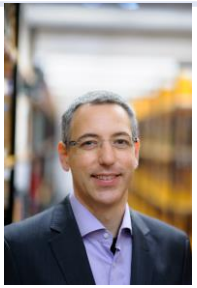
BIG
RISKS
Interdisciplinary
Research Group

funk
STIFTUNG

PROFILSCHWERPUNKT
Wandel von Gegenwartsgesellschaften

Politische Philosophie

- Prof. Dr. Andreas Niederberger
- Ruben Langer, M.A.

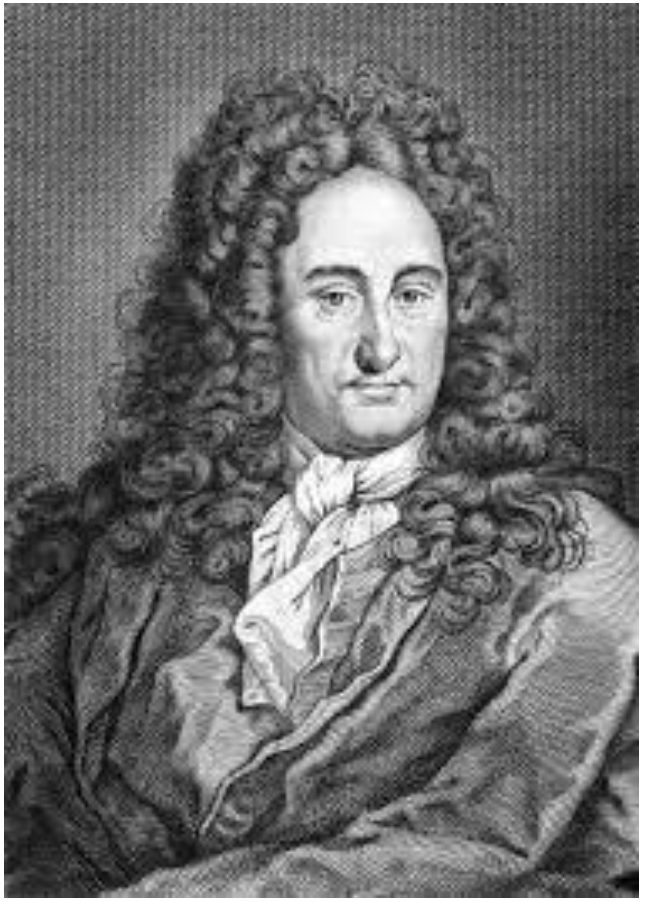



Empirische Politikwissenschaft

- Prof. Dr. Achim Goerres
- Anne-Kathrin Fischer, M.A.


Finanzmathematik

- Prof. Dr. Rüdiger Kiesel
- Björn Fischbach, M.Sc.

Warum sind wir hier?

1. **Abschluss** eines 3,5jährigen interdisziplinären Projektes an der Universität Duisburg-Essen (UDE)
2. **Interdisziplinäre Ausrichtung =** Finanzmathematik, Philosophie und Politikwissenschaft
3. **Einbettung an UDE =** Profilschwerpunkt Wandel von Gegenwartsgesellschaften
4. **Personalstruktur =** „3 Profs + 3 Doks“

Ziel des Vortrags = Bericht zu übergreifenden Befunden und Aktivitäten des Projekts (insb. 3 Doktorarbeiten)

Prof. Dr. Achim Goerres

These 1 von 5

Obwohl große Risiken wie der Klimawandel auf der ganzen Welt wahrnehmbar sind, gibt es nach wie vor keinen überzeugenden interdisziplinären wissenschaftlichen Ansatz zur ganzheitlichen Analyse dieser Risiken.

Strukturelle Ambivalenz von Risiko

Risiko = Ungewolltes Ereignis, das eintreten oder nicht eintreten kann (Definition in Anlehnung an Hansson 2005)

- Objektive Komponente des Risikobegriffs

  > Klimawandel als zu bewertende Familie von Ereignissen (Modelle bilden Zusammenstellung und Wahrscheinlichkeitsverteilungen nach)

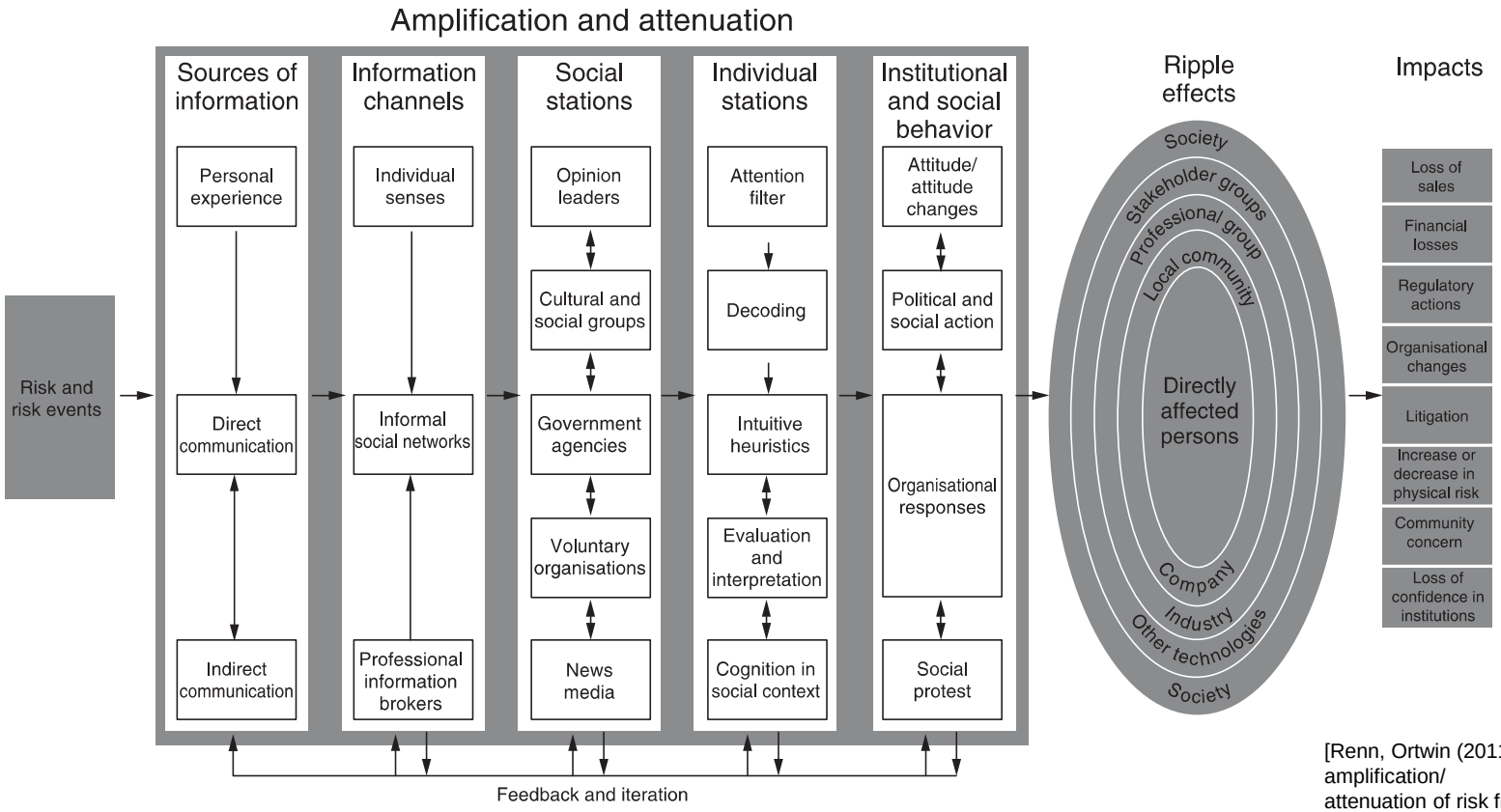
  > Abhängigkeit von technischem Fortschritt und Wissensstand

- Subjektive Komponente des Risikobegriffs

  > Persönliche Werte, persönliche Erfahrung, persönliches Verhalten etc.

  > Elemente der Klimawandelrisiken müssen als relevante Bereiche gelernt werden

Komplexität eines Universalmodels: Der „Social Amplification of Risk Framework“ (SARF)



[Renn, Ortwin (2011), The social amplification/
attenuation of risk framework:
application to climate change, 157]

Klimawandel
und
Politikwissenschaft

Anne-Kathrin Fischer, M.A.

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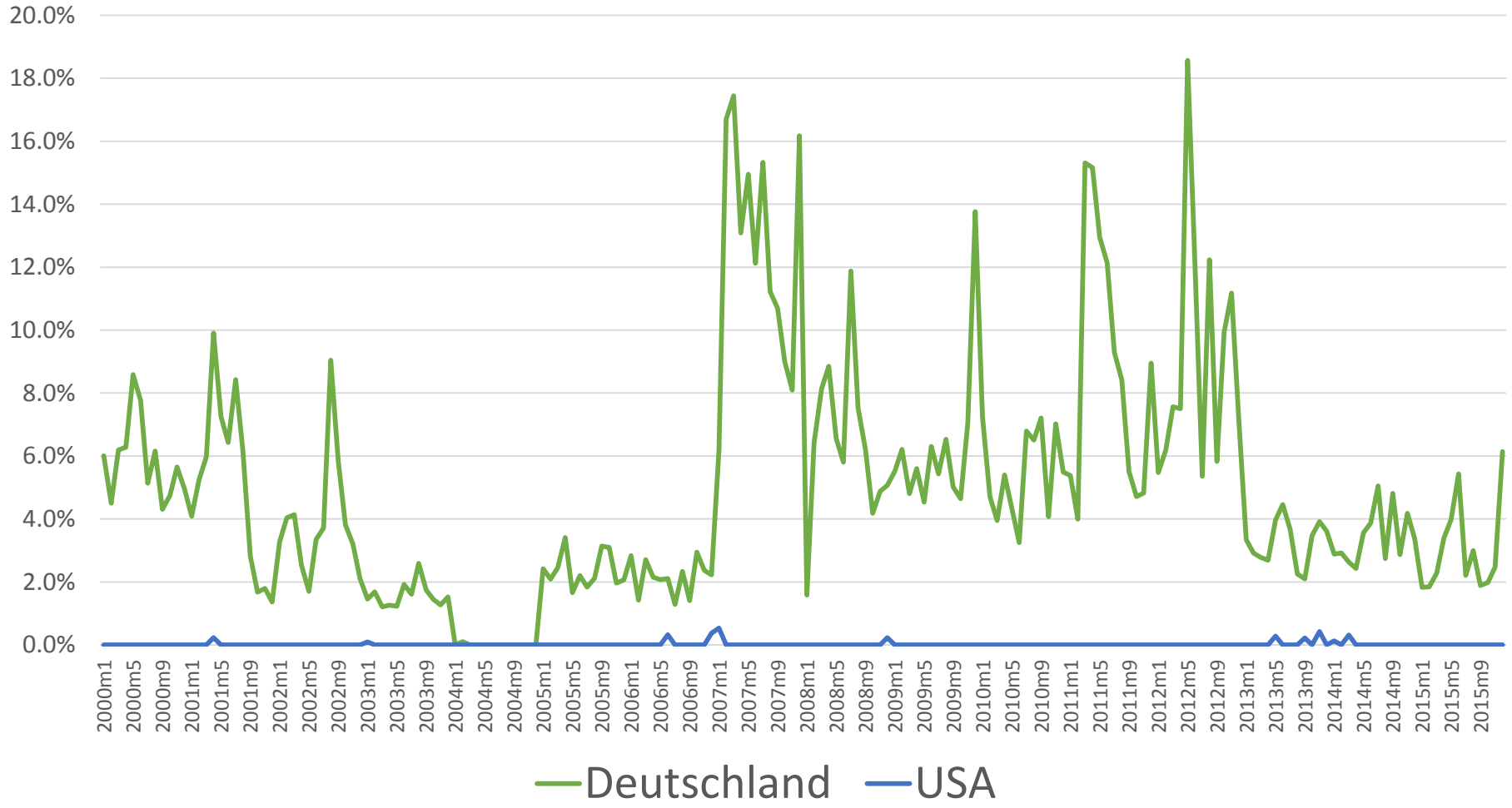
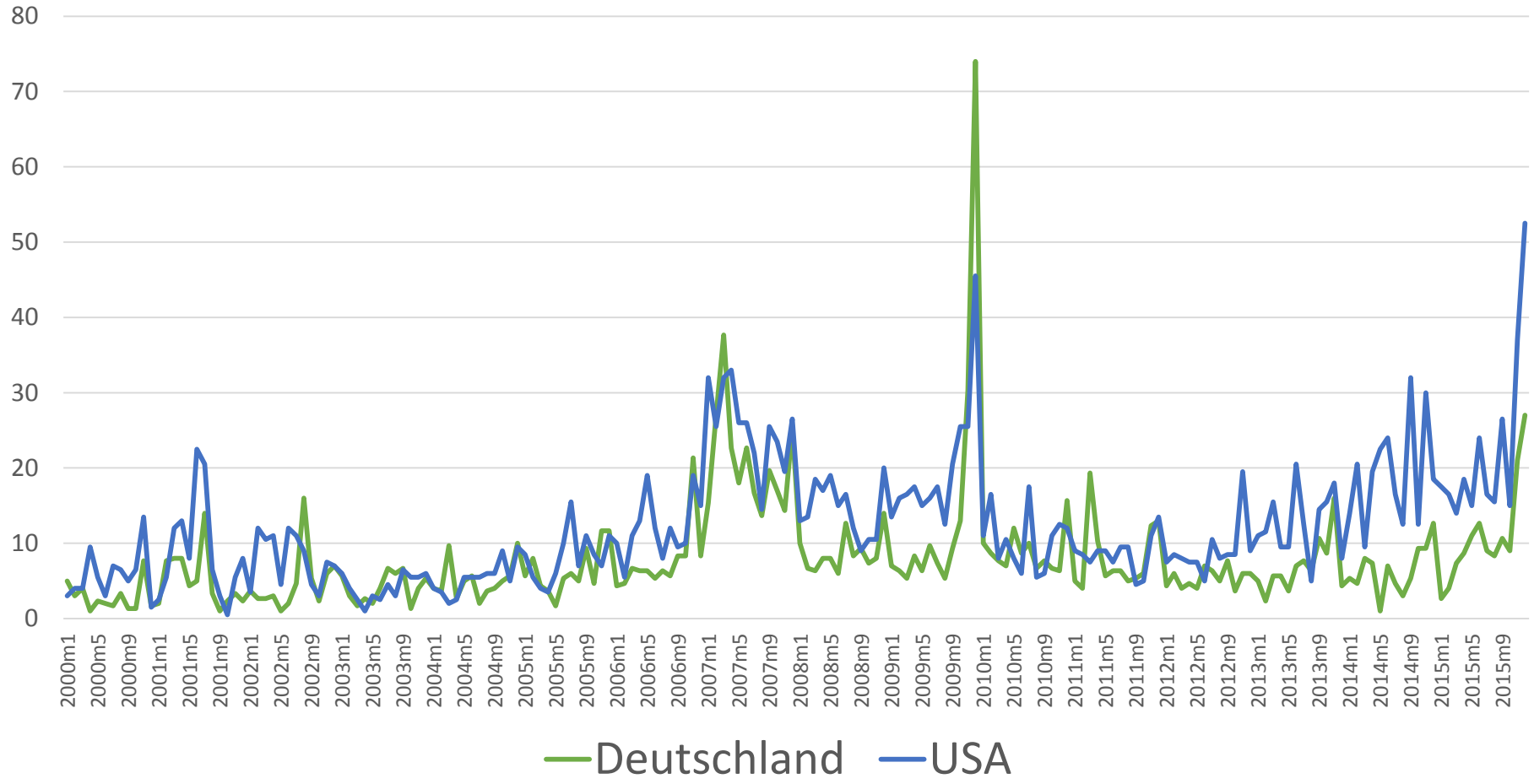
In Deutschland wirken sich sowohl mediale Berichterstattung als auch politisches Risikomanagement auf die öffentliche Wahrnehmung des Klimawandels aus. Die US-amerikanische Bevölkerung scheint für diese Determinanten nicht empfänglich.

Das Ausmaß der Sorge vor Klimawandel im Zeitverlauf



Zeitungsartikel mit dem Themenschwerpunkt “Klimawandel” (Durchschnittliche Anzahl pro Monat)



Determinanten der Wahrnehmung des Klimawandels

Ergebnisse der Zeitreihenanalyse von 1990-2015

Medieneffekt:

DE: Ein Anstieg im Umfang der Medienberichterstattung führt zu einer gesteigerten Problemwahrnehmung.

USA: Medienberichterstattung weist keinen signifikanten Effekt auf.

Politisches Risikomanagement:

DE: Politische Maßnahmen mildern die Sorge vor Klimawandel (dies gilt vor allem für den Zeitraum seit 2010).

USA: Politische Maßnahmen weisen keinen signifikanten Effekt auf.

Klimawandel
und
Philosophie

Ruben Langer, M.A.

These 3 von 5

Der Klimawandel zeigt

die Grenzen

etablierter normativer Theorien auf.

STIFTUNG

BIG RISKS
Interdisciplinary Research Group

PROFILSCHWERPUNKT
Wandel von Gegenwartsgesellschaften

UNIVERSITÄT DUISBURG ESSEN
Offen im Denken

Climate Change 2014
Synthesis Report
Summary for Policymakers

SPM

Introduction

This Synthesis Report is based on the reports of the three Working Groups of the Intergovernmental Panel on Climate Change (IPCC), including relevant Special Reports. It provides an integrated view of climate change as the final part of the IPCC's Fifth Assessment Report (AR5).

This summary follows the structure of the longer report which addresses the following topics: Observed changes and their causes; Future climate change, risks and impacts; Future pathways for adaptation, mitigation and sustainable development; Adaptation and mitigation.

In the Synthesis Report, the certainty in key assessment findings is communicated as in the Working Group Reports and Special Reports. It is based on the author teams' evaluations of underlying scientific understanding and is expressed as a qualitative level of confidence (from *very low* to *very high*) and, when possible, probabilistically with a quantified likelihood (from *exceptionally unlikely* to *virtually certain*)[1]. Where appropriate, findings are also formulated as statements of fact without using uncertainty qualifiers.

This report includes information relevant to Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC).

SPM 1. Observed Changes and their Causes

Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems. *{1}*

SPM 1.1 Observed changes in the climate system

Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen. *{1.1}*

Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. The period from 1983 to 2012 was *likely* the warmest 30-year period of the last 1400 years in the Northern Hemisphere, where such assessment is possible (*medium confidence*). The globally averaged combined land and ocean surface temperature data as calculated by a linear trend show a warming of 0.85 [0.65 to 1.06] °C[2] over the period 1880 to 2012, when multiple independently produced datasets exist (Figure SPM.1a). *{1.1.1, Figure 1.1}*

In addition to robust multi-decadal warming, the globally averaged surface temperature exhibits substantial decadal and interannual variability (Figure SPM.1a). Due to this natural variability, trends based on short records are very sensitive to the beginning and end dates and do not in general reflect long-term climate trends. As one example, the rate of warming over

[1] Each finding is grounded in an evaluation of underlying evidence and agreement. In many cases, a synthesis of evidence and agreement supports an assignment of confidence. The summary terms for evidence are: limited, medium or robust. For agreement, they are low, medium or high. A level of confidence is expressed using five qualifiers: very low, low, medium, high and very high, and typeset in italics, e.g., *medium confidence*. The following terms have been used to indicate the assessed likelihood of an outcome or a result: virtually certain 99–100% probability, very likely 90–100%, likely 66–100%, about as likely as not 33–66%, unlikely 0–33%, very unlikely 0–10%, exceptionally unlikely 0–1%. Additional terms (extremely likely 95–100%, more likely than not >50–100%, more unlikely than likely 0–<50%, extremely unlikely 0–5%) may also be used when appropriate. Assessed likelihood is typeset in italics, e.g., *very likely*. See for more details: Mastrandrea, M.D., C.B. Field, T.F. Stocker, O. Edenhofer, K.L. Ebi, D.J. Frame, H. Held, E. Kriegler, K.J. Mach, P.R. Matschoss, G.-K. Plattner, G.W. Yohe and F.W. Zwiers, 2010: Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties, Intergovernmental Panel on Climate Change (IPCC), Geneva, Switzerland, 4 pp.

[2] Ranges in square brackets or following '±' are expected to have a 90% likelihood of including the value that is being estimated, unless otherwise stated.

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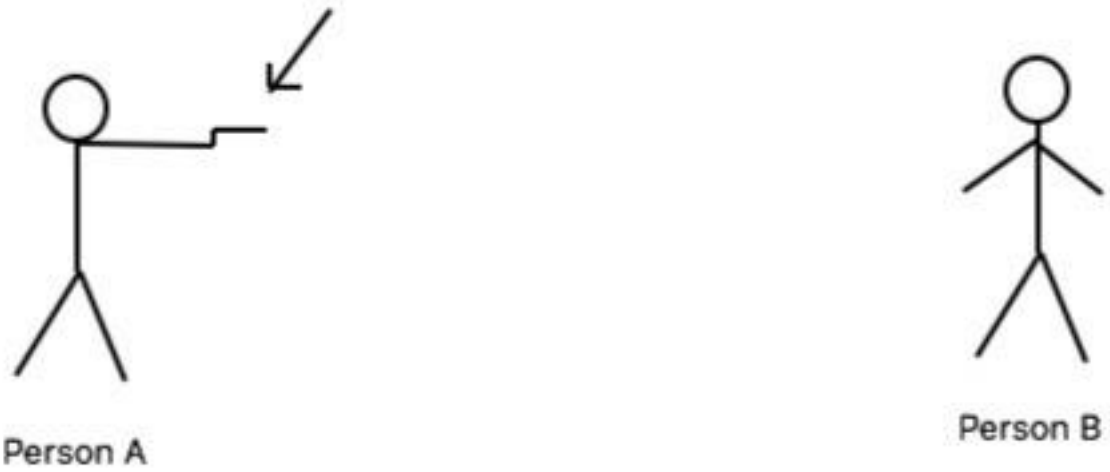
Ethik und Klimawandel

Ethik und Klimawandel

Revolver (6 Kammern, 1 Patrone)



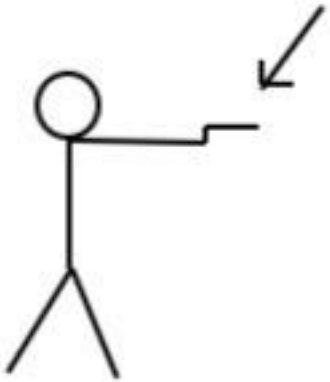
Ethik und Klimawandel

Revolver (6 Kammern, 1 Patrone)

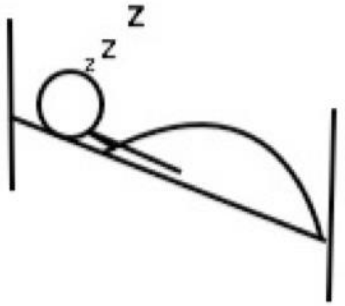
Annahme: Kein Schuss wird ausgelöst

Ethik und Klimawandel

Revolver (6 Kammern, 1 Patrone)



Person A



Person B

Annahme: Kein Schuss wird ausgelöst

Politische Philosophie und Klimawandel

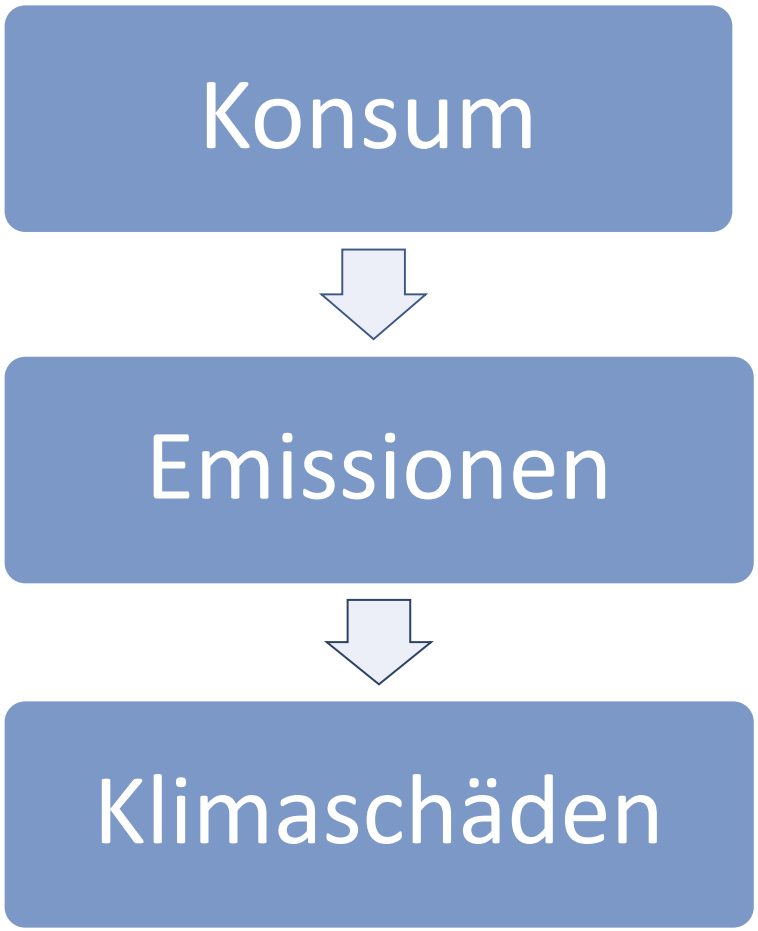
?

Klimawandel
und
Finanzmathematik

Björn Fischbach, M.Sc.

These 4 von 5

Die Unsicherheiten rund um den Klimawandel sind nicht zu leugnen und erfordern eine Bewertung die diesen Rechnung trägt. Modelle die Ambiguität mit einbeziehen führen daher zu einem wesentlich schärferen Bild und ermöglichen eine detailliertere Analyse der Klimarisiken.



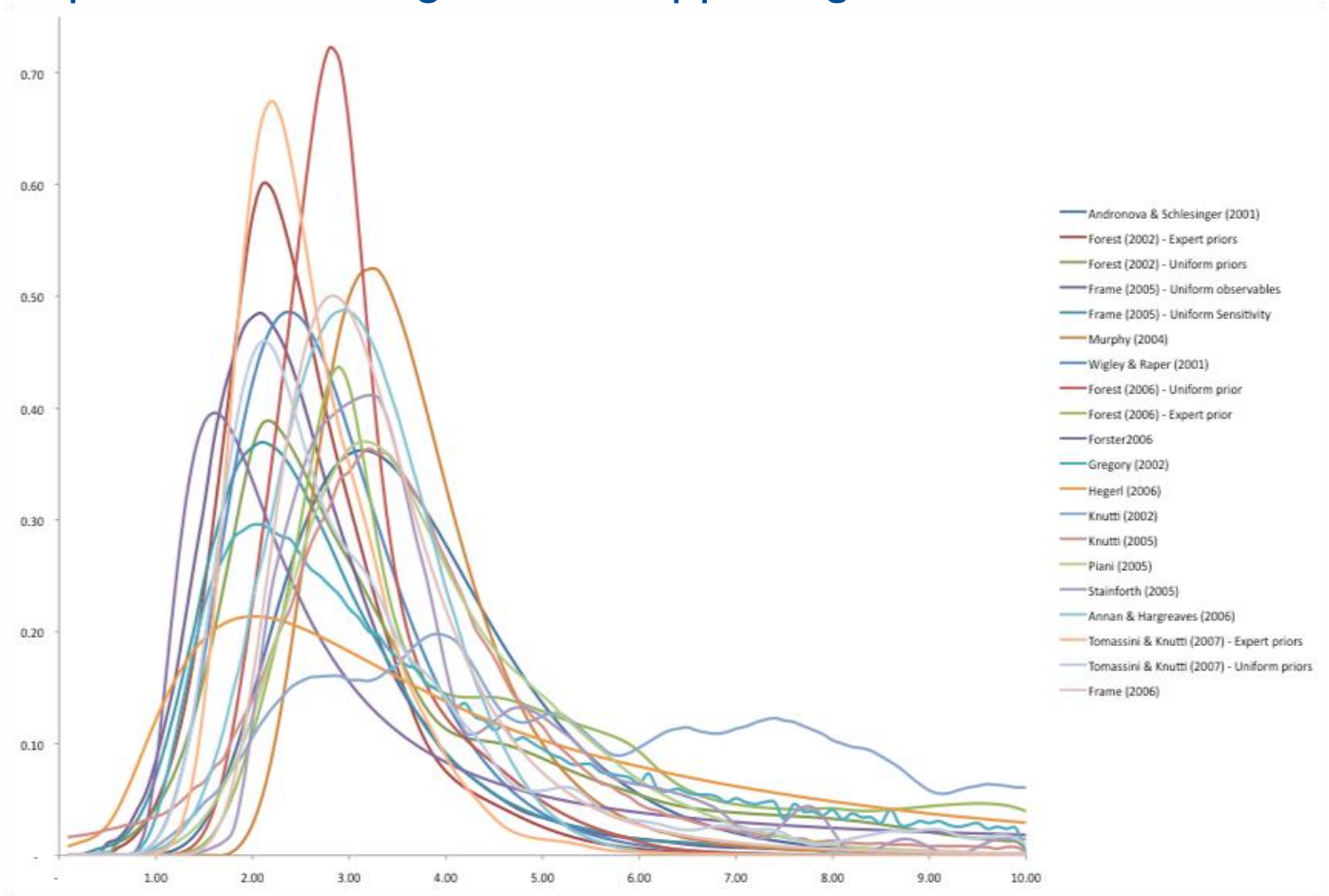
Integrated Assessment Models (IAM)

- Ökonomische Variablen: Wirtschaftswachstum, Weltbevölkerung, CO2-Ausstoß
- Klimamodell: Temperaturentwicklung, Meeresspiegel, Extreme Wetterereignisse
- Folgen: Ernteerträge, Lebenskosten, Arbeitsproduktivität, Energieverbrauch

Kosten-Nutzen Analyse > Nutzenfunktion

Klimasensitivität

- Temperaturänderung bei Verdoppelung der CO2-Konzentration



Eigenschaften der Nutzenfunktion und deren Folgen:

- Risikopräferenzen /Risikoaversion
- Zeitpräferenzen
- Ambiguitätsaversion

Ergebnisse:

- Höhere Risikoaversion führt zu höheren CO2-Preisen
- Höhere Zeitpräferenz führt zu sinkenden CO2-Preisen
- Höhere Ambiguitätsaversion führt zu höheren CO2 Preisen

Allgemein gilt: Die Modelle führen zu einem starken Anstieg der CO2-Preise die weit über den aktuell beobachtbaren Preisen am Markt liegen.

Klimawandel

und

Wie weiter?

Prof. Dr. Rüdiger Kiesel

These 5 von 5

Die Zukunft der wissenschaftlichen Auseinandersetzung mit Klimawandel als großes Risiko wird durch den Spezialisierungsdruck in den Disziplinen gebremst und verlangt große Forschungsgruppen, die sich interdisziplinäre Arbeit leisten können.

Interdisziplinarität bei „Big Risks“

- Zweigleisige Forschung:
  - Gemeinsame Fragestellungen (z. B. Phase 1 „Finding a common language“ -> Arbeitspapier)
  - Disziplinspezifische Forschung (z. B. Dissertationen, UNIKATE 52)

- Workshops als wichtige Orte für
  - Austausch innerhalb des Projekts
  - Austausch mit externen Risikoforschern

Interdisziplinarität bei „Big Risks“

- Interne Treffen zur Diskussion von Methoden und Begriffen
  - Datenanalyse (Anne-Kathrin)
  - Ambiguität (Björn)
  - Wahrscheinlichkeitstheorie (Ruben)

- Notwendigkeit der Zusammenarbeit von multidisziplinären Teams
  - „Kurze Wege“ zu fachfremder Expertise
  - „Institutionalisierte Irritation“ durch fachfremde Herangehensweise

Das Projekt „Big Risks“ wird ermöglicht durch die großzügige Unterstützung der

FUNK-Stiftung.

Politische Philosophie und Klimawandel

These 1: Notwendigkeit eines politischen Ansatzes

(*Agreement* vs. *Disagreement*)

These 2: Notwendigkeit

> Transnationaler demokratischer Institutionen

> Repräsentation zukünftiger Generationen