# ADFORISK

## Adaptation to climate change: Forest owner's risk attitude and perception

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**Context** — One of the main threat that forest owners face is represented by natural disturbances. The characteristics of these disturbances (occurrence, intensity) modify due to climate change, so that lots of uncertainty emerge concerning the impact, the occurrence, the damage, etc. Consequently, the forest owners have to take decisions as regard to adaptation to climate change under uncertainty. However, while the perception of the forest owners as regard to climate change has been integrated in the literature, the forest owner's attitude towards risk and uncertainty has never been considered when dealing with adaptation strategies.

**Objectives** — In this context, our objective is to provide a measurement of the forest owners' risk and uncertainty attitudes, and to observe the role of these estimated coefficients on the decision to adapt (or not) and on the type of adaptation strategies implemented.

**Approach** — For that purpose, we establish a common questionnaire for French and German private forest owners, that will be send by mail. It is composed of questions designed to measure their attitude towards risk and uncertainty. A classical approach from experimental economics will be used based on lottery choices (Brunette, Foncel, Kéré, 2017). Questions related to adaptation strategies will be the second part of the questionnaire.

**Key results** — We begin the project by looking at the existing literature on that point. Then, a first work, not forecasted in the context of the project, has emerged. We write a literature review entitled "*Economic Perspective of Adaptation to Climate Change in Forestry: a Multiple Correspondence Analysis*". In this paper, we propose a systematic review using a statistical analysis based on Multiple Correspondence Analysis to identify which variable were found in combination with each other in the literature and make distinct groups affecting adaptive decisions.

We recognize three groups of variables that we labeled: i) profit and production, ii) microeconomic risk handling, and iii) decision and behavior. The first group includes economic costs and benefits as the driver of adaptation and prioritizes simulation, and a mix of theoretical and empirical economic approach. The second group distinctly involves risk-related issues, in particular its management by adaptation. The third group gathers a large set of social and behavioral variables affecting management decisions collected through questionnaire.

**Main conclusions including key points of discussion** — We identify gaps in the literature, especially concerning the impact of forest owner's attitudes towards risk and uncertainty on adaptation decision, the fact that adaptation often reduced to try to adapt to the increasing risk of wildfire or the existence of a regional bias (*i.e*,. most of the papers focus on northern countries).

**Future perspectives** — We are currently working on the preparation of the questionnaire. The first part dedicated to the measurement of the attitudes of the forest owner's as regard to risk and uncertainty is almost ready. The second part is under construction. The questionnaire will be send in 2018 to French private forest owners (in the PNR Ballon des Vosges, through the project PSDR AFFORBALL). The German colleagues are currently looking for the better way to spread the questionnaire among the forest owners of the Bade-Wurtemberg.

**Valorisation** —

Marc Hanewinkel. “The Socio-Economics of Forest Adaptation to Climate Change”. LEF Biennal Workshop, June 2016.

Brunette M., Bourke R., Yousefpour R., Hanewinkel M. (2017). Economic Perspective of Adaptation to Climate Change in Forestry: a Multiple Correspondence Analysis.