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A study of Risk Profile in China

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Outline

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Background (1)

- We live in a world fraught with risks.
- Looking forward, to address the fears and concerns of the public effectively requires us to know what they fear and concern.
- Looking backward, knowing the fears and concerns of the public help the government scrutinize whether resources have been allocated efficiently.

Thus, we would like to answer:

What is the risk profile in the public's eyes?

Background (2)

- China as an emerging market
  - China emerges as a vital part of the global economy since the introduction of the economic reforms and opening policy three decades ago (Whalley, 2011).
  - From 1980 to 2010, GDP increases from 8.1 trillion *yuan* (2010 price) to 40.1 trillion *yuan*, accounting for 2.0% and 13.5% of the world total on a purchasing power parity (PPP) basis, respectively (National Bureau of Statistics of China, 2011a).
  - From 1980 to 2010, as a share of GDP, the exports of goods and services increases from 10.6% to 29.6% (World Bank, 2011).

Background (3)

- Tremendous changes in economic life (Wei et al., 2002)
  - Change in economic structure: from 1980 to 2010, the share of the primary industry decreases from 28.2% to 10.0%, the share of the tertiary industry increases from 23.9% to 43.1% (National Bureau of Statistics of China, 2011a).
  - The strong economy powered by fossil fuels: energy consumption in 2010 is 5.7 folds of that in 1978; the share of coal fluctuates around 70% of total energy consumption (National Bureau of Statistics of China, 2011a).

Background (4)

- Tremendous changes in social life (Wei et al., 2002)
  - From 1980 to 2010, the percentage of the urban population has been increasing from 19.39% to 49.95%, with a net increase in urban dwellers of 478 million (National Bureau of Statistics of China, 2011a) - a size larger than the total U.S. population today.
  - Migration from rural to urban areas is considered to be the major driving factor of the urban population increase (Zhang and Song, 2003).

Background (5)

- Living standard greatly improved
  - From 1978 to 2010, the per capita annual disposable income of urban residents increases from 343.4 *yuan* to 19109.4 *yuan* (National Bureau of Statistics of China, 2011a).
  - The number of automobiles owned per 100 urban households has been increasing 0.5 in 2000 to 13.07 in 2010.
  - The number of netizens reaches 513 million by the end of 2011 (China Internet Network Information Center, 2012).

Research problem

- What is the risk profile in the public's eyes in the emerging market —— China?

Methods

- Use open-ended questionnaire to elicit expert's judgment on the spectrum of the various risks facing China.
- Use close-ended questionnaire with the risk list obtained from expert elicitation to obtain risk profile in the public's eyes.

References: Fischer et al., 1991 (What Risks Are People Concerned About?); Xie et al. 2003 (What Risks Are Chinese People Concerned About?)

Results (1) - expert

- Expert's judgment on the spectrum of the various risks facing China
  - Experts were asked
    - to list environmental, health, safety and social risks confronting China currently.
    - to list 5 environmental, health, safety, and social risks that they concern most currently.
    - to list environmental, health, safety and social risks that might confront China in 5-10 years.
    - to list 5 environmental, health, safety and social risks that they might concern most in 5-10 years.

Results (2) - expert

- Sampling: convenient samples
  - Full-time/adjunct research fellows in the Center for Crisis Management Research, School of Public Policy and Management, Tsinghua University
  - Experts from the 50 Forum of Crisis Management in China
  - Experts in risk/crisis management from the database of National Natural Science Foundation of China
- Sample details
  - 32/89, response rate 35.96%

Results (3) - expert

- A coding scheme for open-ended questions were developed to categorize the risks: **a three-level hierarchical set of risk categories**

First level

- Health
- Safety
- Environmental
- Social
- Political
- Economics
- Others

Example:

Level 1: 100 Health

Level 2: 110 Infectious disease

Level 3: 111 Avian flu

Results (4) - expert

Top 5 Most Frequently Mentioned

Current risks	Frequency	Future risks	Frequency
Domestic politics	23	Domestic politics	17
Food safety	21	Food safety	15
Social conflict	13	Conventional pollution	10
Conventional pollution	12	Social conflict	10
Moral degradation	8	Ecological degradation	9

Results (5) - expert

- Risk spectrum obtained from expert elicitation (40 risks):
  - Health risks (7)
  - Safety (9)
  - Environmental (7)
  - Political (5)
  - Social risks (8)
  - Economic risks (4)

Results (6) - expert

	Health risks (7)
1	Infectious disease
2	Dread disease
3	Sub-health conditions
4	Psychological disorders
5	Food safety
6	Genetically modified food
7	Drug safety/medical safety

Results (5) - expert

- Risk list (40 risks):
  - Health risks (7)
  - Safety (9)
  - Environmental (7)
  - Political (5)
  - Social risks (8)
  - Economic risks (4)

Results (5) - expert

	Safety (9)
8	Vehicle accidents
9	Rail transport (e.g., high-speed train, metro)
10	Natural disaster (e.g., earthquake, flood, drought, typhoon)
11	Fire
12	Reliability of infrastructure system
13	Information security/cyber security
14	Terrorist attack
15	Social safety
16	School bus safety

Results (5) - expert

- Risk list (40 risks):
  - Health risks (7)
  - Safety (9)
  - Environmental (7)
  - Political (5)
  - Social risks (8)
  - Economic risks (4)

Results (6) - expert

	Environmental risks (7)
17	Air pollution
18	Water pollution
19	Ecological degradation
20	Water shortage
21	Nuclear radiation
22	Global climate change
23	Problems associated with urbanization

Results (5) - expert

- Risk list (40 risks):
  - Health risks (7)
  - Safety (9)
  - Environmental (7)
  - Political (5)
  - Social risks (8)
  - Economic risks (4)

Results (6) - expert

	Social risk (8)
24	Moral degradation
25	Disobeying social norms/loss of social trust
26	Anti-social behavior
27	Massive disturbance
28	Problems associated with migrate workers
29	Aging and pensions
30	Association of those in the bottom of the society
31	Inadequate social security

Results (5) - expert

- Risk list (40 risks):
  - Health risks (7)
  - Safety (9)
  - Environmental (7)
  - Political (5)
  - Social risks (8)
  - Economic risks (4)

Results (6) - expert

	Political risks (5)
32	Loss of trust in government
33	Corruption
34	Abuse of power/Judicial injustice
35	Internal political conflict/political instability
36	Conflict between ethnic minorities

Results (5) - expert

- Risk list (40 risks):
  - Health risks (7)
  - Safety (9)
  - Environmental (7)
  - Political (5)
  - Social risks (8)
  - Economic risks (4)

Results (6) - expert

	Economic risks (4)
37	Uneven distribution of income
38	High unemployment rate
39	Low-income
40	Inflation

Results (7) – the public

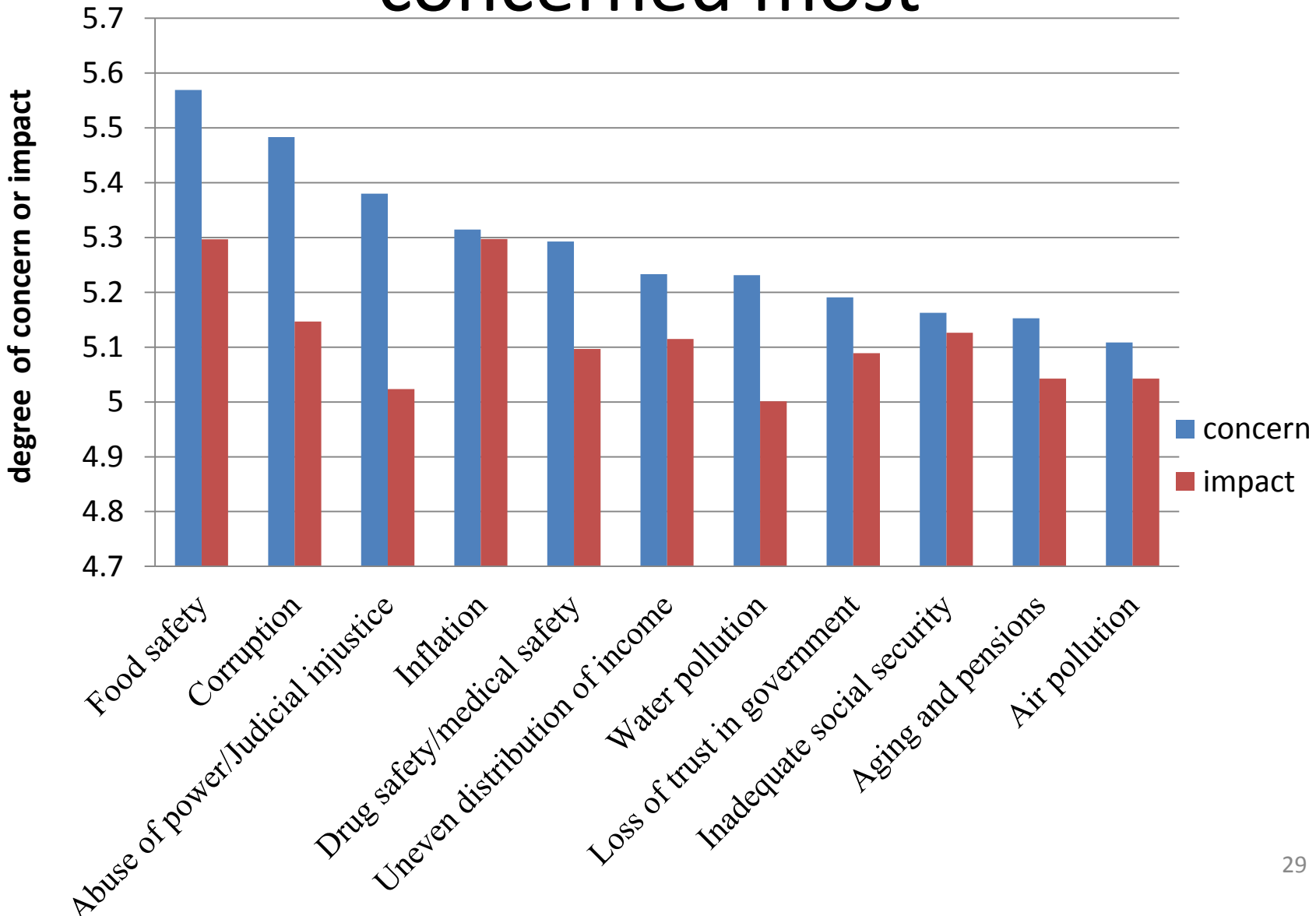
- Risk profile in the public's eyes
  - 40 risks were used
  - Respondents were asked
    - To estimate the degree to which their personal lives were affected.
    - To estimate the degree of concern.
    - To estimate the degree to which (the respond think) the government had invested to address the problem.
    - To select 10 risks that they expected to be addressed with priority.

Results (8) – the public

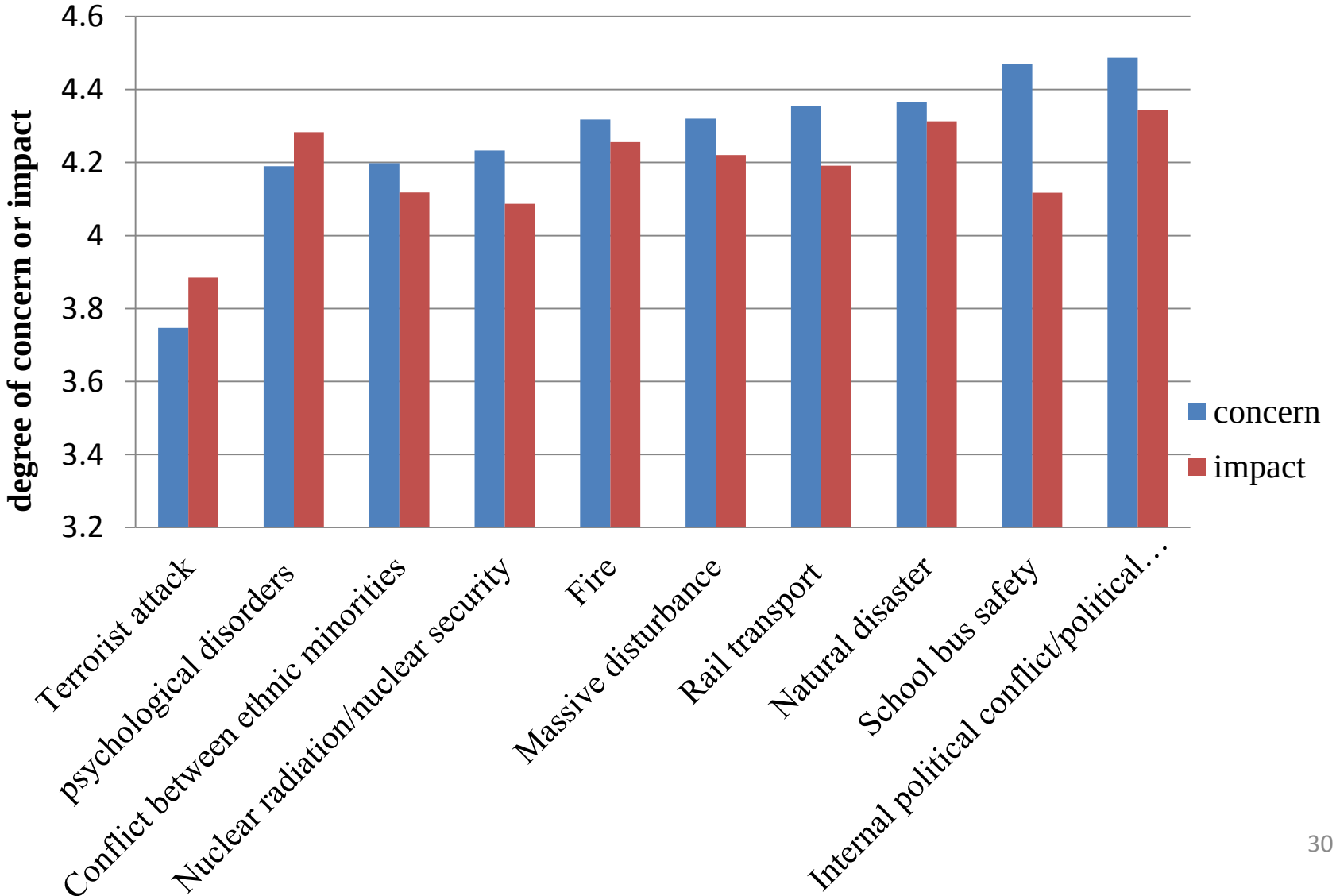
- Auto-administered via internet
- Sample details
  - No. of respondents sampled: 830 (2000)
  - No. of valid samples: 780
  - Gender: female (29.6%); male (70.4%)
  - Age: 15-24 years (10.9%); 25-34 years (53.7%); 35-44 years (25.9%); 45-54 years (6.0%); 55-64 years (3.0%); Above 65 years (0.5%)

Location of Samples

Results (9) – the public: Top 10 concerned most



Results (9) – the public: Bottom 10 concerned most



Results (10) – Priority for Risk Management

Top 10	Priority for Risk Management	Degree of Concern	Degree of Impact
1	Food safety	1	2
2	Corruption	2	3
3	Uneven distribution of income	6	5
4	Inadequate social security	9	4
5	Drug safety/medical safety	5	6
6	Aging and pensions	10	9
7	Inflation	4	1
8	Abuse of power/Judicial injustice	3	10
9	Loss of trust in government	8	7
10	Water pollution	7	11

Results (11) – Emerging risks

Top 10	Before 2000	2000-2005	Within recent 1-2 years
1	Corruption(25.13%)	Infectious disease(42.31%)	School bus safety(72.82%)
2	Fire(19.87%)	Problems associated with migrate workers(40.26%)	Rail transport (e.g., high-speed train, metro)(68.59%)
3	Social safety(19.10%)	Water pollution(38.97%)	Aging and pensions(50.26%)
4	Infectious disease(19.10%)	Ecological degradation(38.59%)	Nuclear radiation/nuclear security (59.49%)
5	Natural disaster (e.g., earthquake, flood, drought, typhoon)(18.97%)	Water shortage(37.95%)	Food safety(58.46%)
6	Abuse of power/Judicial injustice(18.85%)	Global climate change(37.95%)	Inflation(57.31%)
7	Air pollution(18.72%)	Uneven distribution of income(37.69%)	Information security/cyber security(57.05%)
8	Ecological degradation(18.59%)	Air pollution(36.67%)	Drug safety/medical safety(56.54%)
9	Water pollution(17.31%)	Abuse of power/Judicial injustice(36.54%)	Genetically modified food(56.28%)
10	Water shortage(16.92%)	Terrorist attack(36.28%)	Loss of trust in government(52.18%)
Mean (N=780)	13.27%	32.88%	47.18%

Results (12) – Judged effectiveness of governmental intervention

Top 10	Not effective	Very effective or extremely effective
1	Corruption(46.67%)	Terrorist attack(20.00%)
2	Uneven distribution of income(45.90%)	Massive disturbance(19.36%)
3	Loss of trust in government(41.03%)	Infectious disease(17.05%)
4	Abuse of power/Judicial injustice(40.90%)	Natural disaster (e.g., earthquake, flood, drought, typhoon)(14.87%)
5	Moral degradation(40.64%)	Conflict between ethnic minorities(14.62%)
6	Food safety(38.85%)	Nuclear radiation/nuclear security(14.36%)
7	Low-income(37.82%)	Internal political conflict/political instability(13.72%)
8	Disobeying social norms/loss of social trust(37.31%)	Social safety(12.69%)
9	Inflation(36.92%)	Dread disease(12.31%)
10	Aging and pensions(33.97%)	Information security/cyber security(11.79%)

Conclusions

- Risks in public's eyes
  - Food safety draws more public attention in the recent 1-2 years
  - Risks of terrorist attack, nuclear radiation, massive disturbance, internal political conflict are judged low
  - The structure of the risks that the public's concern is changing
    - Present: social/political (related to fairness and individual living)
    - Future: environmental issues/emerging risks caused by technology development

Future work

- Spatial difference
- Demographic difference
- Compare with previous research (Xie et al. 2003)
- Longitudinal study

Thanks !

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