

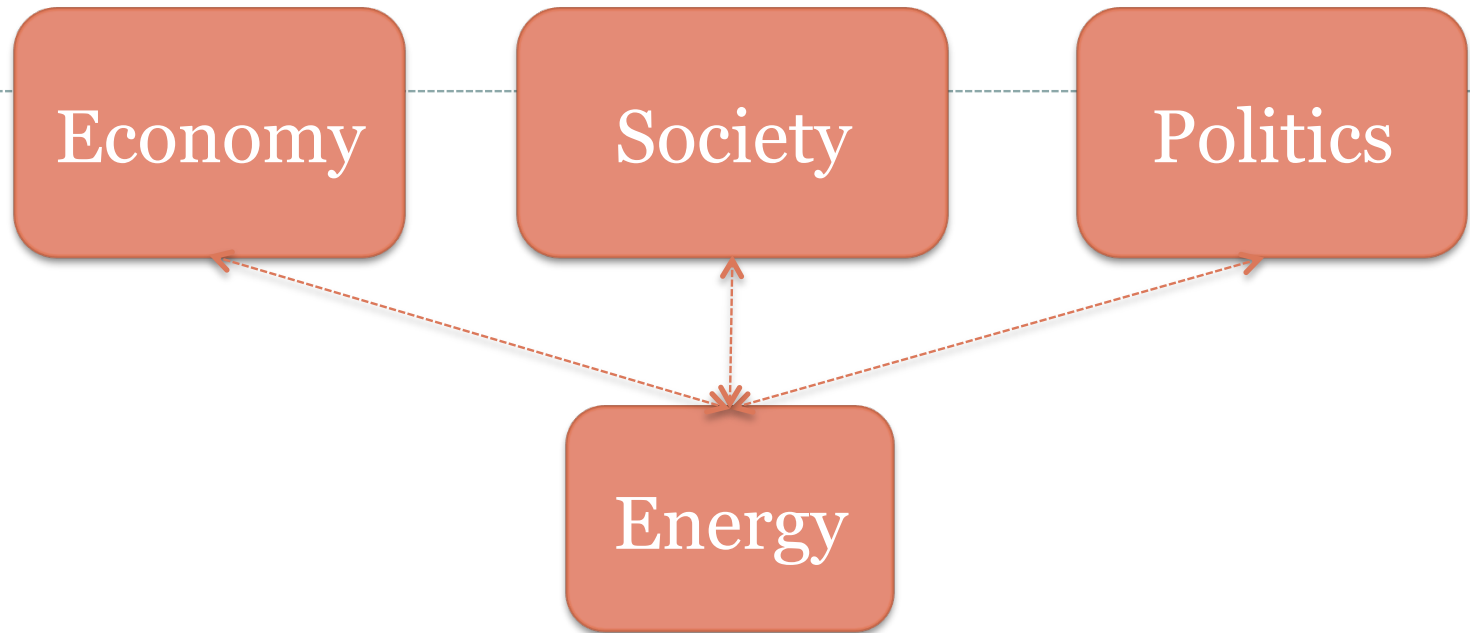
# Coal and development in China



YUFEI MIAO

**ENERGY POLITICS WEEK 8**  
**ENERGY AND DEVELOPMENT**

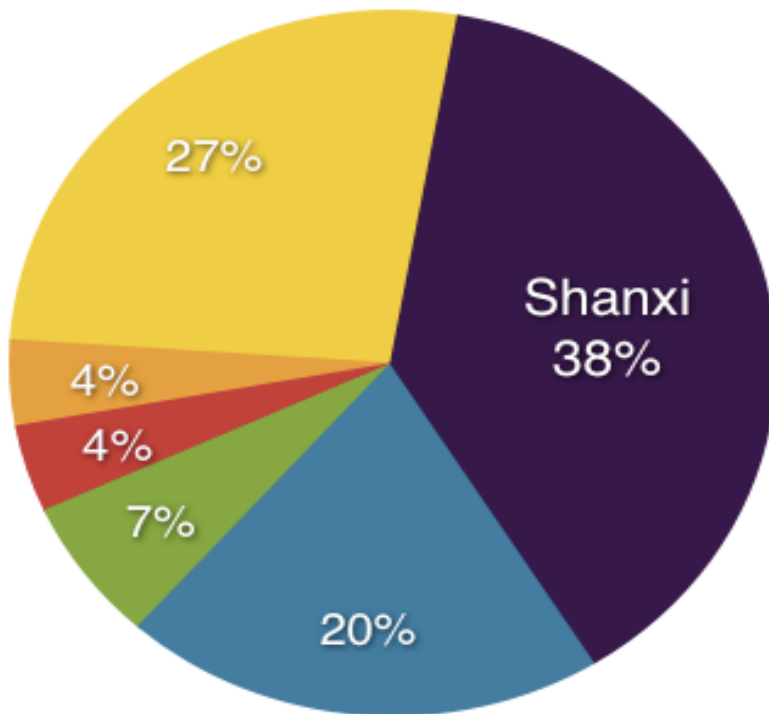
# Introduction



# Shanxi: Coal empire

2014 China coal reserve share (% by province)

Shanxi Inner-Mongolia Xinjiang  
Shaanxi Guizhou Others



- Coal reserve and production in Shanxi



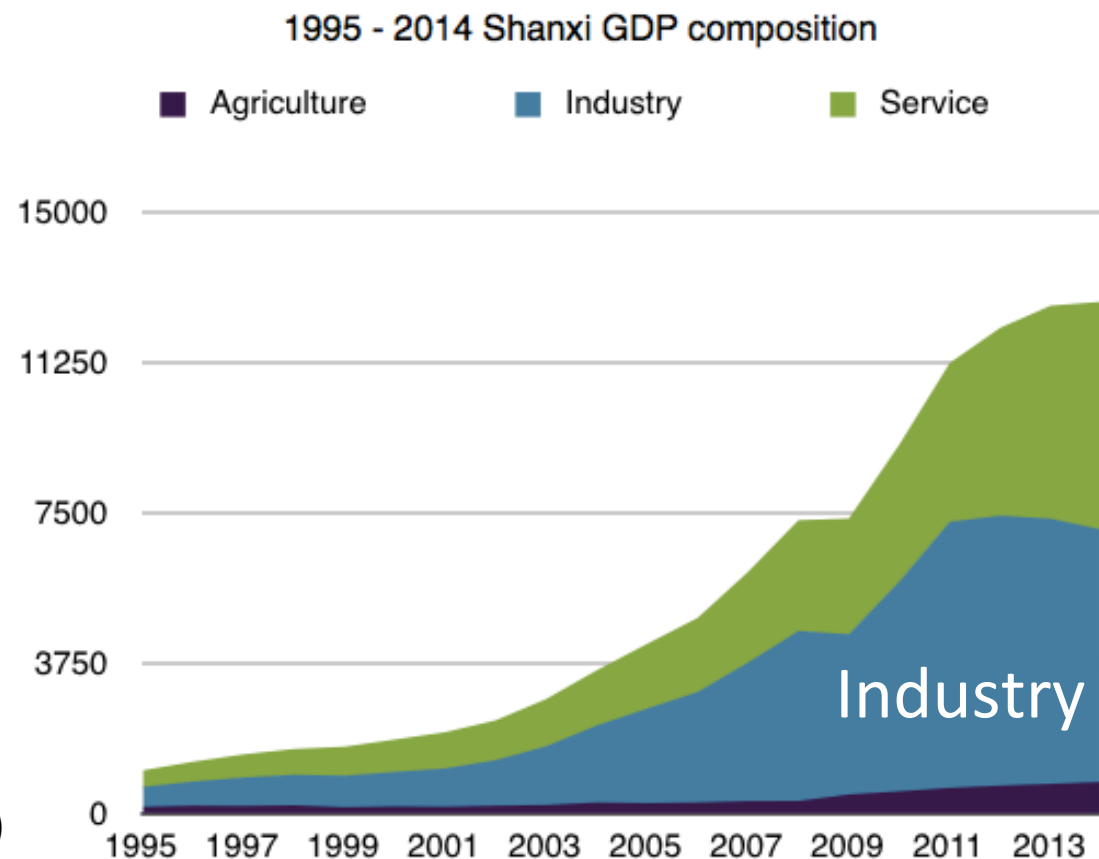
# Shanxi: Coal-oriented economy

- Pillars of Shanxi economy:

Coal mining

Steel production

Power generation



(Source: Shanxi Statistics)

# Shanxi: Golden decade of economy

2002-2012

- Coal revenue 35 times
- 10% annual GDP growth

2006-2010

- 1.25 trillion coal investment
- Twice of the sum in 50 years

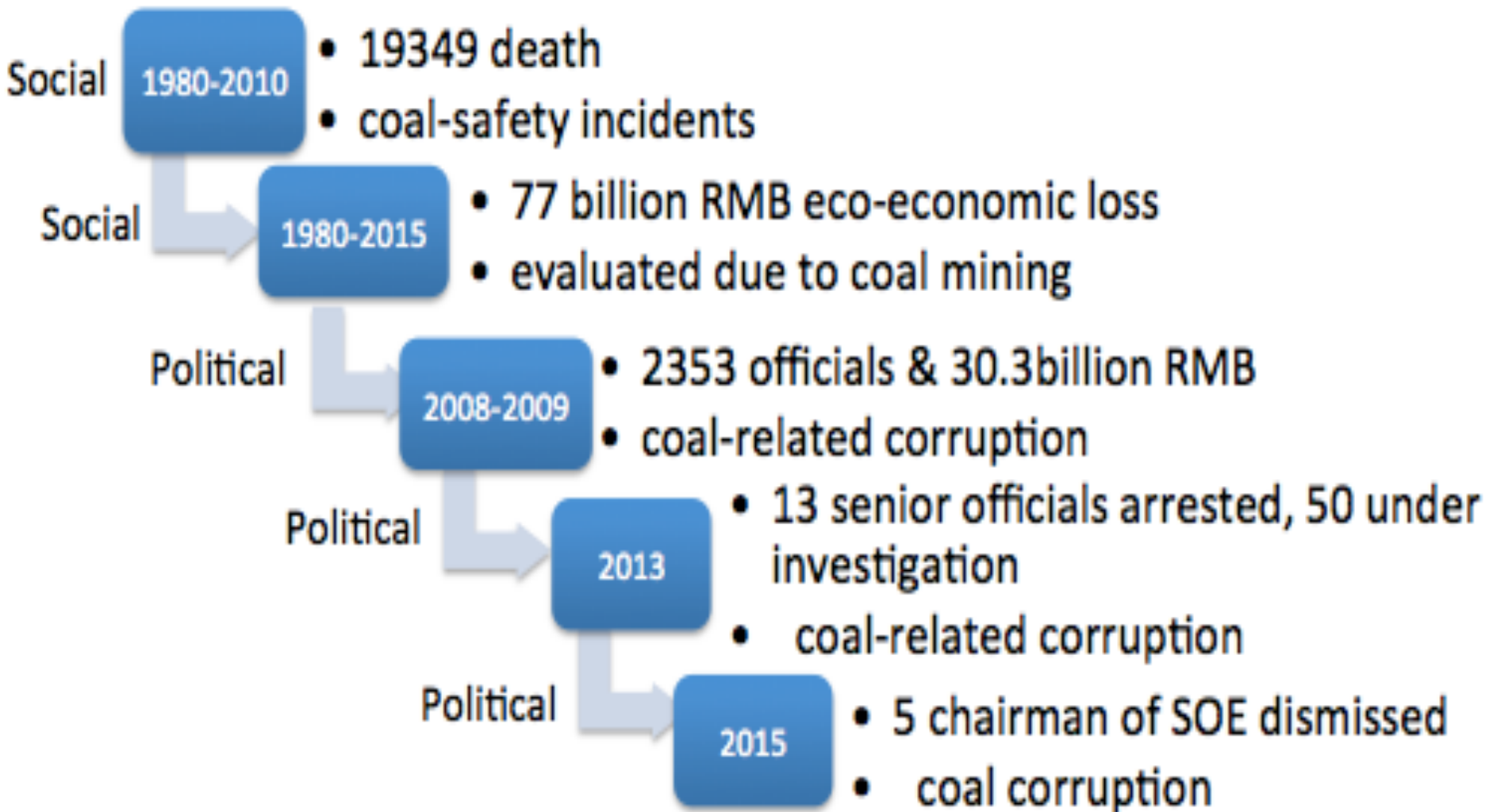
2006

- 9 coal bosses on Fobes China rich list

2013

- 16 coal bosses on Hurun 1000 rich list

# Shanxi: King coal's misrule



# Coal and development in China

Economy

Society

Politics

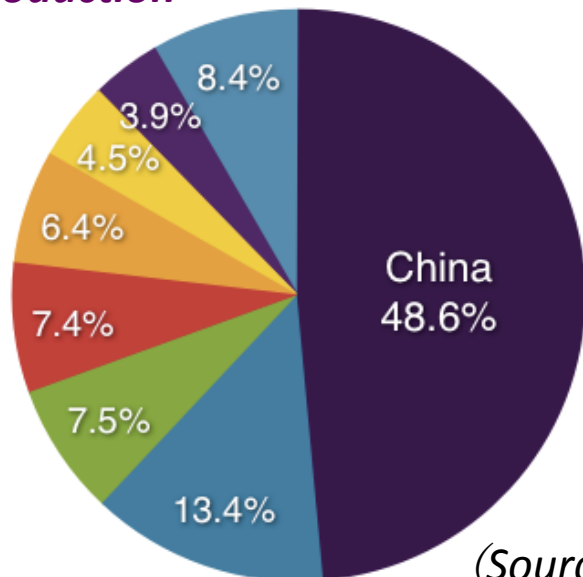




**2014 World coal production share (% by country)**

China US Indonesia Australia  
India Russia South Africa Others

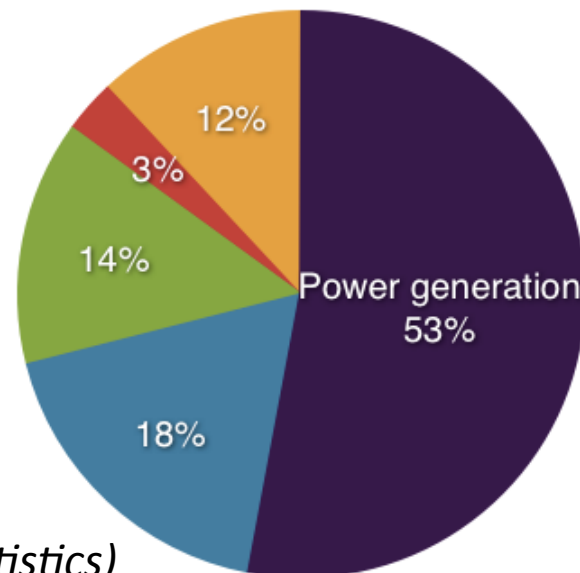
### Coal production



**China coal consumption mix (general)**

Power generation Steel Construction  
Chemical Engineering Others

### Power in coal

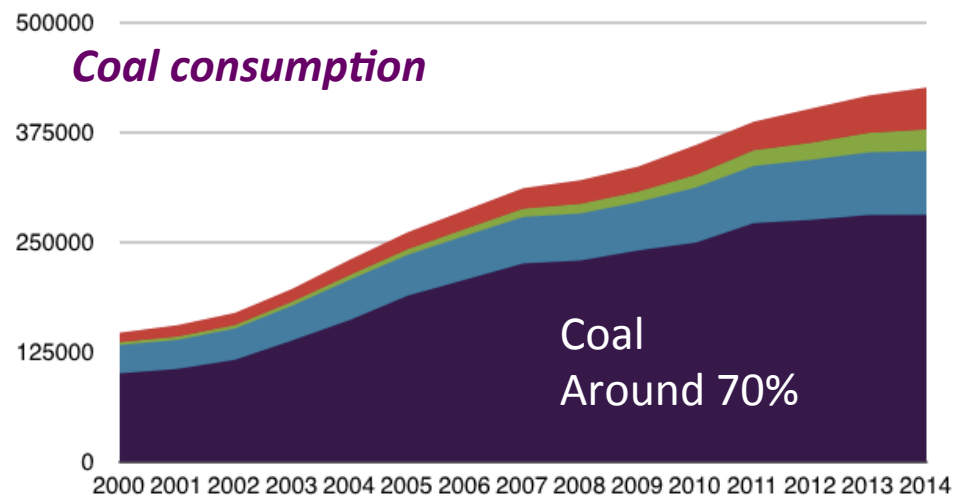


(Source: National statistics)

**2000 - 2014 China energy consumption mix (10000 tonne standard coal)**

Coal Oil Natural gas Nuclear and renewables

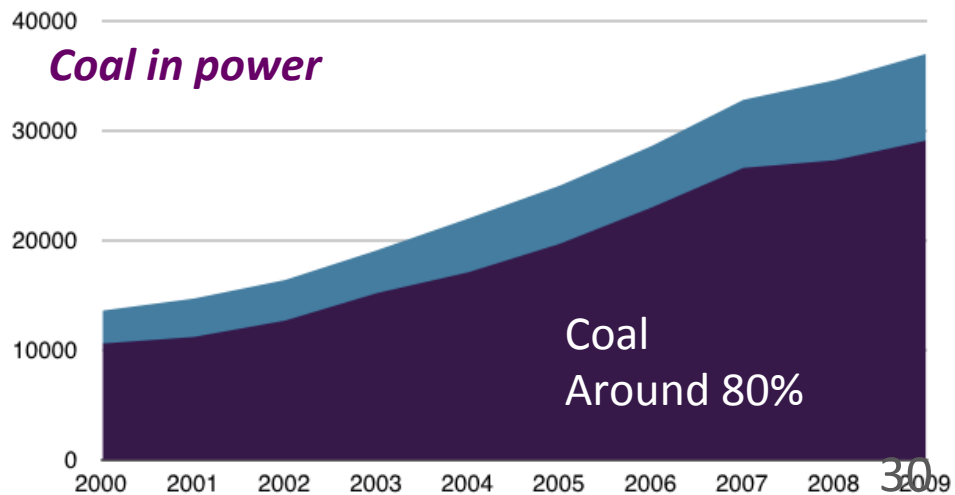
### Coal consumption



**2000 - 2009 China annual power generation mix (a hundred million KWH)**

Coal Others

### Coal in power





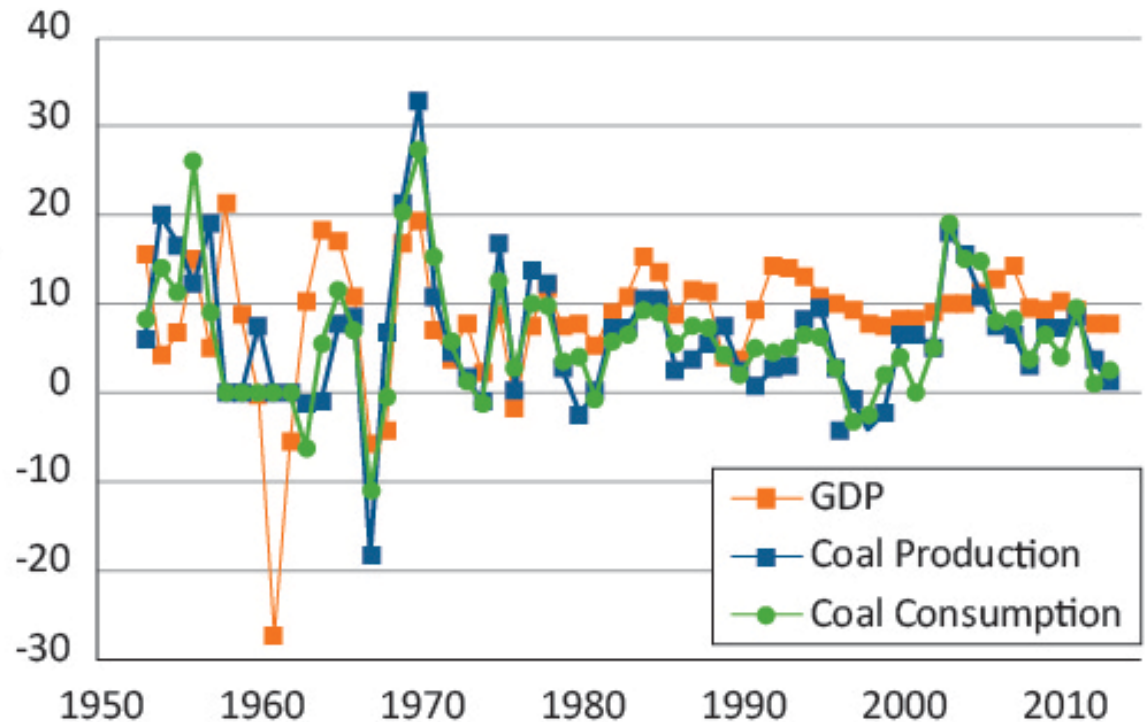
# Coal and economic development: Interdependency

GDP  
Coal Production  
Coal Consumption

Similar trend of  
fluctuation

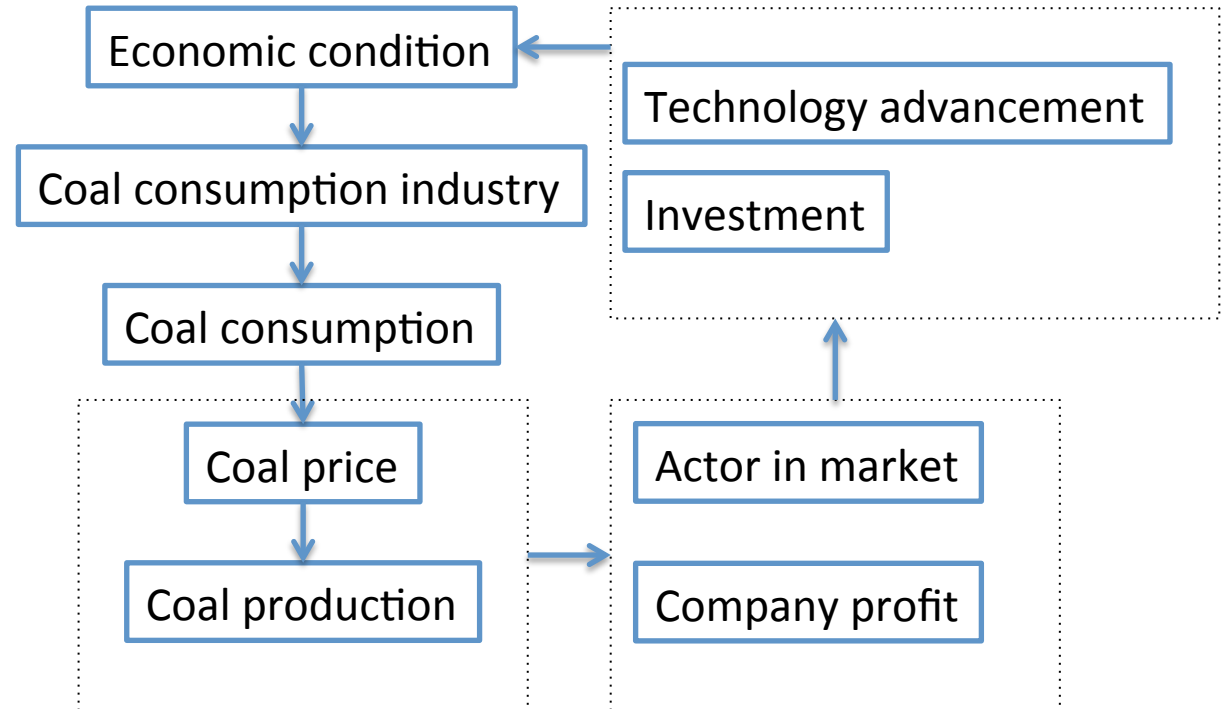
In same cycle ---  
interdependency

Annual growth rate comparison (%)



*(Source: An Analysis of the Interdependence Between China's Economy and Coal)*

# Coal and economic development: Interdependency



# Coal and development in China

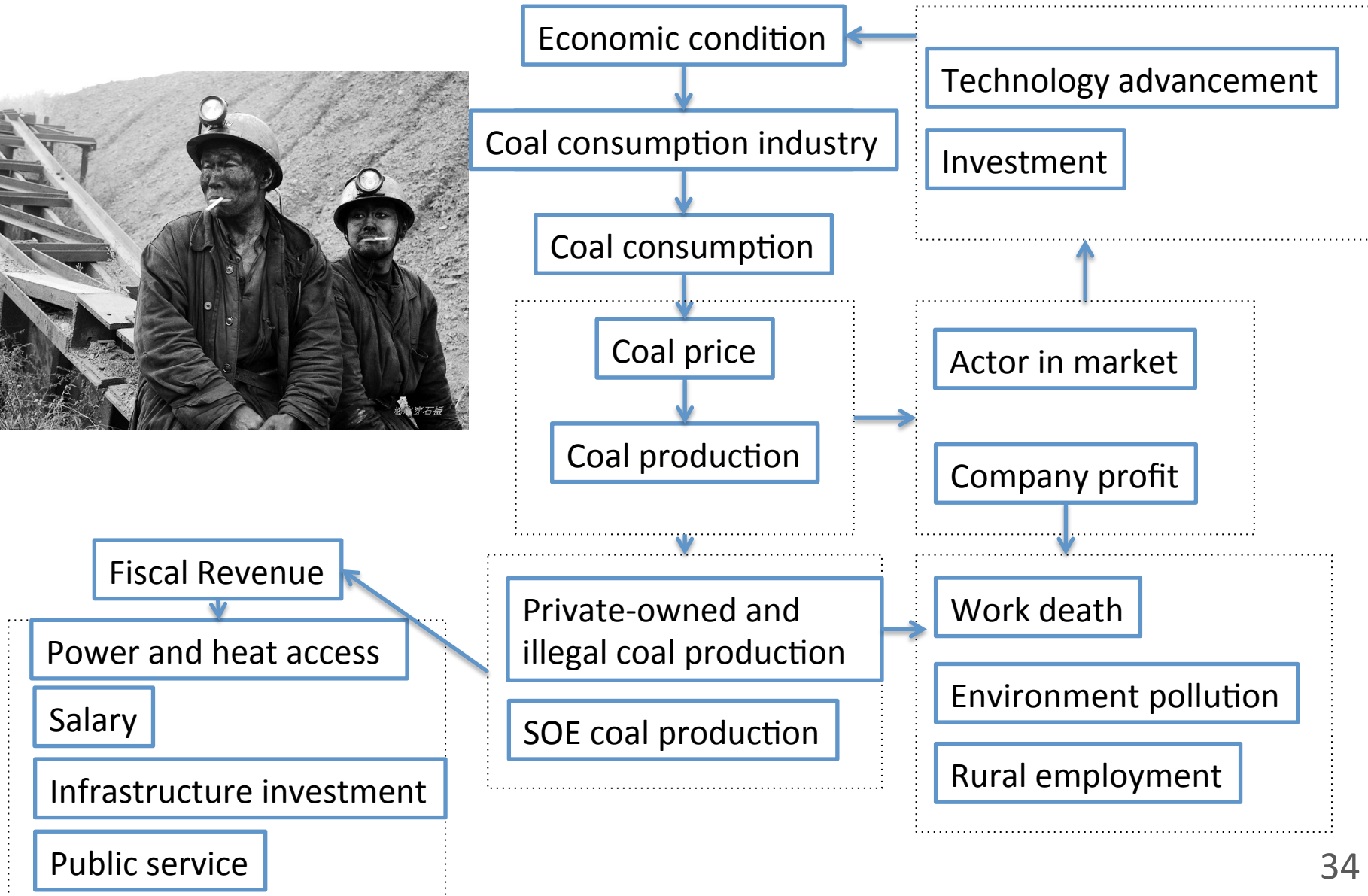
Economy

Society

Politics



# Coal and social development: pros and cons



# Coal and social development: pros and cons

- Work safety: blood-stained coal

1. Coal companies:  
Private-owned  
(higher accident rate)  
SOE  
(higher death rate)

2. Work accident:  
Gas explosion 80%



(Source: The state administration of work safety)

# Coal and development in China

Economy

Society

Politics



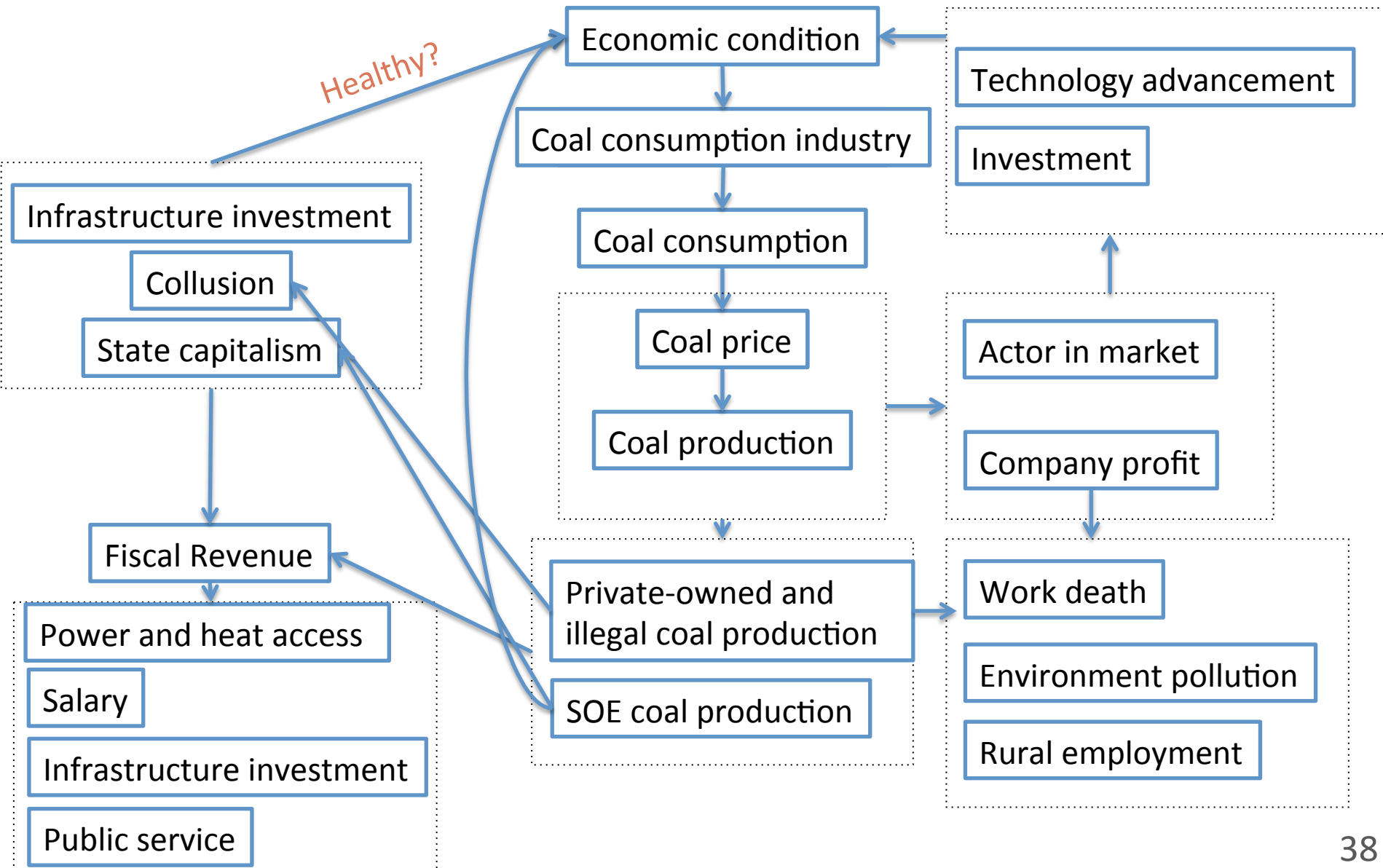


## Coal and political development: coal politics

- Market serves as a new place for power-money trading ;
- ‘Commodities’ include mining right, mining license, pollution permit and even death permit.
- ‘seize all opportunities to give and take bribery’



# Coal and political development: coal politics



# Closing small mines?

- Since 2005, close and integrate small coal mines.
- Closing:

Number decrease, death decrease.

Coal supply drop down, coal price increase, unemployment.

- Integrating:

Low compensation

Collusion

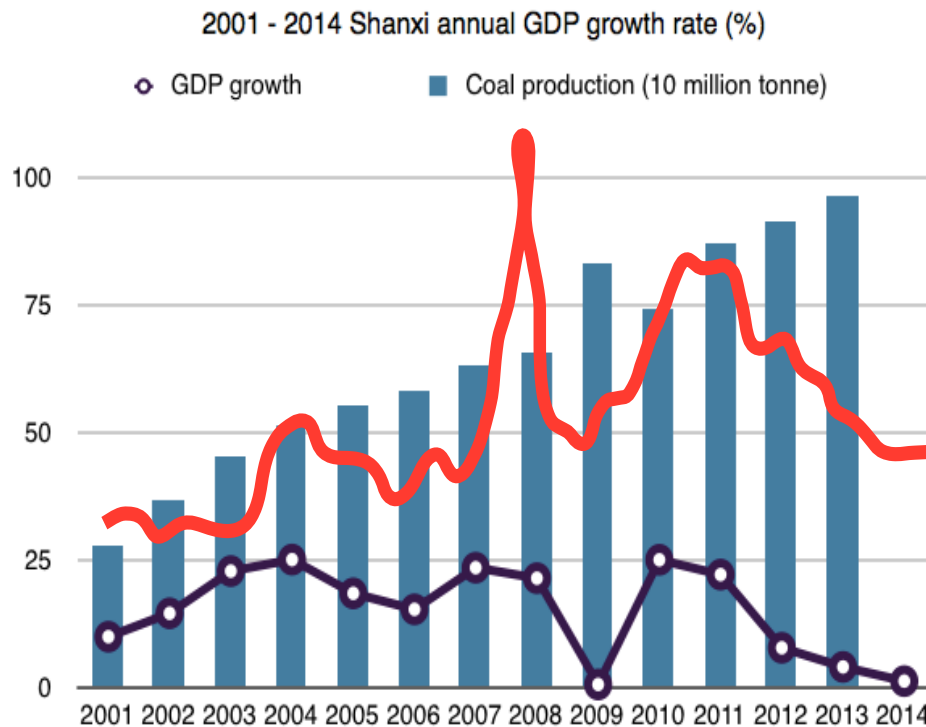
Market energy

# Shanxi: Frozen winter after golden decade

- 2014: GDP growth rate rank 30/31
- 2015: Fiscal revenue of 80% decrease

(red line: coal price)

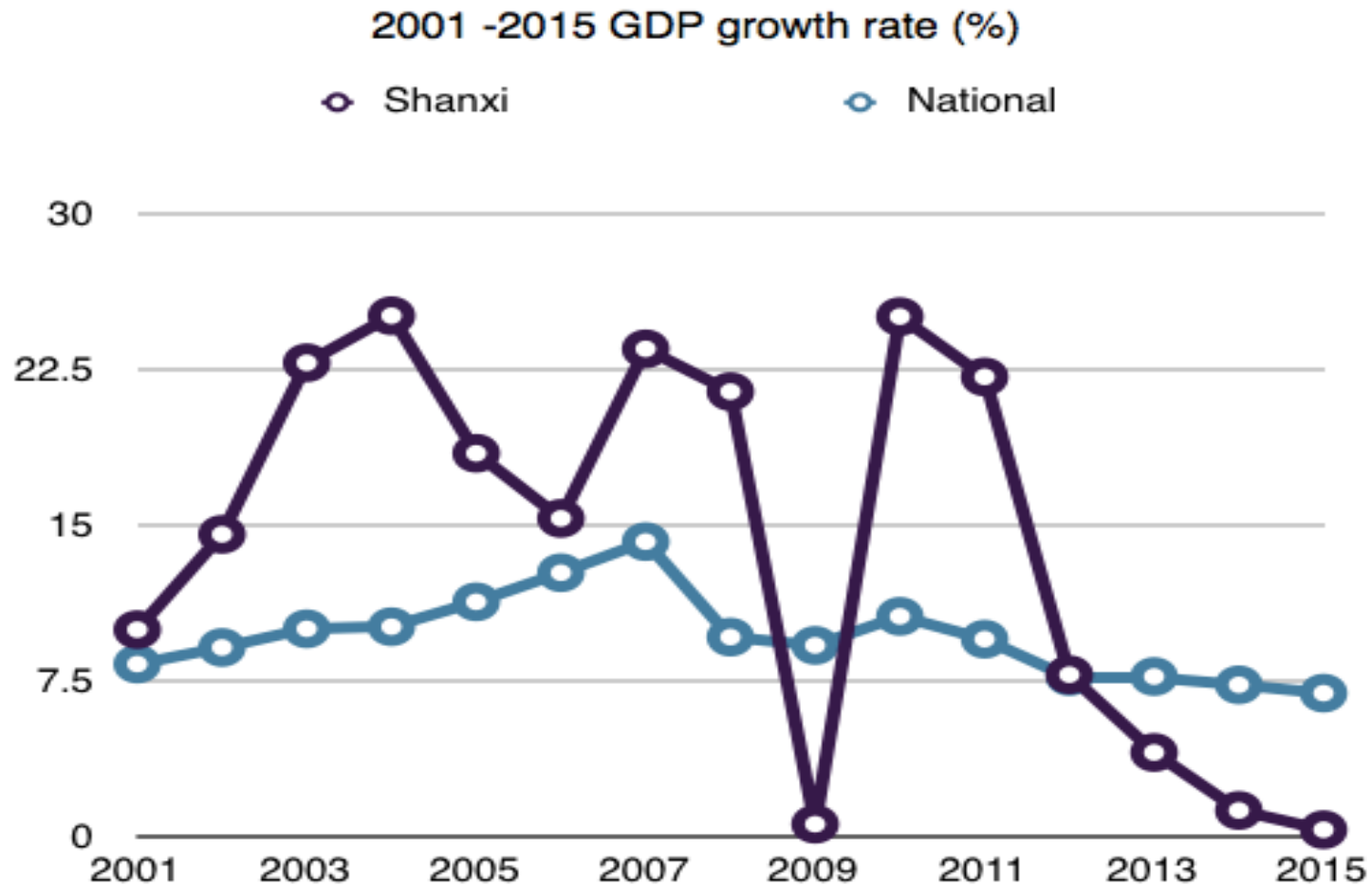
(Source: Shanxi statistics)



First half of 2015 Shanxi economic condition by city

City	GDP growth rate (%)	Fiscal revenue growth rate (%)
TAIYUAN	8.5	12.3
DATONG	7.6	7.3
CHANGYE	-4.2	-32.95
LINFEN	-3.9	-27
YUNCHENG	-1.3	-0.3
SHUOZHOU	-4.6	-4.095
XINZHOU	-1.1	-19.2
LVLIANG	-6.1	-39.6
JINZHONG	4.7	-18.7
YANGQUAN	-4.5	2.7
JINCHENG	3.1	-3.6
Shanxi total	2.7	-7.8

# Shanxi --- epitome of China



Will China (and other provinces in China) repeat Shanxi's failure? 41

# China cannot get rid of coal

✓ Plenty reserve distributed all over China;

2014 China energy reserve

	Share of world total	R/P ratio
Oil	1.1%	11.9
Natural gas	1.8%	25.7
Coal	12.8%	30

2014 World total proved coal reserves

	Share of total
United States	26.6%
Russian Federation	17.6%
China	12.8%



(Source: BP statistics, 2014)

(Source: ICIS China, 2014)

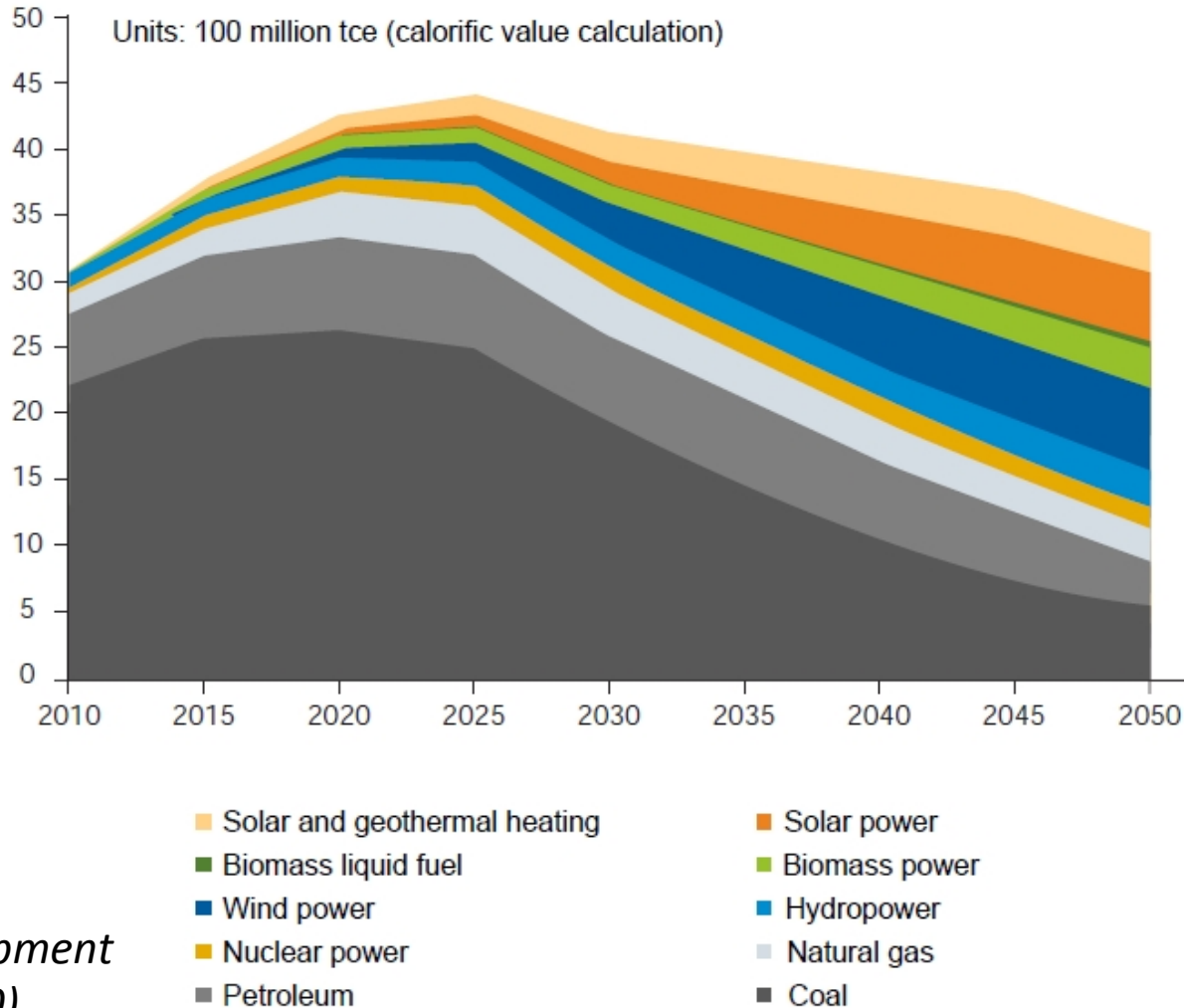
# China cannot get rid of coal

- ✓ Cheap coal price: 1/9 of oil, 1/3 of natural gas;
- ✓ Energy security;
- ✓ Stable and reliable: Compared to renewables;
- ✓ Technology improvement: On coal production and consumption.

# China cannot get rid of coal

- By 2020:
  1. Coal in energy mix below 62%
  2. Coal consumption decrease in key districts
  3. Oil substitution capacity above 40 million ton.

(Source: China's energy development strategy action plan 2015-2020)





# Conclusion



- Energy and development: complex interaction
- Differs by country
- Production vs. consumption
- Long-term vs. short-term
- Government policy vs. Public opinion
- Etc.



- Thanks for your listening!
- Feel free to ask questions :)