



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Excluded Losses and the Demand for Insurance

SCC-76

March 19-21, 2009

Donald J. Meyer
Department of Economics
Western Michigan University
Kalamazoo, MI 49008
donald.meyer@wmich.edu

Jack Meyer
Department of Economics
Michigan State University
East Lansing, MI 48824
jmeyer@msu.edu

Small Losses

Independent Losses

Excluded Losses

Homeowner's Insurance: damage due to flood

Life insurance: death due to suicide

Product warranty: damage caused by tampering

Crop insurance: "not following good agricultural practices"

Two properties

1. unreimbursed
2. When an excluded loss occurs,
a covered loss does not occur, and vice versa

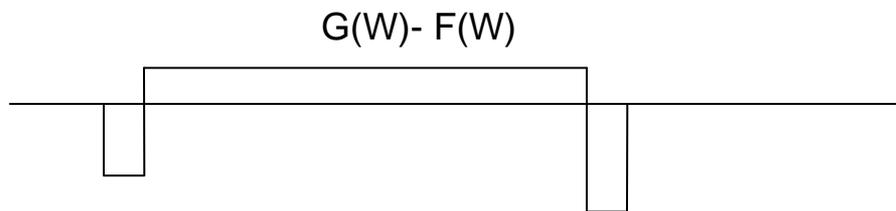
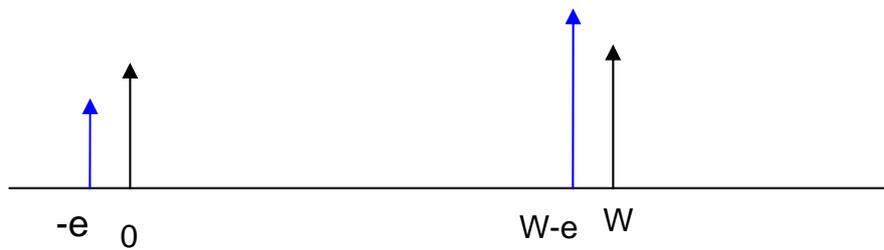
Let x_1 denoted a cover loss and x_2 an excluded loss

$$\alpha \cdot f_1(x) \text{ for } (x_1, x_2) = (x, 0) \text{ for all } x \text{ in } [0, b]$$

$$g(x_1, x_2) = (1 - \alpha) \cdot f_2(x) \text{ for } (x_1, x_2) = (0, x) \text{ for all } x \text{ in } [0, b]$$

$$0 \text{ for } (x_1, x_2) = \text{all other values in } [0, b] \times [0, b]$$

$$g(x_1, x_2) = h_1(x_1) \cdot h_2(x_2)$$



$$W = W_0 + V - x_1 + \theta(I(x_1) - P)$$

$$Eu(W) = \int_0^b u(W_0 + V - x_1 + \theta(I(x_1) - P))f_1(x_1)dx_1$$

$$W = W_0 + V - x_1 - x_2 + \theta(I(x_1) - P)$$

$$\begin{aligned}
Eu(W) = & \iint_{0 \leq x_1 \leq b, x_2 = 0} u(W + V - x_1 - x_2 + \theta(I(x_1) - P))g(x_1, x_2) \\
& + \iint_{0 \leq x_2 \leq b, x_1 = 0} u(W + V - x_1 - x_2 + \theta(I(x_1) - P))g(x_1, x_2) \\
& + \iint_{0 < x_1, 0 < x_2} u(W + V - x_1 - x_2 + \theta(I(x_1) - P))g(x_1, x_2)
\end{aligned}$$

$$\begin{aligned} \text{Eu}(W) = & \int_0^b u(W_0 + V - x_1 + \theta(I(x_1) - P)) \alpha \cdot f_1(x_1) dx_1 \\ & + \int_0^b u(W_0 + V - x_2 - \theta \cdot P)(1 - \alpha) f_2(x_2) dx_2 \end{aligned}$$

$$\frac{dEu(W)}{d\theta} = \int_0^b u'(W_0 + V - x_1 + \theta(I(x_1) - P))(I(x_1) - P)\alpha \cdot f_1(x_1)dx_1$$

$$+ \int_0^b u'(W_0 + V - x_2 - \theta \cdot P)(-P)(1 - \alpha)f_2(x_2)dx_2 = 0$$

Theorem 1: When excluded risks are present and full insurance is offered at an actuarially fair price, all risk averse decision makers choose less than full insurance.

Theorem 2: When excluded risks become larger, that is as α decreases, the decision maker chooses less insurance.