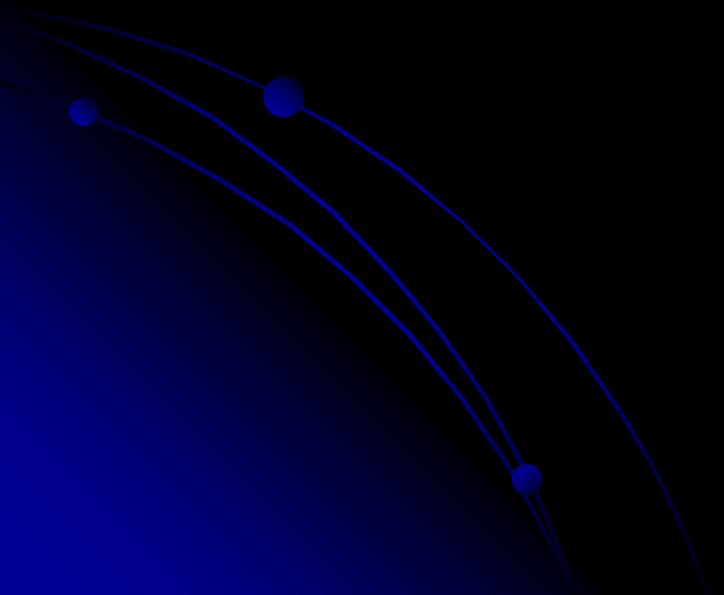


Energy efficiency improvement Group

～proposal for new fuel economy standard～



榎田 真衣(Mai Akita)
加藤 壮 (So Kato)
後藤 悠太(Yuta Goto)
田中 孝幸(Takayuki Tanaka)

qiu tian zhen yi
榎田 真衣



Jia teng zhuang
加藤 壮

hou teng you tai

後藤 悠太



tian zhong kao xing
田中 孝幸

Energy efficiency improvement Group

能源効率提高組

～proposal for new fuel economy standard～

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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

【1】Necessity of improving Energy efficiency

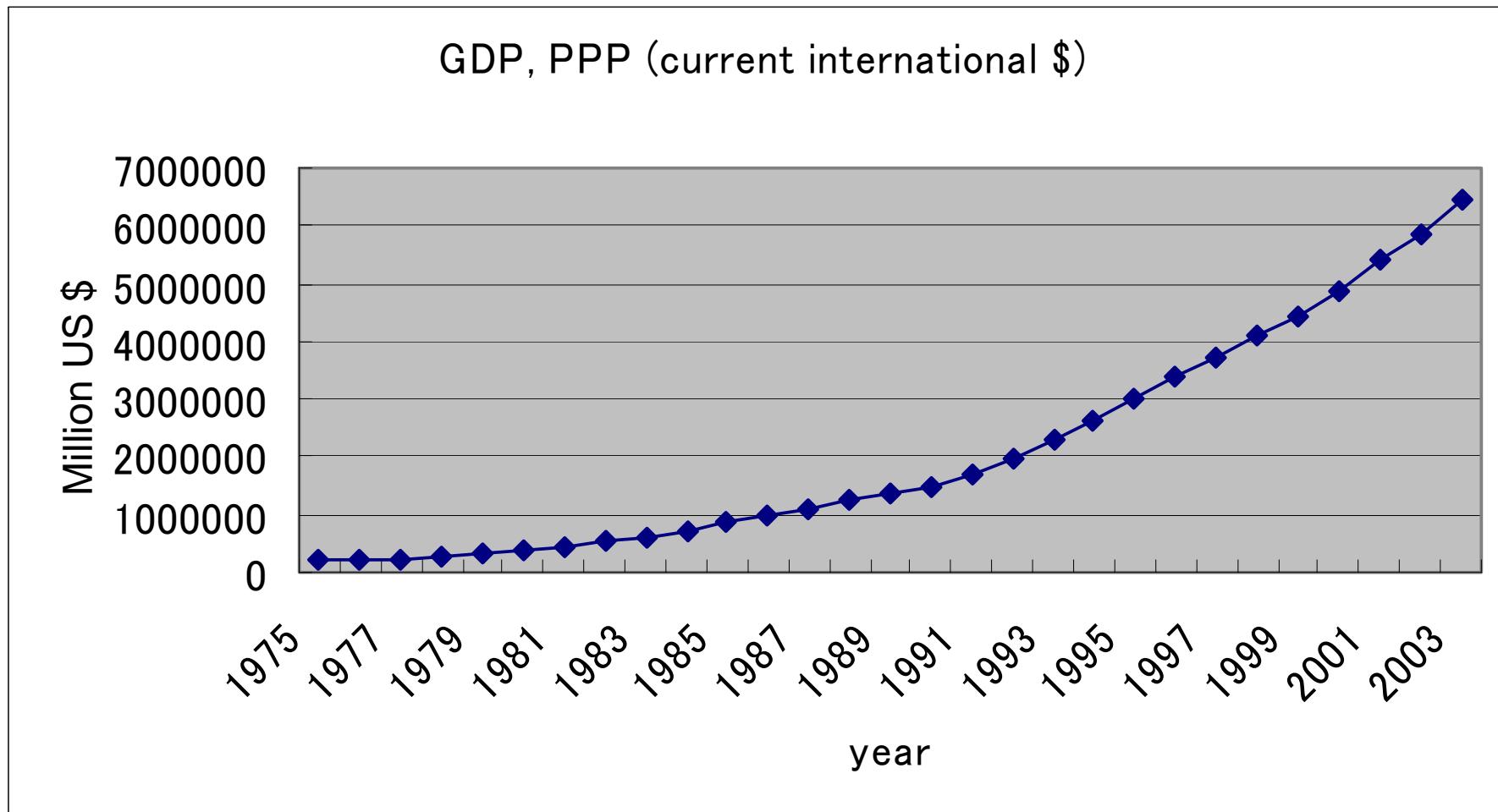
【2】Approaches to Improving fuel economy

【3】TR vs Chinese fuel economy standard

【4】Conclusion

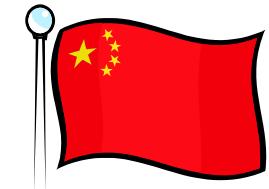


Chinese GDP growth since 1975



Source: World Bank Data Bath

China's economic growth and energy

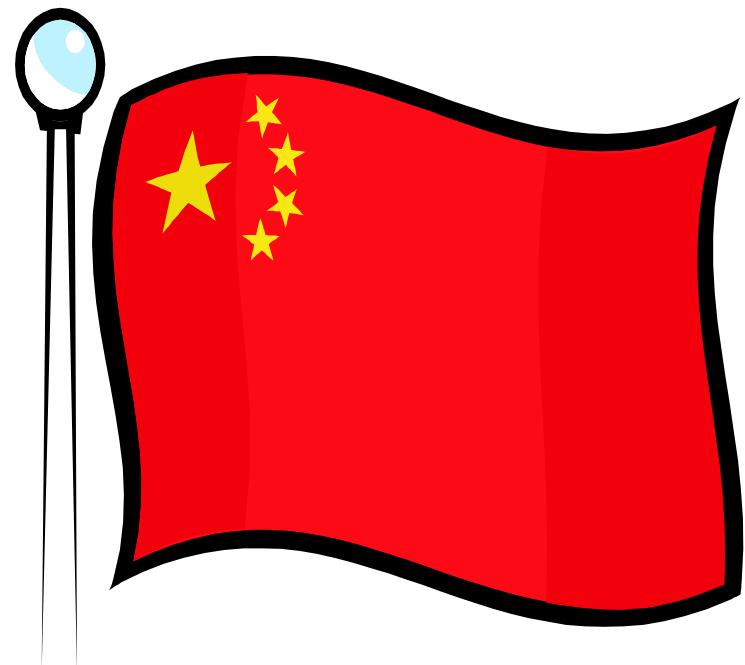


- Economic Growth since “Reform & opening policy (1978)”
- The economic growth target set in “9th & 10th five-year plan” was achieved easily. → This economic growth speed is very rapid!
- As the economy grew, the amount of energy consumption has increased, too.

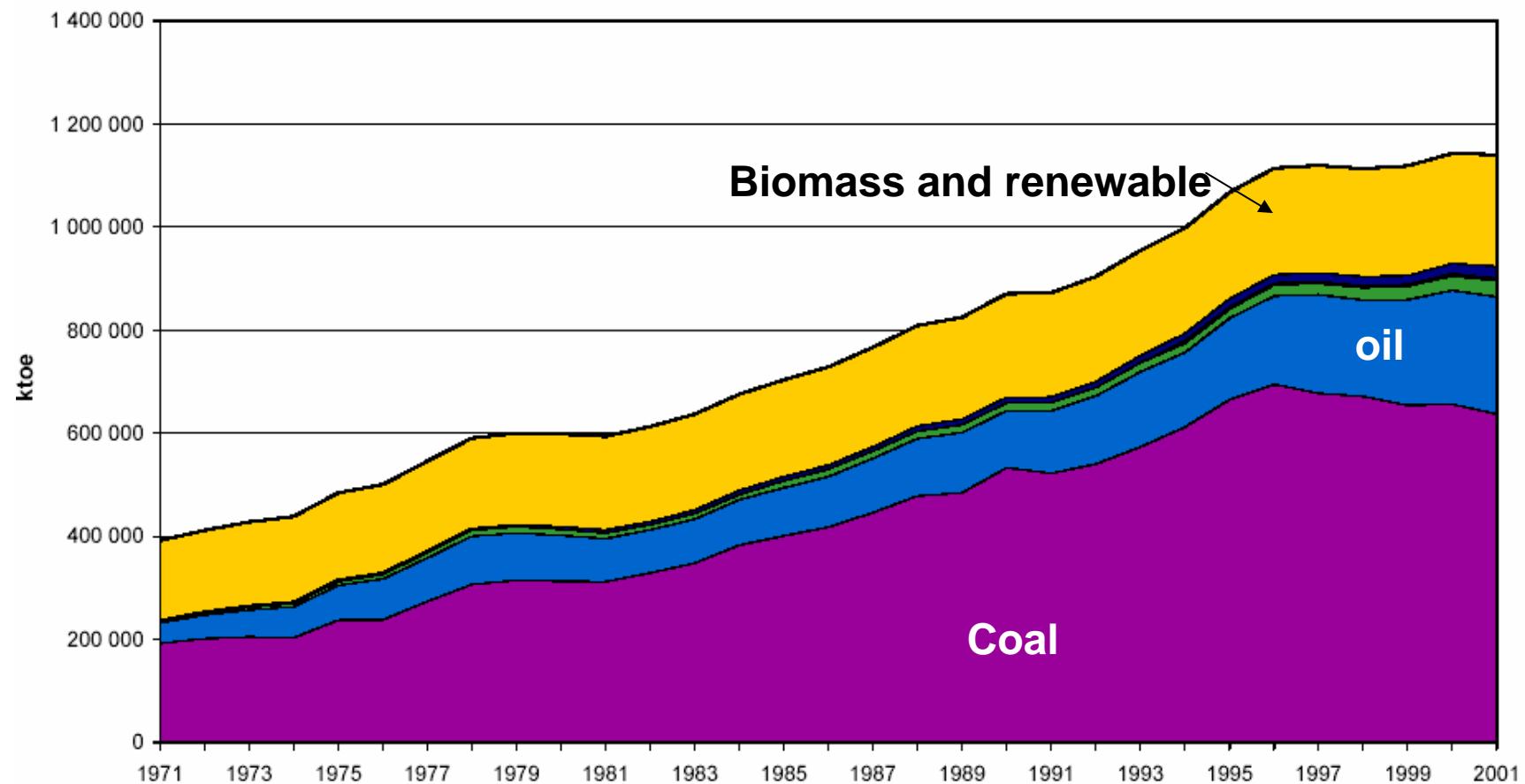
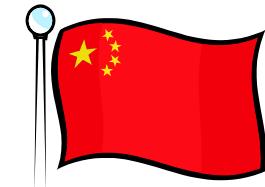
Ex) every year, the electric power consumption in China is increasing by the amount equal to yearly production of a major Japanese electric power company.

So · · ·

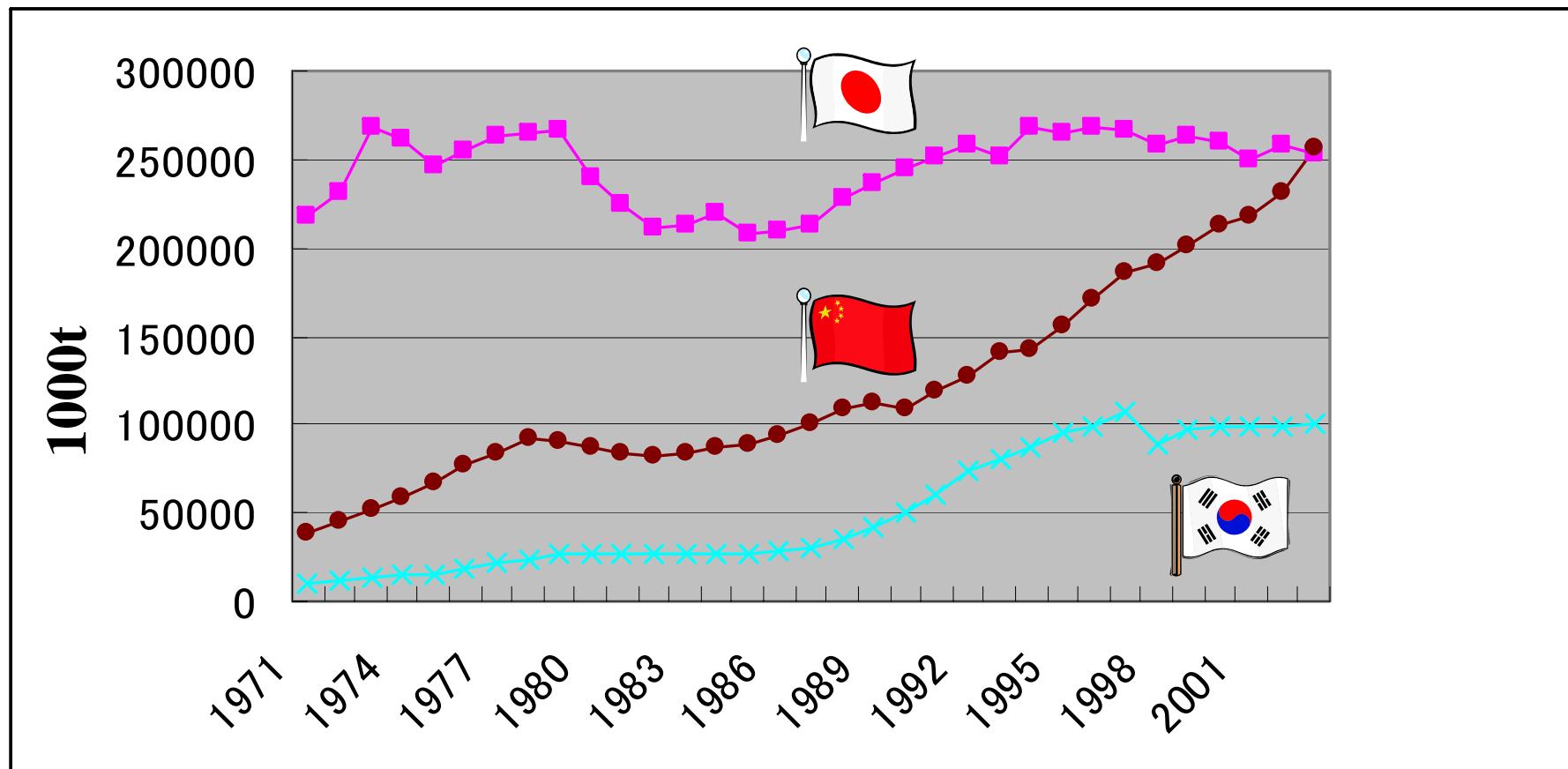
**China “must” save
energy consumption
for sustainable
economic development!**



Energy consumption in China

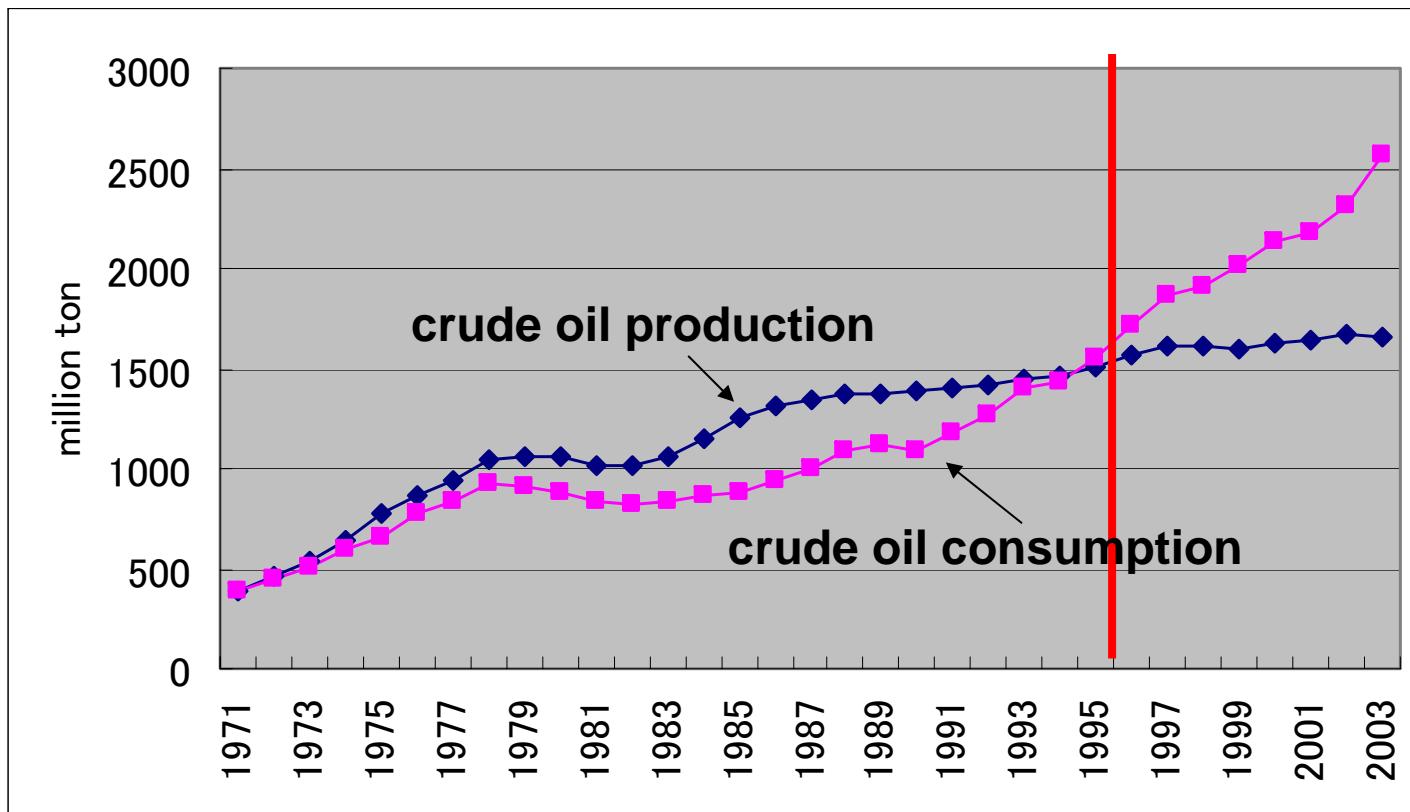


Increase in oil consumption



source: IEA DATABASES Key World Oil Statistics.

Oil production and consumption in China



Source: IEA DATABASES Key World Oil Statistics.

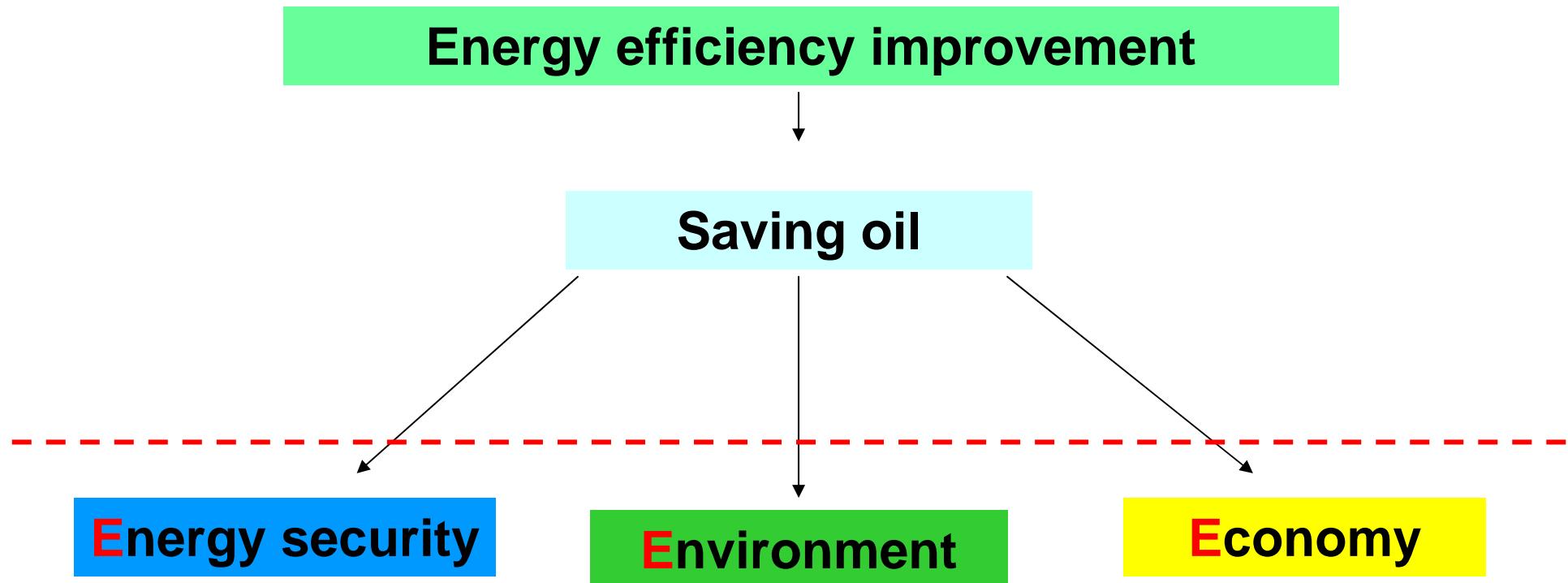
Vulnerability of oil supply

Stable oil supply is effected by ····.



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

Effects of Energy Efficiency Improvement



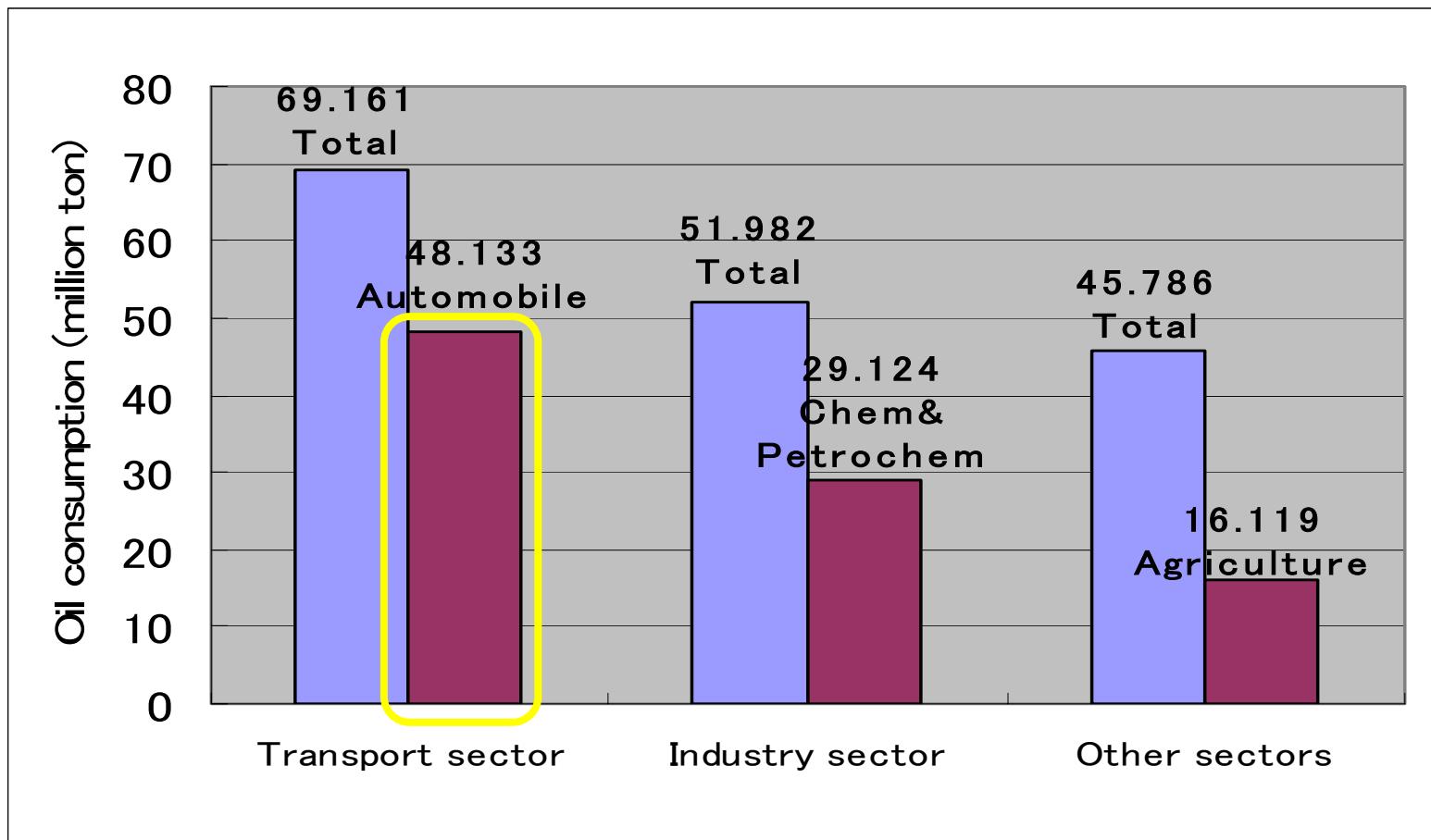
**Energy efficiency improvement
can achieve 3E!!**

By achieving 3E · · ·

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

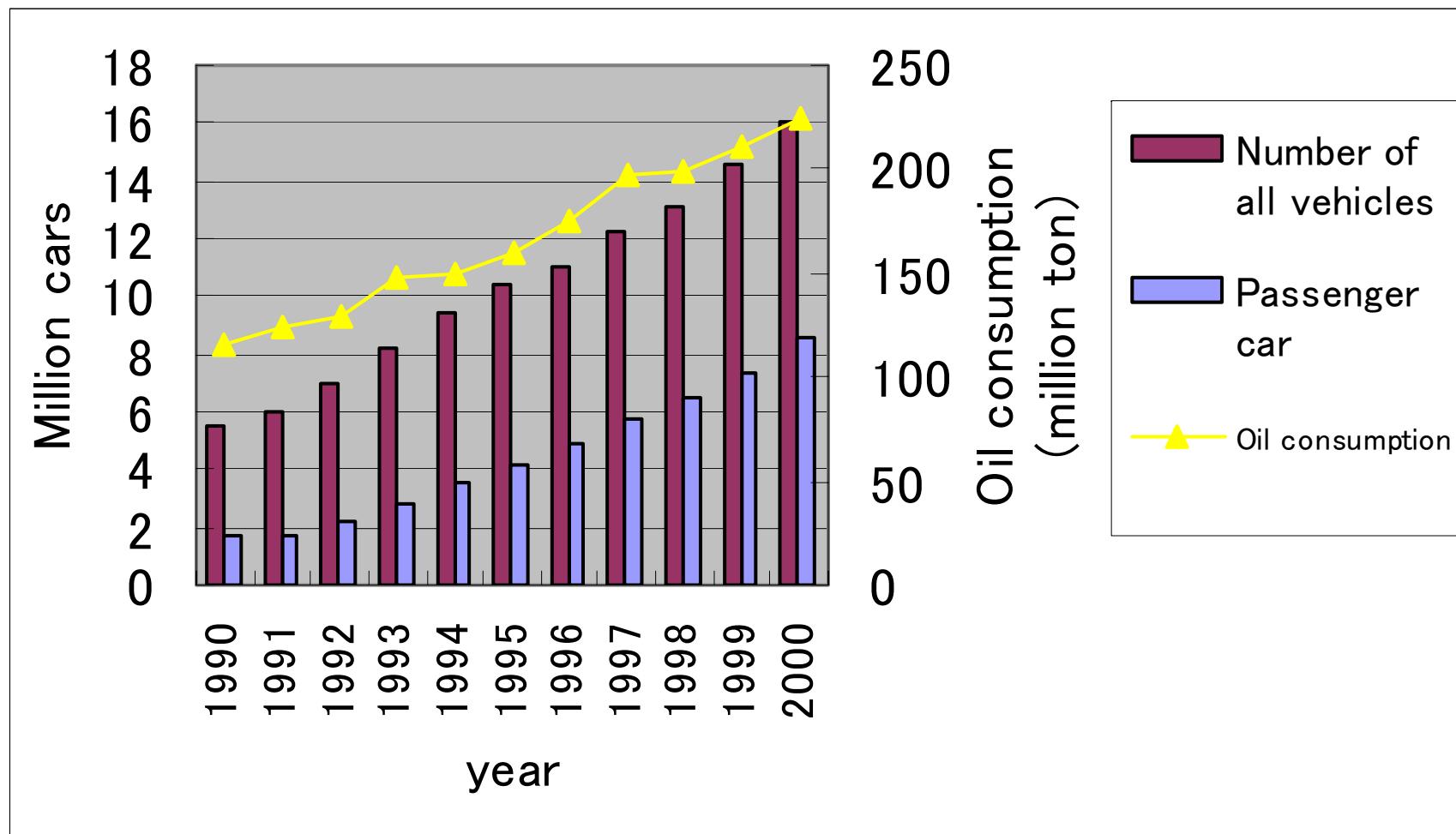
*Then, let's think which sector especially
needs energy efficiency improvement.*

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 (Million cars)	Share of passenger 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!

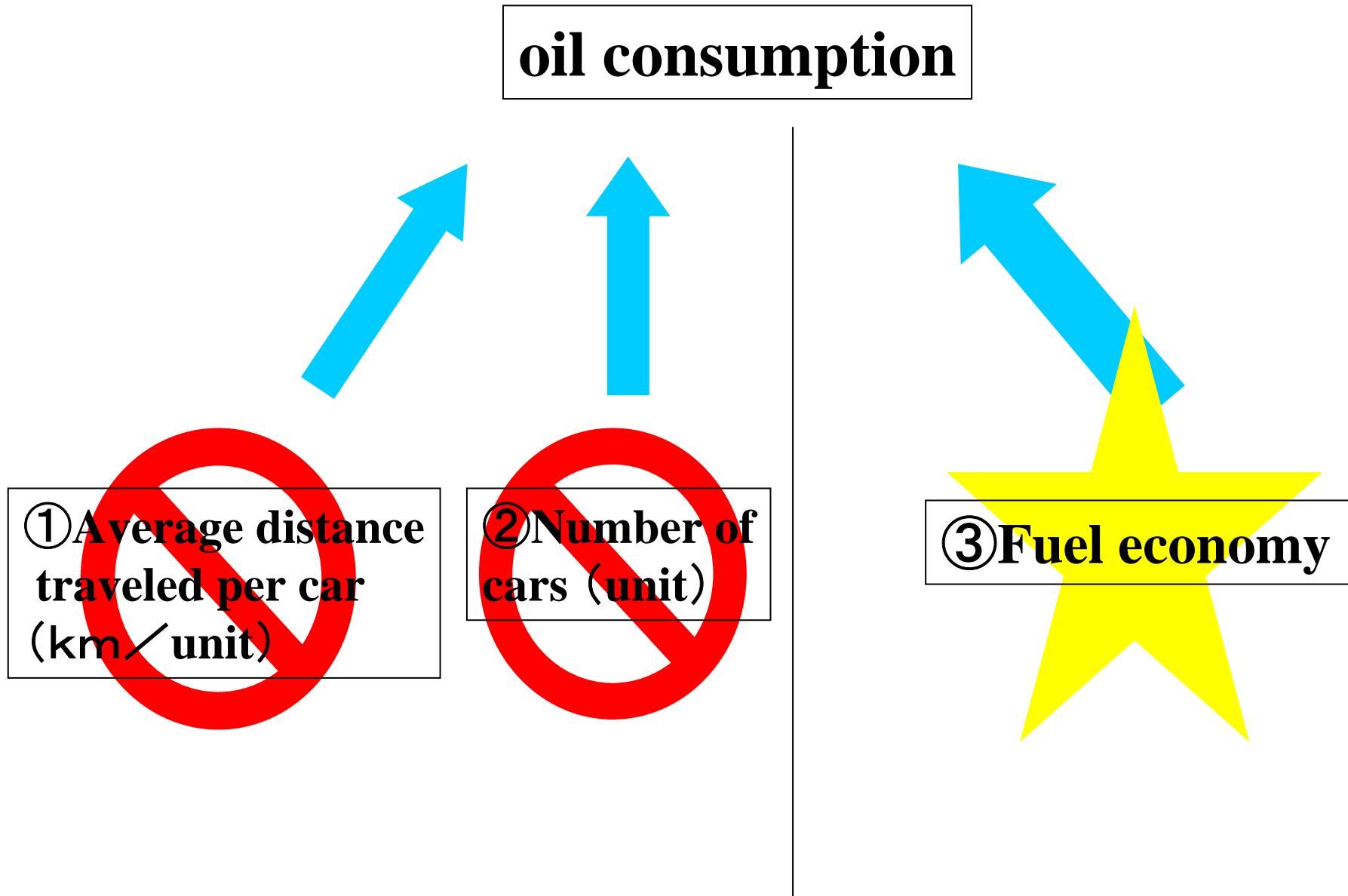
**More energy efficiency improvement
is necessary especially in the
Chinese car sector!**



Then...

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

Factors of oil consumption



Overview

【1】Necessity of improving Energy efficiency

【2】Approaches to Improving fuel economy

【3】TR vs Chinese fuel economy standard

【4】Conclusion

Two approaches

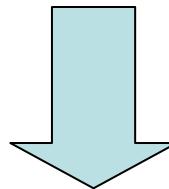
“weight approach” or “ fleet approach”

Which approach should be chosen in China?

criteria

- ① Oil saving
- ② Technology
- ③ Feasibility
- ④ Equity

Chinese government recognized the importance



Fuel economy improvement

Does the Chinese government act?

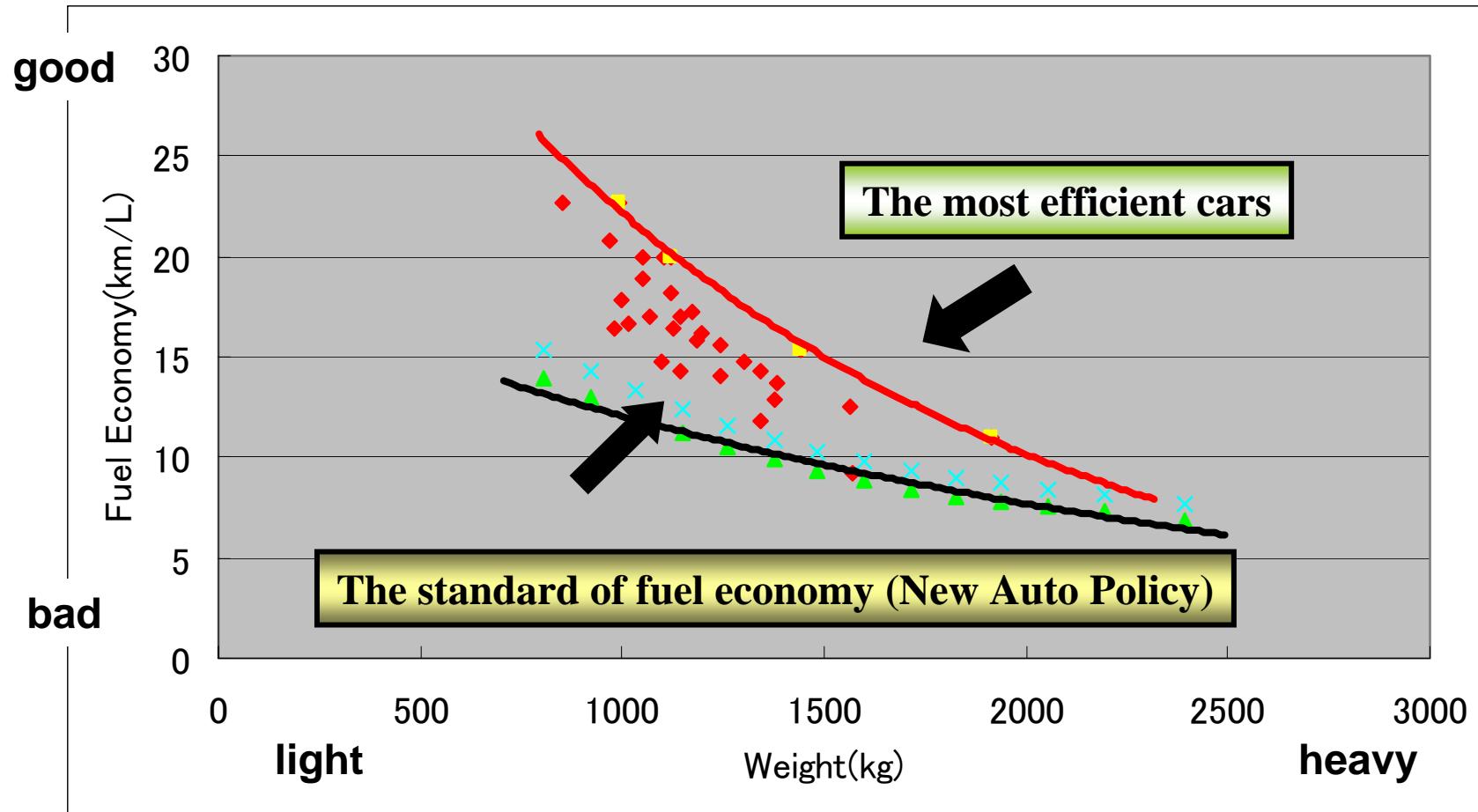
New Auto Policy (June, 2004)

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

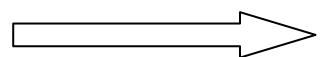


The government set the standard for fuel economy

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”

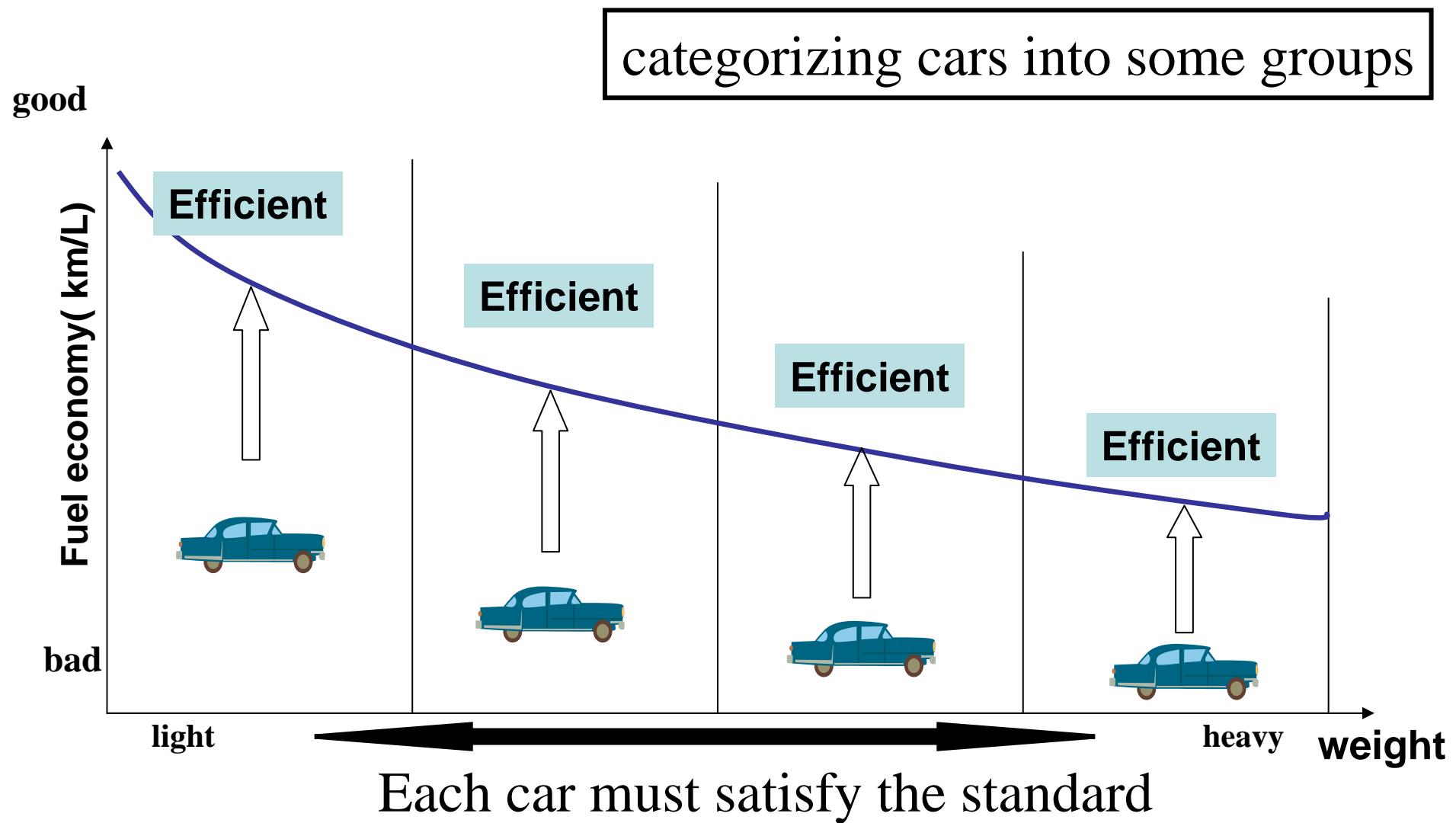
“fleet approach”

Case in China (New Auto Policy)

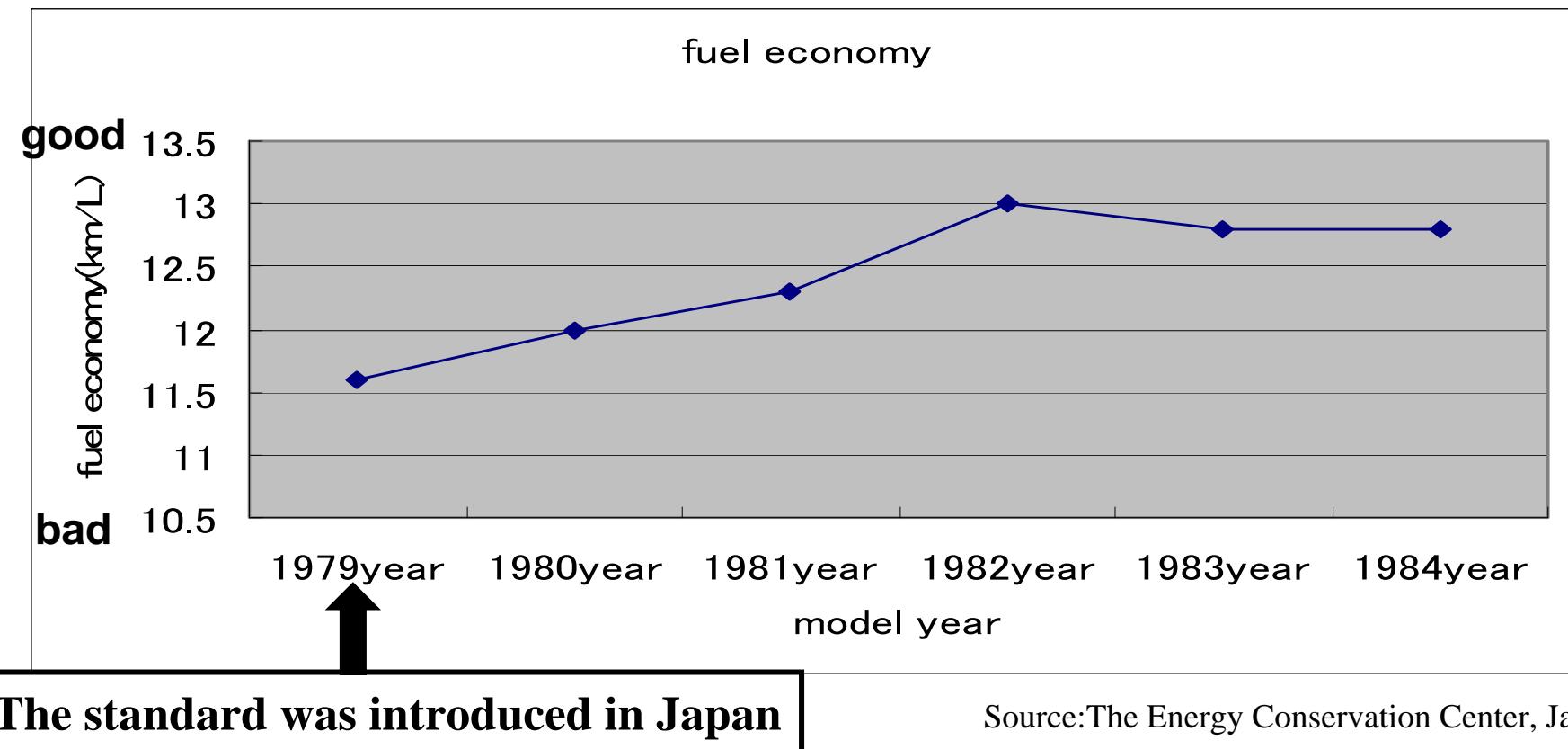
Case in America(1975~)

Case in Japan(1979~1985)

Image of “weight approach”



Effect of “Weight approach” in Japan



“weight approach” brings improving fuel economy

Improving fuel economy

There are two approaches to improve fuel economy

“weight approach”

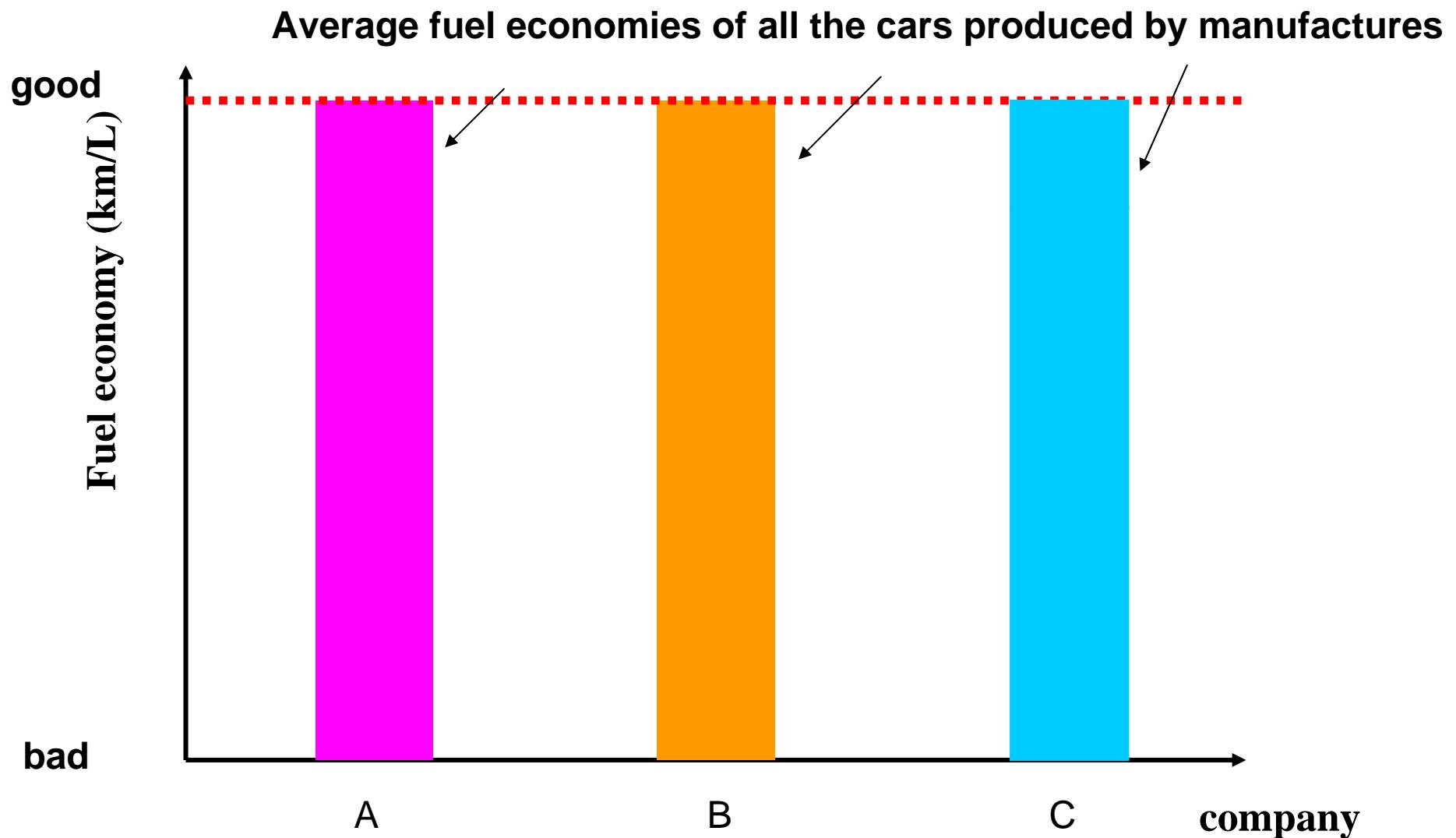
Case in China (New Auto Policy)

Case in Japan(1979~1985)

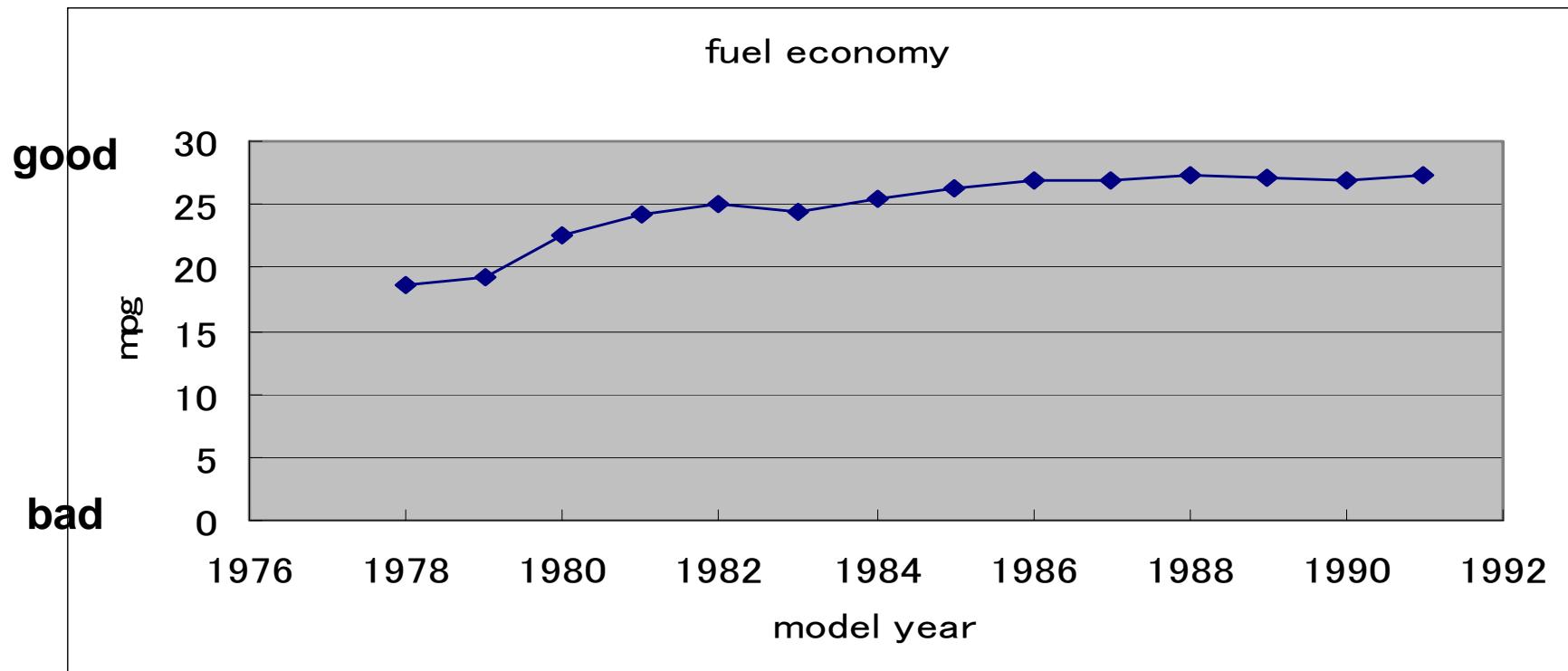
“fleet approach”

Case in America(1975~)

Brief Image of “fleet approach” in US



Effect of “Fleet approach” in US



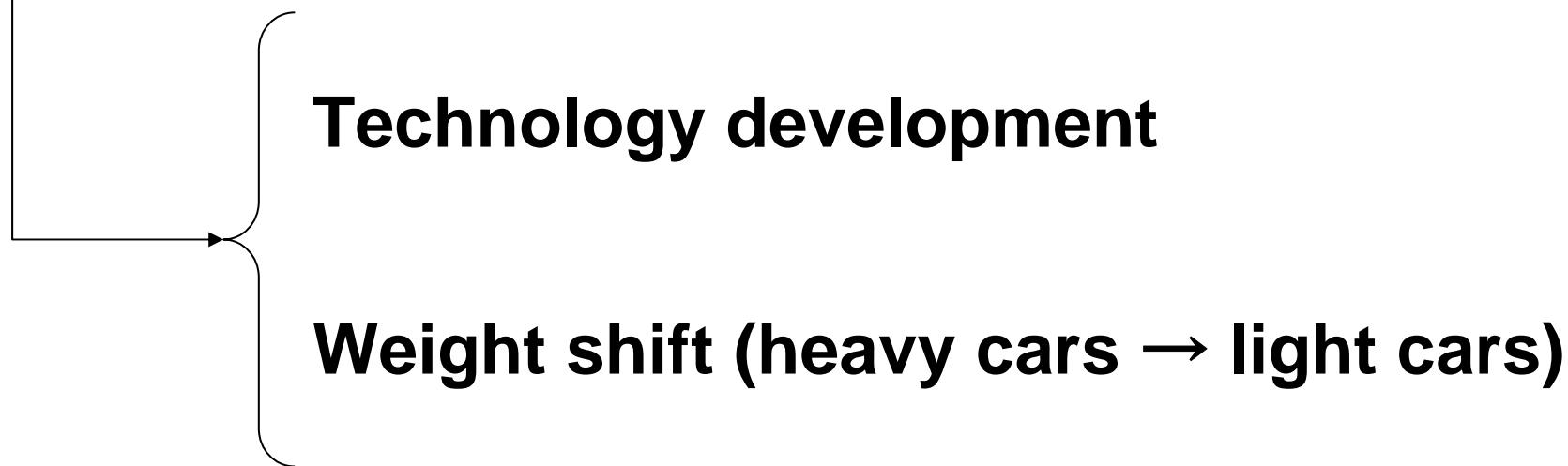
Source:U.S.department of transportation



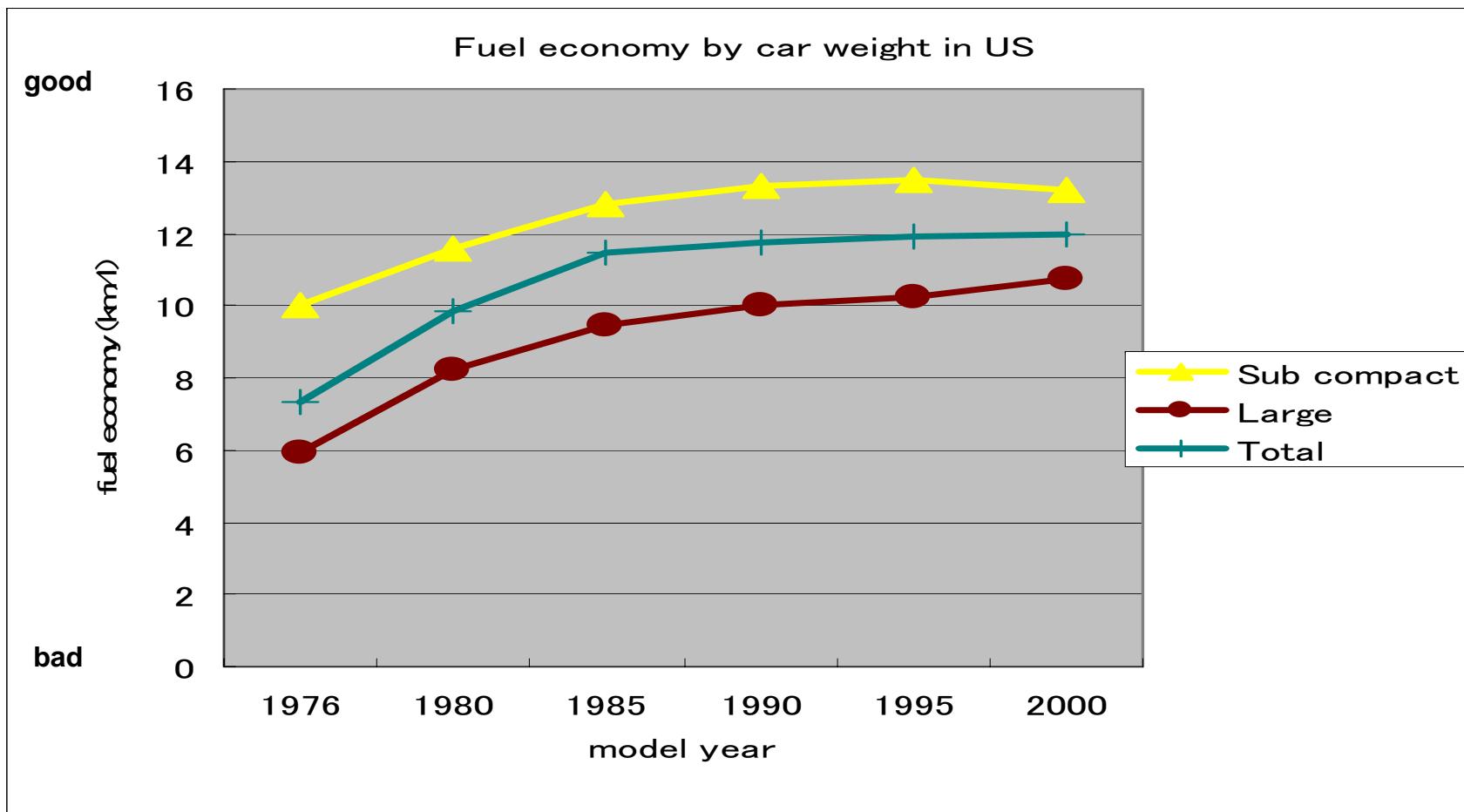
“fleet approach” also brings improving fuel economy

Improvement of fuel economy

Improvement of fuel economy

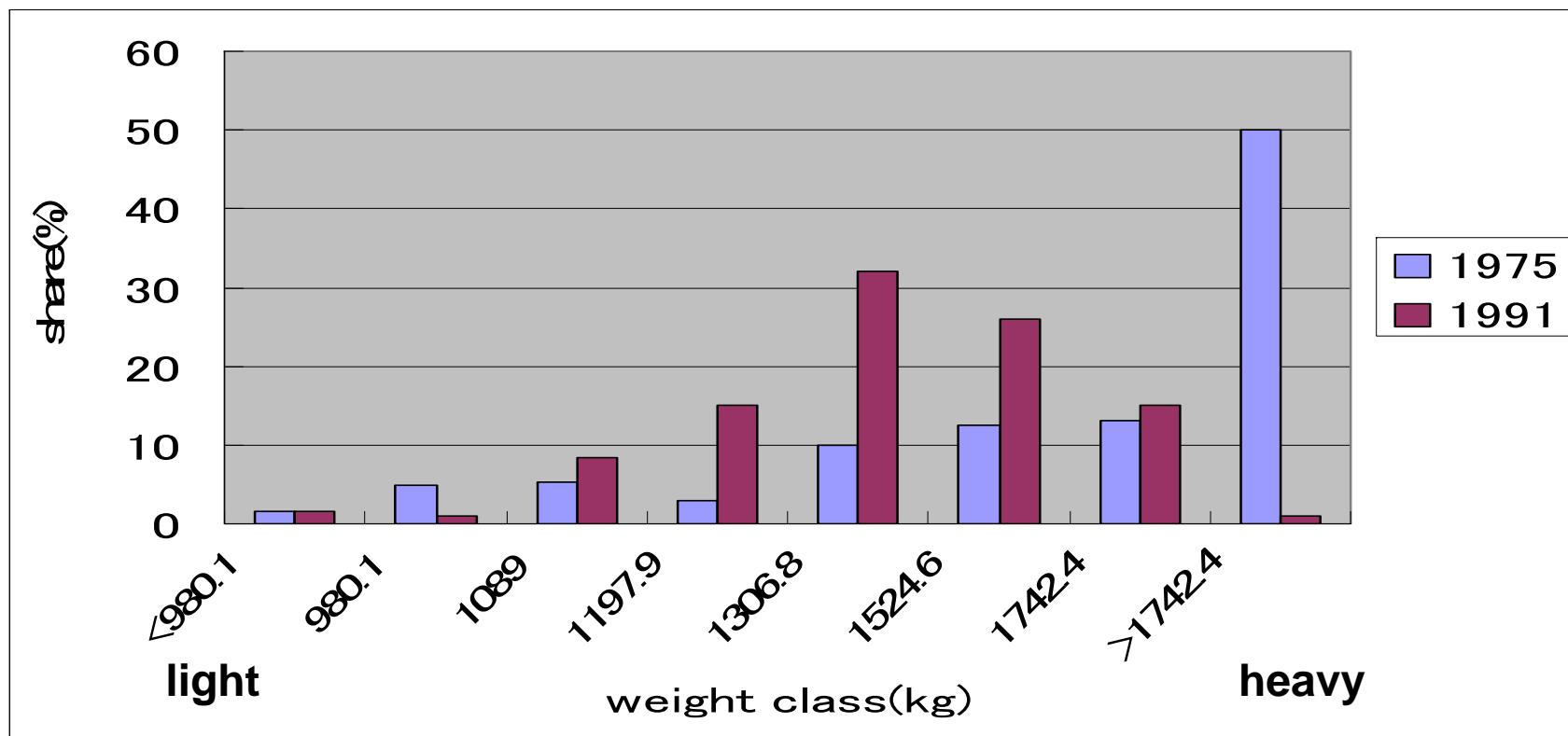


Fleet approach



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

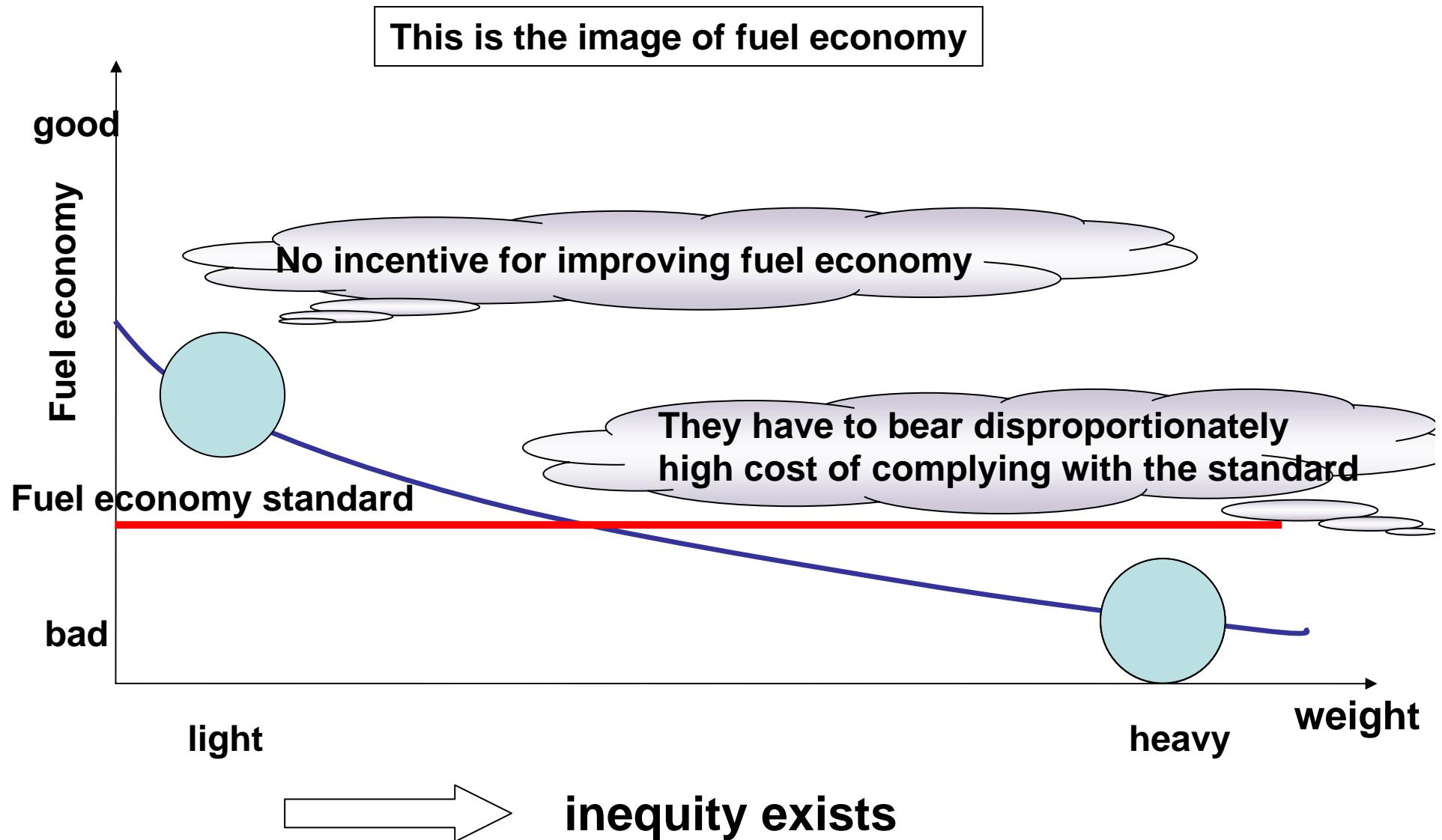
“weight approach” “fleet approach”

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

Both of them can satisfy with two points

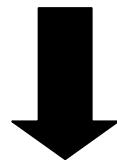
How about Equity and Feasibility?

In the case of “fleet approach”



Why was “fleet approach” accepted in US?

**The market was dominated by 3 big companies
at that time**



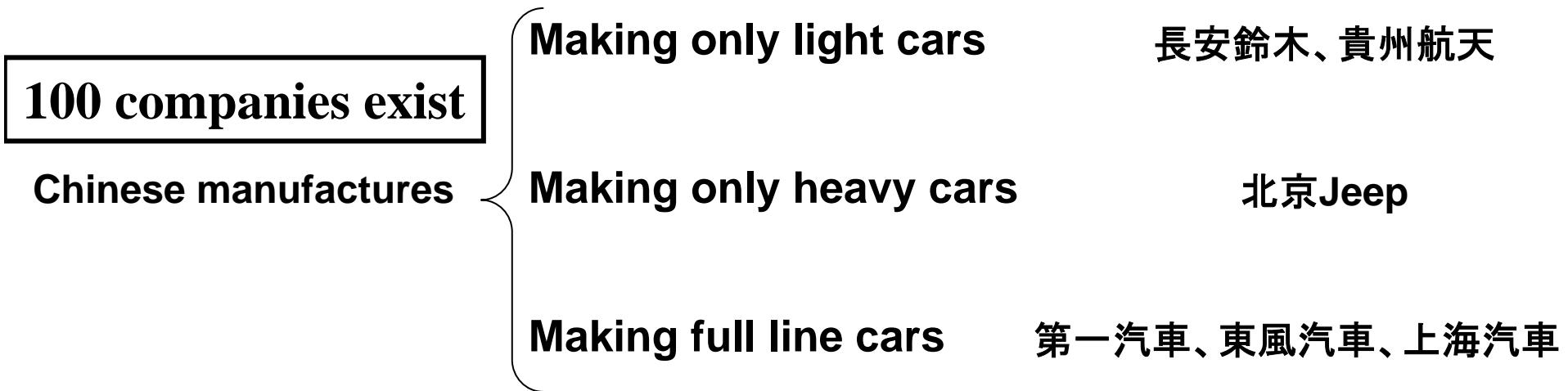
These companies are full line auto makers



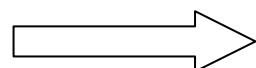
“fleet approach” did not create inequity in US

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

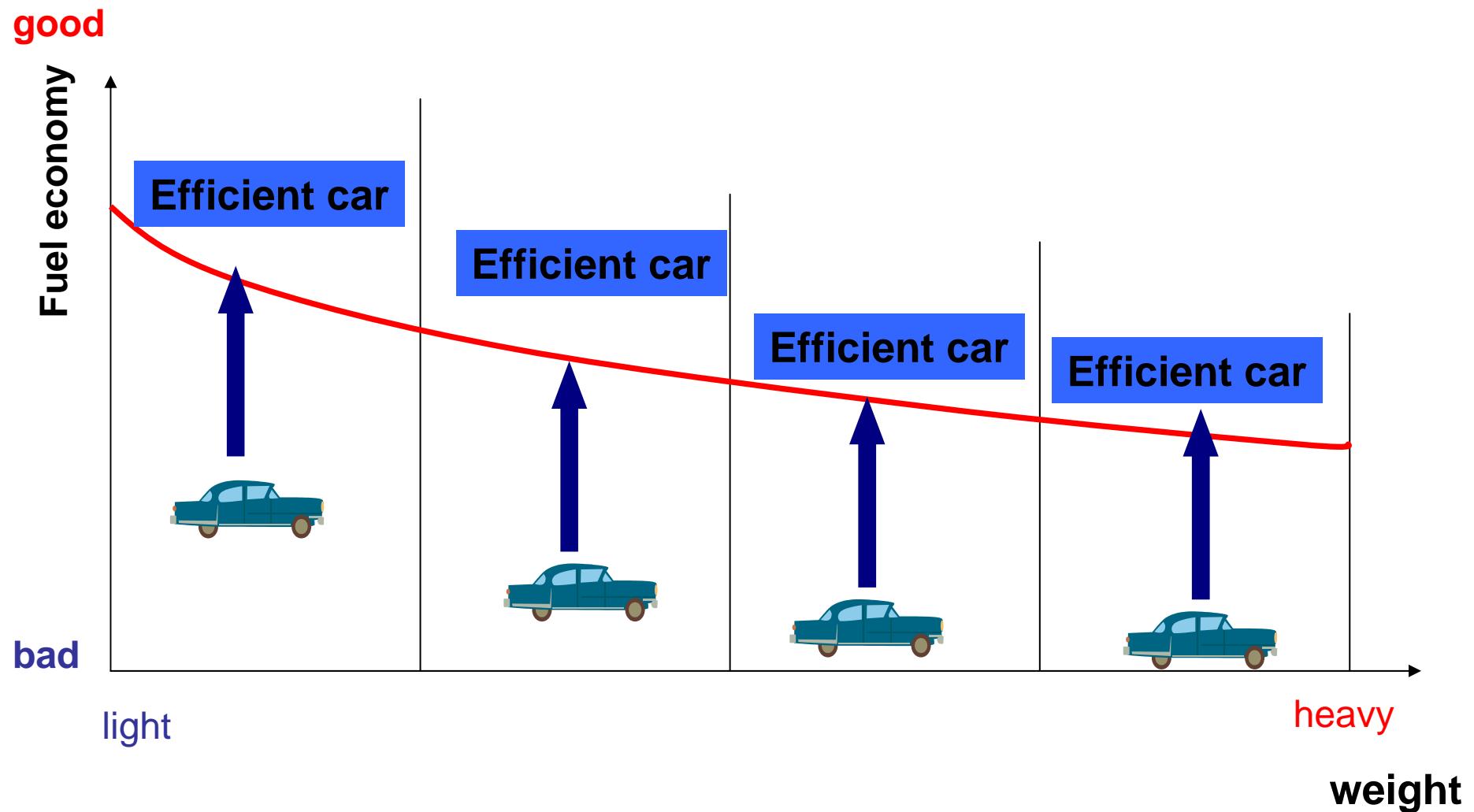
【1】Necessity of improving Energy efficiency

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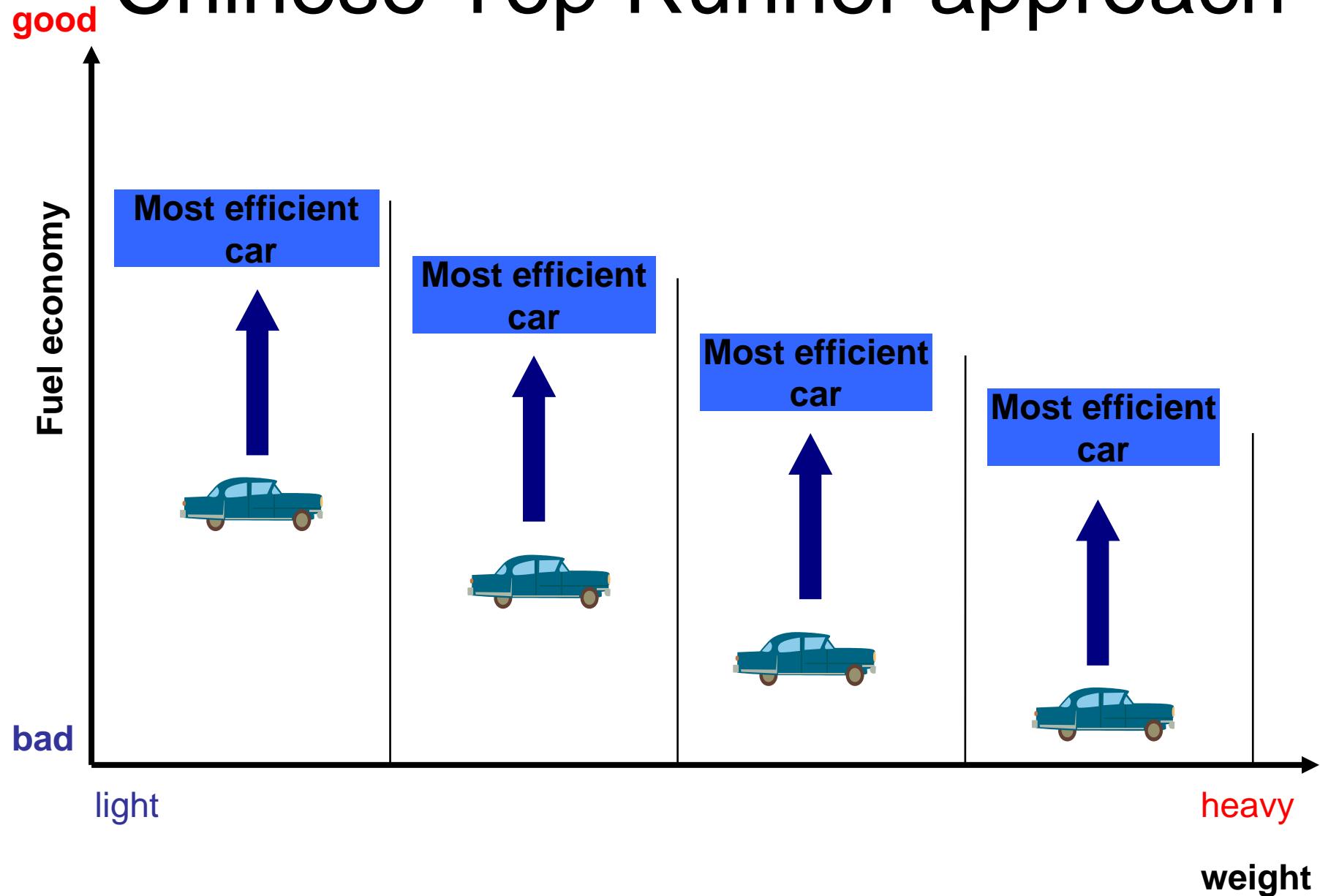
【3】TR vs Chinese fuel economy standard

【4】Conclusion

Chinese fuel economy standard



Chinese Top Runner approach



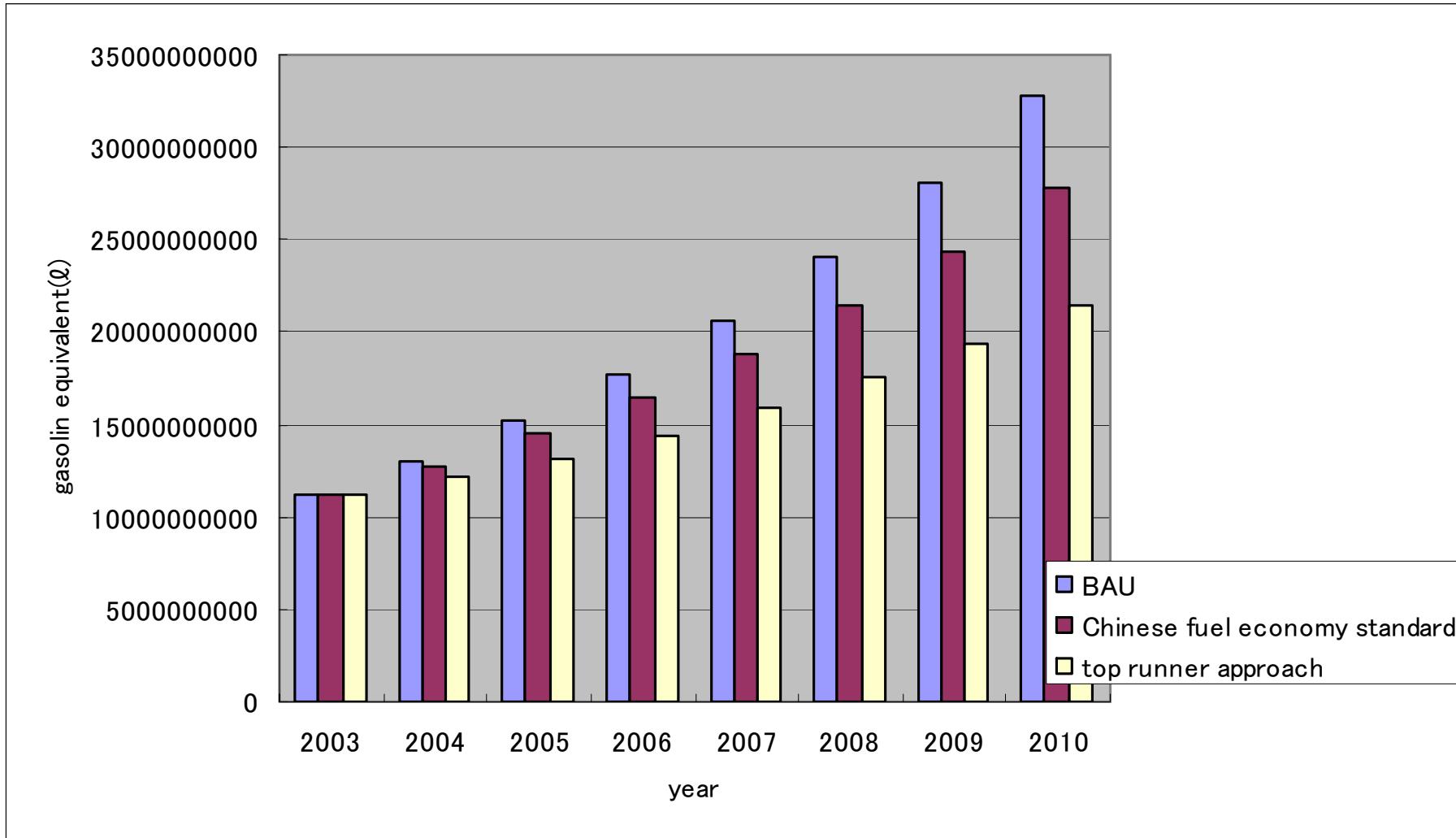
Comparison of Chinese Top Runner approach and Chinese Fuel Economy Standard



TR vs New auto policy

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

our calculation of oil saving

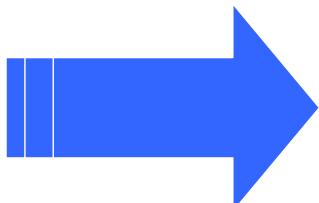


Source: World bank, UNEP, 中国自動車年鑑、中国汽車工業年鑑より独自作成

our calculation of oil saving

For 8 years...

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

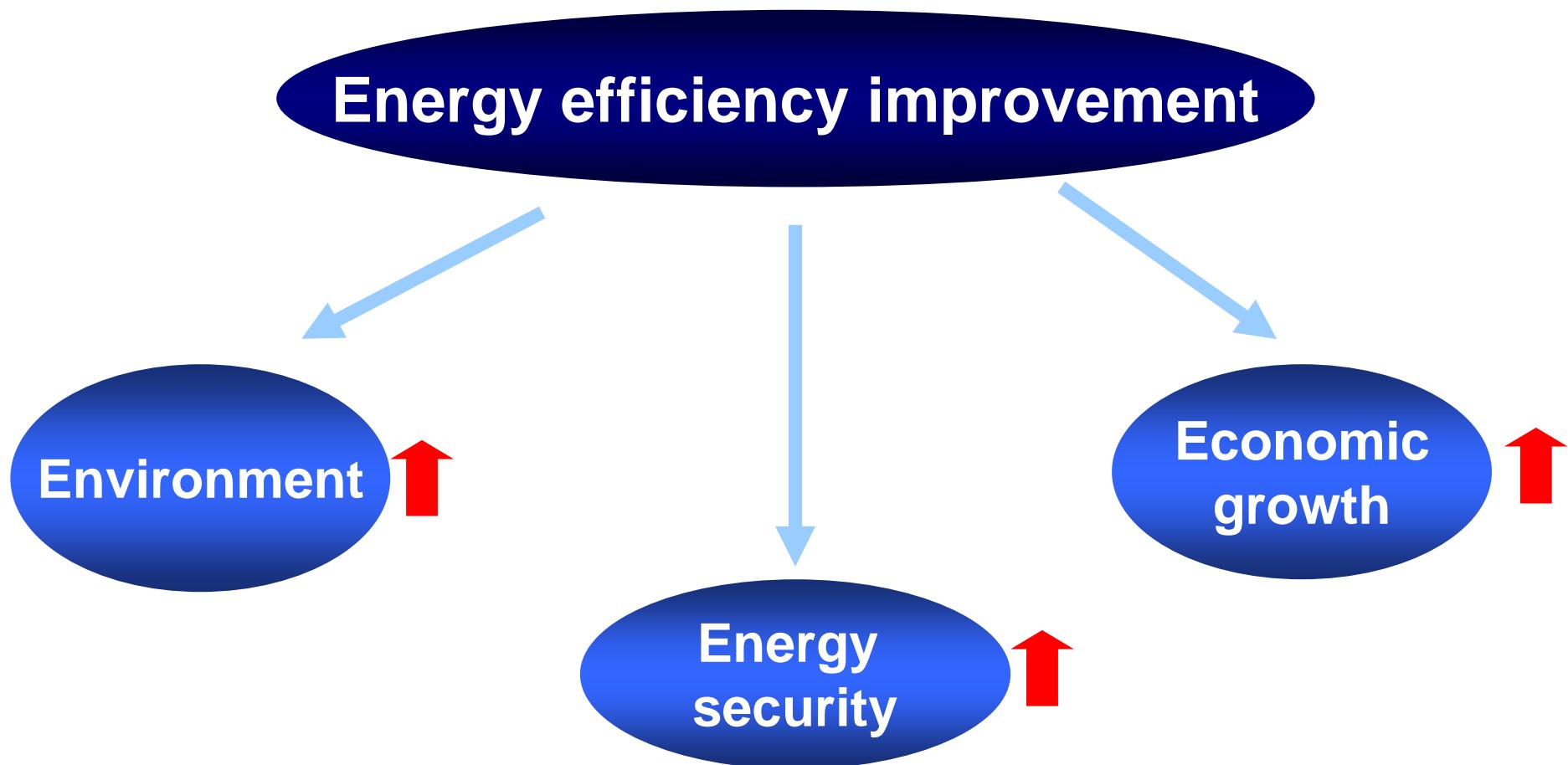


**Top runner approach can save more oil.
For 8 years China can save twice the amount energy consumed in automobile sector in 2002(= 4.8million t) .**

“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...



Global competition power

China must acquire high fuel economy technology



“Top runner approach” is the best solution

TR vs New auto policy

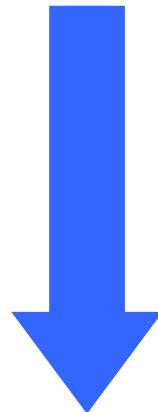
	Top runner approach	Chinese fuel economy standard
Effect of Oil saving	Energy Security	Better
	Environment	Better
	Economic growth	Better
Global competition	Better	Less

“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

