



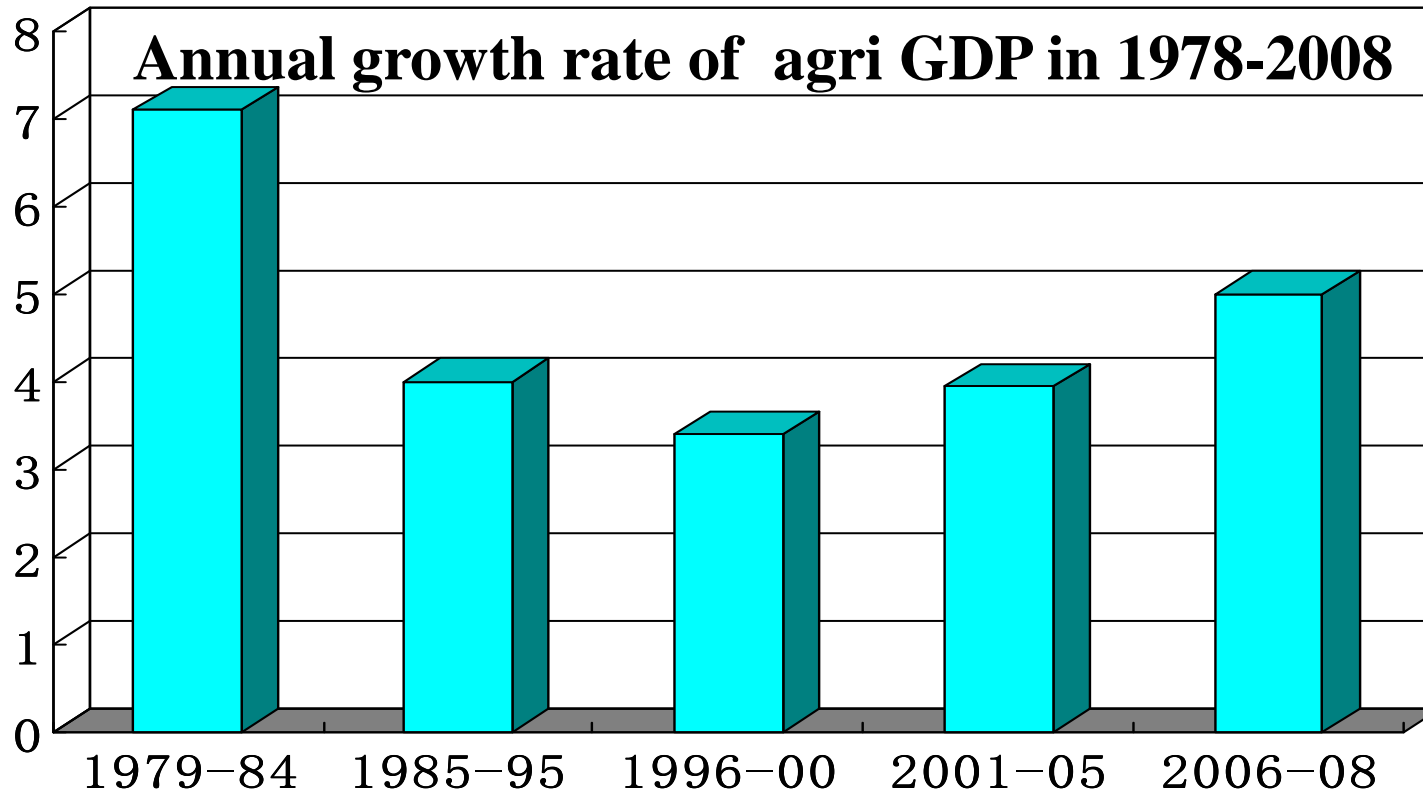
A Booming Sector of China's Livestock: Opportunities and Challenges

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Outline

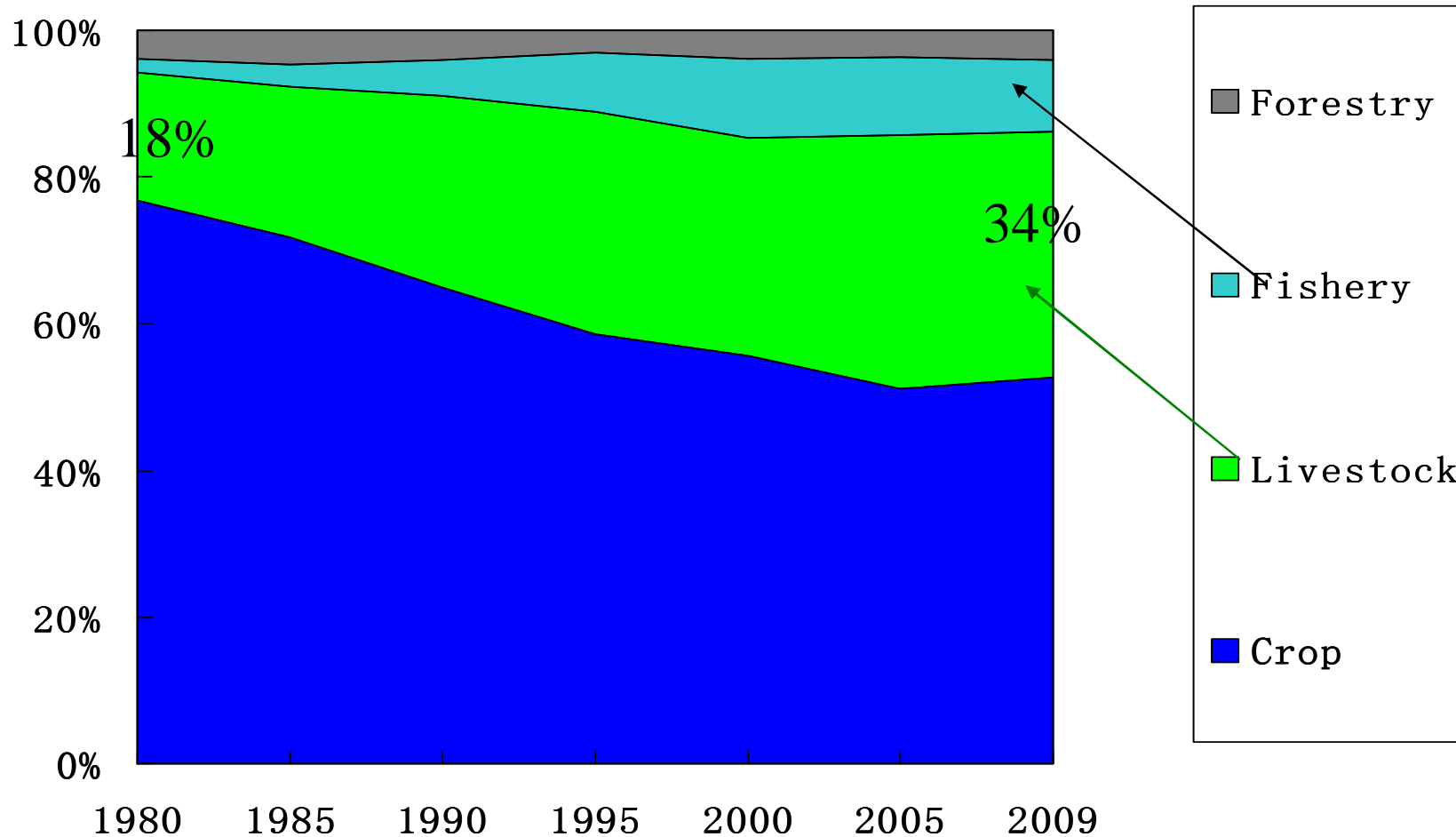
- 1. Rising livestock sector and driving forces:**
- 2. Future prospects**
- 3. Concluding remarks**

4.4% of annual growth rate of agri GDP in past 30 years



About 4 times of population growth rate

Shares of output values within agricultural sector, 1980-2009, (%)



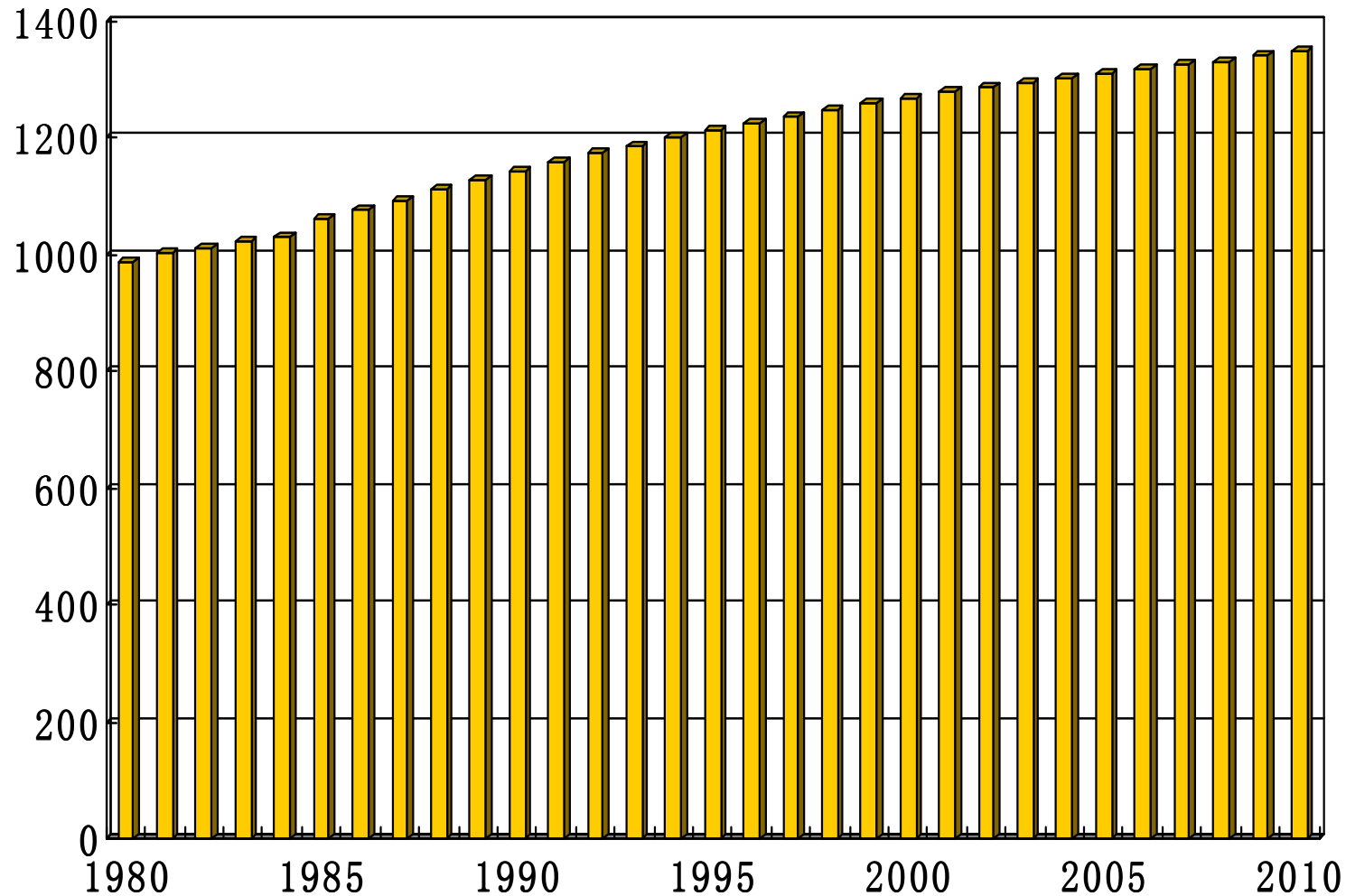
Within agriculture: meat sector has grown even faster; falling the shares of crops, rising the shares of livestock and fishery

Driving forces

- **Demand**
- **Supply**

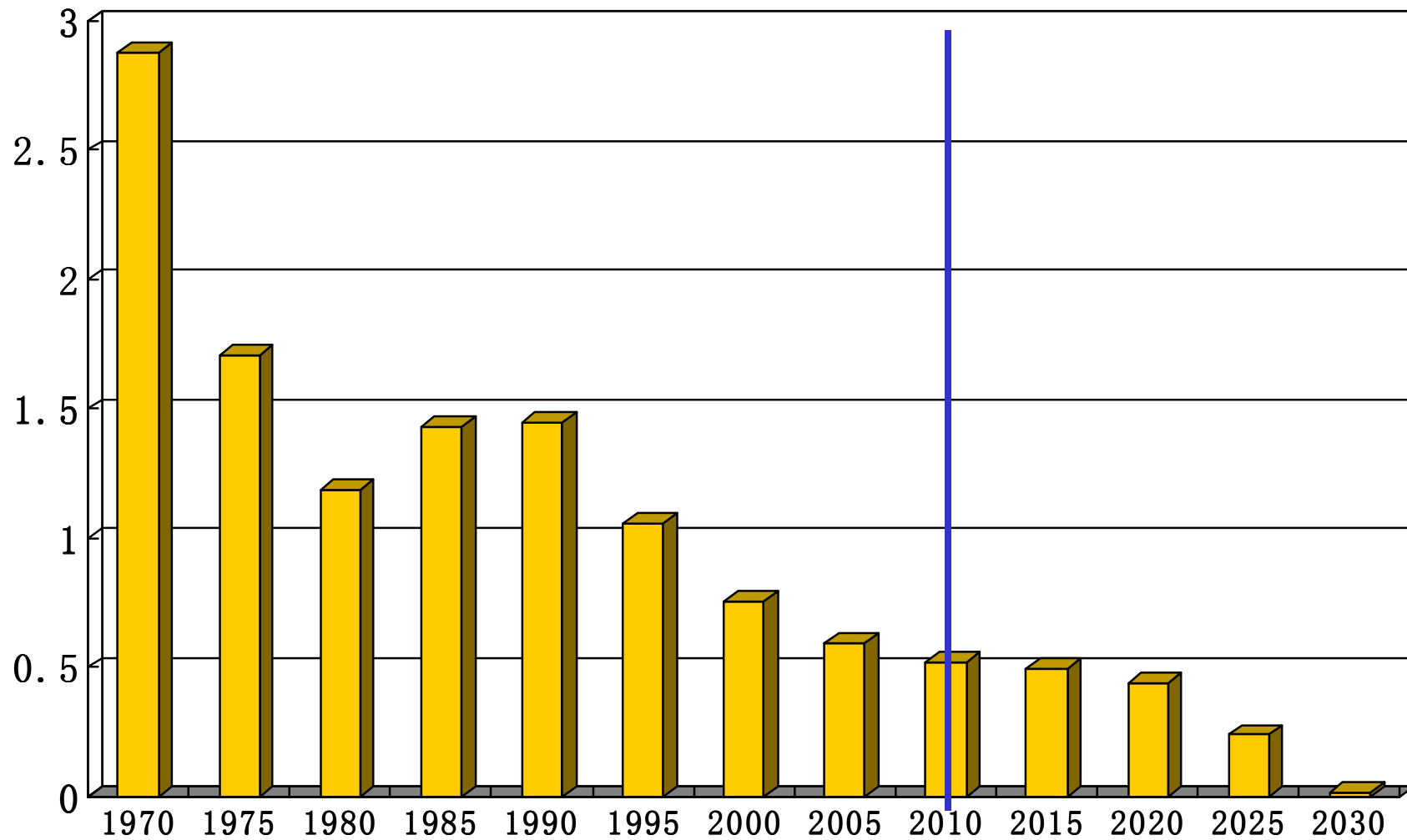
需求驱动力：人口

1980-2010年中国人口 Population (million)
Average annual growth rate in 1980-2010: 1.1%



人口增长率显著下降

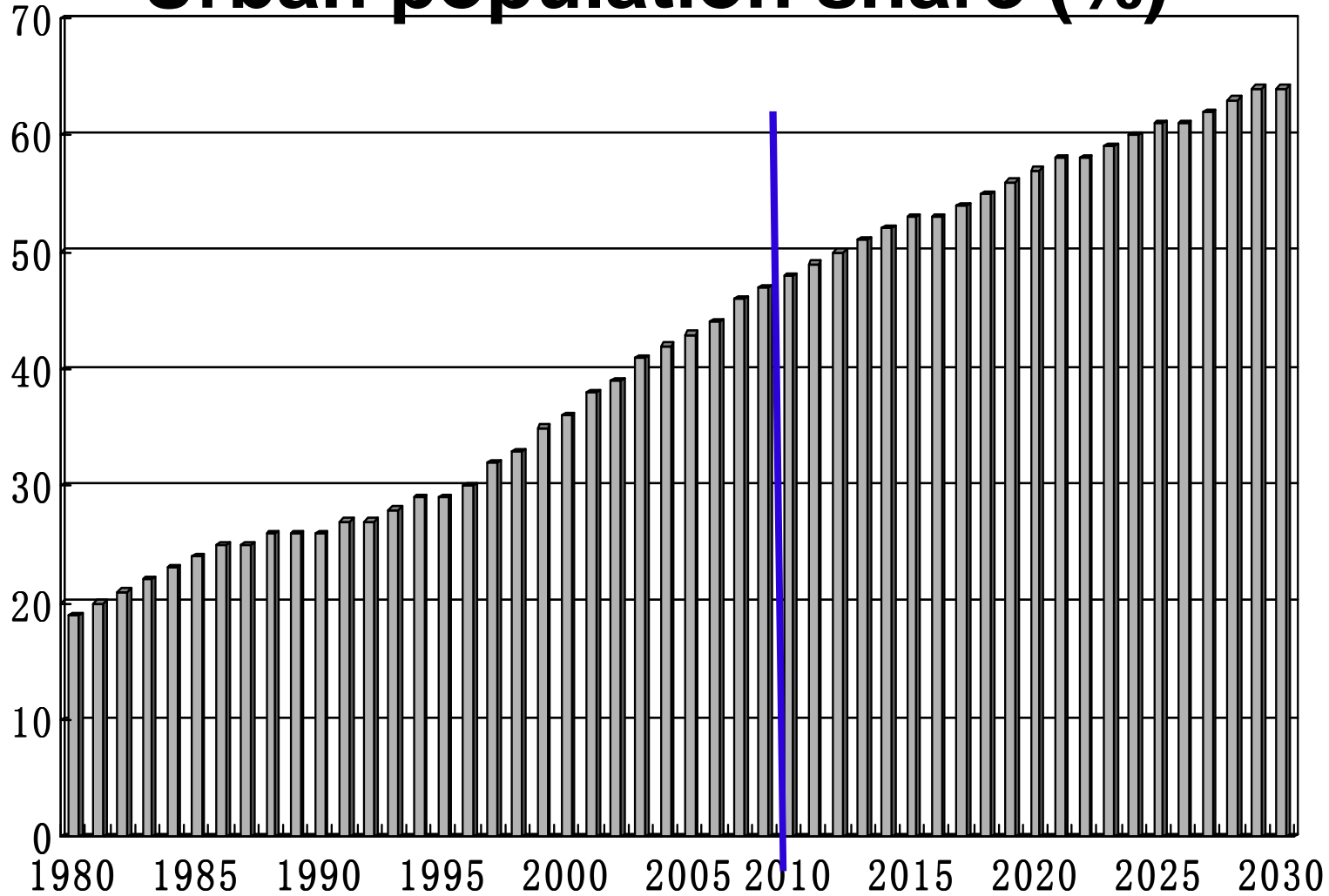
Population growth rate will decline significantly in the coming decades



Source: UN, 2004

需求驱动力：城市化

Urban population share (%)

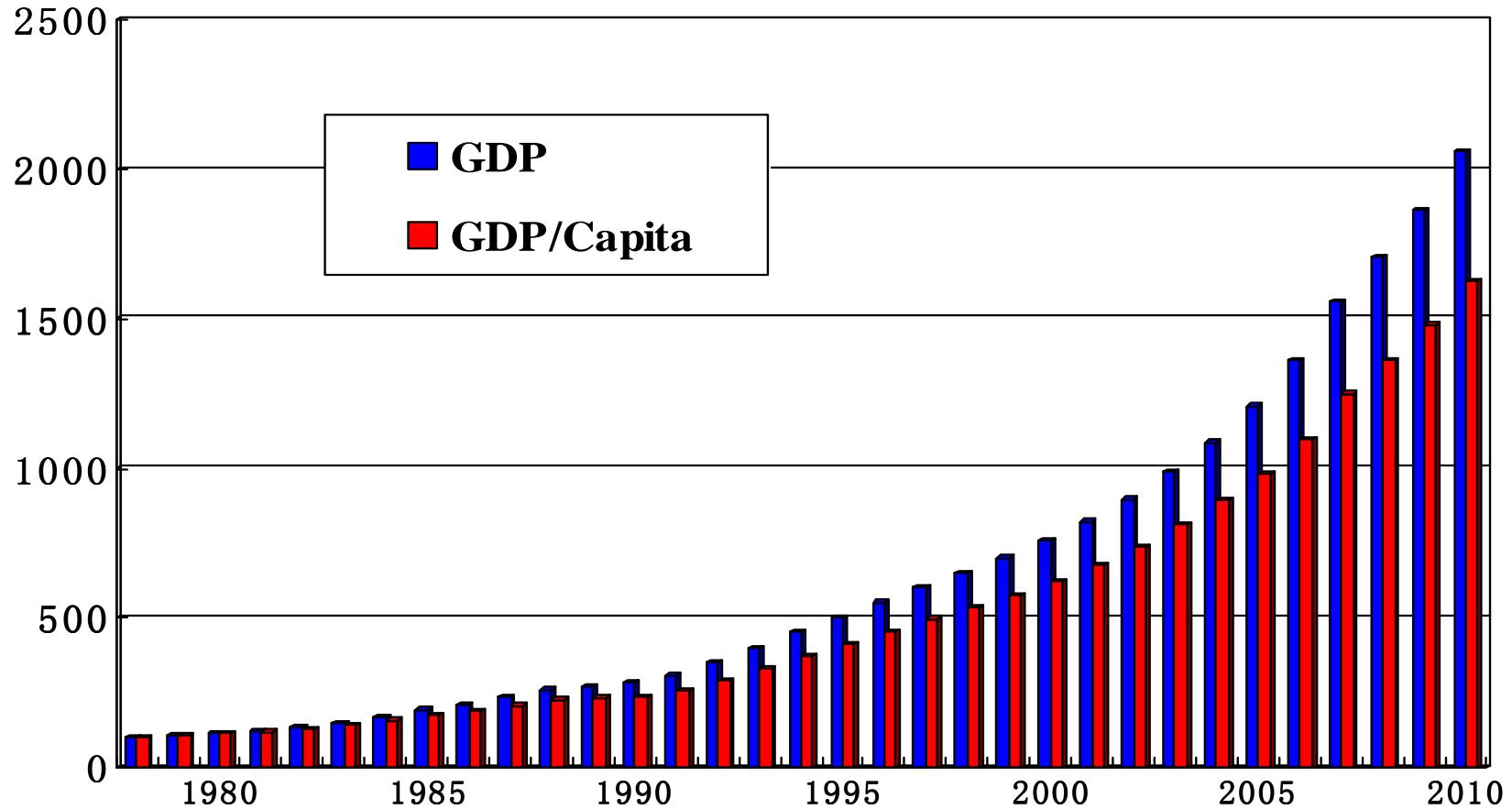


Average urban consumer demand more for meats but less food grain

需求驱动力：经济增长

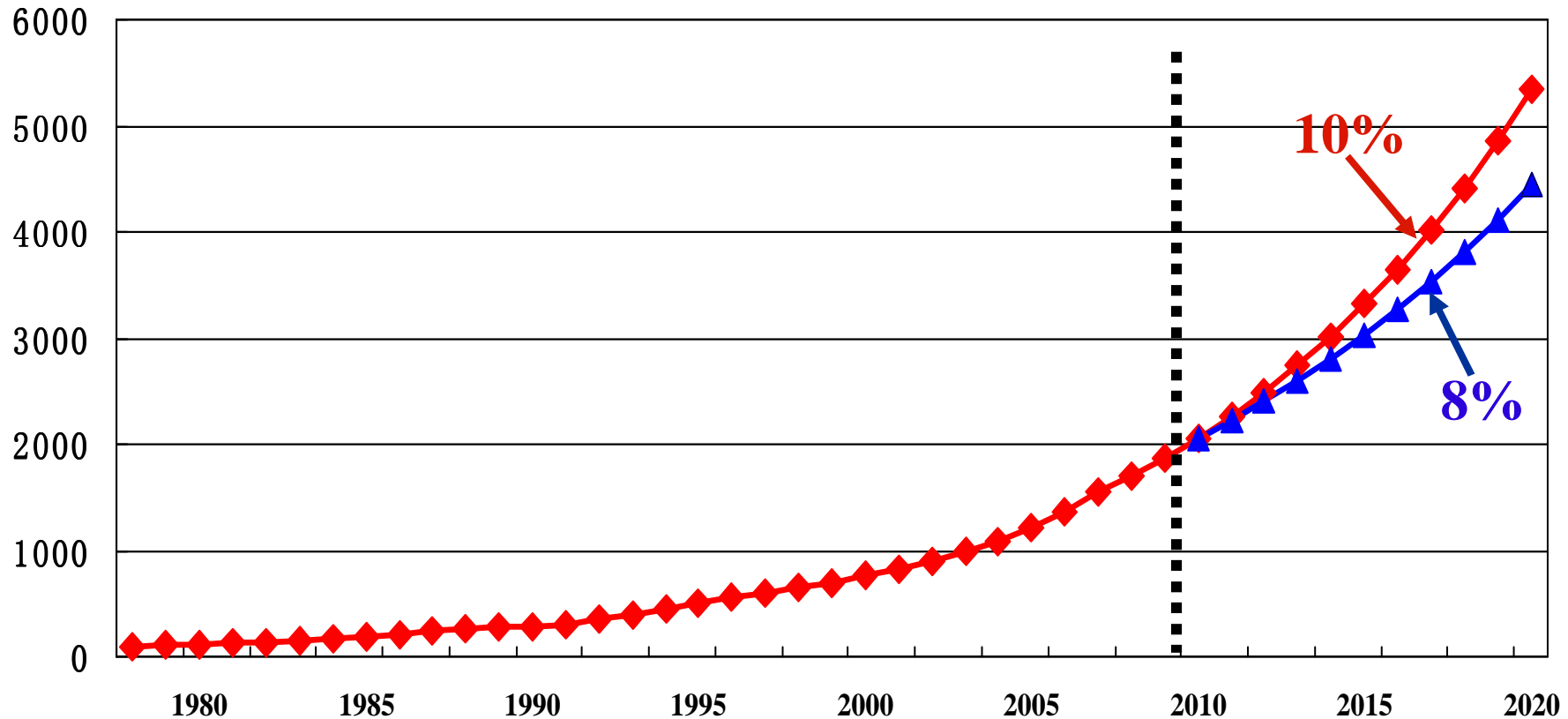
Rapid economic growth in China

GDP in 2010 was nearly 20 times as that in 1978



Real GDP in 1978 = 100

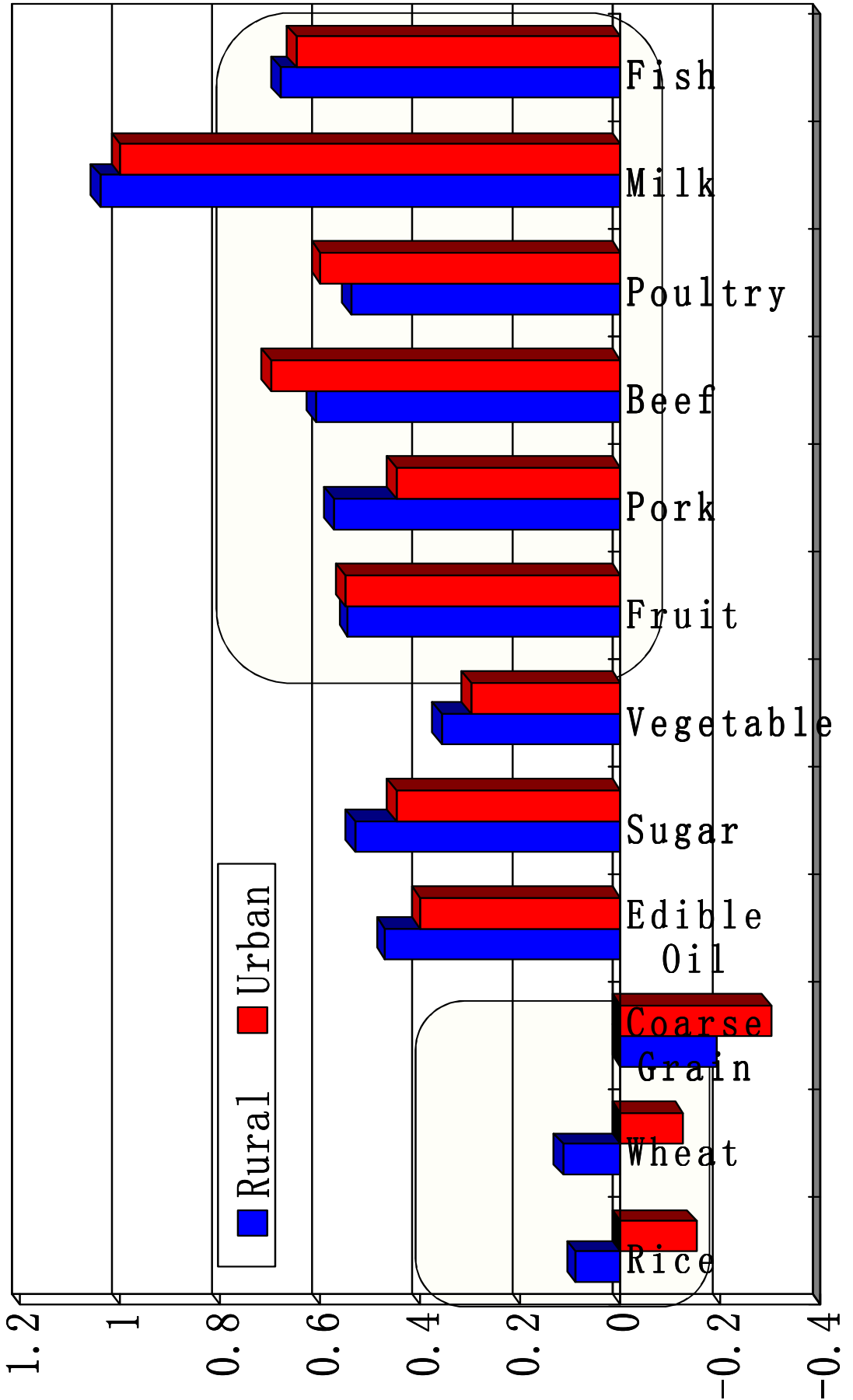
Economy is expected to maintain robust growth in the coming decade



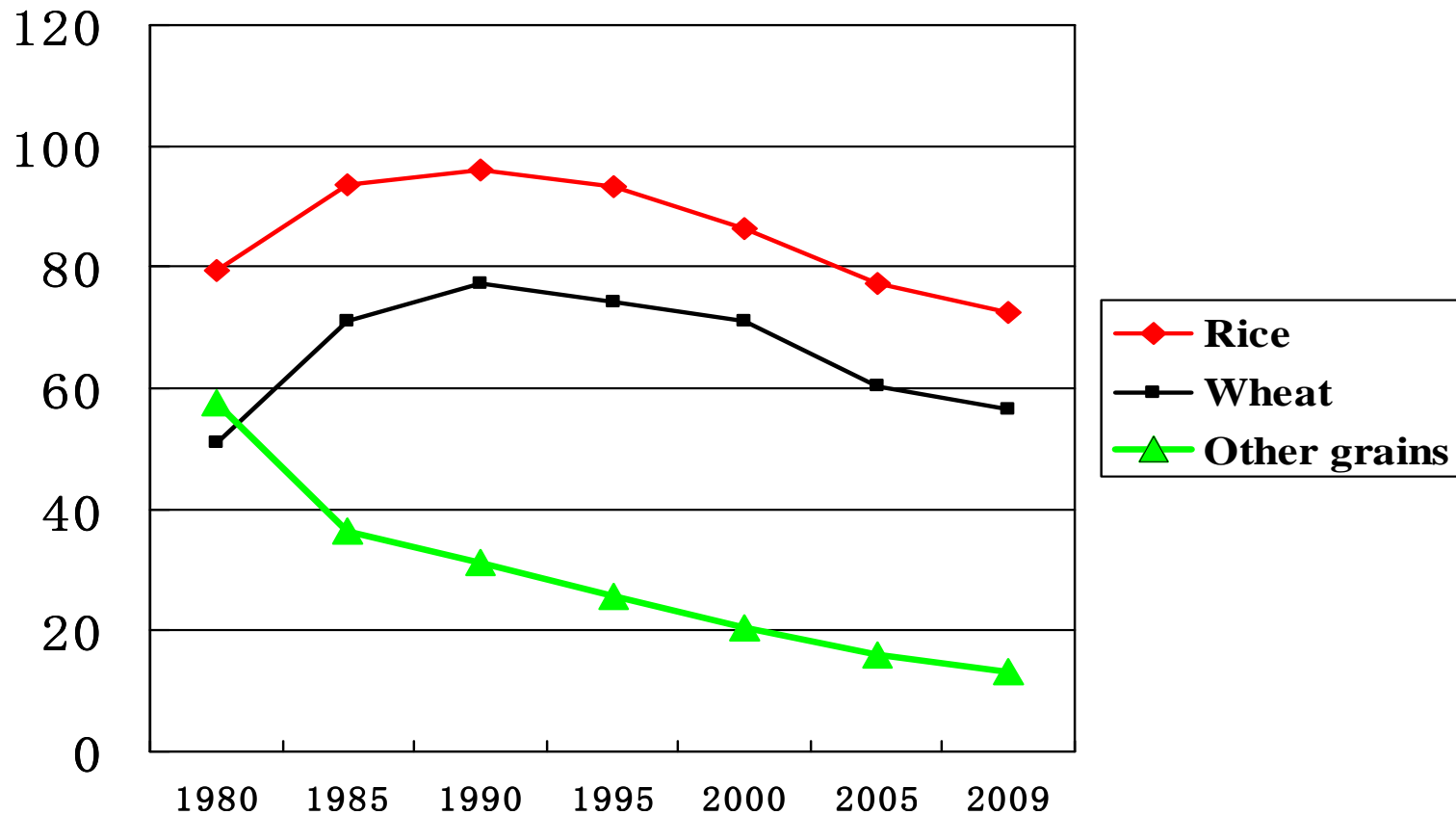
Continued growth, continued urbanization and continued dynamism in China's economy will affect all segments of the economy and the rest of world given the size of the country.

Income growth is major driving force

Income elasticities of demand for various foods in rural and urban in 2006, China

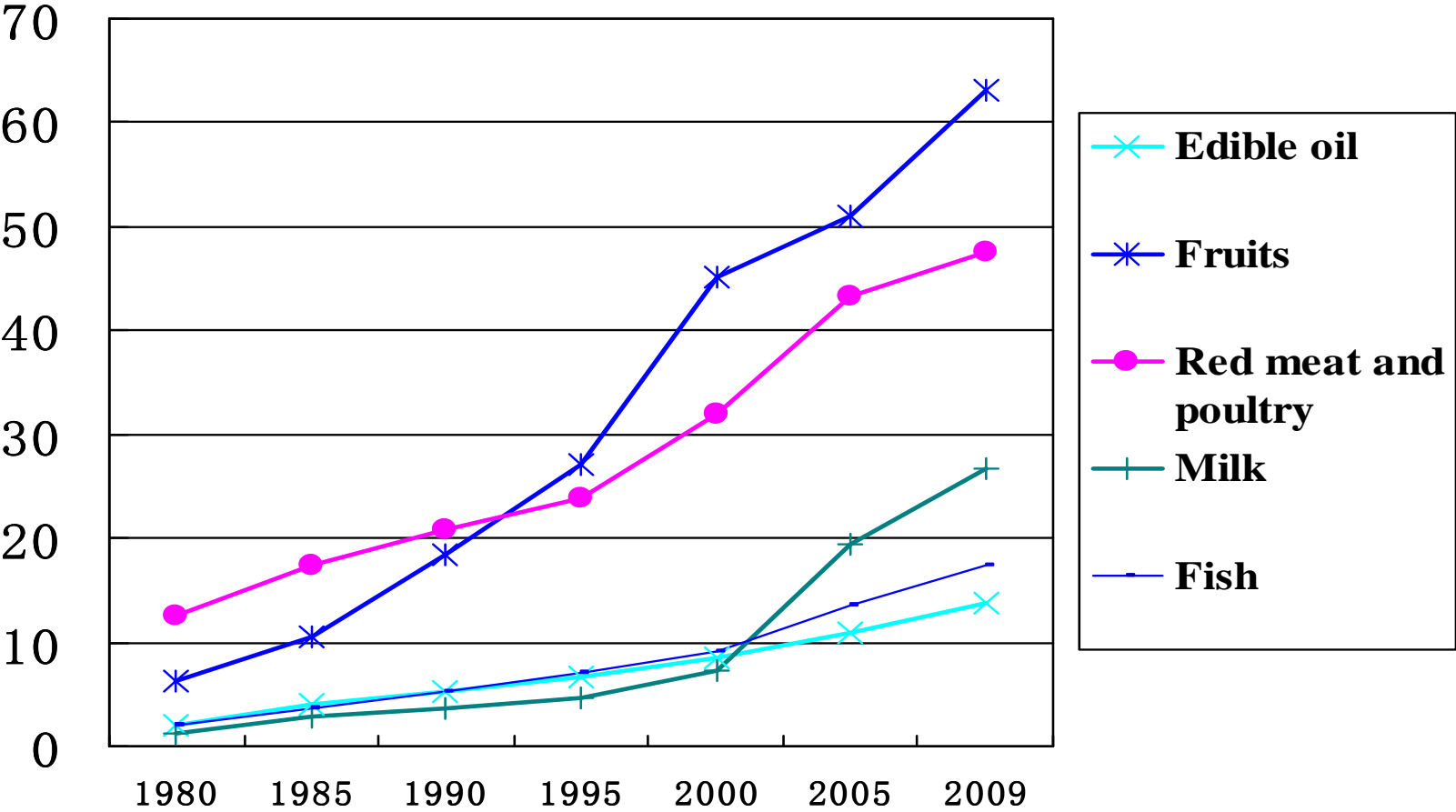


Per capita food grain consumption (kg)



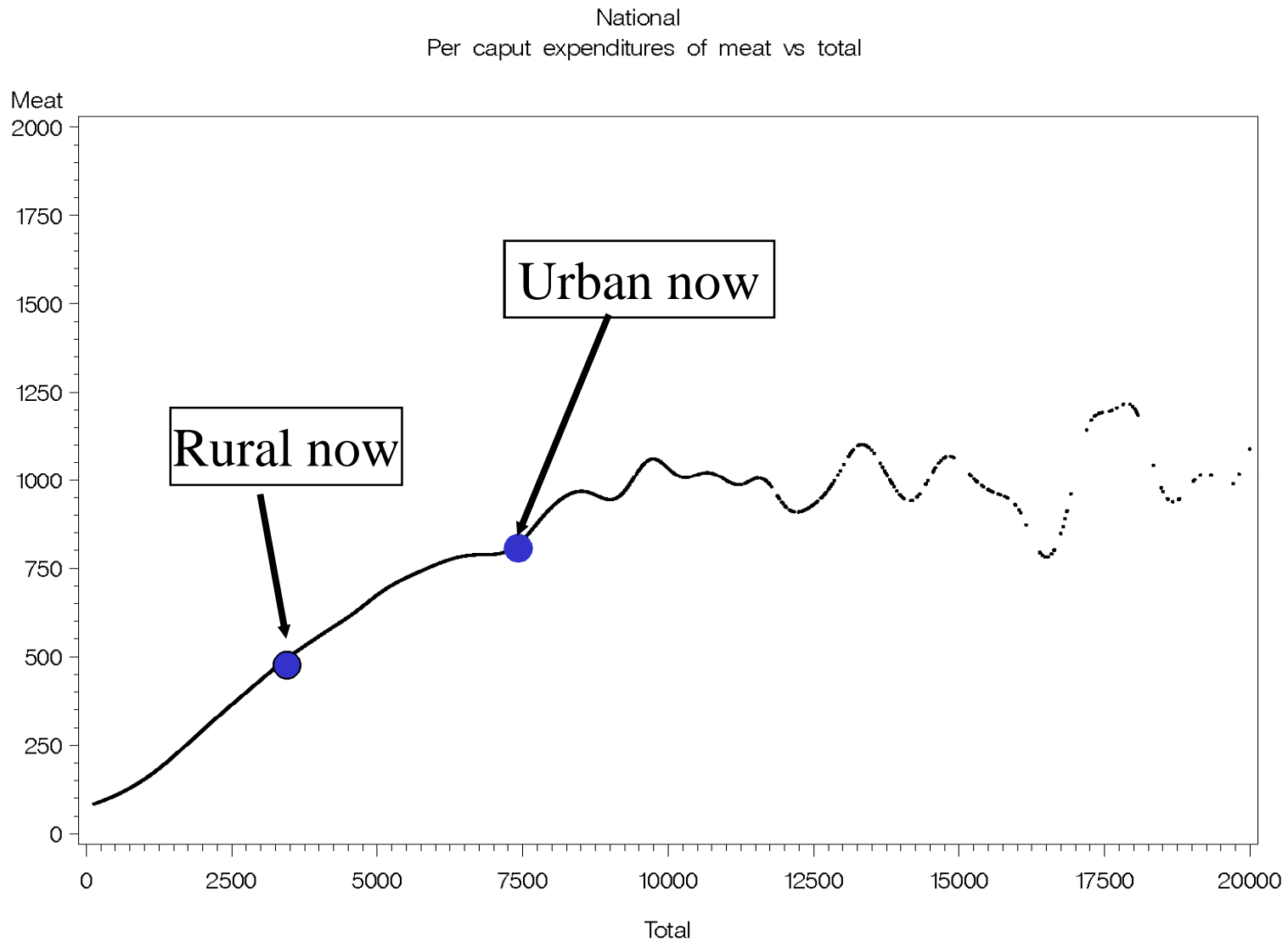
Significant fall in food grain consumption as income increased....

Per capita meat and other food consumption (kg/person)



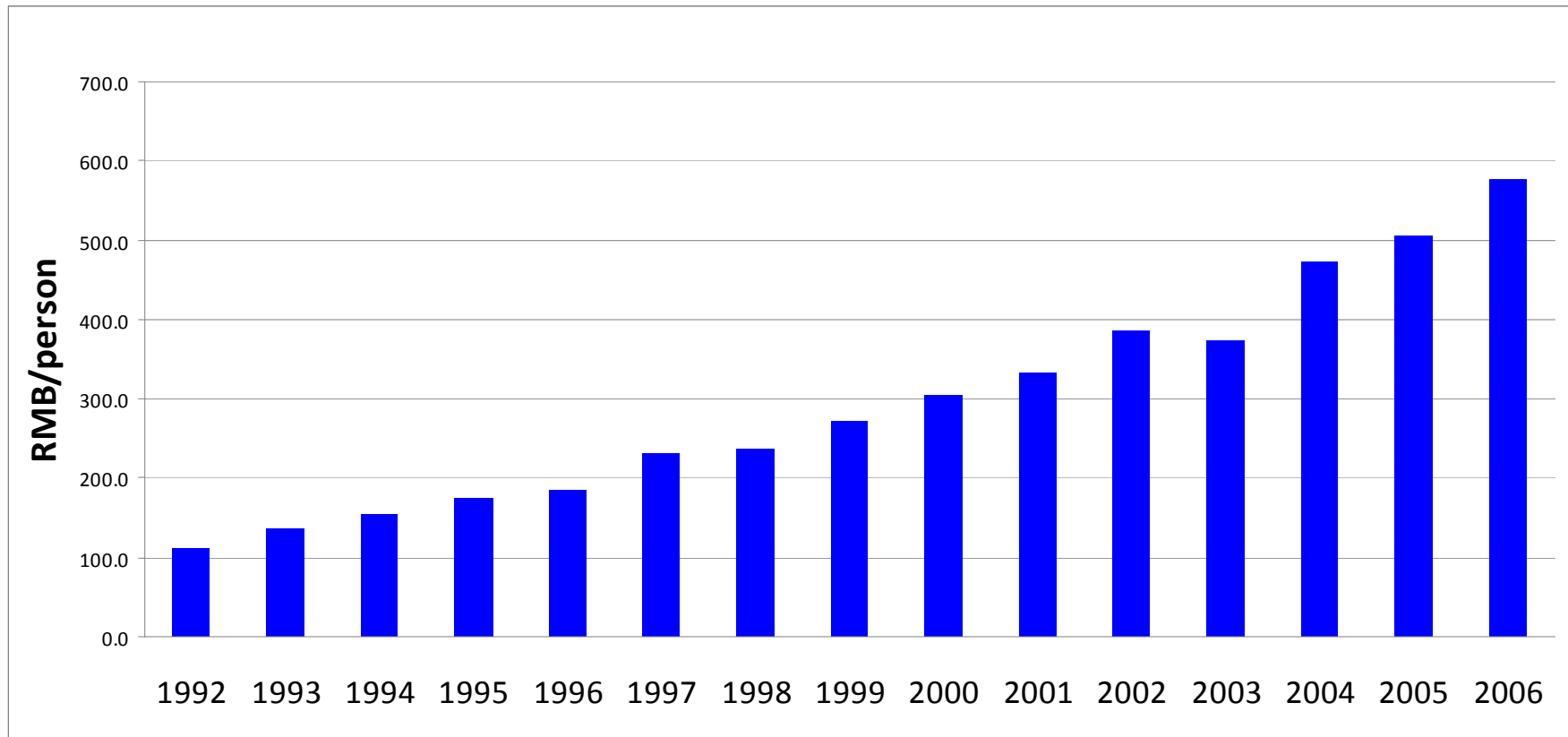
... but consumptions of fruits, edible oil, meats, fish and milk have growing significantly with income overtime...

Meat and total expenditure in China



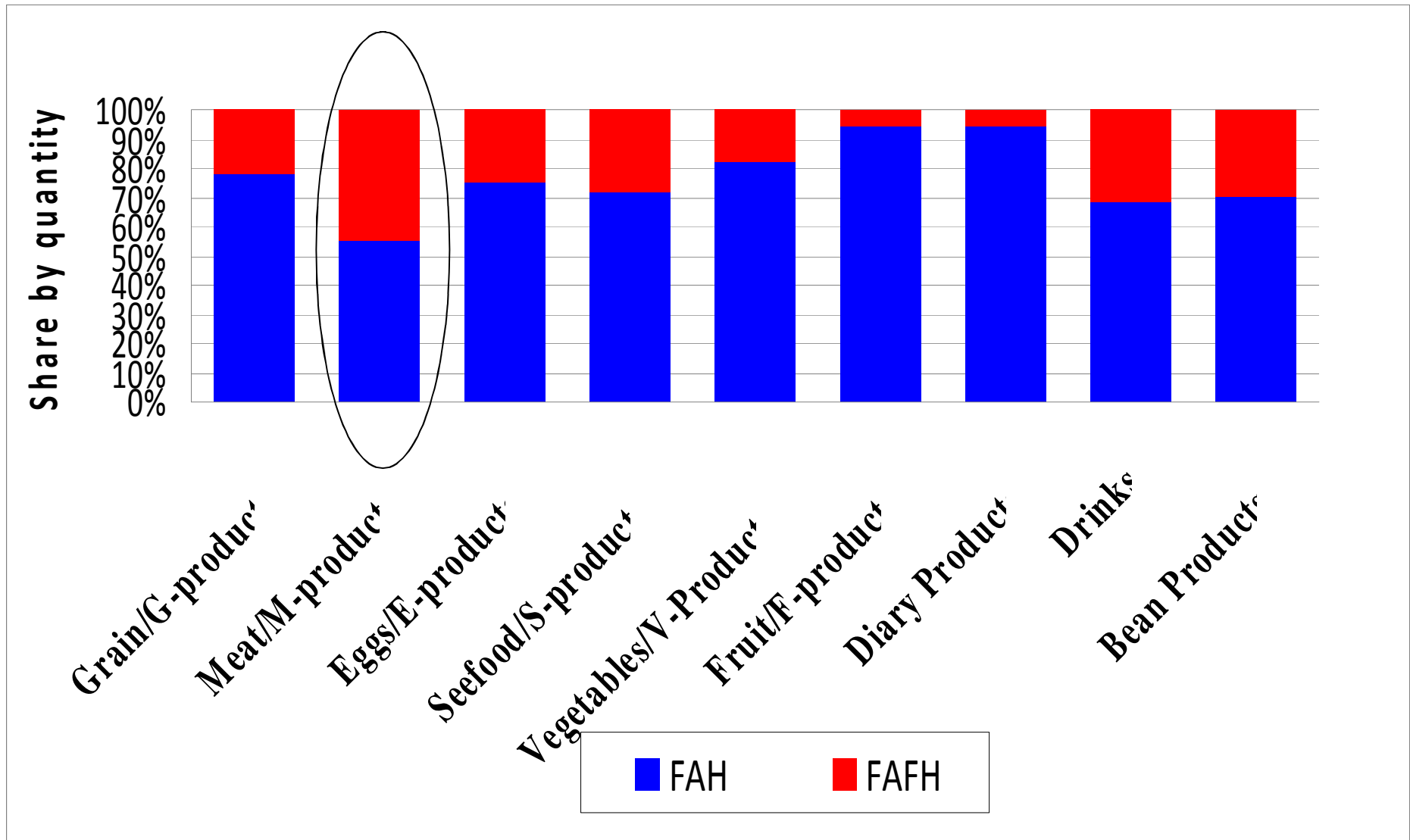
Source: CCAP and SOW-VU, 2002.

Food away from home (FAFH) expenditure in urban China (in 1992 price, yuan per person)



The food consumption pattern has also changed rapidly through increasing food consumed away from home in China.

Food at home (FAH) and **FAFH**: FAFH is significant, take a quite large share of consumption (Beijing in 2007)



Driving forces of meat demand

- **Population growth** (++) → (+)
Impact: weakening...
- **Urbanization** (+) → (++)
Impact: increasing...
- **Income growth** (++++ → ++)
Impact: keeping strong...

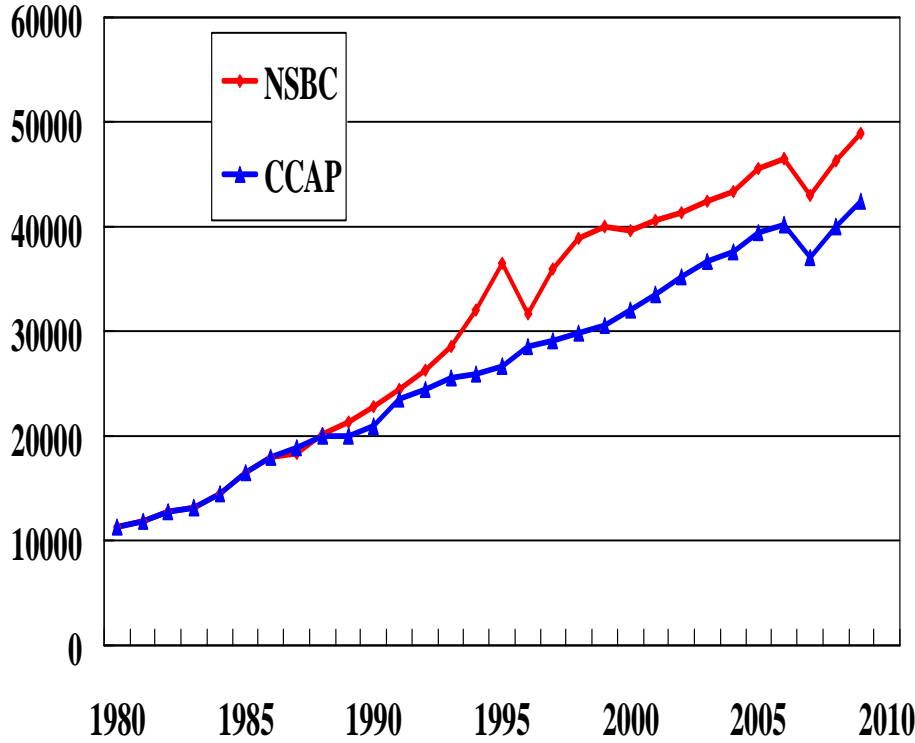
Weakening demand for food grain
Rising demand for meat and other high value and safety products

Supply

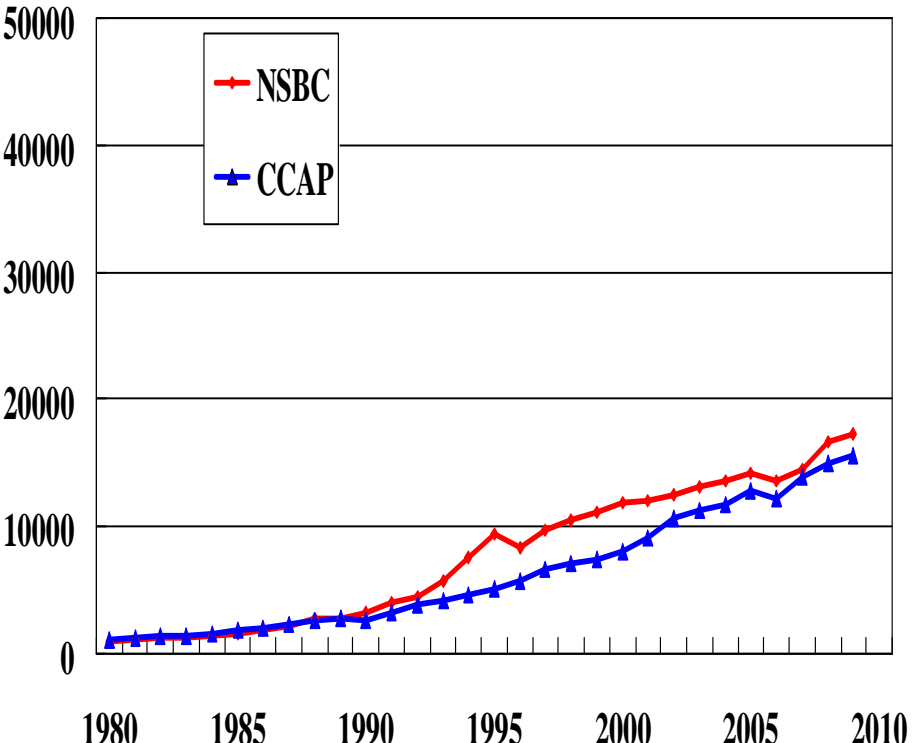
- **Production**
- **Major drivers**
 - **Demand changes**
 - **Technology change**
 - **Market reform**
 - **Feed trade**
 - **...**

Meat production (1000 tons)

Pork

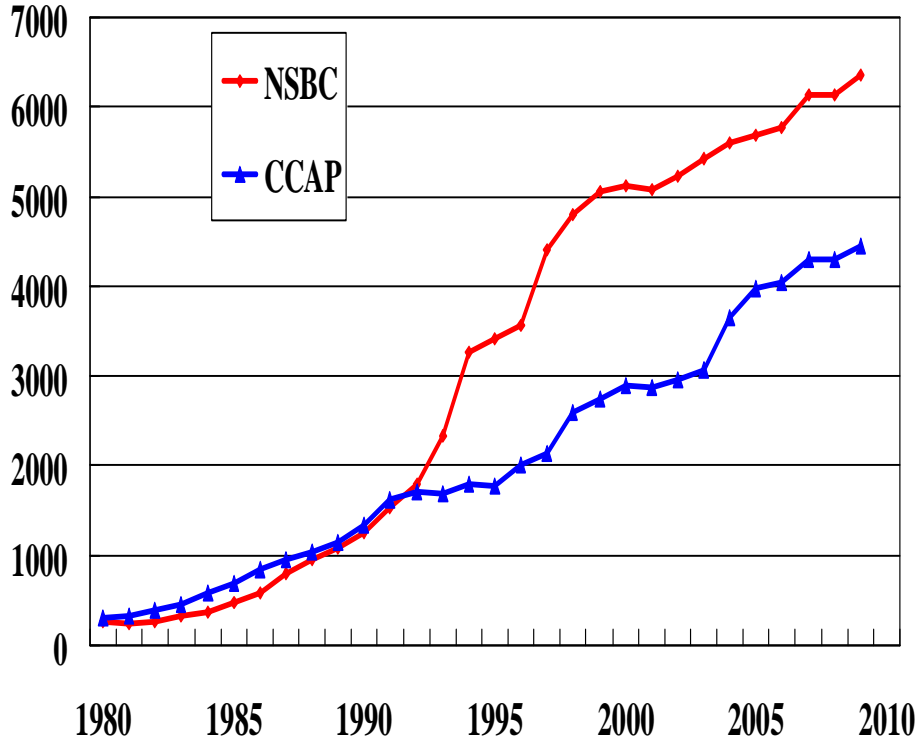


Poultry

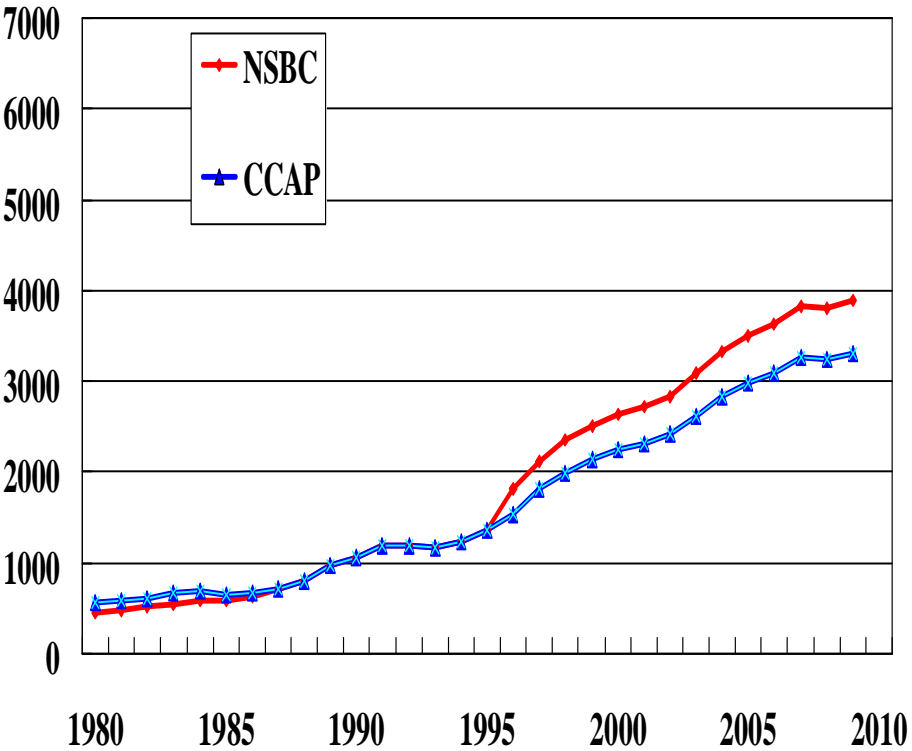


Meat production (1000 tons)

Beef

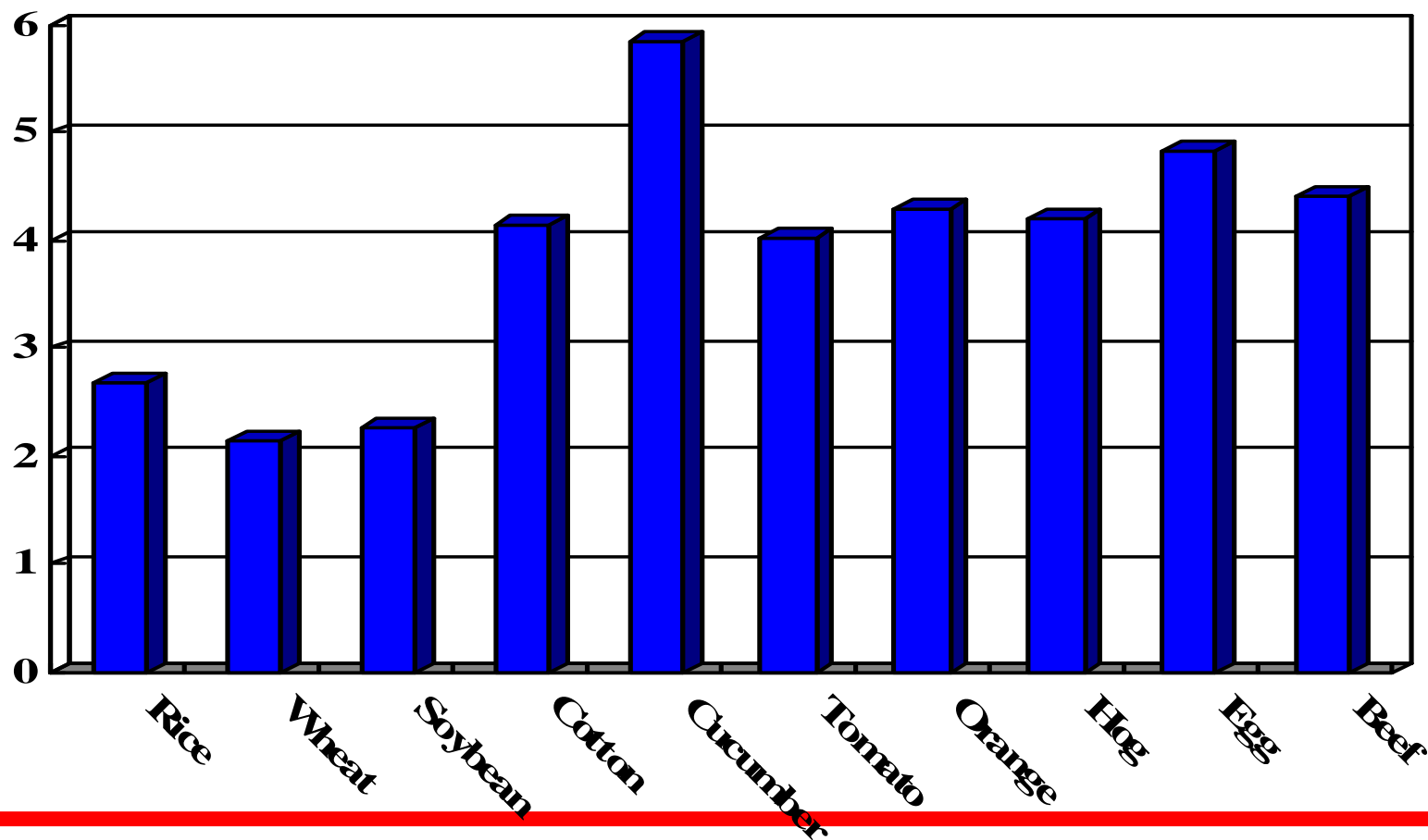


Mutton



TFP: total factor productivity

TFP annual growth rates (1991/93-2003/04)



Internationally, if a country's ag TFP rises more than 2% a year, it is GREAT ... China's rate of rise is more than 3 percent per year!

Jin, Ma, Huang, Hu and Rozelle, 2009.

Integration in China's markets (percent of market pairs that have integrated price series)

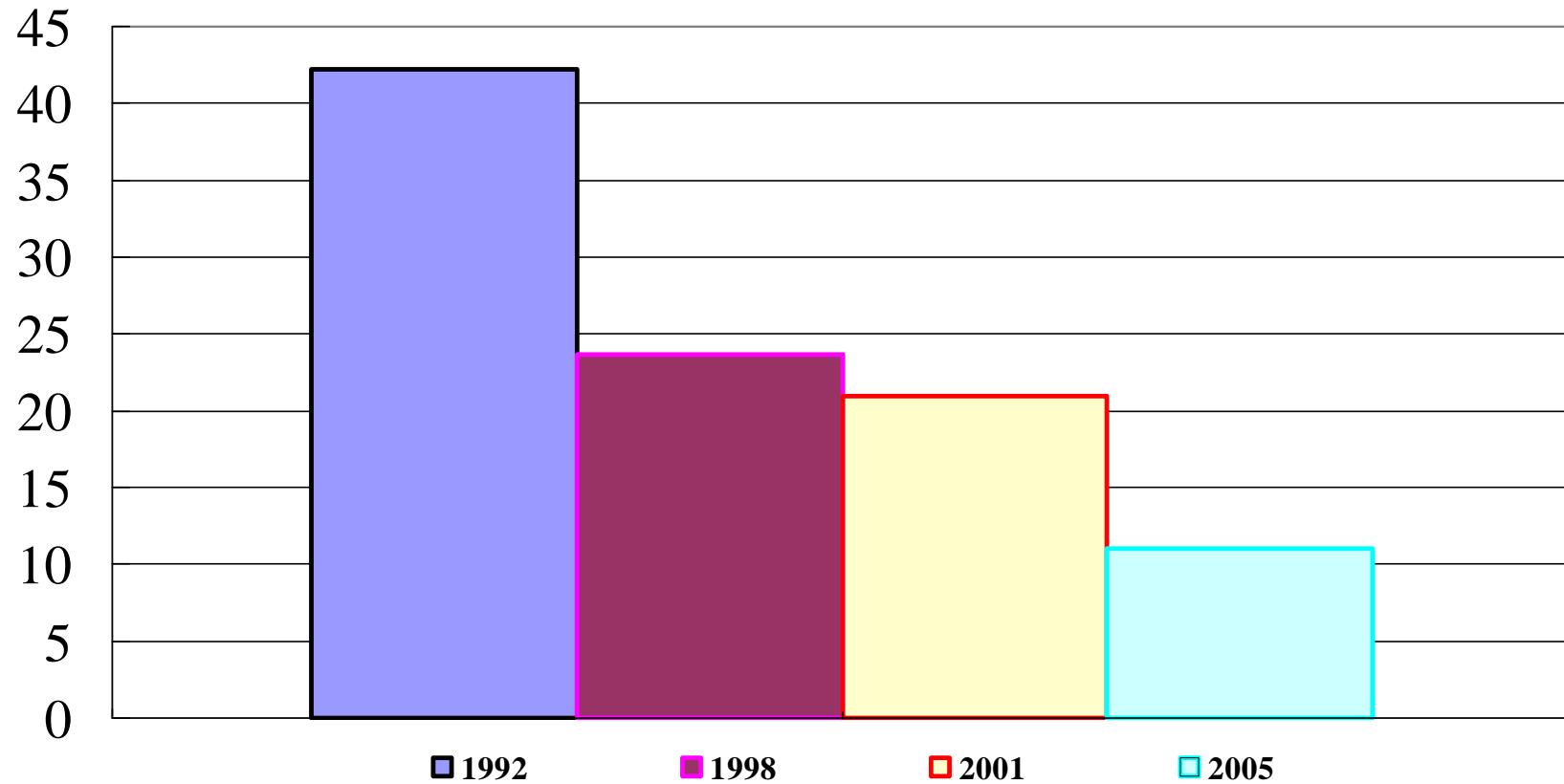
| | 1991-1992 | 1997-2000 | 2001-2003 |
|---------|-----------|-----------|-----------|
| Maize | 46 | 93 | 99 |
| Soybean | 56 | 95 | 98 |

Rozelle and Huang, 2004

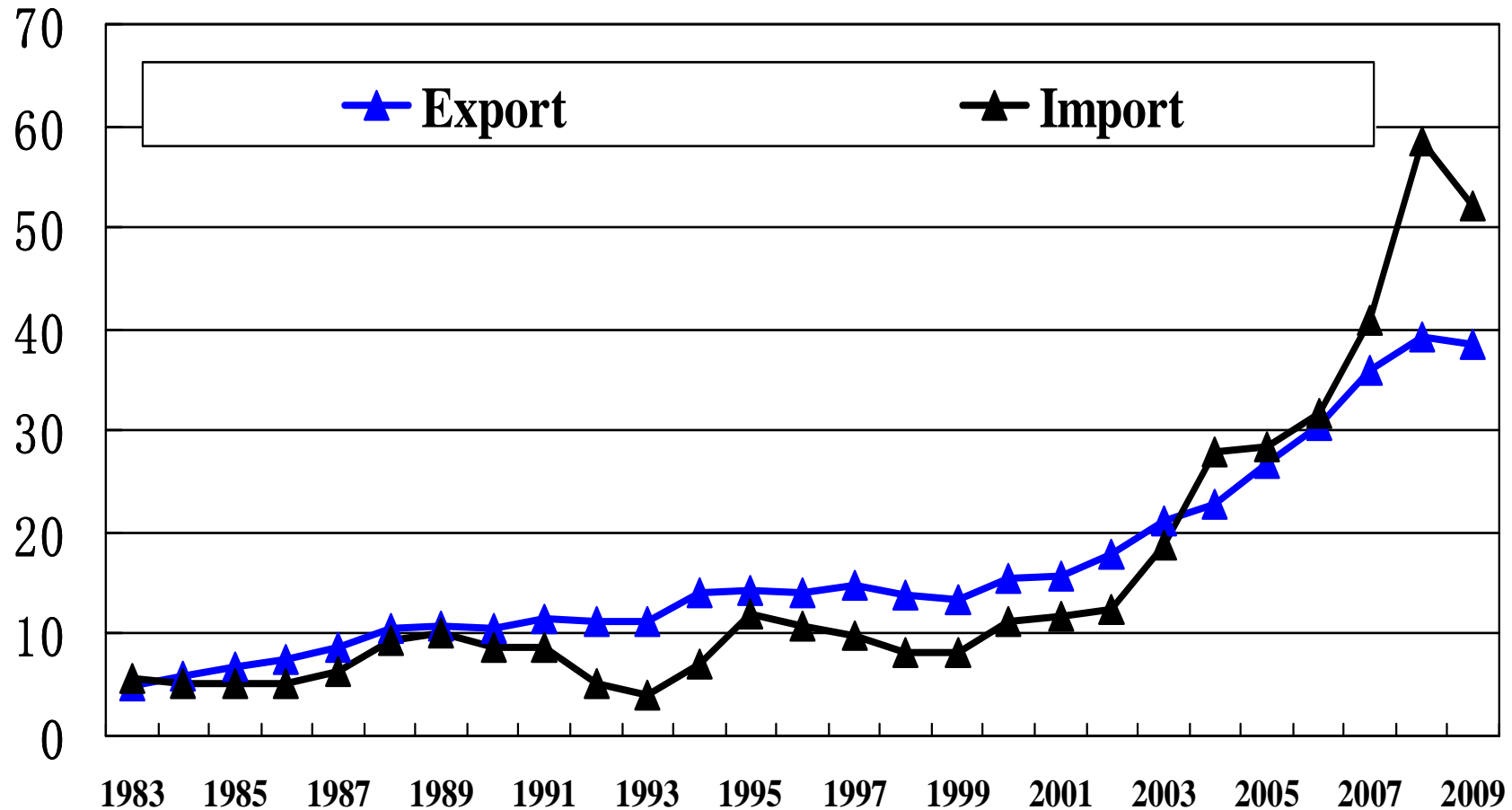
External economy:

- Promotion of Trading Companies
- Tariffication and reduction of tariff

Agricultural tariff rate (%):

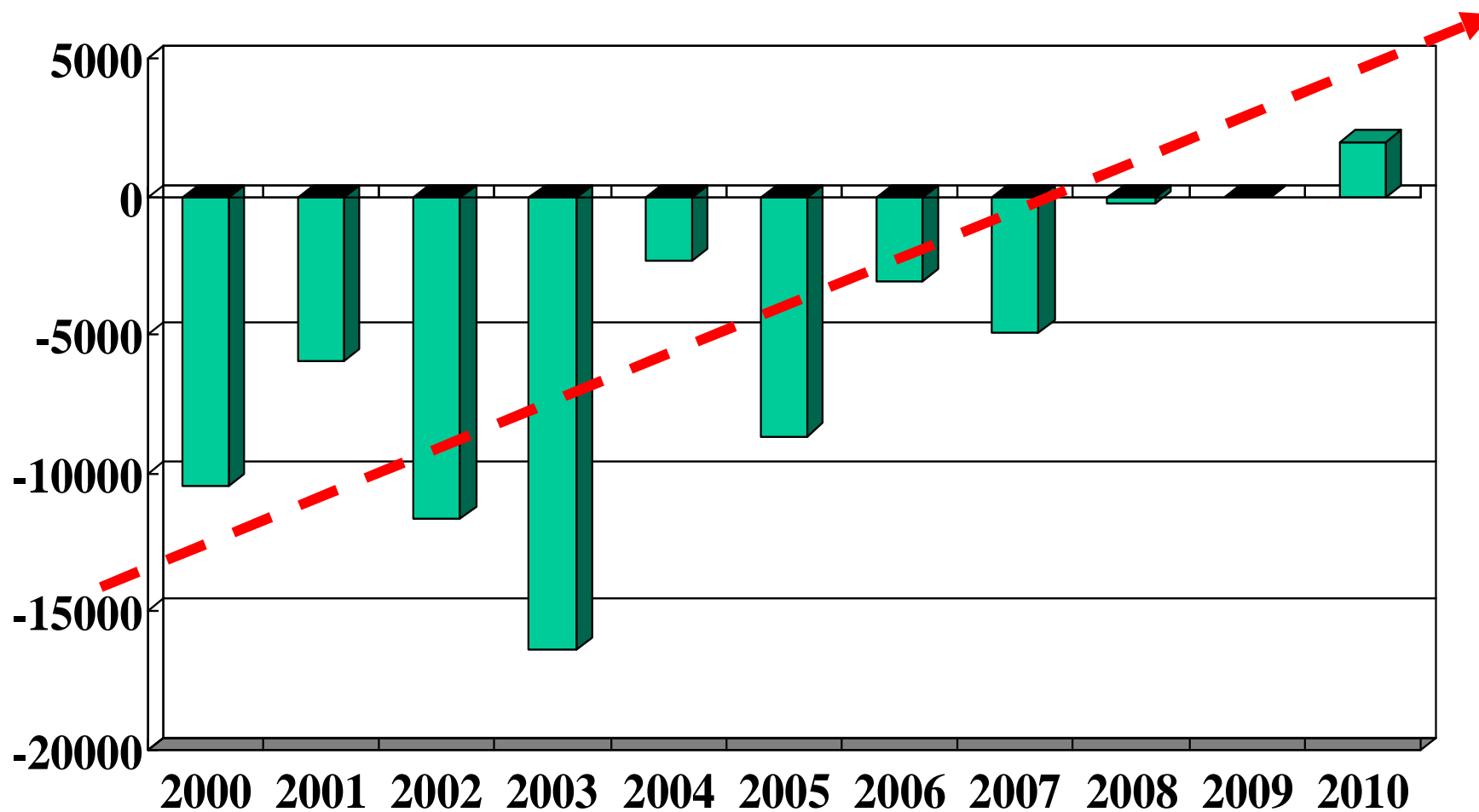


Agricultural export and import (billion US\$) during 1983-2009

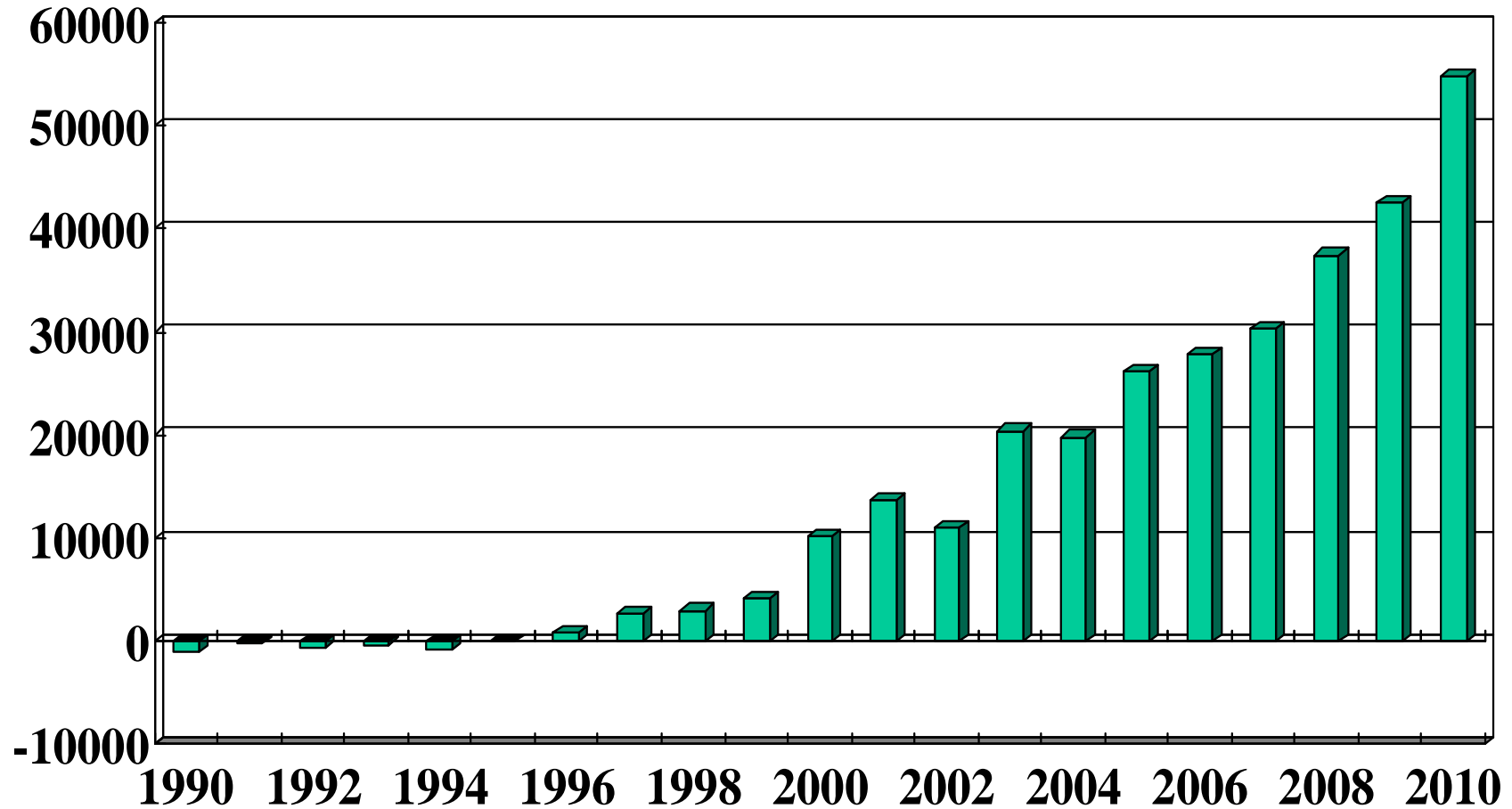


However, China has been a net food exporter in most years in the past 3 decades (though China was a net importer in recent years)

Maize net import (1000 tons)



Soybean net import (1000 tons)



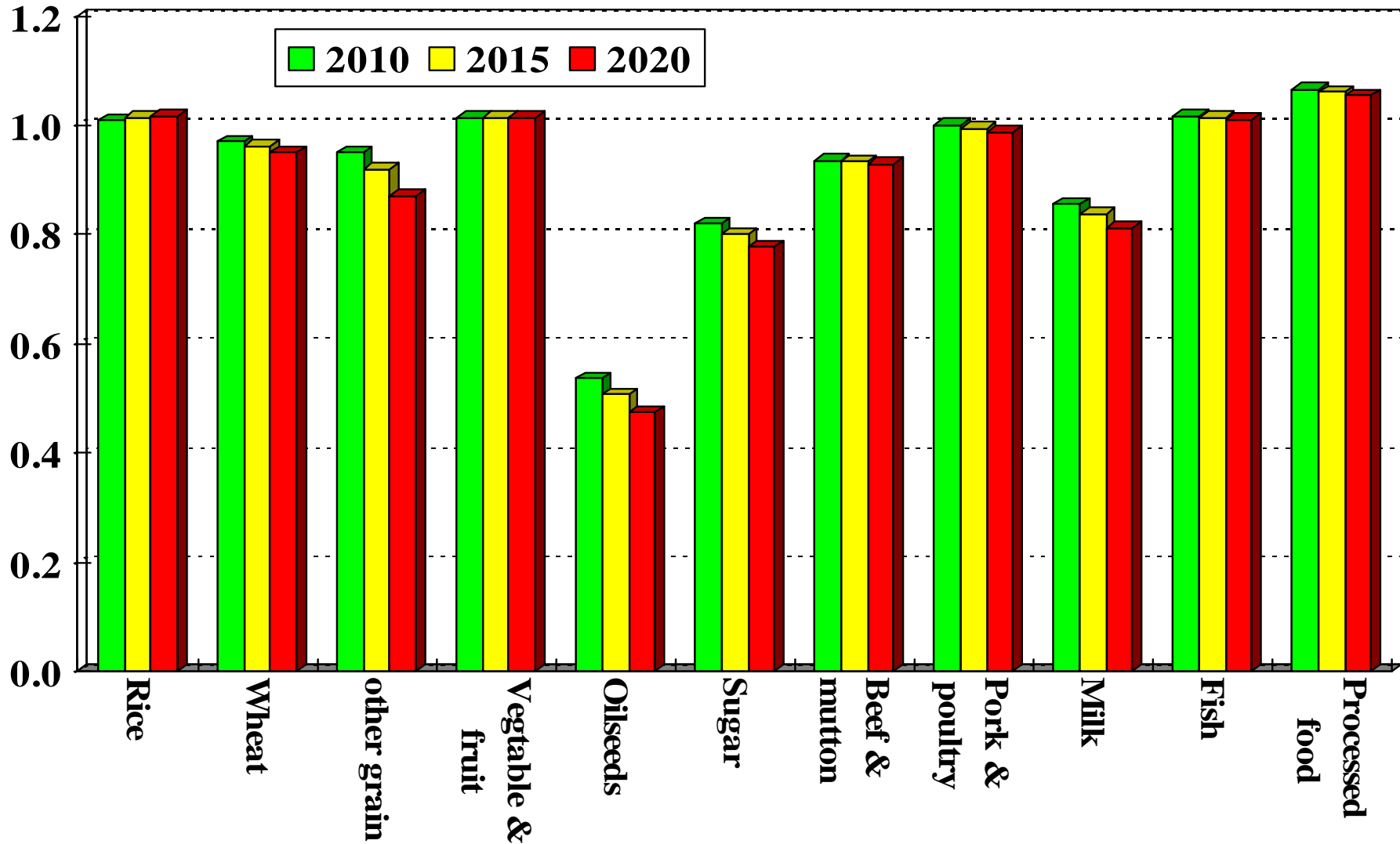
Prospects of commodity market

Methodologies and Scenarios

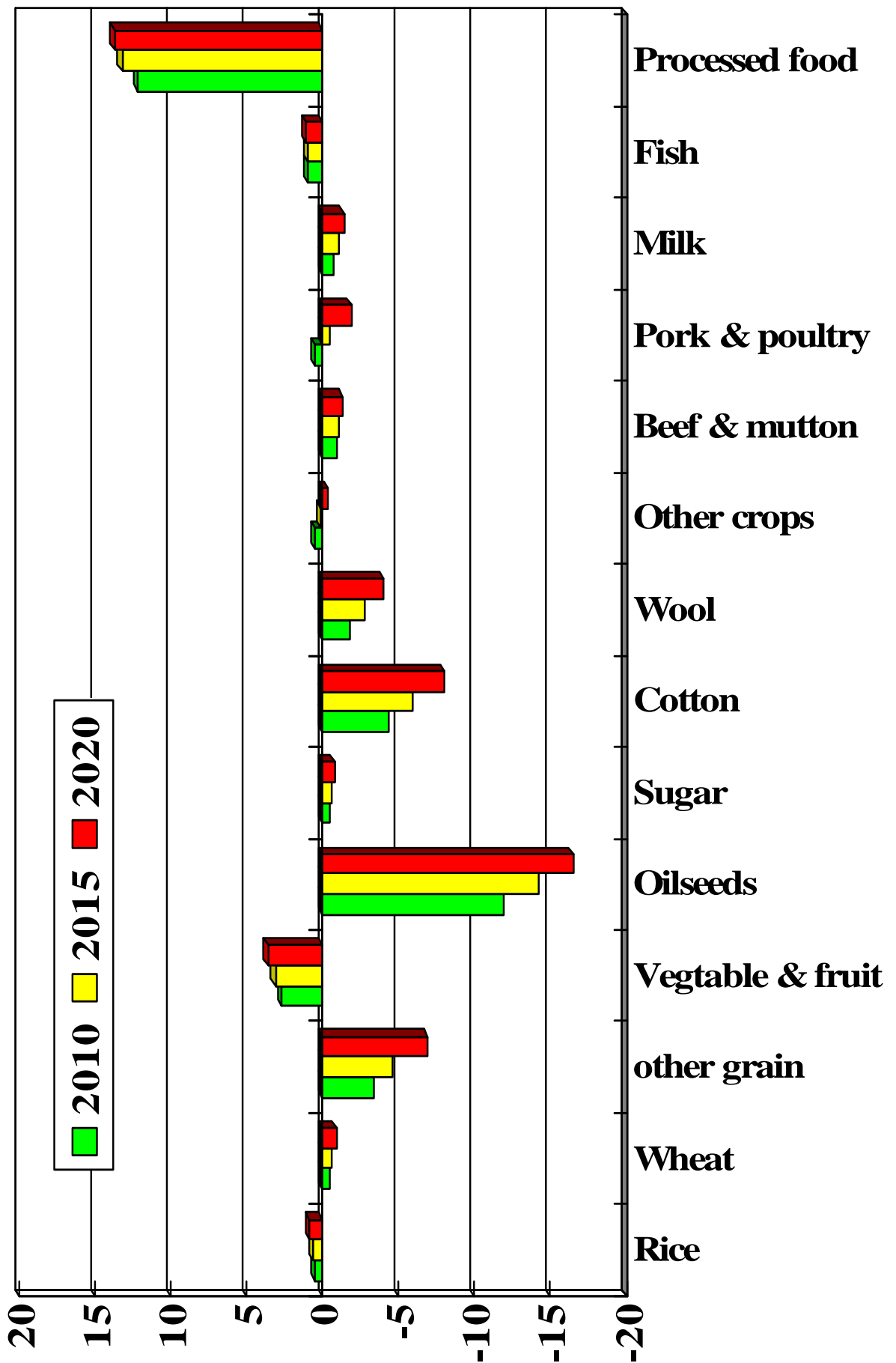
- **GTAP (Global Trade Analysis Program)**
- **Considering major driving forces of:**
 - **Supply: Technology follow recent trend**
 - **Demand:**
 - **Population: UN's projection**
 - **GDP growth in 2011-2020**
 - **Baseline: 8% growth**
 - **Higher growth scenario: 8.8% growth**

Change of self-sufficiency in 2010-2020: baseline

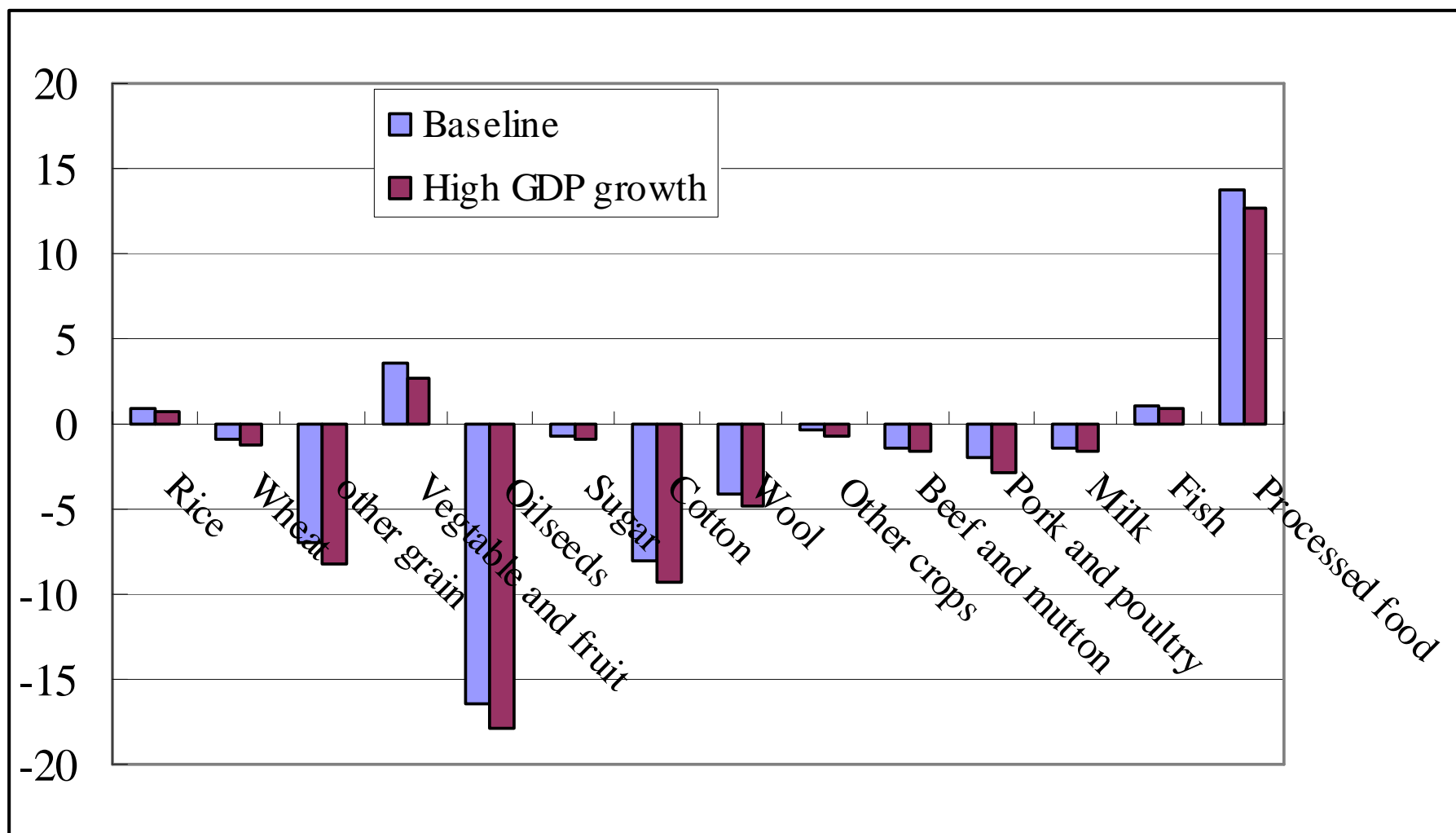
Despite rising demand, most foods will be produced in China except for edible oils, sugar and milk...



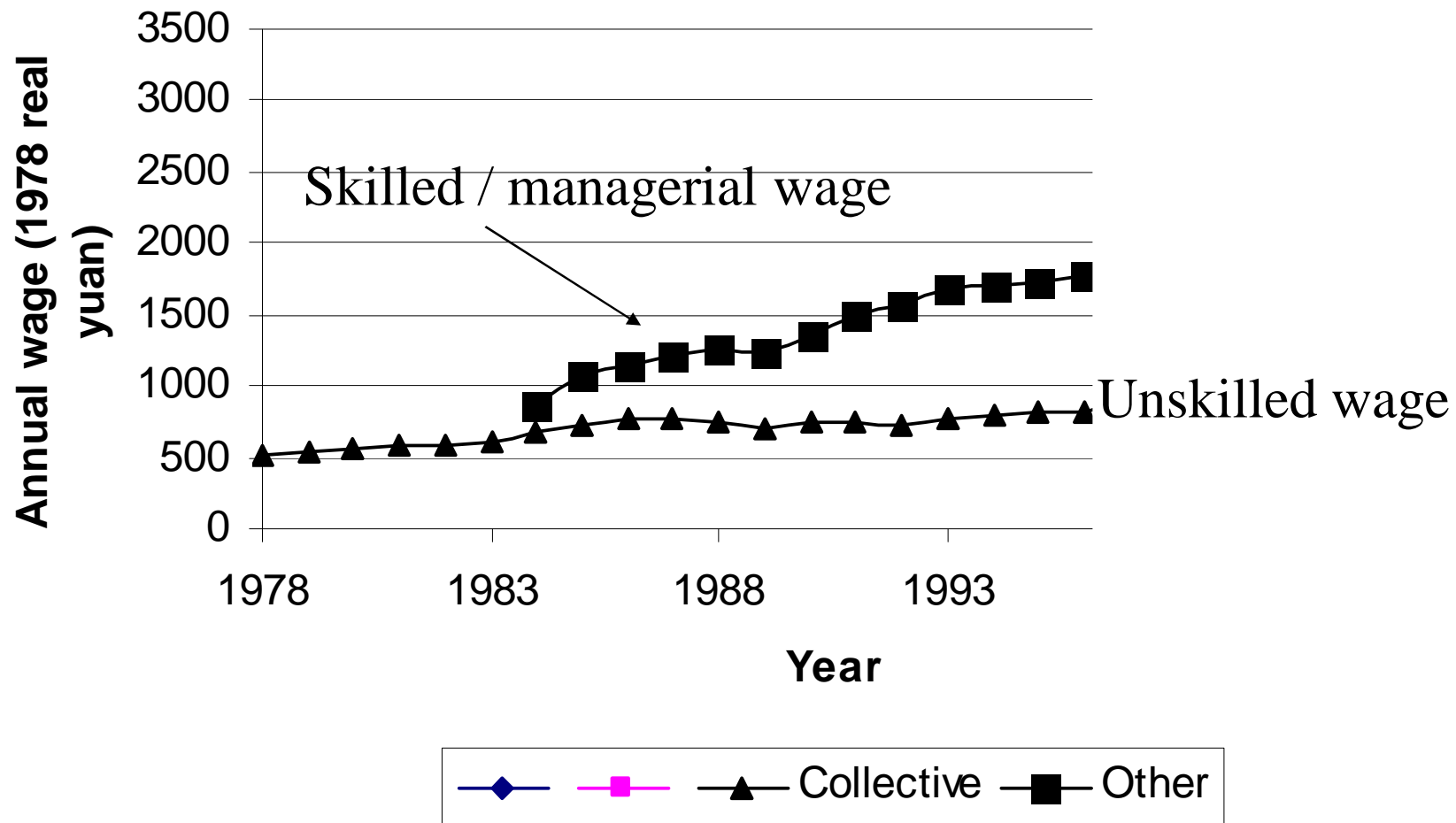
China's Net Export of agriculture and food (billion USD) under BASELINE in 2010-2020

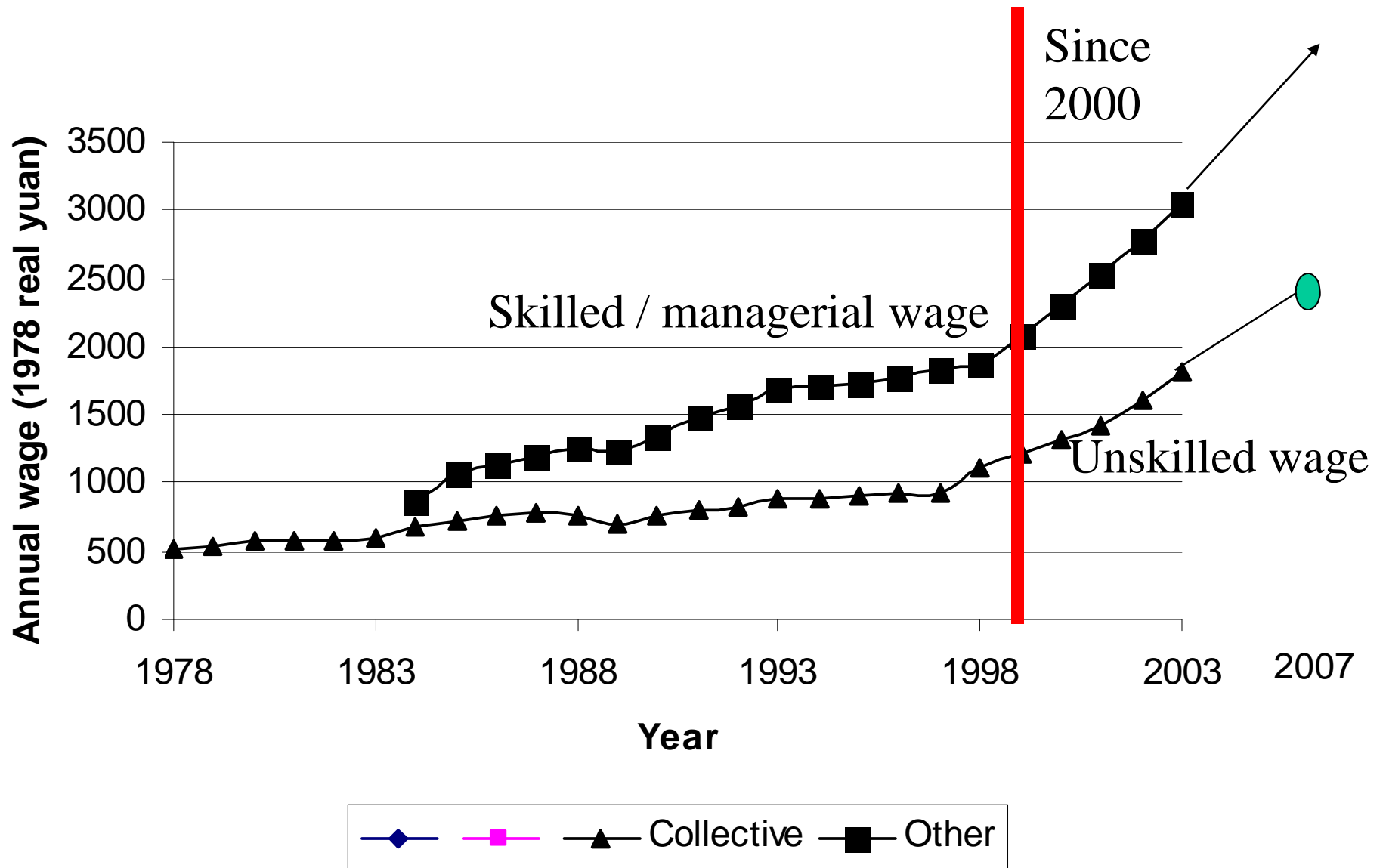


China's Net Export of agriculture and food (billion USD) under baseline and higher growth scenarios in 2020



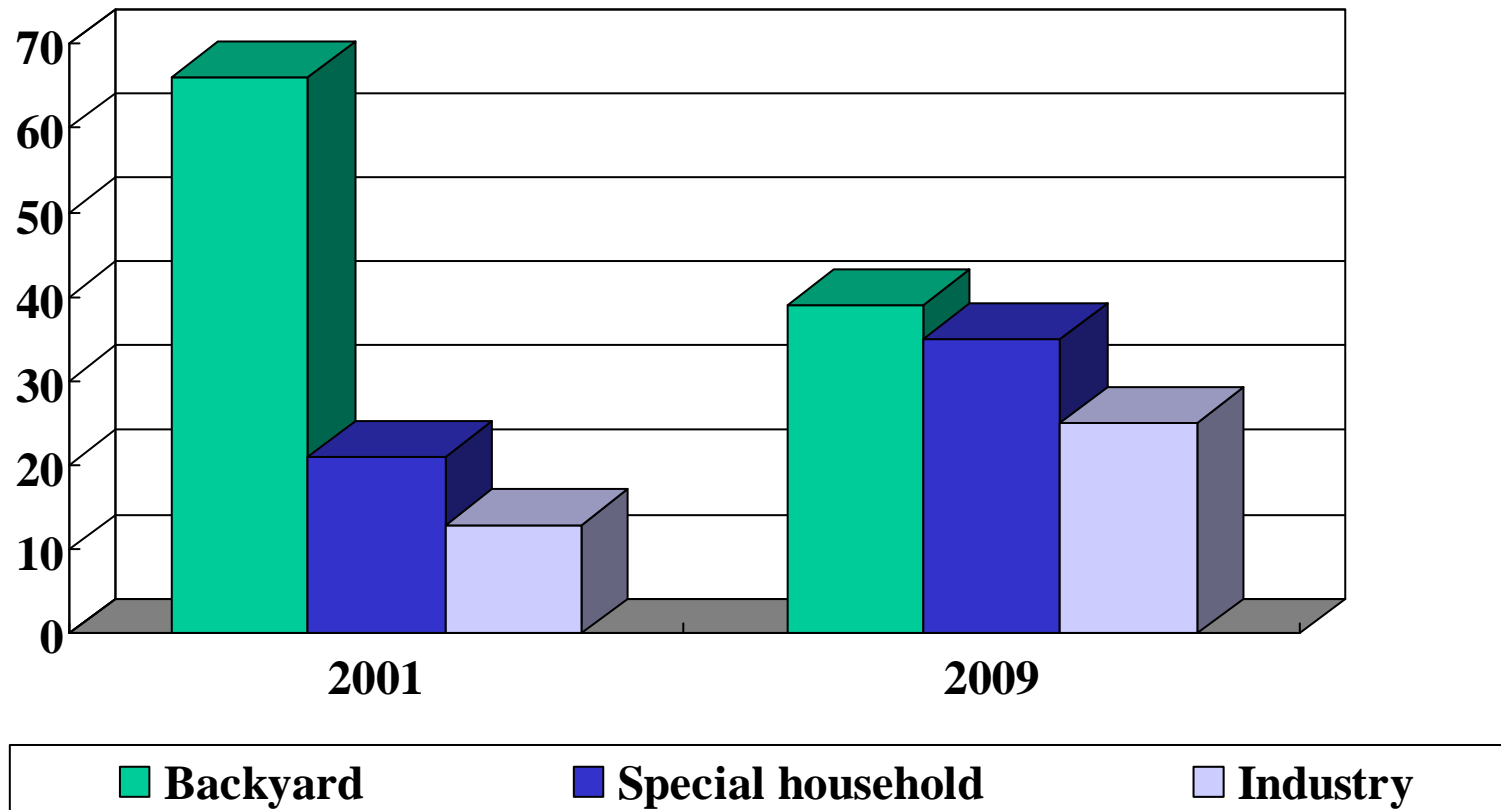
During this process ... what is happening to wages?





Our work has shown that wages are rising fast ... especially in recent years ...

Production modes, 2001 and 2009 (estimated by CCAP)



Conclusion remarks

- **Livestock sector has been rapidly expanding and will continue to grow in the future;**
- **Major driving forces of demand are income growth, urbanization and food consumption pattern changes;**

Conclusion remarks

- **Major driving forces of supply are rising domestic demand, technology changes, market liberalization, and feed imports;**
- **As income increased and wage rose, production structure has been moving from backyard to special livestock farms and large commercial (or industrial) production modes.**

Thanks