Essays on the Economics of Risk and Uncertainty

This thesis consists of four research papers organized in three chapters. All of them have been written while Loïc Berger was in “cotutelle” between the Université libre de Bruxelles and the Toulouse School of Economics between 2008 and 2012. While each of them is self-contained, the papers share a unifying methodological theme, which is the study of choices and decisions under uncertainty. To be more precise, they explore the effect of a particular type of uncertainty known as ambiguity, or Knightian uncertainty. More specifically, the notion of ambiguity described in this thesis refers to situations in which decision makers do not know which of several plausible probability models correctly describes an economic risk. The economic models presented here therefore depart from the standard model of decision making under risk in allowing economic agents to be sensitive – and usually reluctant – to the presence of ambiguity as suggested by Ellsberg (1961).

The economic applications considered in this thesis are threefold. The first chapter, entitled Smooth ambiguity aversion in the small and in the large, is purely theoretical, and aims to quantify the effect of ambiguity and ambiguity aversion on the welfare of economic agents.

The second chapter, entitled Two-period self-insurance and self-protection models, studies self-insurance and self-protection models, which are tools used to deal with the uncertainty of facing a monetary loss when market insurance is not available (in the self-insurance model, the decision maker has the opportunity to furnish an effort to reduce the size of the loss occurring in the bad state of the world, while in the self-protection – or prevention – model, the effort reduces the probability of being in the bad state). This chapter puts together two distinct papers entitled Two-period self-insurance and self-protection models under risk, and Does ambiguity aversion raise the optimal level of effort? The first one deals with the extension of traditional one-period self-insurance and self-protection models to a two-period framework. The second paper considers the introduction of ambiguity in these two-period models.

Finally, the third chapter, Ambiguity Aversion and Treatment Choices, considers how the presence of ambiguity and ambiguity aversion modifies treatment decisions in an economic model of health care.