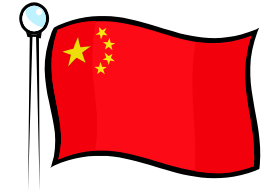
【4】 Conclusion

Chinese GDP growth since 1975



Source: World Bank Data Bath

China's economic growth and energy

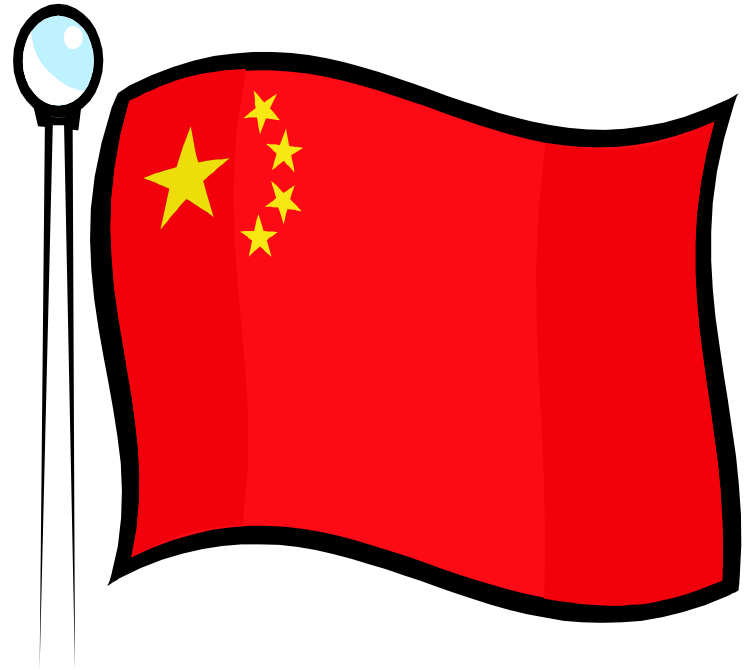


- Economic Growth since “Reform & opening policy (1978)”
- The economic growth target set in “9th & 10th five-year plan” was achieved easily. → This economic growth speed is very rapid!
- As the economy grew, the amount of energy consumption has increased, too.

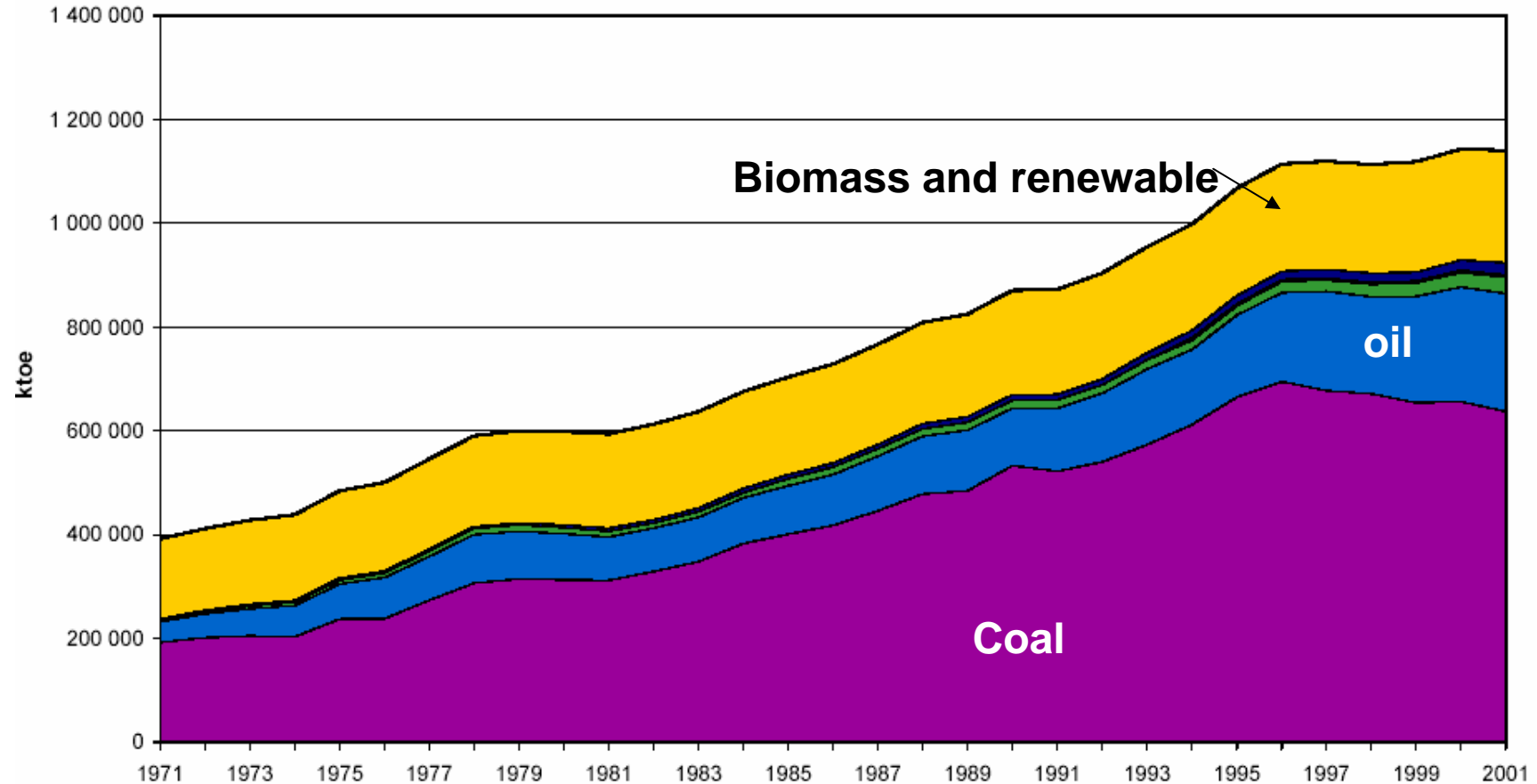
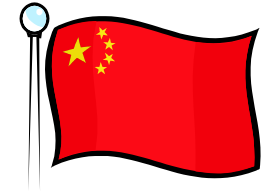
Ex) every year, the electric power consumption in China is increasing by the amount equal to yearly production of a major Japanese electric power company.

So . . .

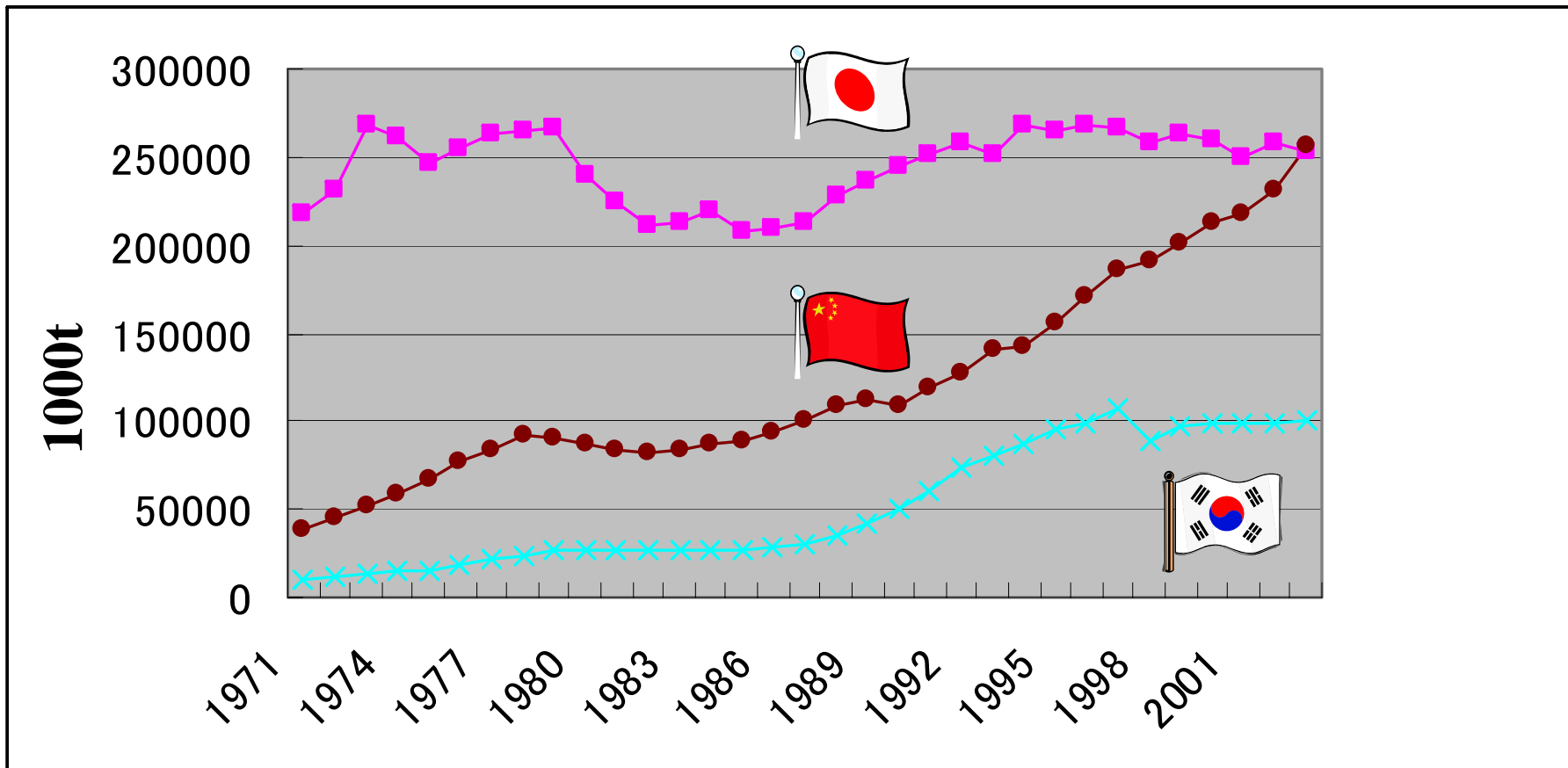
China “**must**” save
energy consumption
for sustainable
economic development!



Energy consumption in China

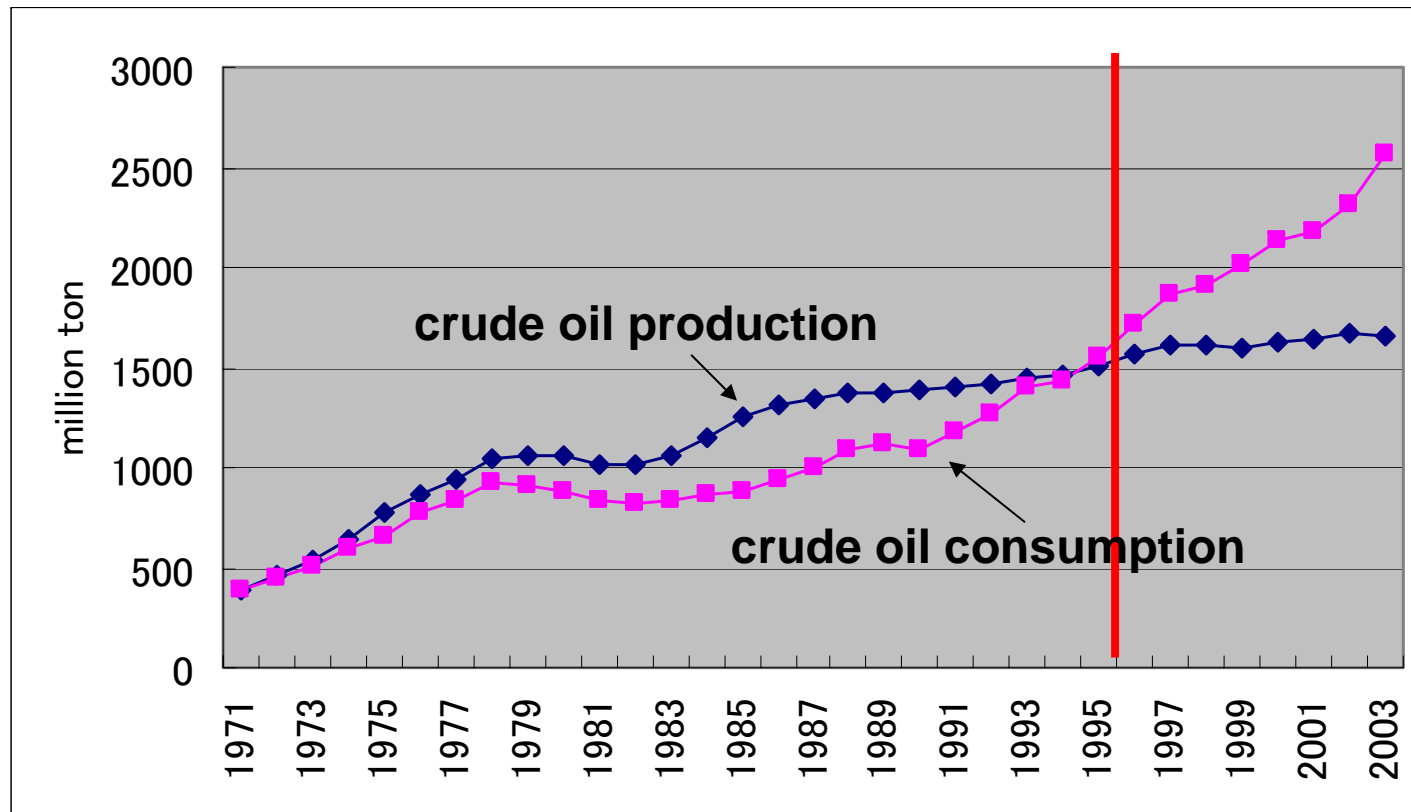


Increase in oil consumption



source: IEA DATABASES Key World Oil Statistics.

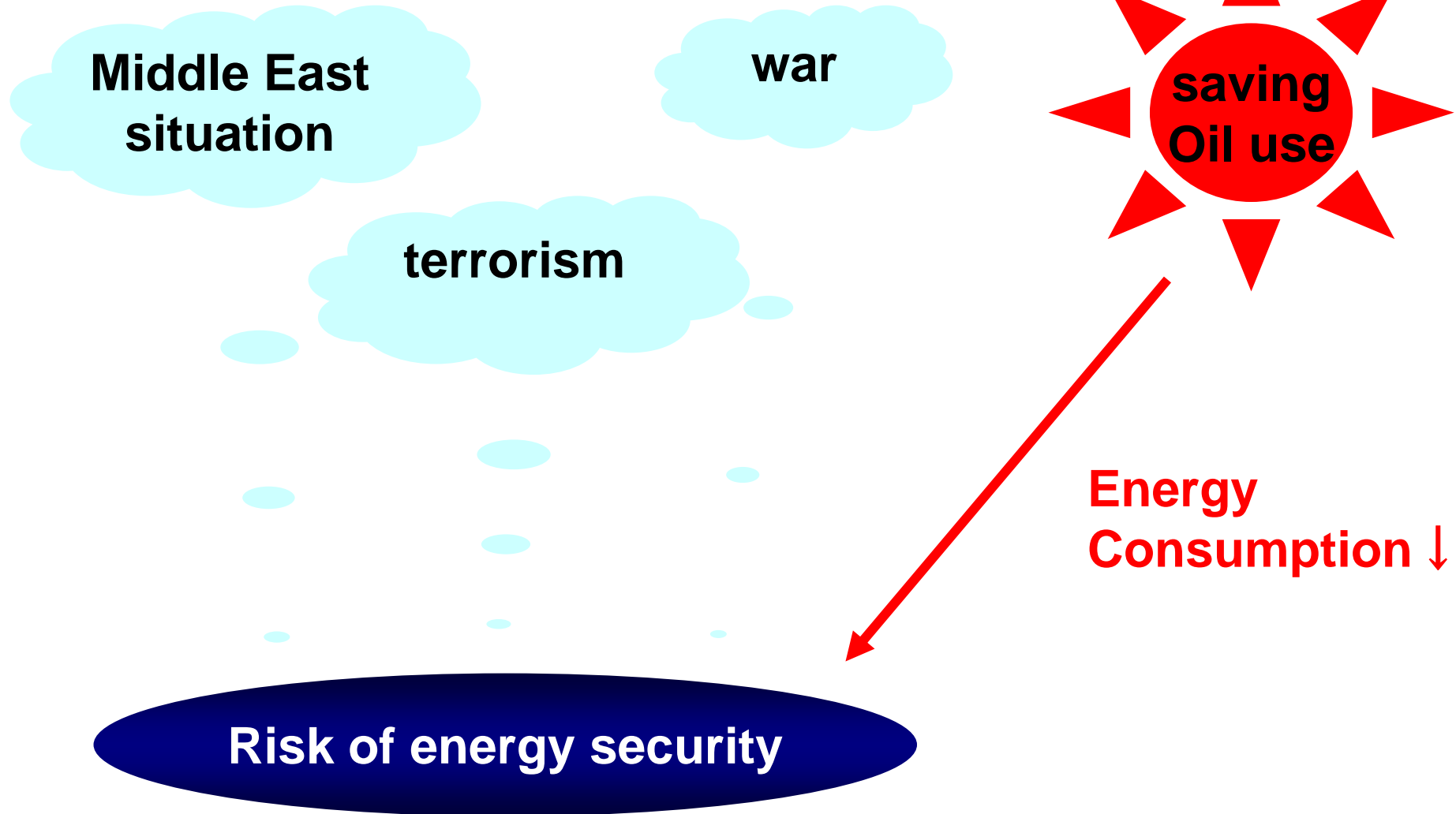
Oil production and consumption in China



Source: IEA DATABASES Key World Oil Statistics.

Vulnerability of oil supply

Stable oil supply is effected by ...



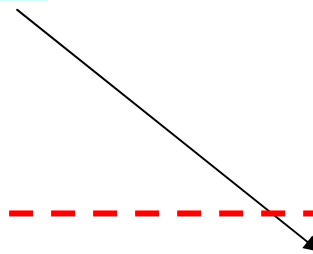
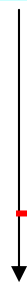
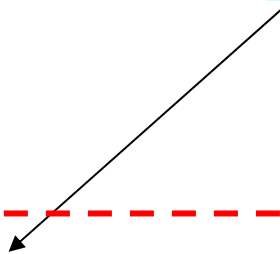
So, we especially focus on
energy efficiency improvement
in **oil using sector!**

Effects of Energy Efficiency Improvement

Energy efficiency improvement



Saving oil



Energy security

Environment

Economy

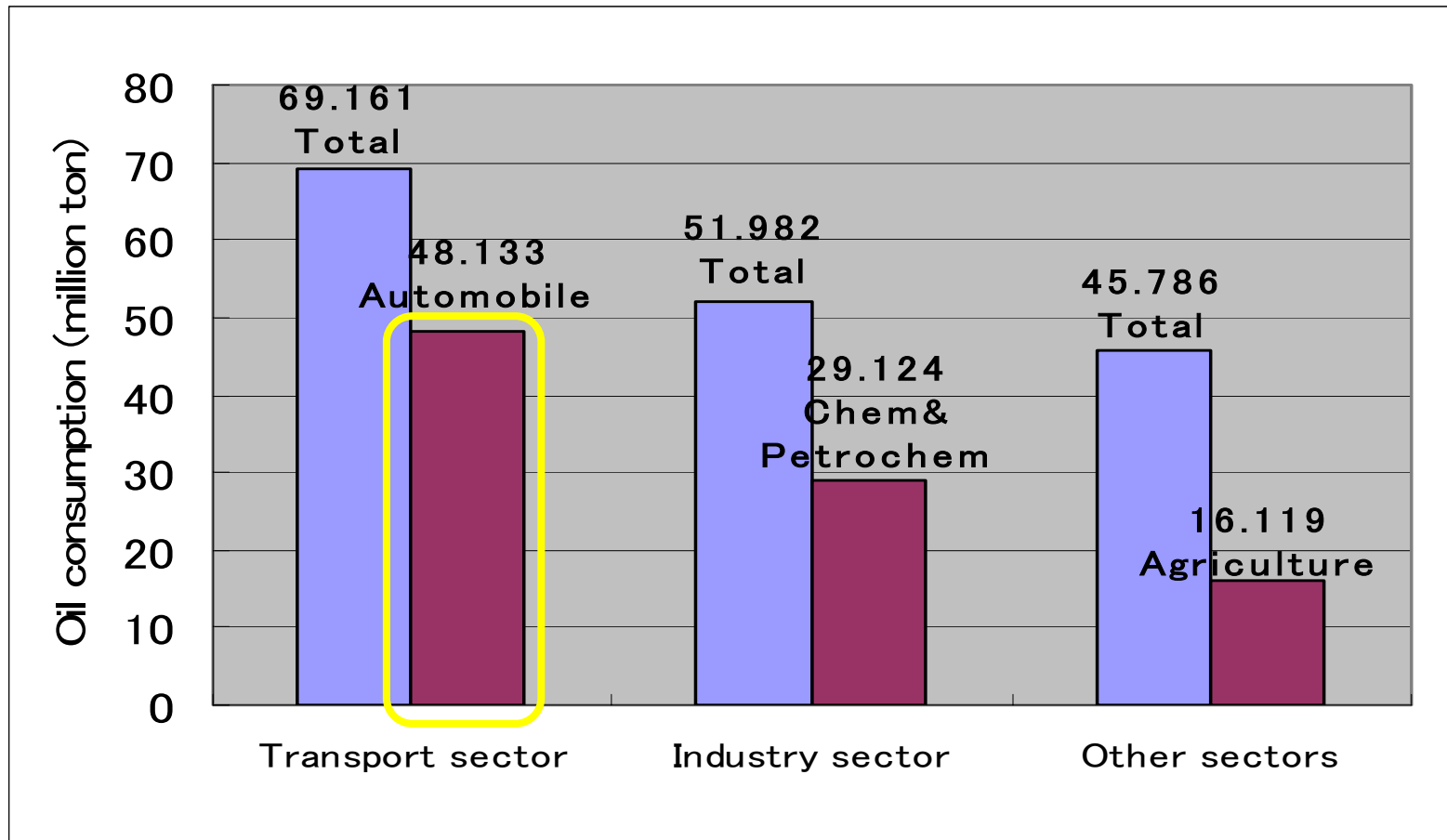
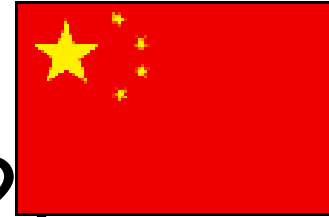
Energy efficiency improvement
can achieve **3E!!**

By achieving 3E . . .

**China will be able to achieve
sustainable economic development!!!**

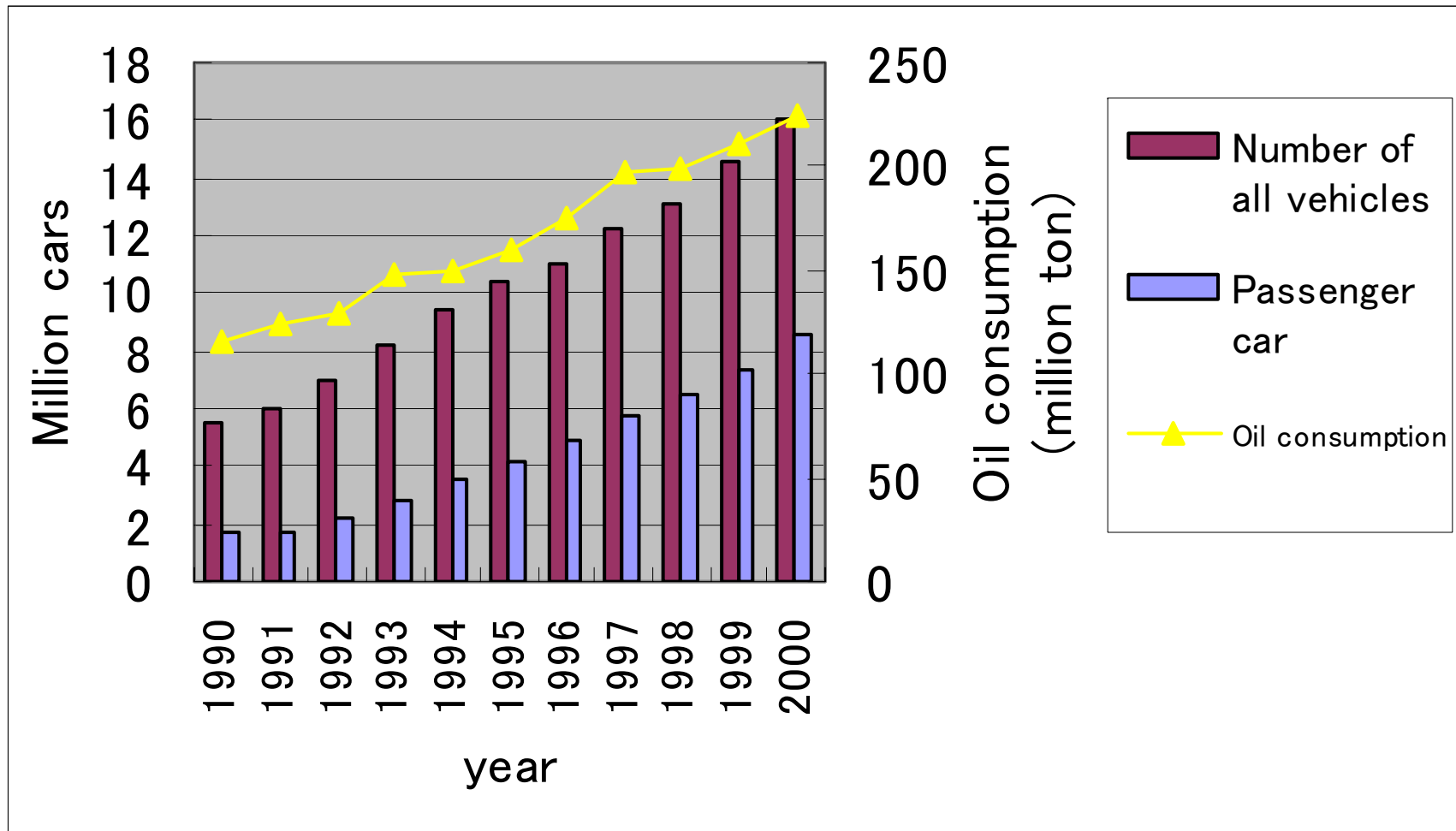
Then, let's think which sector especially
needs energy efficiency improvement.

Breakdown of oil consumption by sector in China (2002)



Source: IEA Energy Balances Non-OECD Countries 2001-2002

Automobiles and oil consumption in China



Source: China automotive industry yearbook

Auto market

	Number of all vehicles (1999)	
	Total	Share of passenger cars (%)
	(Million cars)	
US	214.3	62.1%
Japan	71.7	71.3%
Germany	45.8	92.6%
Italy	35.5	90.2%
France	33.1	83.0%
Great Britain	30.9	89.0%
Spain	20.6	81.6%
China	16.1	53.1%
Korea	11.2	70.2%

Source: UFJ Institute

Factors of increase in oil consumption

**Rise in
personal income**

**Road expansion
plan**

**Increase in the
number of cars**

**Increase in
oil consumption!**



**More energy efficiency improvement
is necessary especially in the
Chinese car sector!**

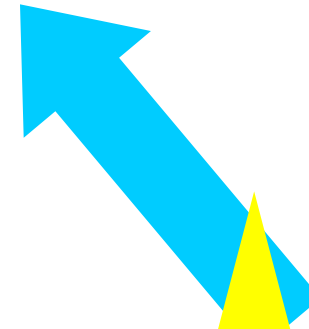


Then...

What are the factors which contribute to oil consumption in passenger car sector?

Factors of oil consumption

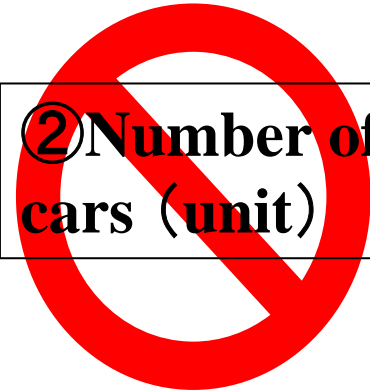
oil consumption



**① Average distance
traveled per car
(km/unit)**



**② Number of
cars (unit)**



③ Fuel economy



Overview

【1】 Necessity of improving Energy efficiency

【2】 Approaches to Improving fuel economy

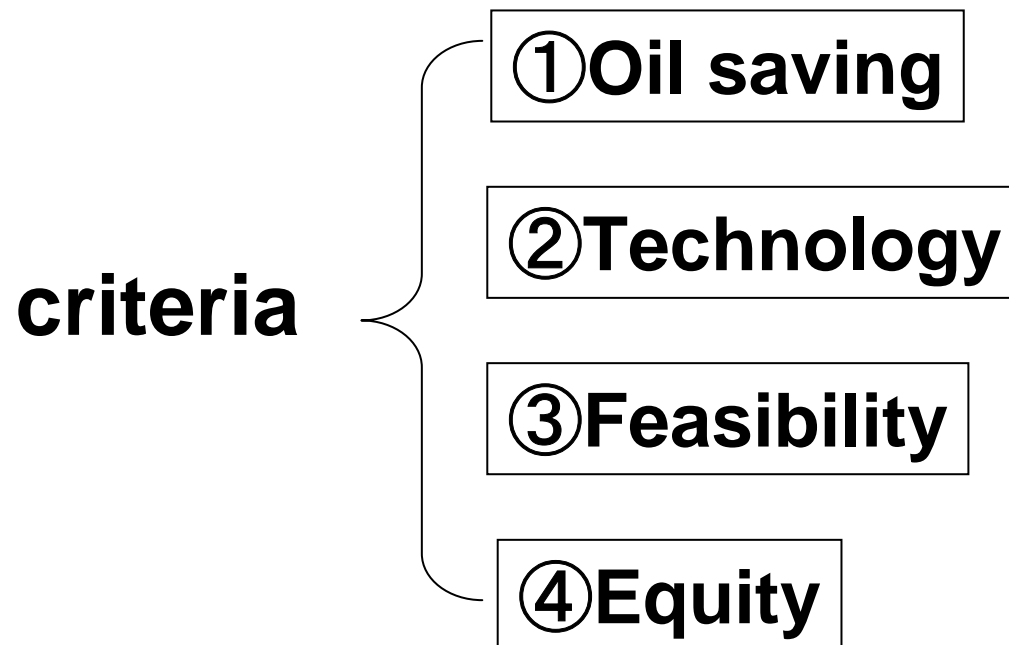
【3】 TR vs Chinese fuel economy standard

【4】 Conclusion

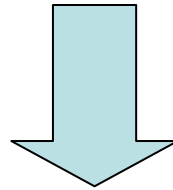
Two approaches

“weight approach” or “fleet approach”

Which approach should be chosen in China?



Chinese government recognized the importance



Fuel economy improvement

Does the Chinese government act?

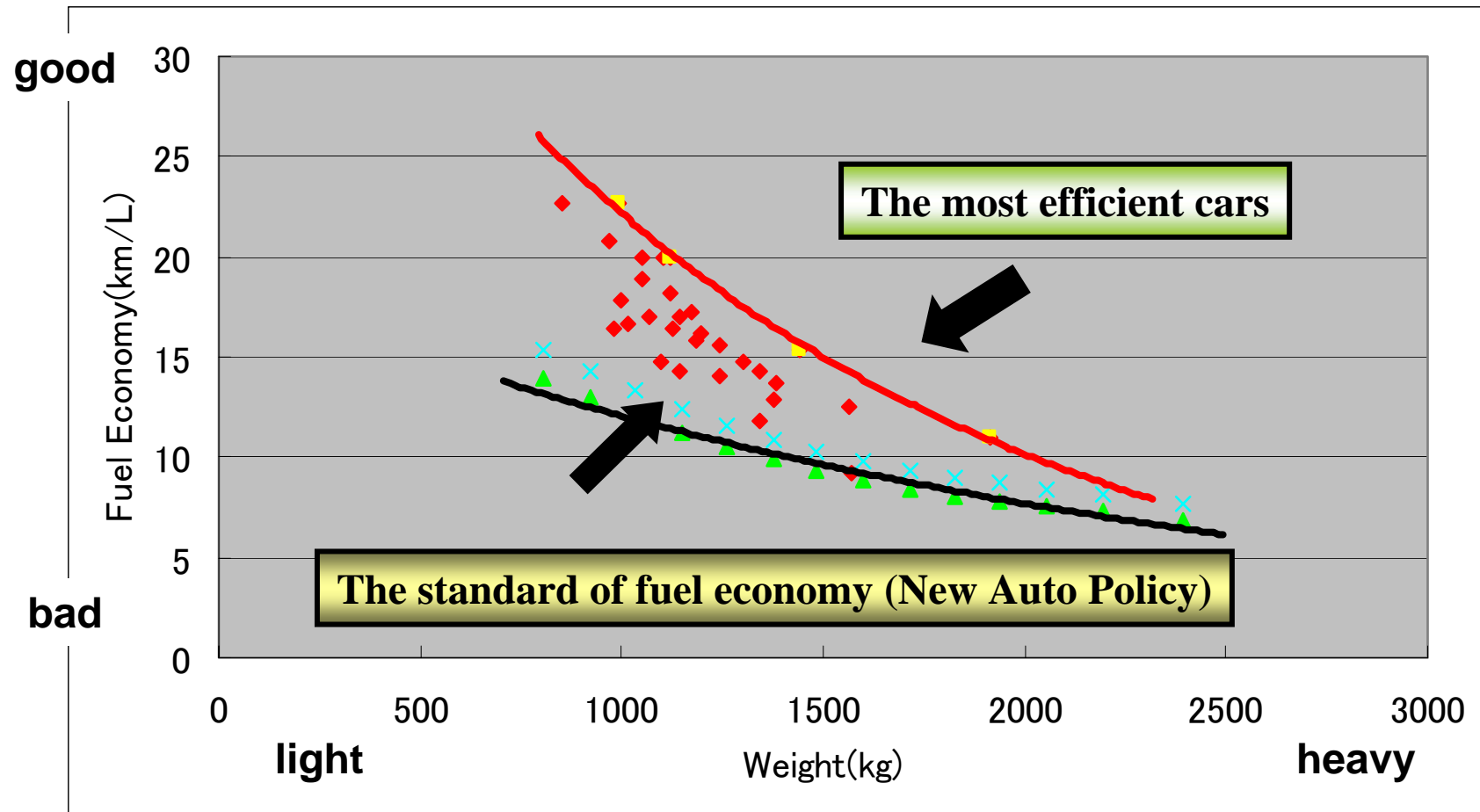
New Auto Policy (June, 2004)

This policy aims to improve fuel economy in the automobile sector for the first time in China.

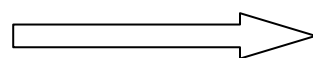


The government set the standard for fuel economy

Fuel economy in China



Source: China automobile data book



The standard line is very low

There are two approaches to improve fuel economy

“weight approach”

Case in China (New Auto Policy)

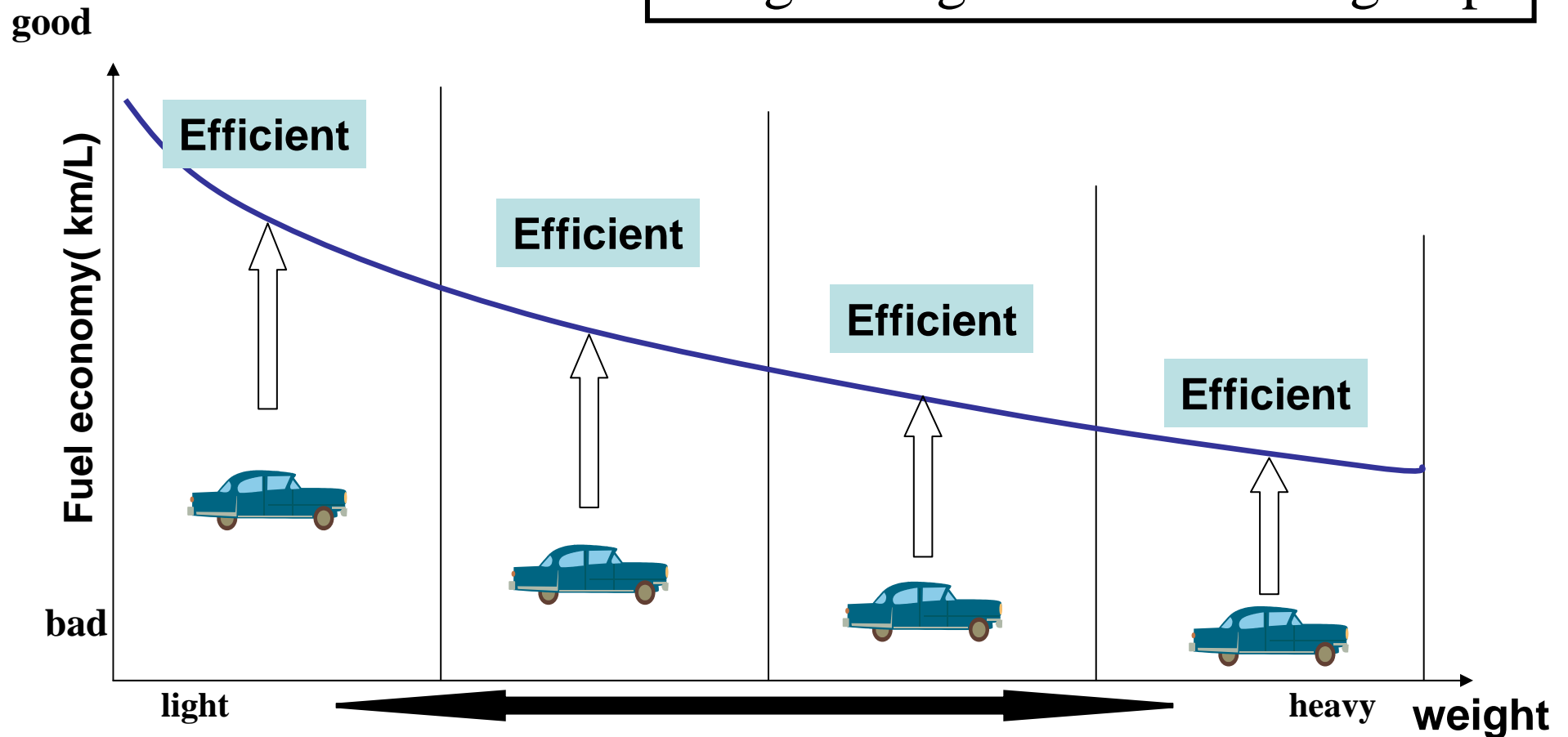
Case in Japan(1979~1985)

“fleet approach”

Case in America(1975~)

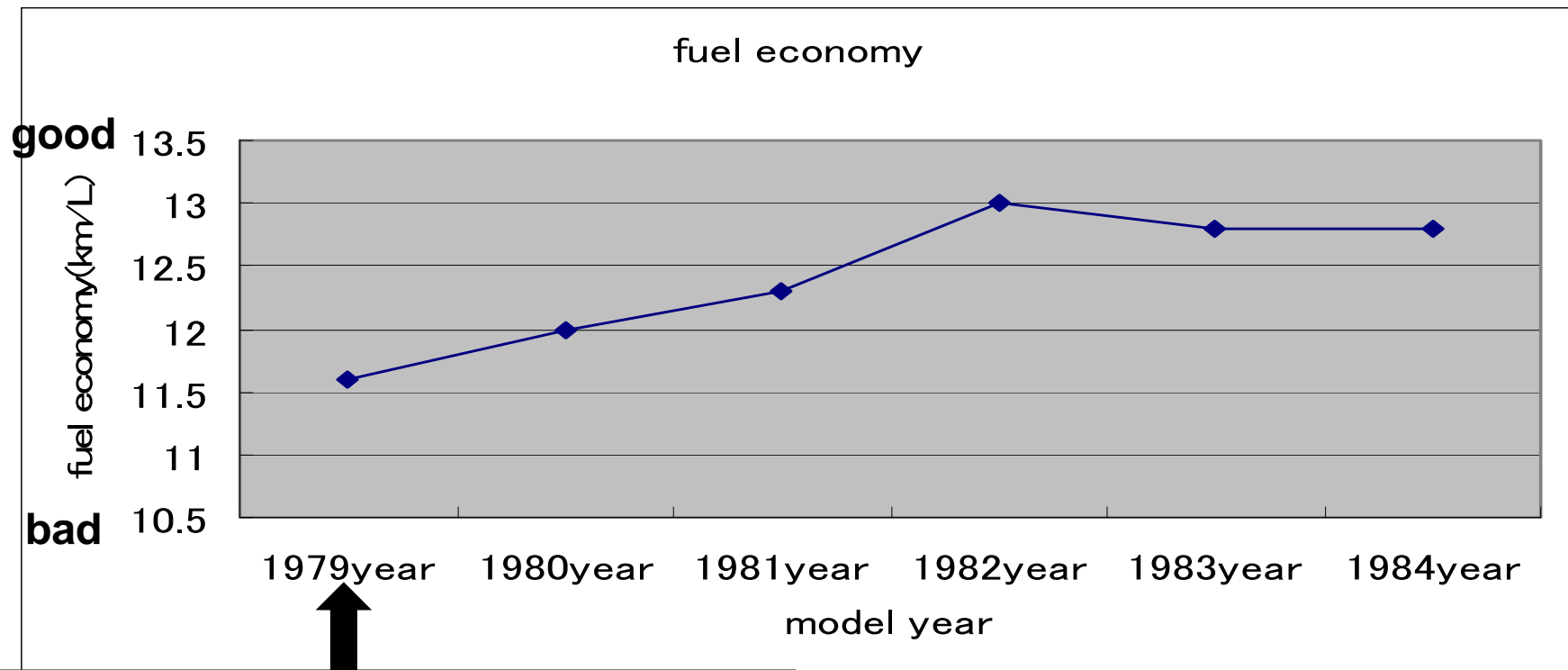
Image of “weight approach”

categorizing cars into some groups



Each car must satisfy the standard

Effect of “Weight approach” in Japan



The standard was introduced in Japan

Source: The Energy Conservation Center, Japan

“weight approach” brings improving fuel economy

Improving fuel economy

There are two approaches to improve fuel economy

“weight approach”

Case in China (New Auto Policy)

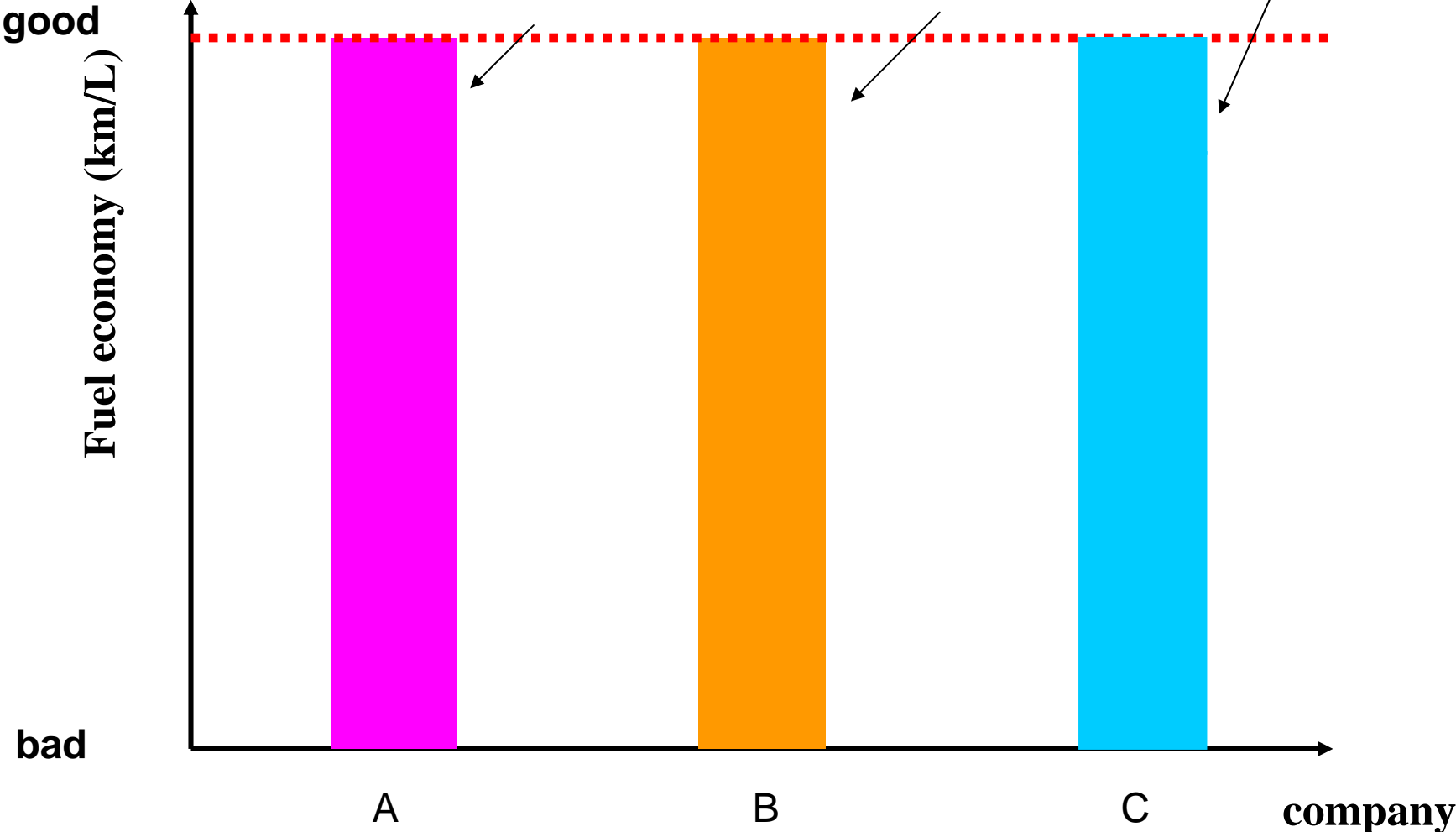
Case in Japan(1979~1985)

“fleet approach”

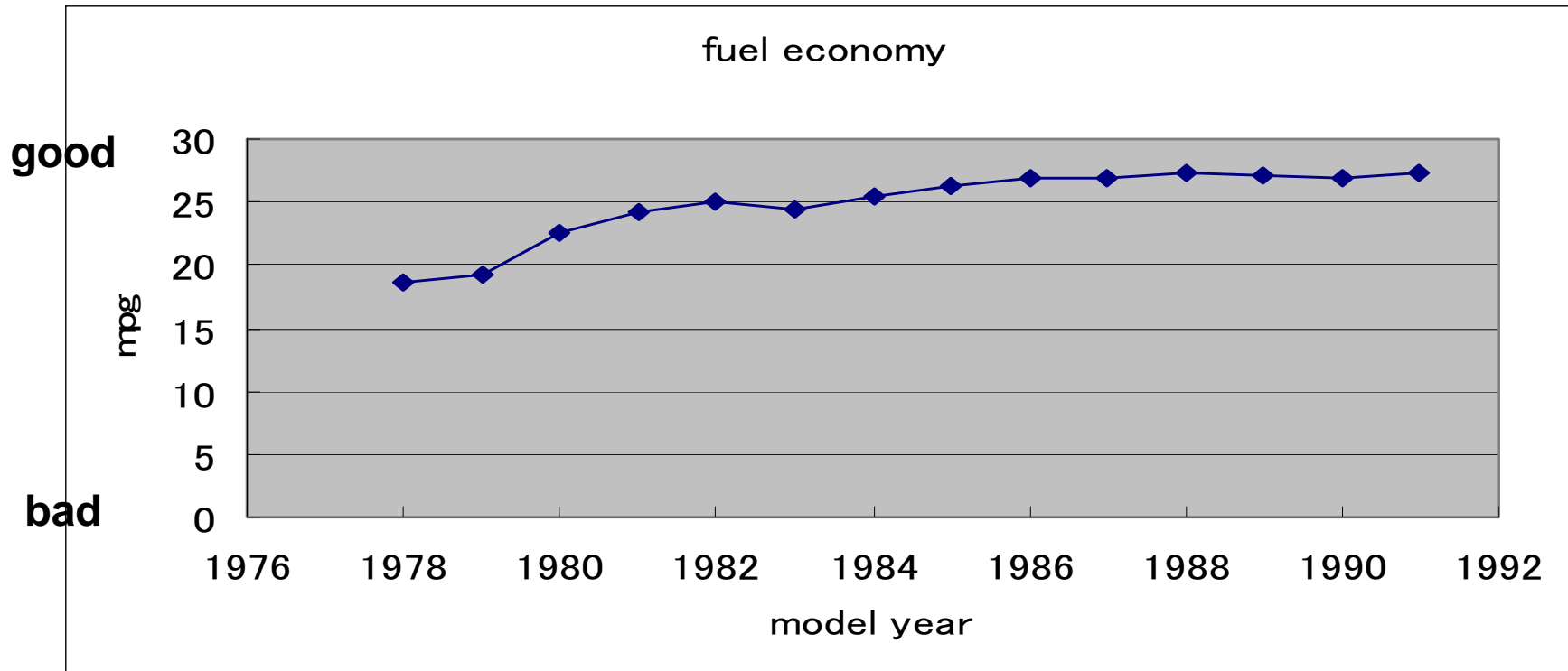
Case in America(1975~)

Brief Image of “fleet approach” in US

Average fuel economies of all the cars produced by manufactures



Effect of “Fleet approach” in US



Source: U.S. department of transportation



“fleet approach” also brings improving fuel economy

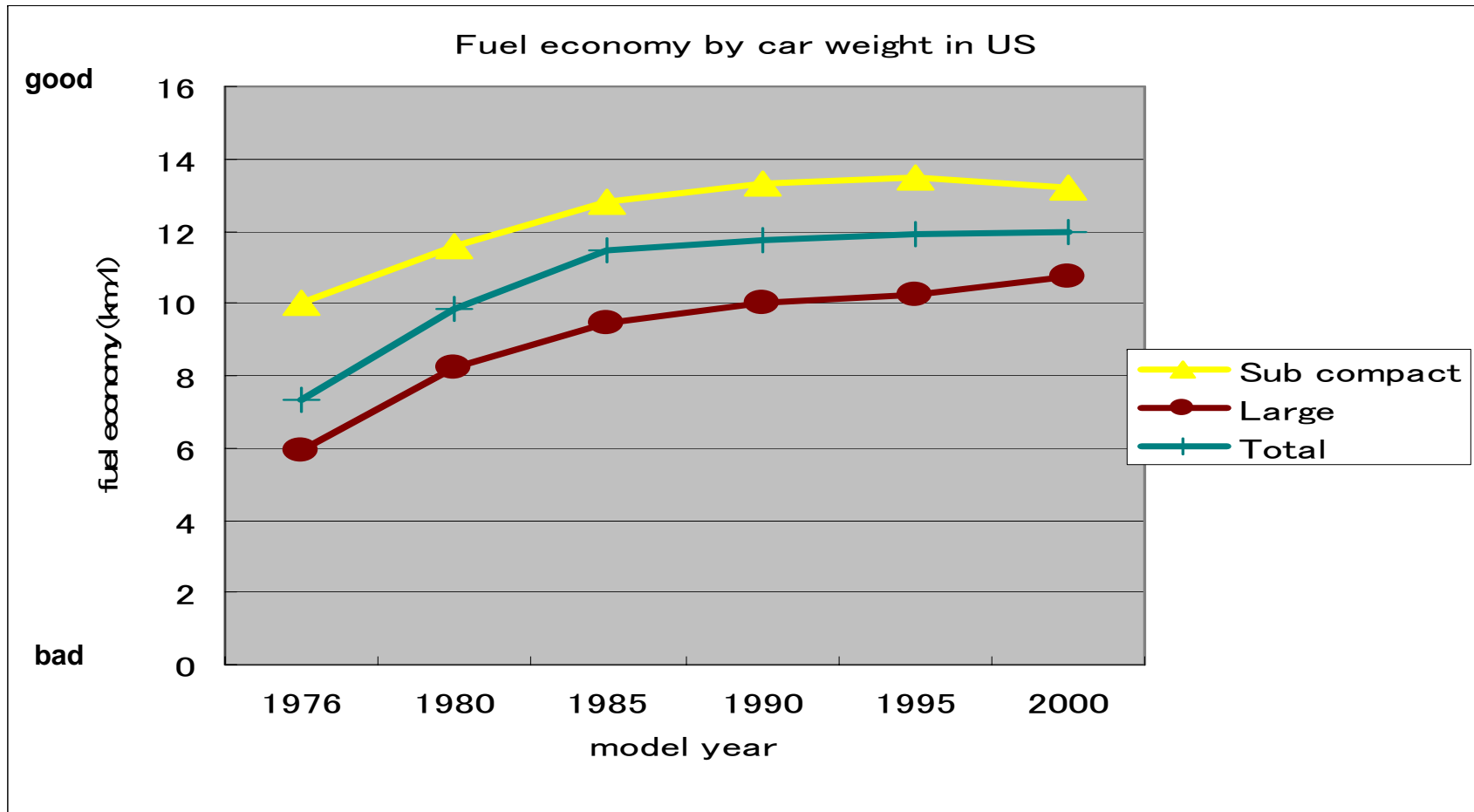
Improvement of fuel economy

Improvement of fuel economy

Technology development

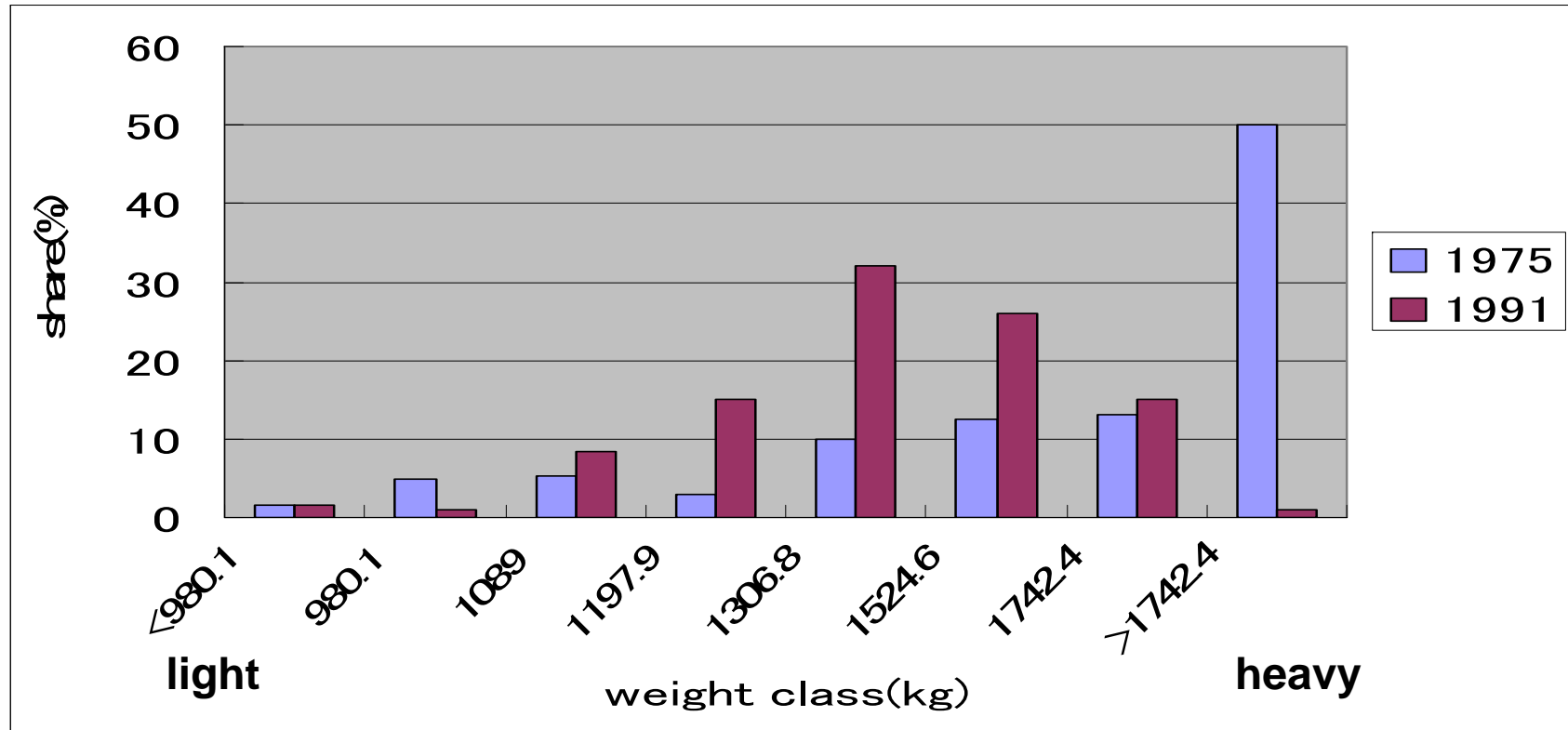
Weight shift (heavy cars → light cars)

Fleet approach



The factor is technology development

Share of passenger cars by weight



Source: U.S. department of transportation



Big automobiles have decreased

The factor is weight shift

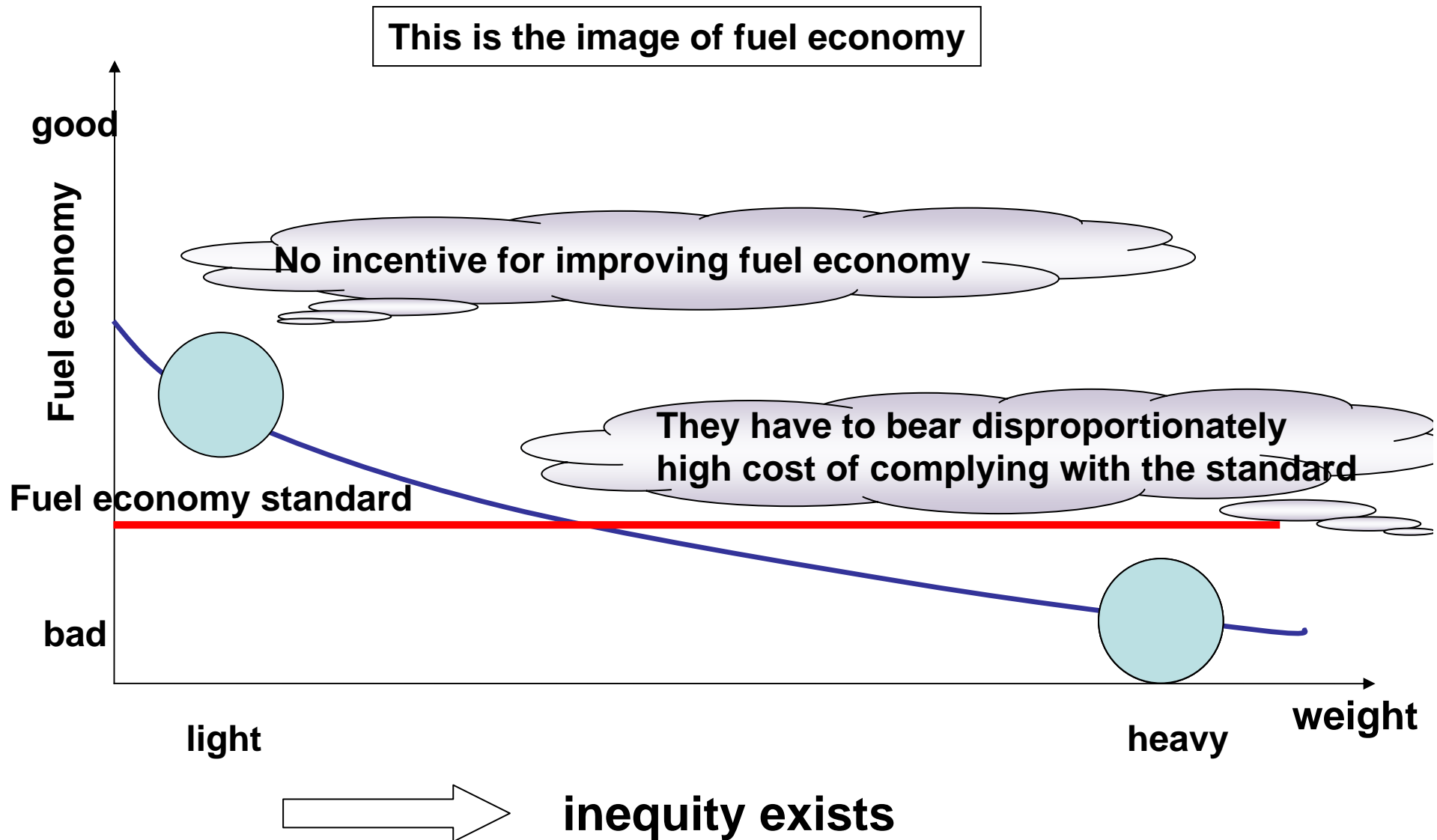
“weight approach” “fleet approach”

	①oil saving	②technology
weight approach	○	○
fleet approach	○	○

Both of them can satisfy with two points

How about Equity and Feasibility?

In the case of “fleet approach”



Why was “fleet approach” accepted in US?

The market was dominated by 3 big companies at that time



GM, DC, Ford

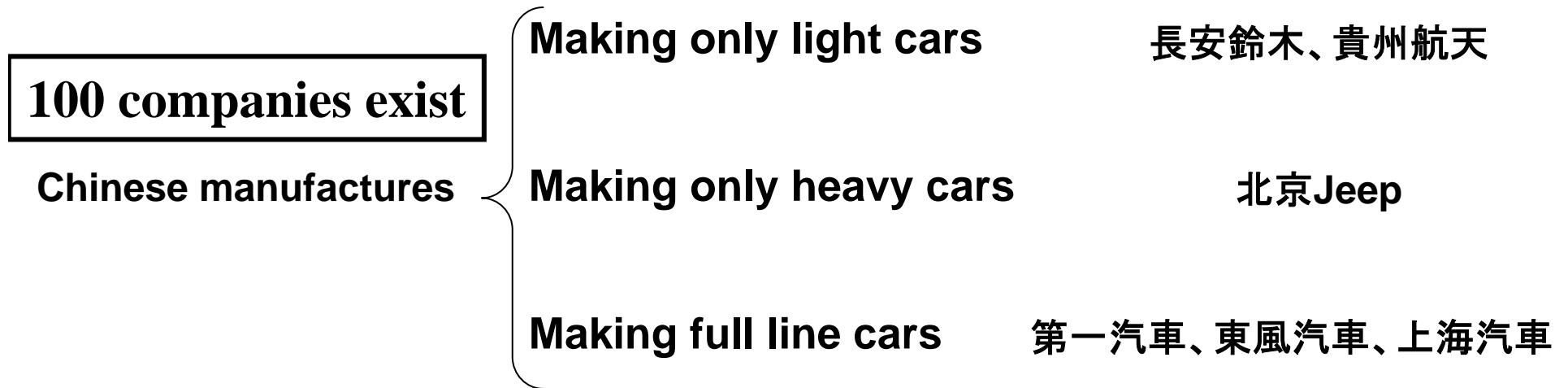
These companies are full line auto makers



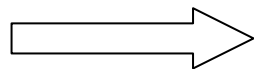
“fleet approach” did not create inequity in US

The case of China

In considerations of current situation of China



Inequity exists



Low feasibility exists

Which approach should be chosen in China?

	oil saving	technology	feasibility	equity
weight approach	○	○	○	○
fleet approach	○	○	△	△

“weight approach” should be chosen in China

Overview

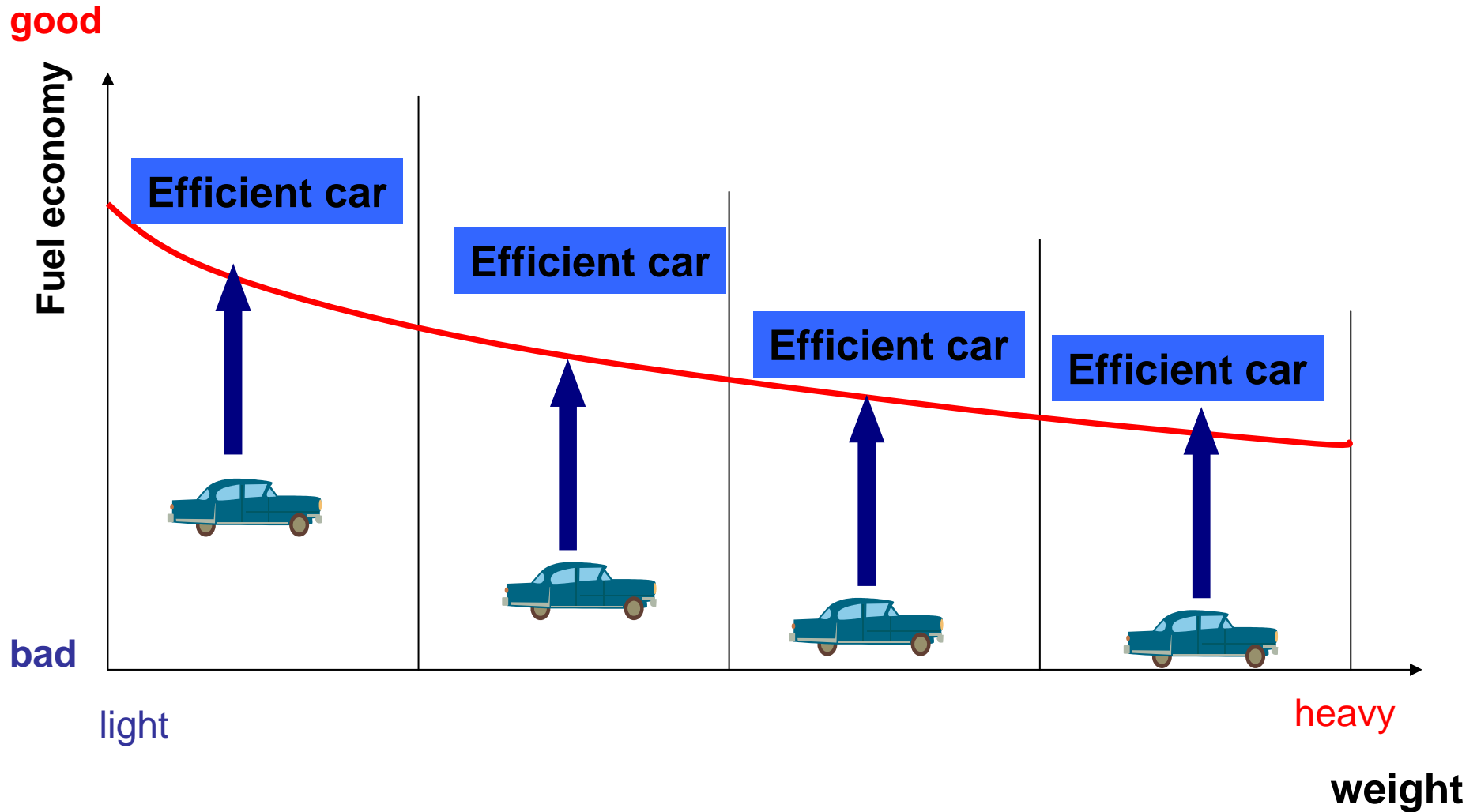
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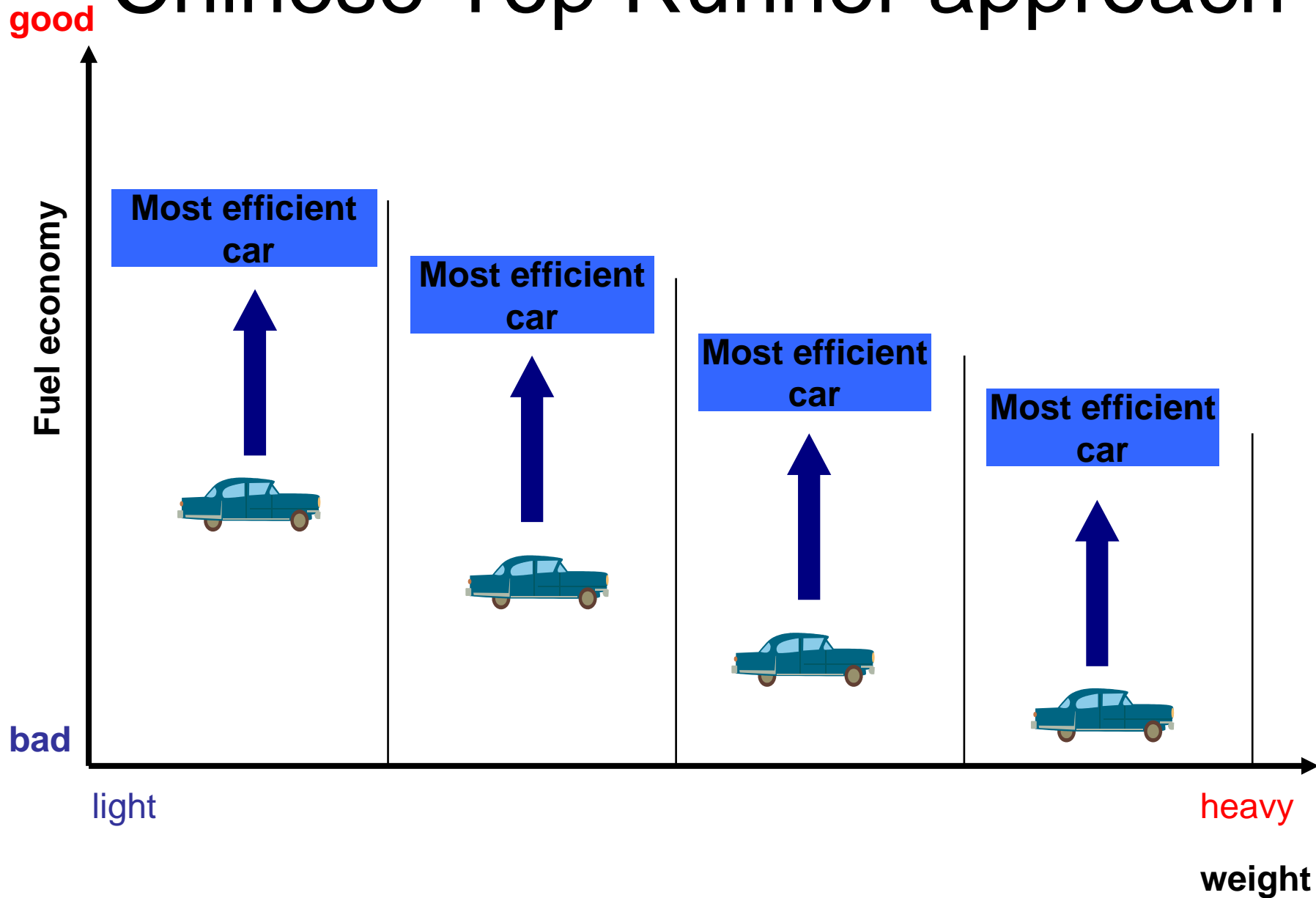
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【4】Conclusion

Chinese fuel economy standard



Chinese Top Runner approach



Comparison of Chinese Top Runner approach and Chinese Fuel Economy Standard

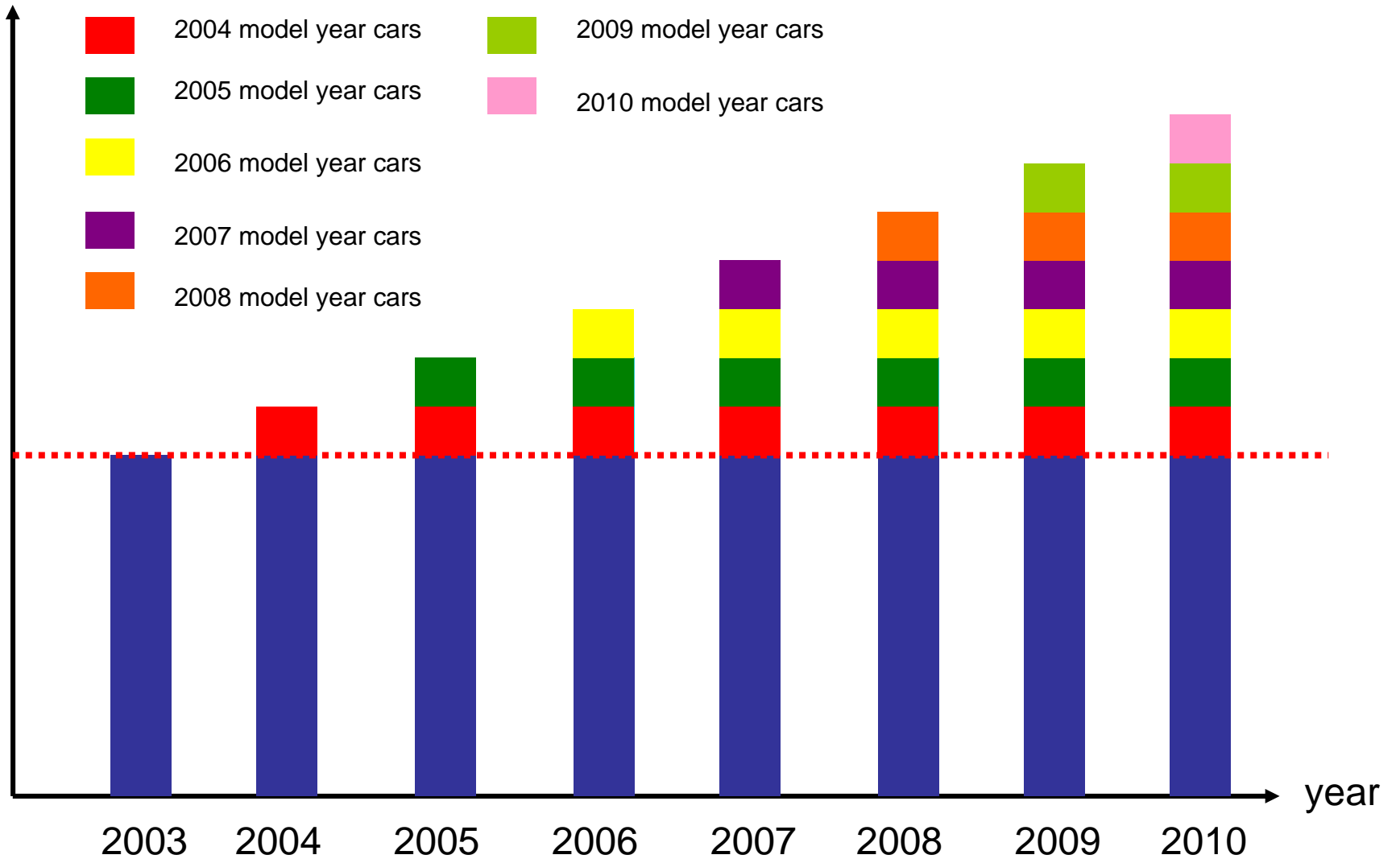


TR vs New auto policy

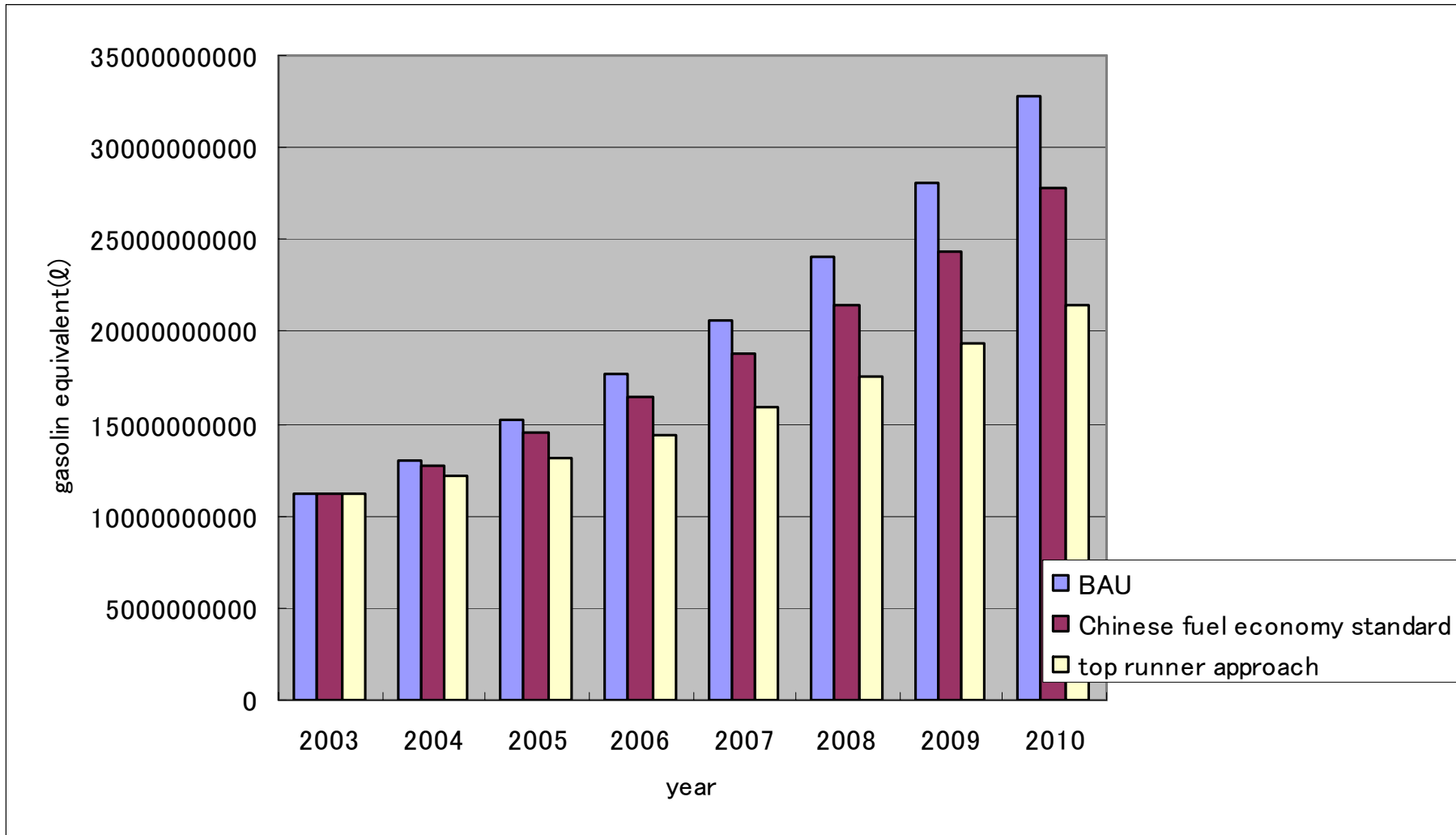
		Top runner approach	Chinese fuel economy standard
Effect of Oil saving	Energy Security	?	?
	Environment	?	?
	Economic growth	?	?
Global competition		?	?

Assumption

Numbers of cars



our calculation of oil saving

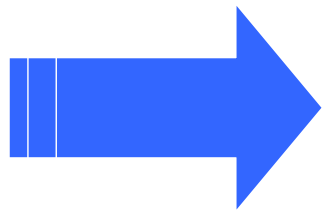


Source: World bank, UNEP, 中国自動車年鑑、中国汽车工業年鑑より独自作成

our calculation of oil saving

For 8 years . . .

	Chinese fuel economy standard	“top runner approach”
Amount of Oil saved(t)	4.2million	10.6million

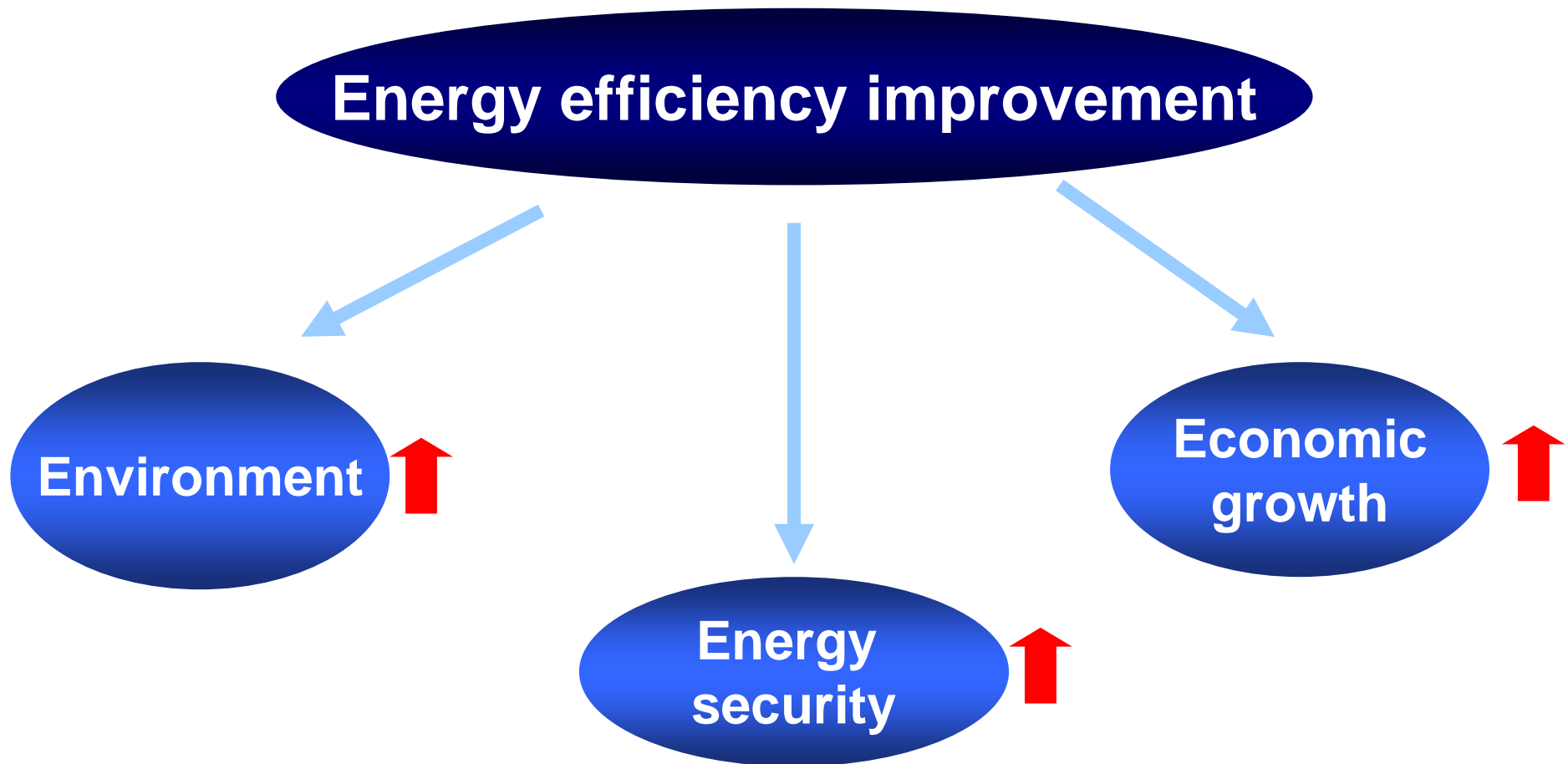


**Top runner approach can save more oil.
For 8 years China can save twice the amount
energy consumed in automobile sector in
2002(= 4.8million t) .**

**“Top runner approach” can
save more oil!!**



Energy efficiency improvement



TR vs New auto policy

		Top runner approach	Chinese fuel economy standard
Effect of Oil saving	Energy Security	Better	Less
	Environment	Better	Less
	Economic growth	Better	Less
Global competition		?	?

Will face global competition

2002: became a member of WTO
2006: cutting customs duty



Competition with imported cars is inevitable

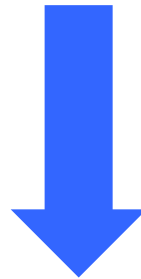
In the future . . .



Must overcome the situation

Global competition power

China must acquire high fuel economy technology



“Top runner approach” is the best solution

TR vs New auto policy

		Top runner approach	Chinese fuel economy standard
Effect of Oil saving	Energy Security	Better	Less
	Environment	Better	Less
	Economic growth	Better	Less
Global competition		Better	Less

“top runner approach”

or

**“Chinese fuel
economy standard”**

Which way should be chosen in China?



Top runner approach is the best

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Conclusion

Improving energy efficiency



Economic growth

Strong China

Environment

Energy security

