



The Value of Weather Risk Under Ambiguity, Insurance and Self-Protection

Yang-Che Wu

Department of Finance, College of Finance, Feng Chia University,

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A B S T R A C T

The weather-sensitive industries exhibit large differences in revenue between normal and bad years. This study develops a two-state model to formulize the value of weather risk (VWR) based on maximizing individual revenue. Large VWR is worth investing more in disaster risk reduction. The analytic expression of VWR measures the optimal tradeoff between input reduction (decreasing future revenue) and risk reduction (decreasing possible loss). As risk ambiguity and decision maker's ambiguity aversion increase, VWR will increase. The use of insurance or self-protection can decrease VWR under concave revenue functions, but is inefficient under convex ones. We further generalize the model to evaluate the average VWR of all individuals, or apply it to compute other disaster risk value.

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