

# Efficient public adaptation to climate change

– An investigation of drivers and barriers  
from a Public Choice perspective

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# Outlook

## 1 Motivation

## 2 A Public Choice approach for studying barriers to efficient public adaptation

### 2.1 Efficiency in terms of extent

- a) *Descriptive analysis*
- b) *Normative analysis*
- c) *Positive analysis*

### 2.2 Efficiency in terms of structure

- a) *Descriptive analysis*
- b) *Normative analysis*
- c) *Positive analysis*

### 2.3 Efficiency in terms of organisation

- a) *Descriptive analysis*
- b) *Normative analysis*
- c) *Positive analysis*

## 3 Conclusions

# 1 Motivation

- Adaptation policy is at an early stage and about to pick up pace – many countries have put adaptation on the political agenda (PEER 2009).
- Need for scientific support – so far: strong normative focus of the economic science (Agrawala et al. 2011).
- Why positive science/Public Choice (application of economic theory to the study of politics)?
- **Self-interest-driven behaviour** as major source of barriers in any political field of action – particularly in adaptation policy:

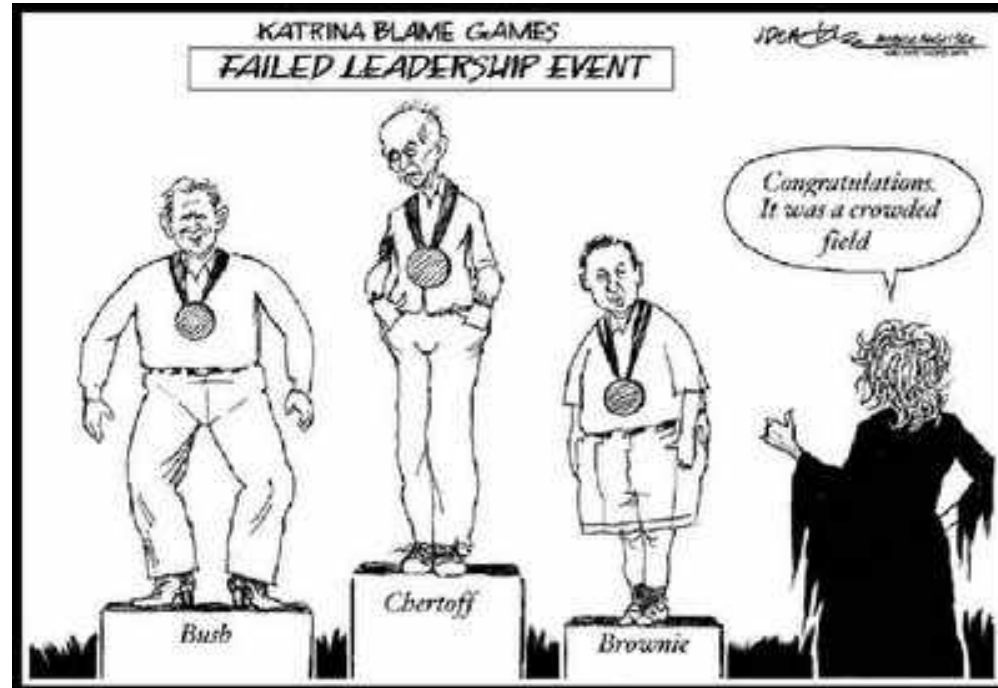
- No clear-cut success-metric and framing
- No clear-cut allocation of budget and responsibilities

Scope  
for

- **Manipulation**
- **Exertion of influence**

# 1 Motivation

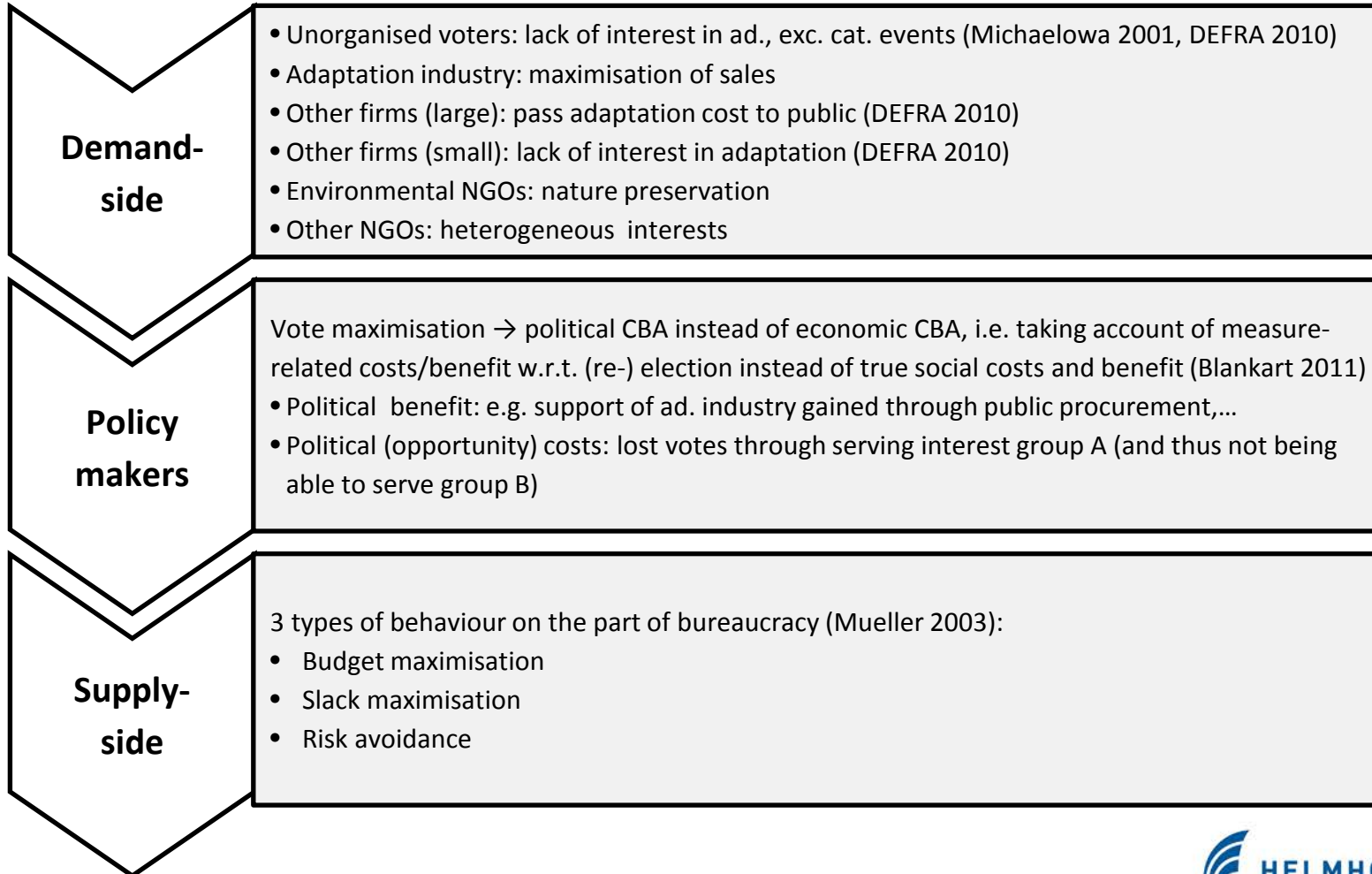
- Some slight empirical evidence: govt. failure in case of Hurricane Katrina, 2005 (“reactive public adaptation”)
- Sobel & Leeson (2006):
  - Risk avoidance, over cautiousness (type-two error)
  - Political manipulation of relief
  - Manipulation of information
  - Glory seeking
  - (other org. problems)



- Main goal of this paper: Providing a broad conceptual Public Choice framework in order to study barriers to efficient public adaptation for the case of representative democracy
  - Revealing basic barriers and raising consciousness
  - Making a rough estimate on the barriers' impacts
  - Creating a sound basis for further research

# 2 Public Choice approach and framework

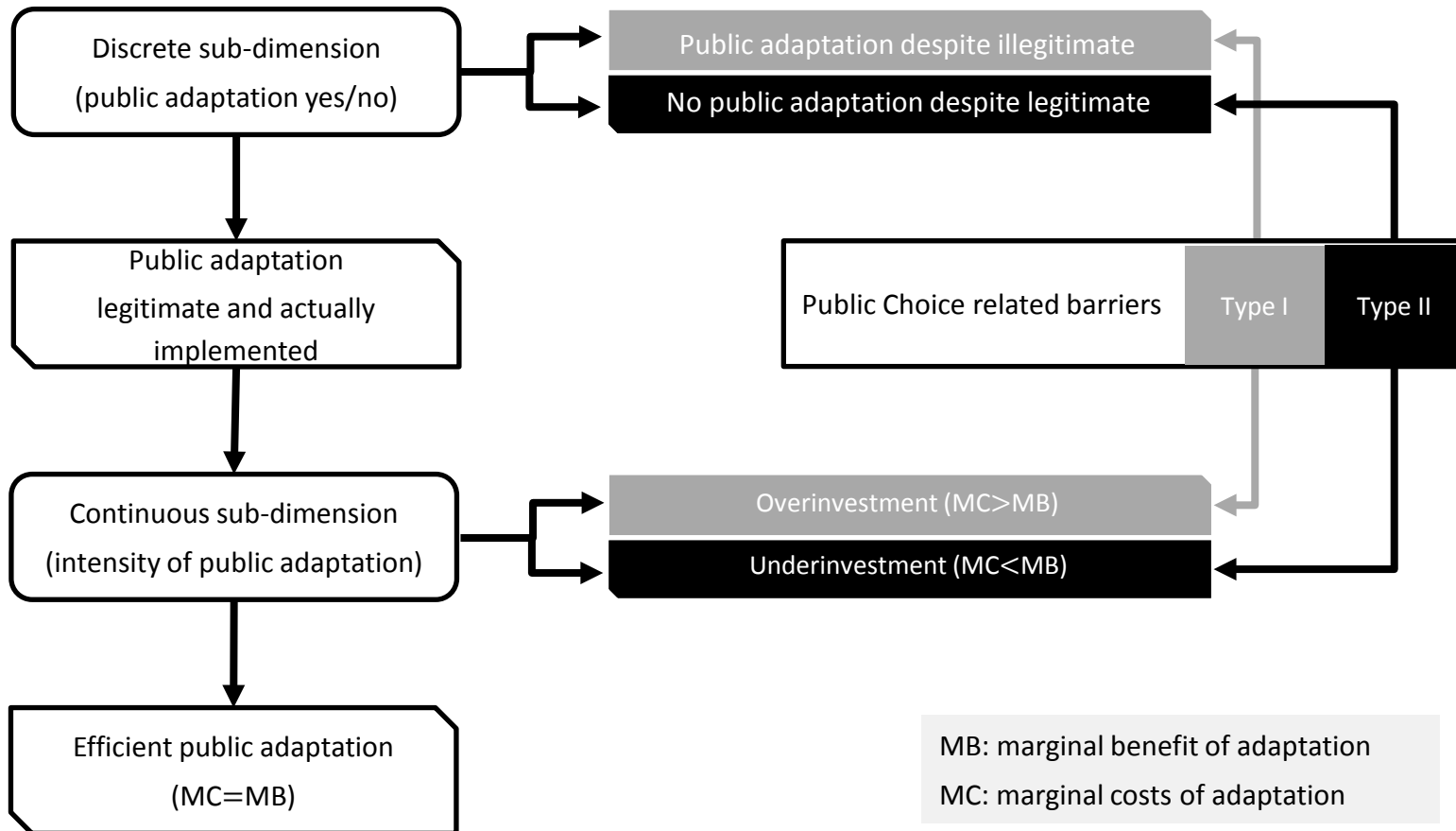
The 'market' of public adaptation – actor groups and basic self-interests  
(mitigation is faded out for the sake of simplicity)



Impact on the 3 efficiency dimensions  
(extent, structure, organisation)

# 2.1 Efficiency in terms of extent

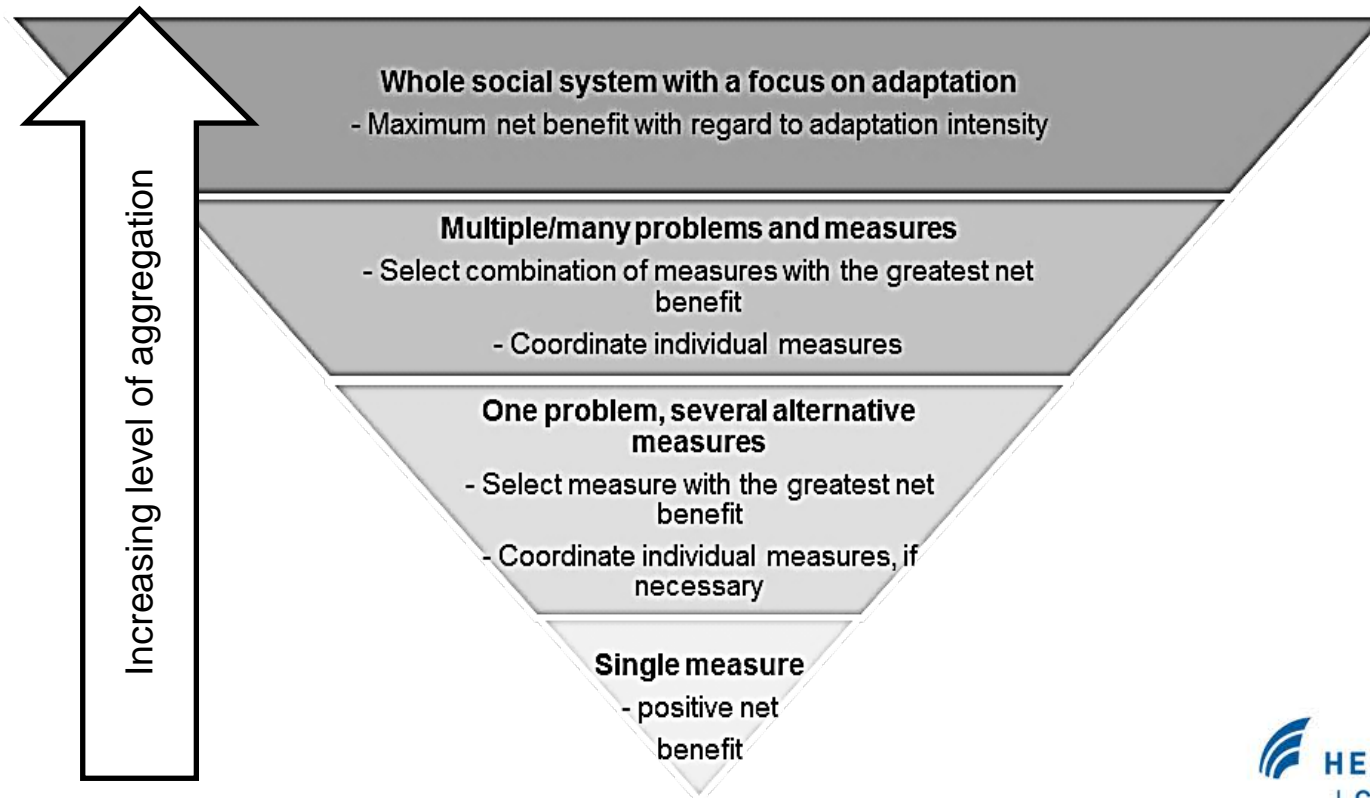
## a) Descriptive analysis



# 2.1 Efficiency in terms of extent

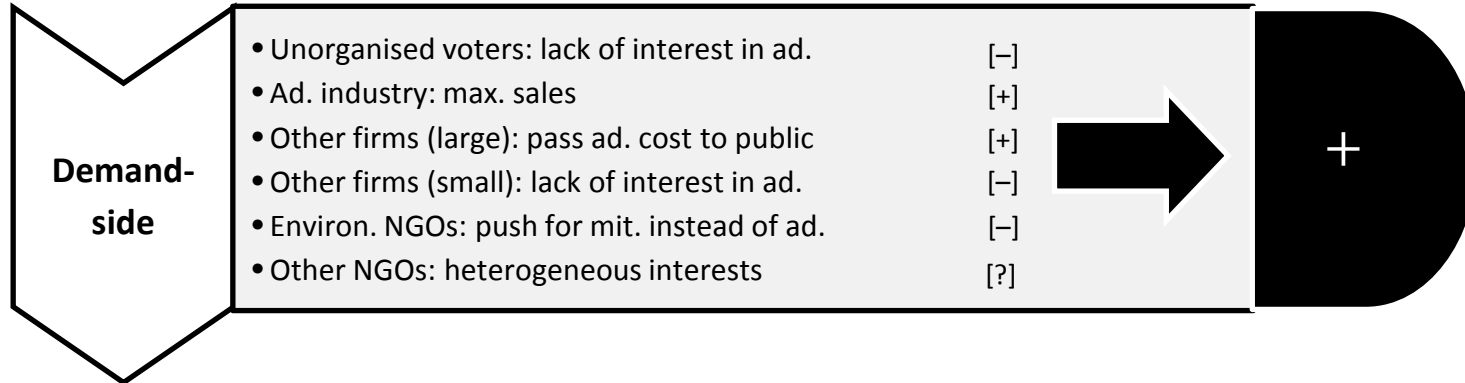
## b) Normative analysis

- **Discrete sub-dimension** (public vs. private adaptation): theory of market failure
- **Continuous sub-dimension**: maximise social net-benefit of adaptation → Precise problem depends on adaptation context/level:



## 2.1 Efficiency in terms of extent

### c) Positive analysis

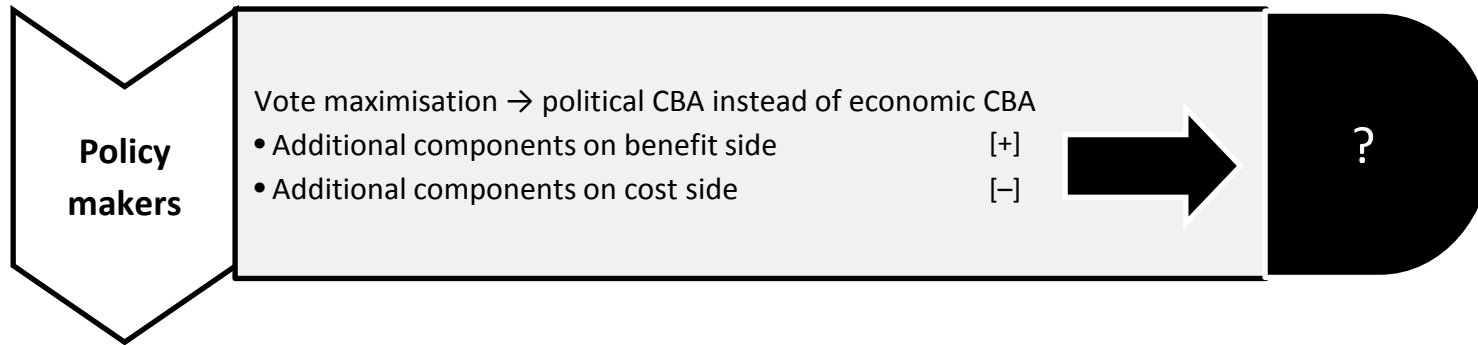


- Organised groups exert influence through
  - Direct financial support for candidates/parties to fund informative or persuasive campaigns (Mueller and Stratmann 1994)
  - Lobbying, i.e. one-way transfer of information w.r.t. preferences or states of the world (Milgrom and Roberts 1985)
- Which interest group is likely to prevail? → Olson (1971): “capability of getting organised” is strengthened through
  - Small group size
  - Strong financial basis
  - Clear goals
  - Homogeneous preferences
- Dominating influence of providers of ad. infrastructure and other large firms



## 2.1 Efficiency in terms of extent

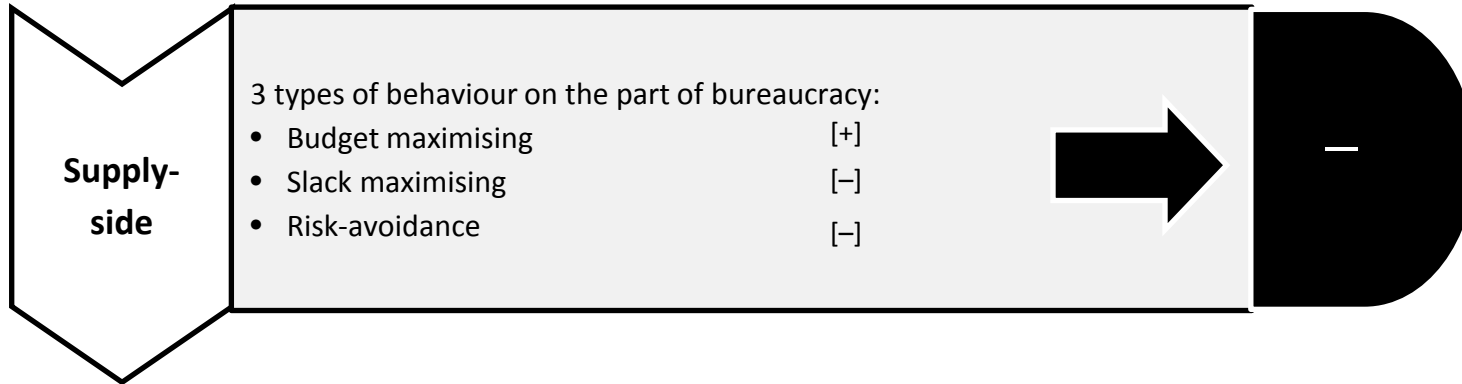
### c) Positive analysis



- Clearly, political benefit components induce type I barriers, while political costs induce type II barriers.
- Aggregate distortion depends on nature of the project and the politicians' expectations about the project's influence on voting behaviour.

# 2.1 Efficiency in terms of extent

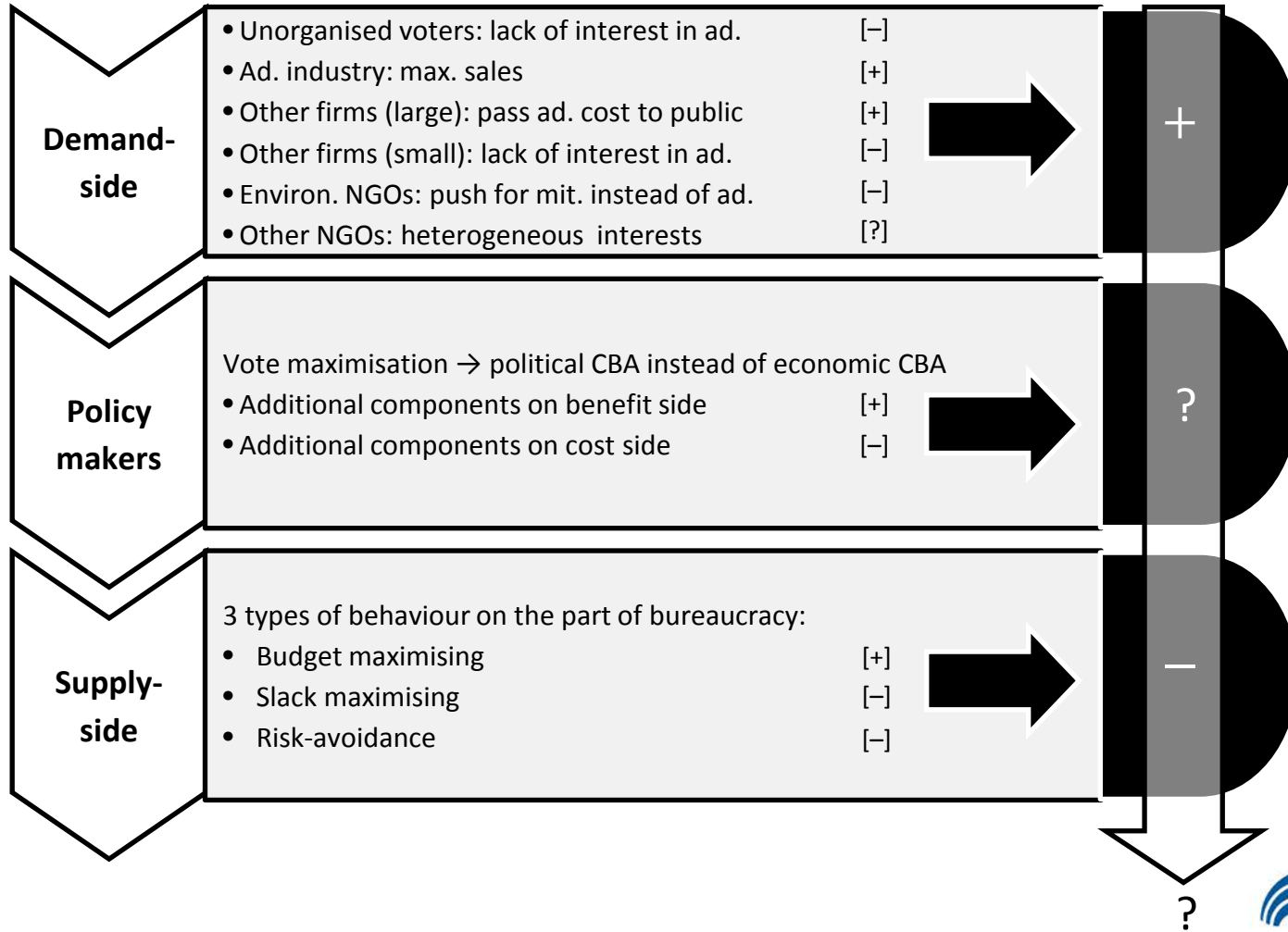
## c) Positive analysis



- **Basic assumption** of bureaucracy theory (Niskanen 1971):
    - Bureau is monopolistic supplier
    - Its cost function is private information
    - Take-it-or-leave it (budget-) proposals to government
  - **Budget maximisation**: rent extraction by pushing through higher output levels
  - **Slack maximisation**: rent extraction by operating at increased production costs
  - **Risk-avoidance**: rejection of risky projects that would have been enforced by the government if perfect monitoring was possible without cost
- **Guess**: due to high uncertainty involved with adaptation projects, slack maximising and risk avoiding behaviour play a dominant role.

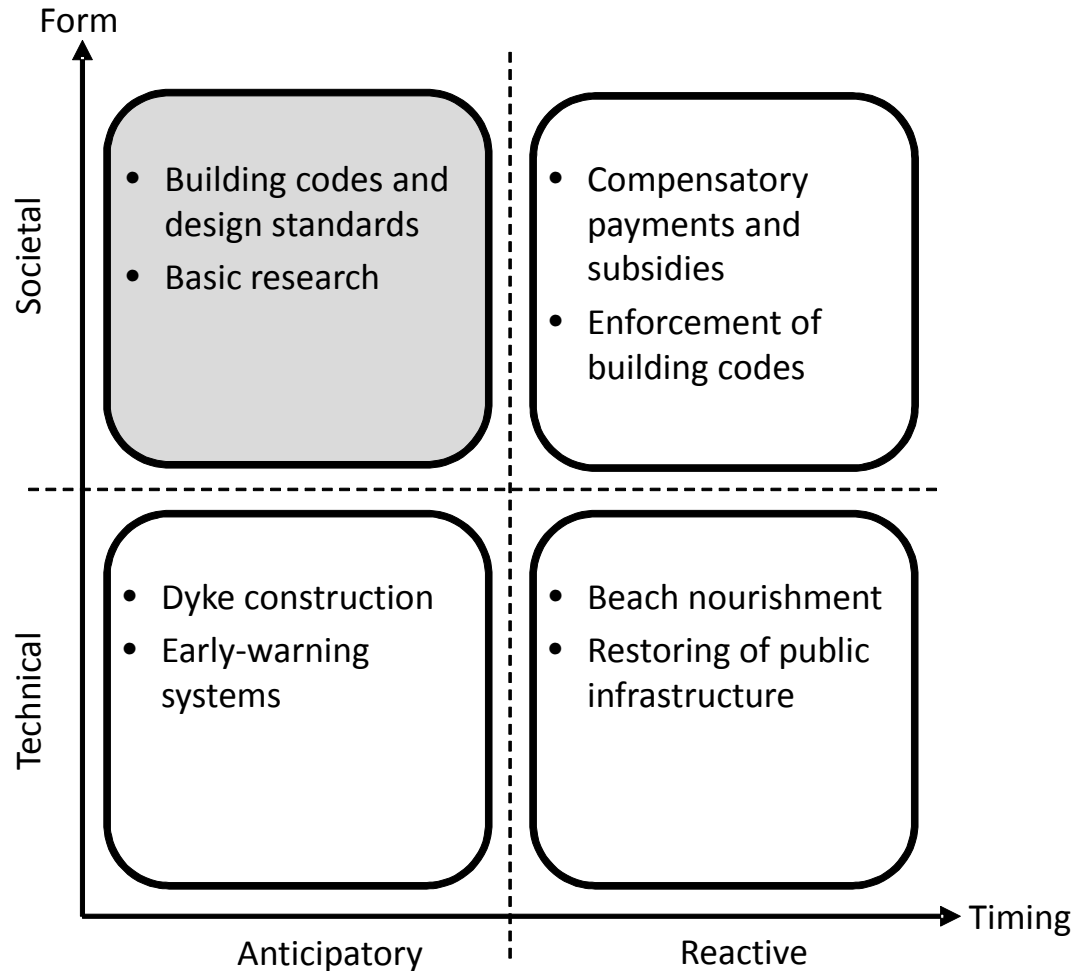
# 2.1 Efficiency in terms of extent

## c) Positive analysis



## 2.2 Efficiency in terms of structure

### a) Descriptive analysis



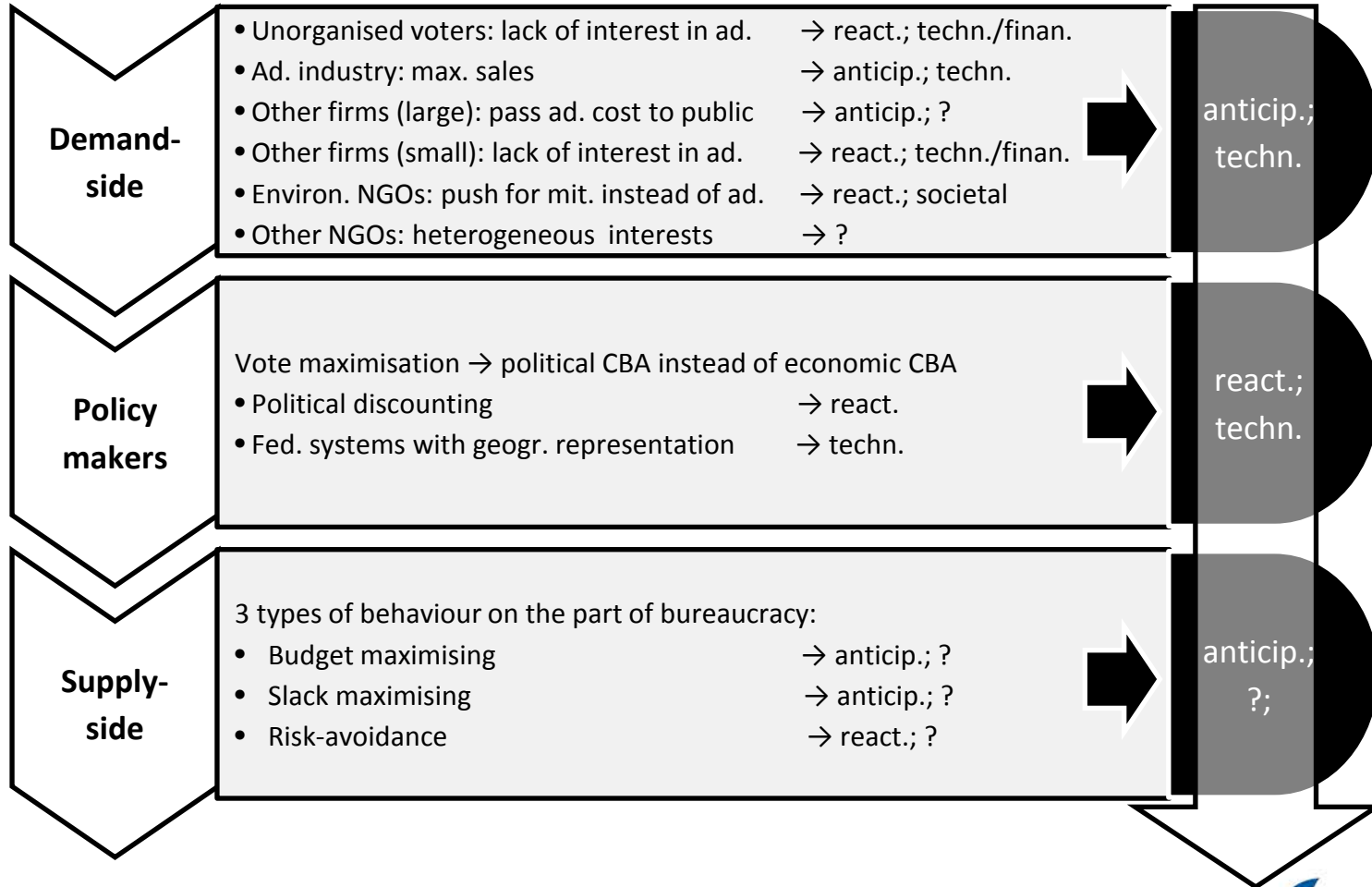
## 2.2 Efficiency in terms of structure

### *b) Normative analysis*

- **Timing** (Fankhauser et al. 1999, Mendelsohn 2000)
  - Basic intertemporal trade-off: adaptation should be postponed as long as associated benefits (avoided investment costs) are greater than the associated costs (increased climate change damages).
  - “Balanced mix” of anticipatory (sectors with high capital intensity, irreversibilities) and reactive measures (low capital intensity).
- **Form**
  - No explicit recommendation; however, due to context-dependent and heterogeneous character of adaptation, a “balanced mix” of measures is required to address the needs across the different sectors.
  - Moreover, such a mix is also desirable within a sector due to increasing marginal costs/decreasing marginal returns of specific adaptation measures.

## 2.2 Efficiency in terms of structure

### c) Positive analysis



Timing: ?(depending on pol. discount rate);

Form: techn.

## 2.3 Efficiency in terms of organisation

### a) *Descriptive analysis*

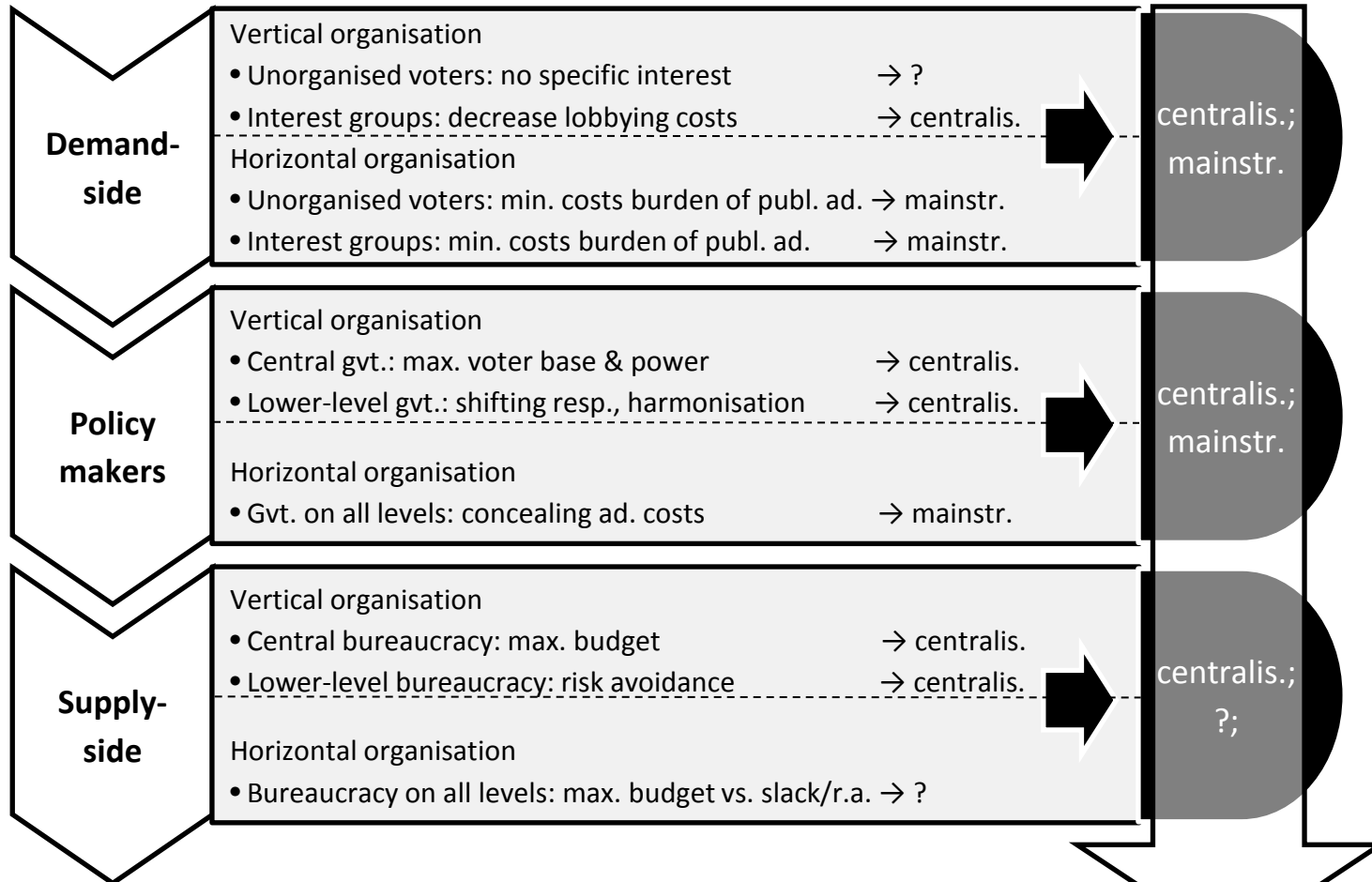
- **Vertical** organisation: Allocation of responsibilities and competences along the political levels (supranational, national, regional, local).
- **Horizontal** organisation: Variety of policy fields and respective actors that engage in planning and implementing adaptation measures.

### b) *Normative analysis*

- **Vertical**: Theory of fiscal federalism (e.g. Oates 1999) → decentralisation favoured due to
  - informational advantage of local decision makers → appropriate decisions
  - promotion of interjurisdictional competition
- **Horizontal**: Adapt. is a complex issue which is linked to numerous policy fields → mainstreaming favoured (UNDP/UNEP 2011) since it
  - facilitates access to specific information of the various fields of action
  - facilitates the identification of synergies with existing policy measures and administrative processes

## 2.3 Efficiency in terms of organisation

### c) Positive analysis



Vertical: centralis.  
Horizontal: mainstr.



# 3 Conclusions

- Adaptation policy process picks up considerable speed → need for raising awareness for and identifying barriers to efficient public adaptation.
- **Self-interest driven behaviour as major source of barriers** due to several characteristics of adaptation and the surrounding policy framework (lack of success metric,...).
- Main impacts of barriers suggested by our general Public Choice framework:
  - **Extent:** ambiguous overall trend
  - **Structure:** bias toward technical measures (form); bias w.r.t. timing depends on political discount rate
  - **Organisation:** centralisation bias (vertical); mainstreaming recommendation is met (horizontal)
- However: Results have to be treated with caution due to general level of analysis → need for further research
  1. **Theoretical:** Analyse and clarify ambiguous influences on the adaptation outcome emerging from reverse incentives within or between actor groups.
  2. **Empirical:** Study of specific adaptation policy processes and contexts needed for deriving concrete policy recommendations.