

Risk Problems Identifying the Optimal Pollution Level

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Abstract

The evaluation of the Benefit Area (BA) is essential in Environmental Economics. The Associated Risk, evaluating the BA, is source to various factors. The main ones we believe are:

- Model fitting
- Parameter Estimation
- Collected Data problems

The uncertainty of the Model fitting can be reduced by choosing the appropriate approximations for the abatement function (MAC) and damage function (MD).

The parameter estimation problems can be examined by estimating the appropriate confidence intervals. Therefore there is an interest to reduce the Risk on identifying the optimal pollution level.

The target of this paper is to identify the optimal pollution level for various cost functions.

Halkos and Kitsos (2005) work assuming linear, quadratic and exponential cost functions. The problem of evaluating numerically the exponential case was discussed by them.

In this paper the work of Halkos and Kitsos (2005) is extended assuming as abatement function (MAC) a linear one and as damage function (MD) a quadratic function i.e.:

$$MD: f(\chi) = \gamma_0 + \gamma_1\chi + \gamma_2\chi^2$$

$$MAC: h(\chi) = \beta_0 + \beta_1\chi$$

Various sub cases are discussed and the necessary conditions for the existence of the BA are evaluated.

Keywords Benefit area, associated risk, abatement function, damage function, model fitting.

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