Perception of Risks in the Chinese People: A Hong Kong Perspective

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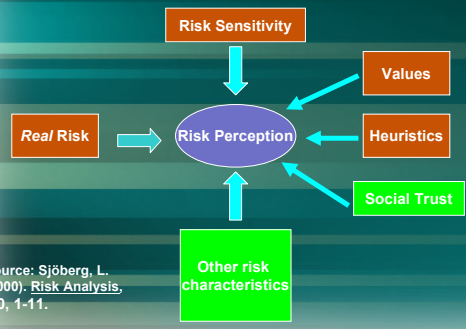
Outline

- Research on risk perception in Hong Kong Chinese
  - Lai et al. (2003); Lai & Tao (2003)
    - Cognitive representation of environmental hazards in Hong Kong Chinese
    - Factors that determine levels of perceived risk
- A recent study on risk perception related to food safety
  - The effects of social trust and personality factors on risk perception related to food safety

My research is motivated by:

1. The growing public concern about the risk of various hazards in Hong Kong
2. A need to understand lay perception of risk
   - To facilitates the communication of ***real*** risks inherent to specific hazards to the public

Lay judgment is not simply a response to *real* risk



Source: Sjöberg, L. (2000). Risk Analysis, 20, 1-11.

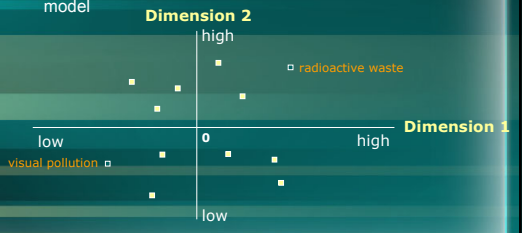
Cognitive Representation of Risks

- Objectives
  - To characterize risk perception in Hong Kong Chinese using the **psychometric approach**
    - **to identify the most fundamental dimensions along which risks are perceived and evaluated**
  - To identify risk characteristics that determine perceived levels of threat

Source: Lai & Tao (2003). Risk Analysis, 23, 669-684.

- Using the psychometric approach, prior research has shown that hazards are perceived and judged along two dimensions
  - **Dread Risk**
    - calm ----- dread
    - controllable ----- uncontrollable
    - non-catastrophic ----- catastrophic
  - **Unknown Risk**
    - known to those exposed ----- unknown to those exposed
    - known to science ----- unknown to science
    - old risk ---- new risk

- Development of a spatial model
  - Each hazard can then be plotted on a factor-space defined by these higher-order dimensions: a hypothetical 2-factor model



A Cognitive Map of Risks

- Method
  - Respondents
    - 167 Hong Kong Chinese from a larger public sample (N = 229)
      - Response rate = 73%
    - Male → 48%
    - Ages → range: 18 – 63 yr.; mean: 36.8 yr.
    - Education: highest level attained
      - Elementary 6%
      - Junior high school 16.2%
      - Senior high school 35.3%
      - College or higher 42.5%
  - Procedure
    - Survey questionnaires were sent to participants by mail

Measures

- 25 pre-selected hazards

Acid Rain	Destruction of coral	Floods or tidal waves	Manipulation of human genetic materials	Water shortage
Loss of biodiversity	Loss of dolphins	Genetically modified food	Radioactive fallout from nuclear power plant	Storms
Radioactivity in building materials	Dredging and dumping	Germs and micro-organisms	Over-fishing	Traffic noise
Pollution from cars	Earthquakes	Indoor air quality	Pesticides and herbicides	Visual pollution
Chemical waste	Destruction of *feng shui*	Loss of natural landscape	Second hand smoking	Loss of wetland

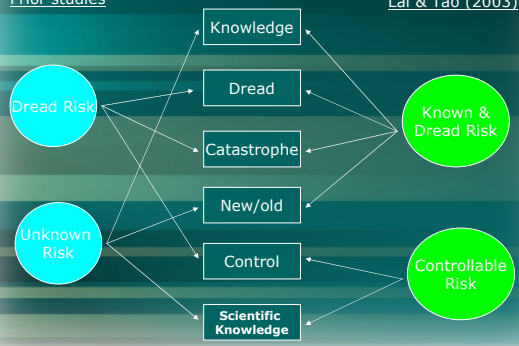
- Assessment of perceived levels of threat
  - How threatening was each of the 25 hazards to (a) the Hong Kong environment and (b) the global environment?
    - Respondents indicated their answers on a 7-point scale
      1. no threat at all
      2. minimal threat
      3. mild threat
      4. moderate threat
      5. strong threat
      6. very strong threat
      7. extreme threat

- Assessment of each hazard's status on 6 characteristics using a 7-point rating scale
  1. Knowledge about risk
     (1 = risk level not known; 4 = uncertain; 7 = risk level known precisely)
  2. Feelings of fear
     (1 = calmly; 4 = uncertain; 7 = worried and frightened)
  3. Non-catastrophic vs. catastrophic
     (1 = non-catastrophic; 4 = uncertain; 7 = catastrophic)
  4. Old vs. new
     (1 = old; 4 = uncertain; 7 = new)
  5. Control over risk
     (1 = totally uncontrollable; 4 = uncertain; 7 = completey controllable)
  6. Unknown vs. known to science
     (1 = not sufficiently known to science; 4 = uncertain; 7 = sufficiently known to science)

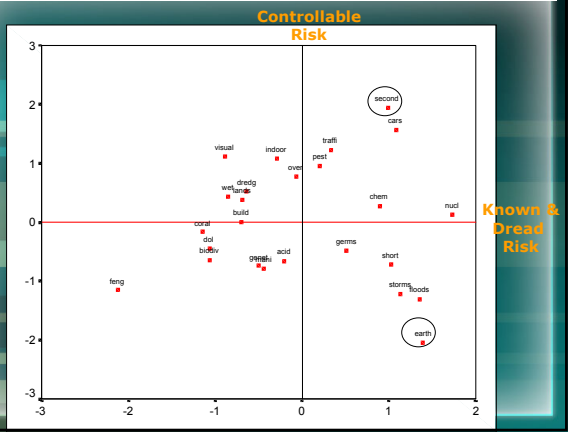
Comparison with the Typical 2-factor Structure

Prior studies

Lai & Tao (2003)



A Cognitive Map of Risk Perception in Hong Kong Chinese



Factors determining risk perception

	Threat to local environment	Threat to global environment
Knowledge & Fear	Positive association	Positive association
Controllability	Positive association	No association
Sex	F > M	F > M
Age	Old > Young	Old > Young
Education	Low > High	No association

Implications

- The most unique finding is related to the cognitive representation of risks
  - The typical *Dread and Unknown Risk Factors* have not been successfully replicated
    - **Hong Kong Chinese perceive risks within a different cognitive space. Why?**
      - **Ongoing influences of traditional Chinese values and beliefs in Hong Kong**

- The coupling of *Knowledge and Fear* may be attributed to the "this-worldly" practical humanism of Confucian teachings
  - Emphasis on those aspects of life that can be understood through personal experience and control
  - De-emphasis on those aspects that are unfamiliar and unknown
  - The "known & dread risk" and "controllable risk" have recently been replicated in a sample of citizens in Guangzhou, China (Lai & Tao, 2006)*

*Lai, J, C. L., & Tao, J. (2006). International Journal of Environmental, Cultural, Economic and Social Sustainability, 1(5), 125-138.

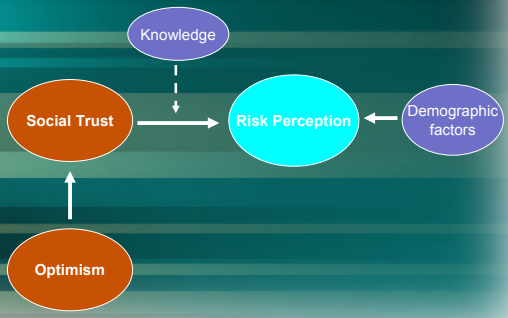
Social Trust and Optimism in risk perceptions related to food safety

- Background
  - Social trust has been found to influence both risk and benefit perception of a technology in recent research (Siegrist, 1999; Siegrist et al., 2000)
    - Higher trust predicts lower risk perception

"Social trust is the willingness to rely on those who have the responsibility for making decisions and taking actions related to the management of technology, the environment, medicine, or other realms of public health and safety" (Siegrist et al., 2000, p. 354)

  - Personality factors such as high anxiety have been shown to accentuate risk perception (Bouyer et al., 2001)
    - Factors that potentially lower perceived risk have rarely been studied
      - Optimism which is related to a generalized positive outcome expectancy, is expected to attenuate perceived risk via its effect on social trust

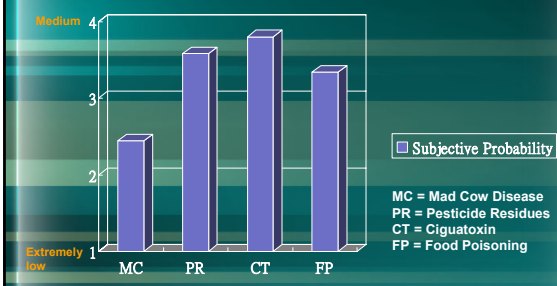
Factors Predicting Risk Perception related to Food Safety



- A telephone survey administered to 1200 Hong Kong Chinese(498 men & 671 women; ages ranged from 18 to 64 yr)
  - Items tapping respondents' perception of risk associated with
    1. Mad cow disease after eating beef in Hong Kong
    2. Food poisoning after eating vegetables having pesticide residues in Hong Kong
    3. Food poisoning after eating coral reef fish having ciguatoxin in Hong Kong
    4. Food poisoning after eating unsafe food in Hong Kong

- Items tapping social trust
  - Degree of confidence in the food control and enforcement system in Hong Kong
- Items tapping optimism
  1. How optimistic a respondent is
  2. If there are more good things than bad in the life of a respondent
- Items tapping knowledge of food safety
  - How much knowledge about food safety a respondent claims to have

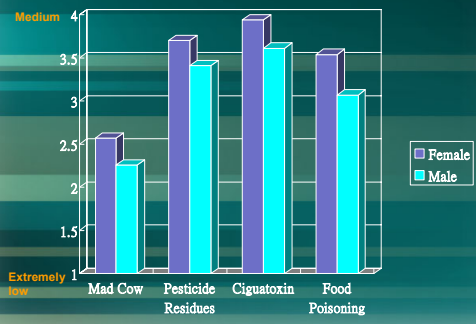
Levels of Perceived Risk



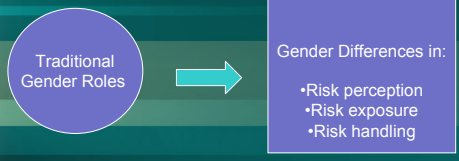
Demographic Factors → Risk Perception

	Mad Cow	Pesticides Residues	Ciguatoxin	Food Poisoning
Sex	F > M	F > M	F > M	F > M
Education	No association	No association	No association	No association
Income	No association	High > Low	No association	No association

Sex difference in risk perception



Explanations for the consistent gender difference



Women more oriented toward home and family but men more toward their working life (Gustafson, 1998)

Source: Gustafson, P. E. (1998). Risk Analysis, 18, 805-811.

Social Trust → Risk Perception

	Mad Cow	Pesticide Residues	Ciguatoxin	Food Poisoning
	X	√	X	√
Little Knowledge	X	√	X	X
Much Knowledge	X	√	X	√

X = no association √ = significant association

Optimism → Social Trust

- "An optimistic person or not?"
  - More optimistic → higher level of trust
- "There are more happy and good things than unhappy and bad things in my life"
  - More optimistic → higher level of trust

Implications

- Social trust had significant impact on perceived risk of food poisoning
- Social trust is determined by optimism
- The effect of social trust on risk perception is stronger in those having more knowledge
- The attenuating effect of high social trust on perceived risk can be enhanced by
  1. Increase in optimism
  2. Increase in knowledge about risks

Conclusions

- Socio-cultural context is a very important factor determining risk perception
  - Chinese people may perceive risks along a set of unique dimensions
  - Knowledge of risks may have different effects across different cultures
  - In the context of Hong Kong, higher levels of knowledge and social trust reduce perceived risk

Acknowledgements

- Research collaborators
  - Prof Julia Tao & Dr. Chan Ho-mun (City University of Hong Kong)
  - Prof Andrew Brennan (La Trobe University)
- Researchers from the Food and Environmental Hygiene Department of the Hong Kong Government
- Colleagues at the Quality Evaluation Center of the City University of Hong Kong