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Toward understanding consumer risk responsibility related to use of agro-biotechnology

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Background

Previously, public discussion on the use of biotechnology in food production was mostly conducted in terms of potential threats to human health and the environment from genetically modified products. More recently another aspect has come to the foreground in European policy discussion:

Agricultural biotechnology has the potential, if used responsibly, to contribute significantly to a more sustainable food production with less environmental impact and more healthy products. (EC, 2010; see also Joelsson and Hansson, 2011)

The Role of Biotechnology in Agriculture and Rural Development

Advocates of modern biotechnology contend that recent advances in agricultural applications of gene technology demonstrate a significant potential of agri-biotech to contribute to sustainable advantages in agricultural productivity, reducing poverty, and enhancing food security. Also, there are acknowledgments on the role of biotech to transformation of the global food system and environmental benefits such as reducing GHG emissions in agriculture scetor.

Concerns for agro-biotechnology

During last few decades the scientific gene technology advancements and its application on agro-food sector have raised strong sensitivity among general public in Sweden and led to public discussions. The debate included ethical concerns towards GM innovation mixed with distrust issues, health anxieties as well as ecological distresses.

March Against Monsanto

On May 25, 2013, demonstrations protesting genetically modified crops took place around the world including Sweden.
A second protest was organized and held on October 12, 2013

What is risk and who should be responsible?

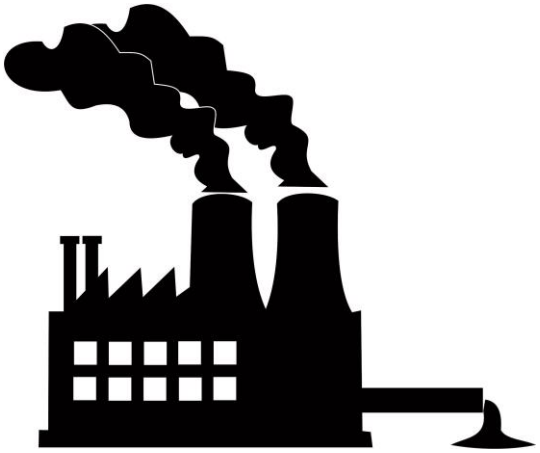
Risk perception gap

Problem

- **A litrature review revealed that**:

there is little work addressing how consumers attribute risk responsibility to actors of food chain regarding food risks.



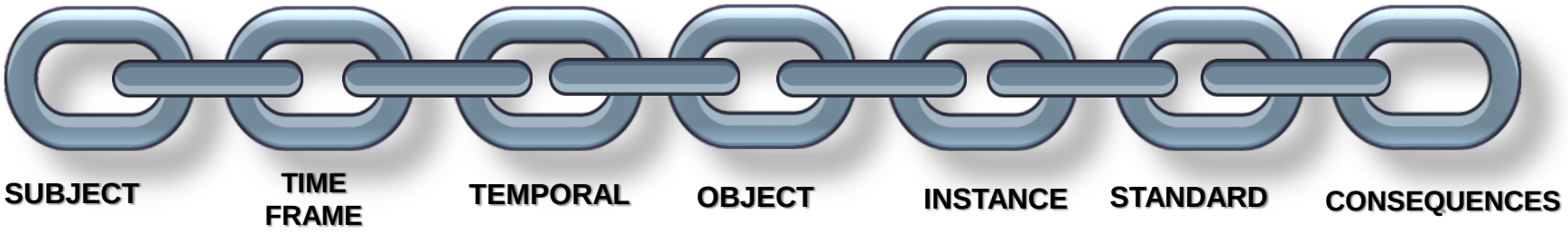



Who is responsible for GM food risks

Aim

The aim of present research is to understand how consumers attribute risk responsibility associated with to the use of agri-biotechnology. The results of this study will assist to develop a theory in relation to food safety regulations and behavior with focus on responsibility.

RELATA model of responsibility



"*someone (**subject**) is in a particular time frame (**time**) retrospectively/prospectively (**temporal direction**) responsible for something/someone (**object**) against someone (**norm-proofing instance**) on the basis of certain normative standards (**standard**) with certain sanctions or rewards (**consequences**)*" (Schicktanz and Schweda, 2012, 133).

Theory

The concept of risk responsibility fits into the larger enterprise of judgment-and-decision making research. But the context of GM food implies a dynamic interactions between different stakeholders, necessitates dynamic decision making model.

Psychometric paradigm and explicitly Leikas *et al* (2009) studied the influence of food risk type and risk characteristics on food risk responsibility judgments. In addition to the safety of food risk, Leikas *et al*. (2009) suggest that food risk responsibility judgments may be affected by people's subjective evaluations of risk characteristics as well. These characteristics are judgment of *risk scariness*, *likelihood*, and *controllability*.

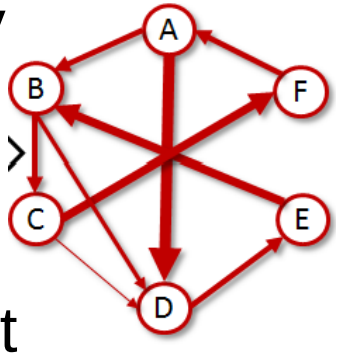
The work in this study relate:

- **risk type** (explicit risk elements identified in relation to each of the five different aspects of biotechnology considered in the study),
- **risk characteristics** (scariness, natural vs. man-made, likelihood of occurrence to the individual, time of impact, and personal controllability).
- **responsibility judgement** (how much each target is responsible for each risk).

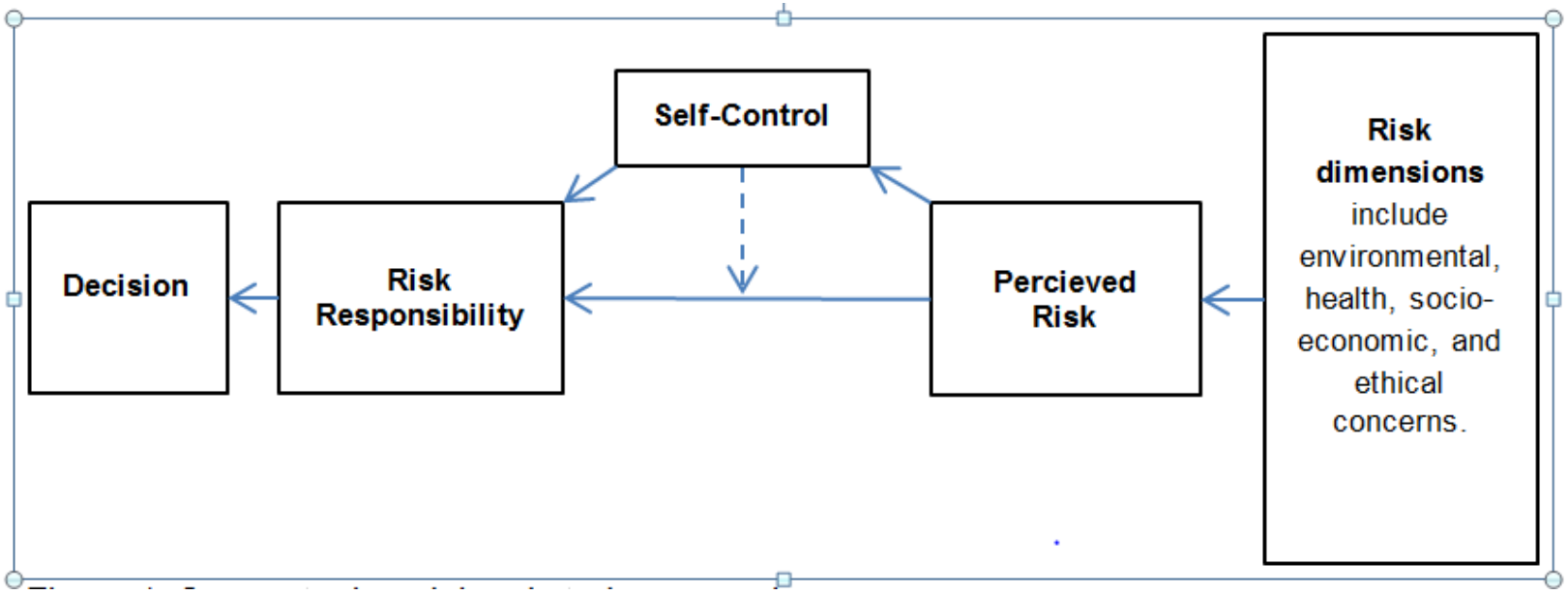
The outcome of this study will portray specific risk type-target relationships, which will provide an understanding vital to the institutional design of biotechnology standards. The formation of consumers' controllability and responsibility of agricultural biotechnology is essential to discern and facilitate behavior conducive with a more sustainable agriculture.

However, it seems that psychometric paradigm only examine the responsibility in the form of individual judgments in a given period of time. Although, a snapshot of the context at a given time would be valuable, the problem is that the risk responsibility judgments among different stakeholders may vary over time.

In addition, psychometric paradigm fails to offer an inclusive view towards the risk responsibility. It only address one stakeholder group perception and judgments at a time while the risk responsibility in reality lies in a dynamic system where all stakeholder groups have effect on each other and it may change over time due to changes on other variable in the system.



Conceptual framework



GM Potato is allowed to be cultivated domestically or imported with mandatory labeling

- Farmers support the regulation and cultivate GM potatoes
  - Food processors support the regulation and process GM potatoes.
    - Retailers support the regulation and sell domestically grown GM potatoes.
      - Consumers support the regulation and would buy GM potatoes for own family
      - Consumers support the regulation but would not buy GM potatoes for my own family.
      - Consumers support the regulation but prefer the imported GM food.
      - Consumesl do not support the regulation and will not buy GM Potato.
    - Retailers don't support the regulation and don't sell it
  - Food processing companies do not support the regulation and do not process GM potatoes.
    - Retailers support the regulation and sell bought directly either from farmers or as imported.
    - Retailers do not support the regulation and do not sell GM potatoes.
- Farmers don't support the regulation and don't cultivate GM potaotes
  - Food processors support the regulation and process imported GM potatoes.
    - Retailers support the regulation and sell GM potatoes.
    - Retailers dont support regulation and dont sell
    - Retailers dont support but sell, seek to promote domestic cultivation
      - Consumers support the regulation and would buy GM potatoes for their own family.
      - Consumers support the regulation but would not buy GM potatoes for their own family.
      - Consumers do not support the regulation and will not buy GM Potato.
  - Food processing companies do not support the regulation and do not process imported GM Potatoes
    - Retailers support the regulation but accept the condition.
    - Food retailers do not support regulation and do not sell GM Potato

Method

An experimental economics method will be applied.

Advantages of the experiments:

- Control
- Replication (Check for robustness, experimenter effects, etc)

The experimental design will help us to answer the question:

Are judgments and decisions stable or are they affected by others decisions.

To Whom it is important

Besides its importance to researchers in the field of consumer behavior, results of this study will be relevant to actors within the food value chain and in particular in policy development.

- Scholars have been addressed the differences between US and EU approach in governing and regulating biotechnology in food production (e.g. Wint, 2005; Anderson & Jackson, 2003). While US has adopted a more science-based with federal regulation system, EU has a multi-level system and includes public concerns as regulatory elements.
- In addition, increasing our knowledge on regulatory issue over GM food may establish a precedent for how societies can regulate other novel technologies (including animal cloning, stem cell research, and pharmaceutical and food bio-engineering) that provoke complex ethical and scientific inquiries (Ansell and Vogel, 2006; Bernauer, 2003).