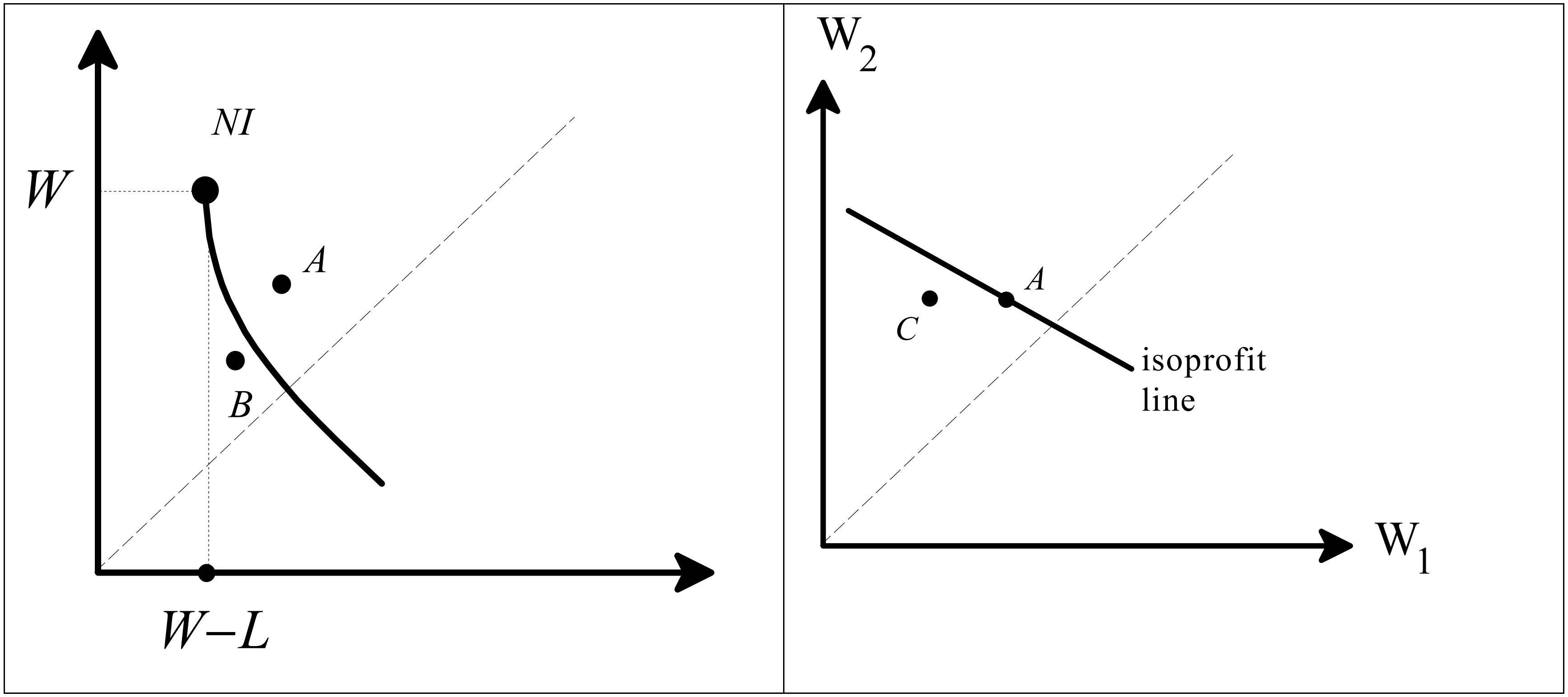
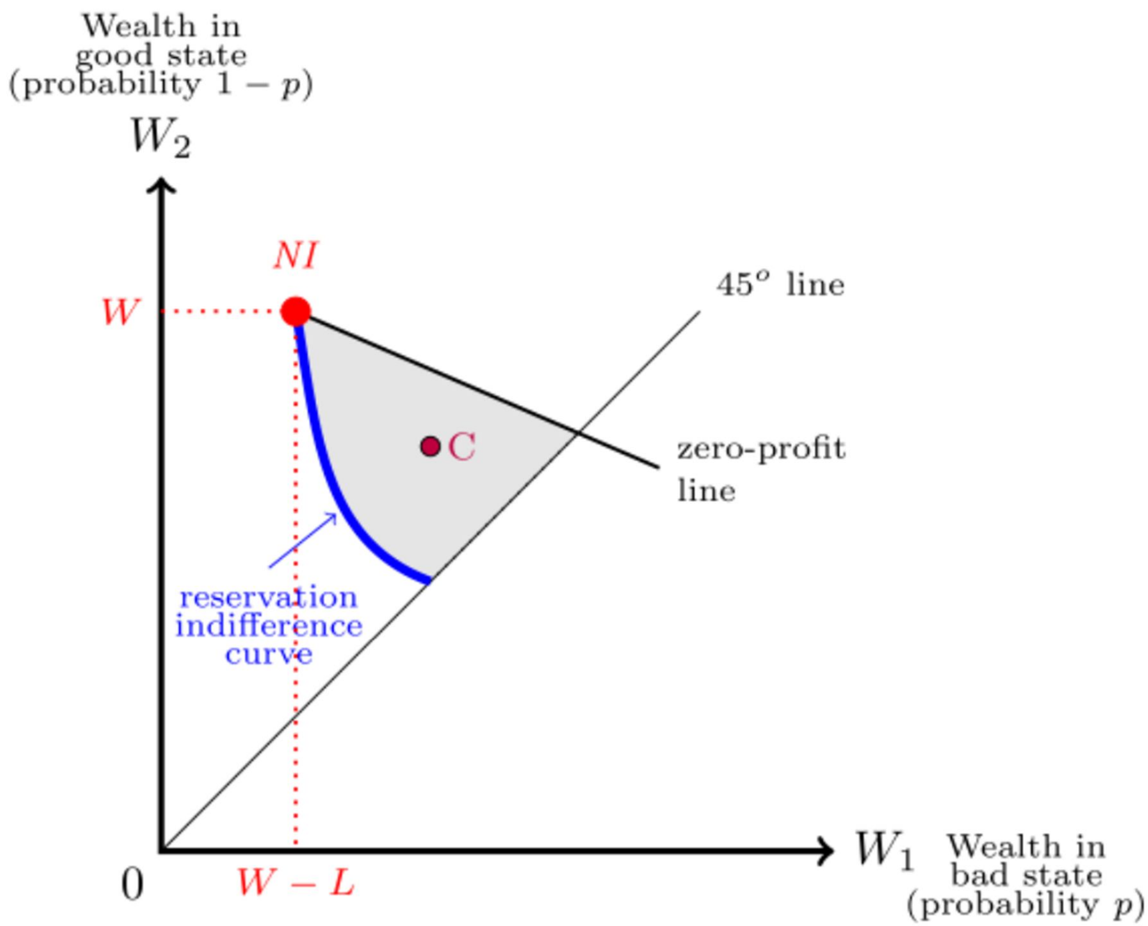
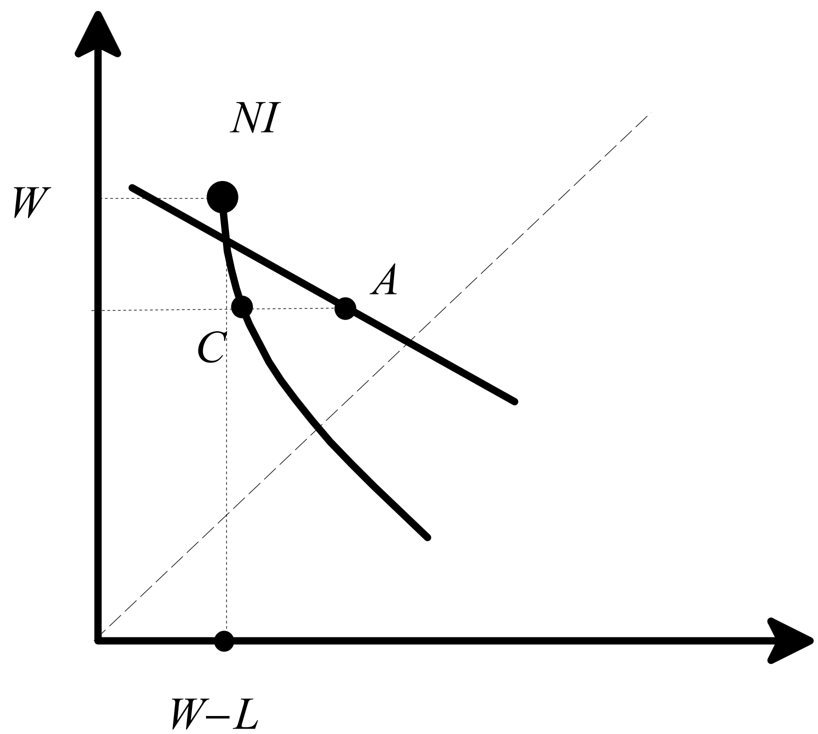
1. Suppose the insurance industry is a monopoly



So we must exclude points that are below the indifference curve that goes through NI, called the **reservation indifference curve,** and exclude all those that are above the zero-profit line. The only observable contracts are:



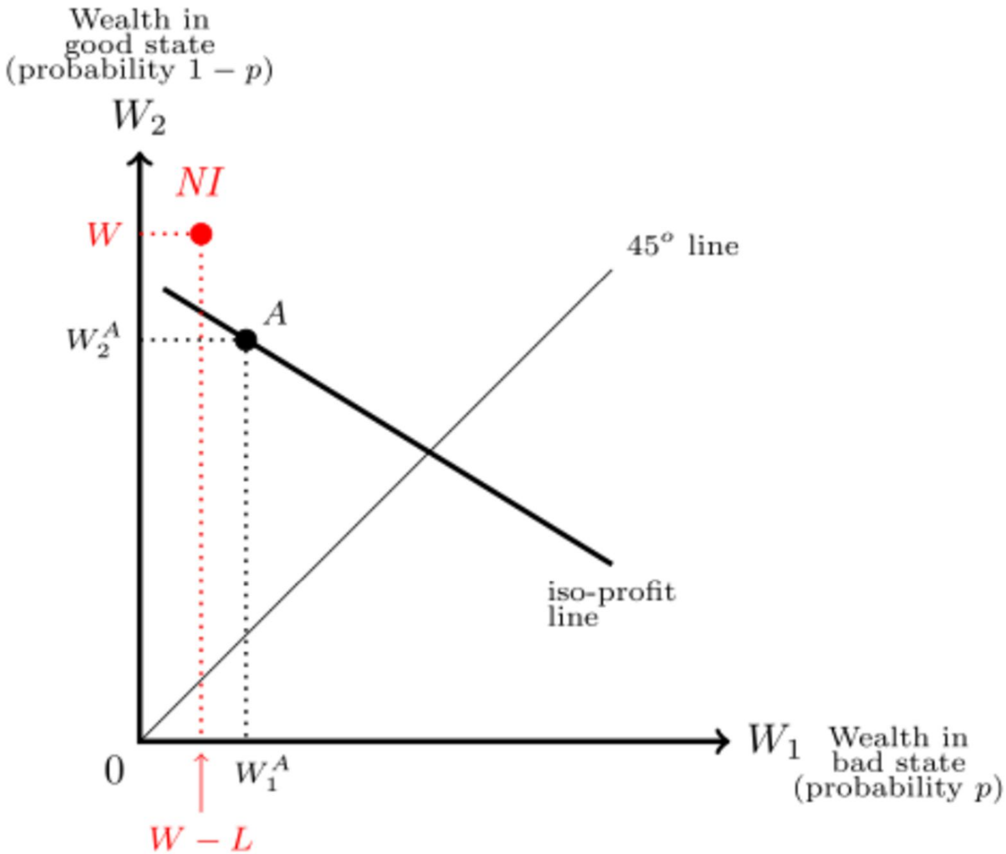
A monopolist will try to make the consumer pay as much as possible and thus will offer a contract which is **on** the reservation indifference curve and not above it.



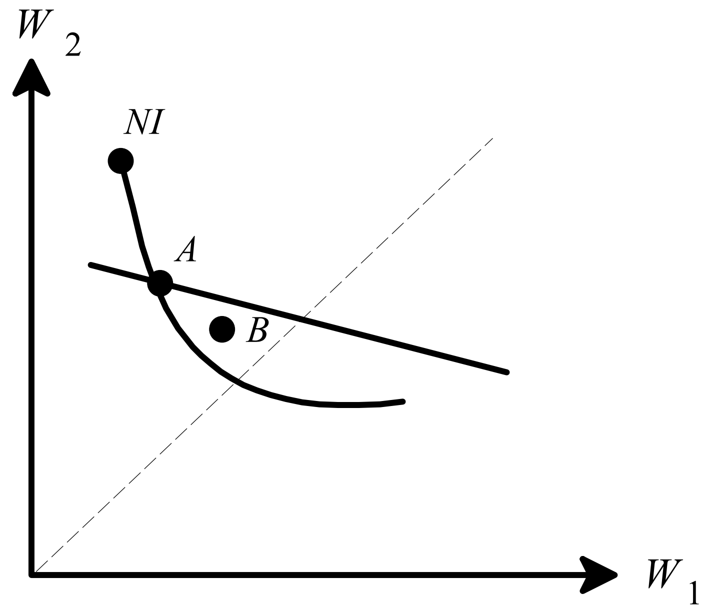
Reminder:

The absolute value of the slope of the indifference curve that goes through point $A = \left(W_1^A, W_2^A\right)$ is

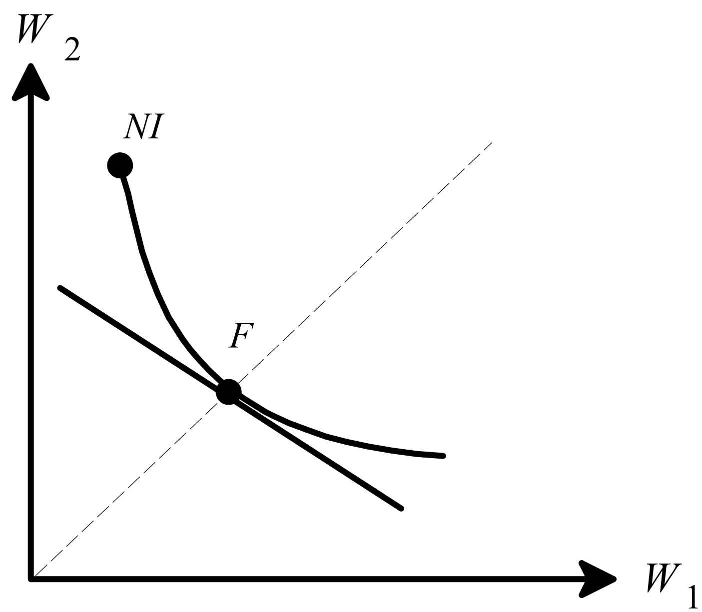
$$\frac{p}{1-p}\frac{U'(W_1^A)}{U'(W_2^A)}$$

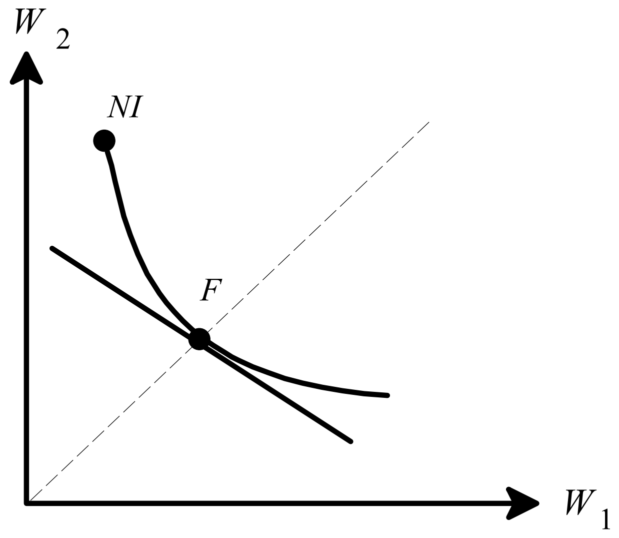


Contract *A* on the reservation indifference curve cannot be profit-maximizing because …



The only contract on the reservation indifference curve where this cannot happen is the contract at the intersection of the reservation indifference curve and the 45° line: contract *F* below:



	Let W_F be the horizontal (and vertical) coordinate of point *F*. $W_F =$ (1) $U(W_F) =$ (2)

$NI = \left(\quad \right)$ Expected **value:**

$\mathbb{E}[NI] =$ Then from the definition of risk premium,

(3)

Thus from (1)-(3) we get that

, that is, $\boxed{h_F = pL + R_{NI}}$

Thus the monopolist will offer a full-insurance contract with premium equal to expected loss + risk premium of *NI*.

For example, if $W = 1{,}600$, $L = 700$, $p = \frac{1}{10}$ and $U(\$m) = \sqrt{m}$ then h_F is given by the solution to

which is $h_F =$ Since $pL =$

it follows that $R_{NI} =$

2. Suppose the insurance industry is perfectly competitive

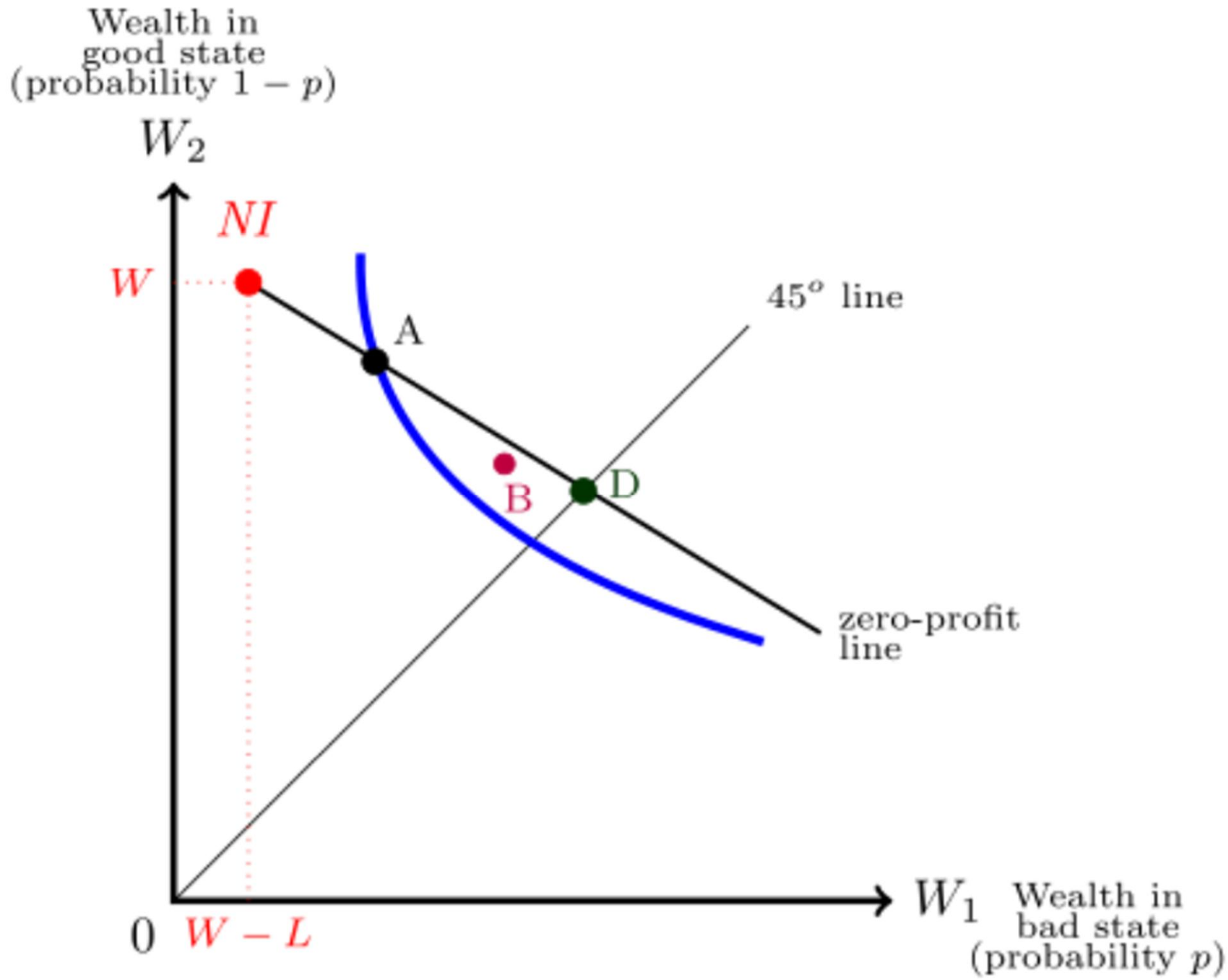
A contract that yields zero profit is called a **fair contract** and the zero profit line is called the **fair odds line**. Recall that the zero profit line is the straight line that goes through the No Insurance point and has slope $-\frac{p}{1-p}$.

Define an equilibrium in a competitive insurance industry as a situation where

(1) every firm makes zero profits and

(2) no firm (existing or new) can make positive profits by offering a new contract.

By the zero-profit condition (1), any equilibrium contract must be on the zero-profit line.


Wealth in
good state
(probability $1-p$)
W_2
NI
W
A
45^o line
B
D
zero-profit
line
W_1
Wealth in
bad state
(probability p)
0
$W-L$

$d_D = 0$ and $h_D =$

CHOOSING FROM A MENU OF CONTRACTS

1. Finite menu of contracts

$W = 900,\ L = 700,\quad p = \frac{1}{50}\ ,\quad U(m) = \sqrt{m}$

	premium	*deductible*
A	90	0
B	60	100
C	55	500

$\mathbb{E}[U(A)] =$

$\mathbb{E}[U(B)] =$

$\mathbb{E}[U(C)] =$

$\mathbb{E}[U(NI)] =$

2. A continuum of contracts

Again $W = 900,\ L = 700,\quad p = \frac{1}{50}\ ,\quad U(m) = \sqrt{m}\ ,\quad B = \left(h_B = 60,\ d_B = 100\right).$

The profit from contract *B* is

$\pi(B) =$

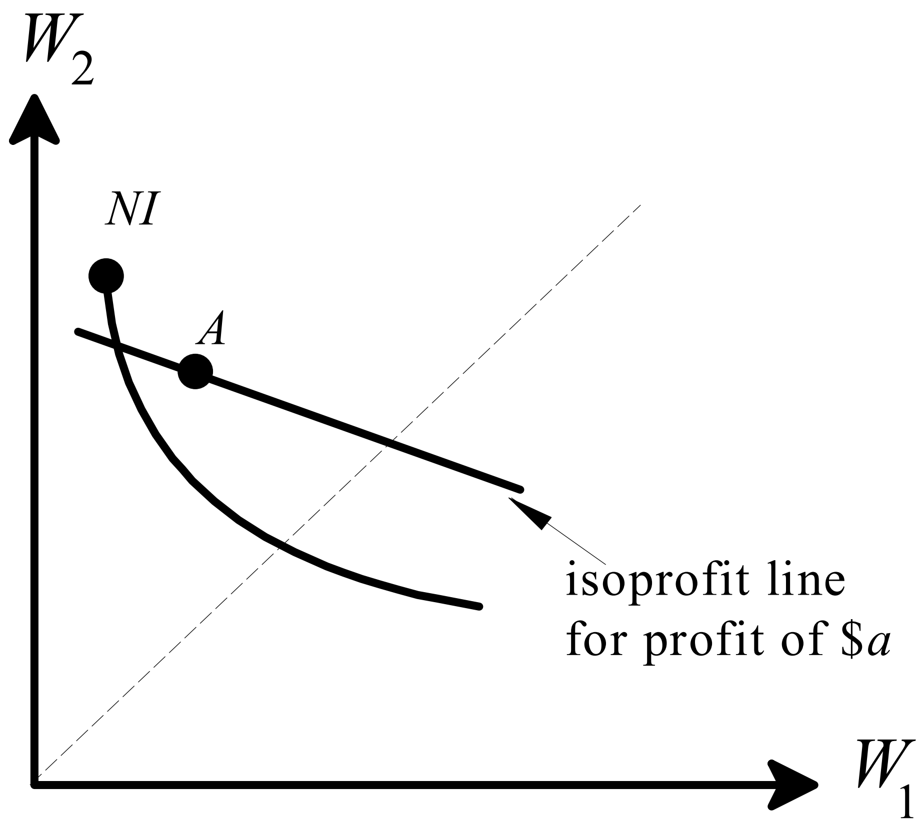
Suppose that the insurance company tells the consumer that she can choose any other contract that guarantees a profit of $48 to the insurer,

$h(d) =$

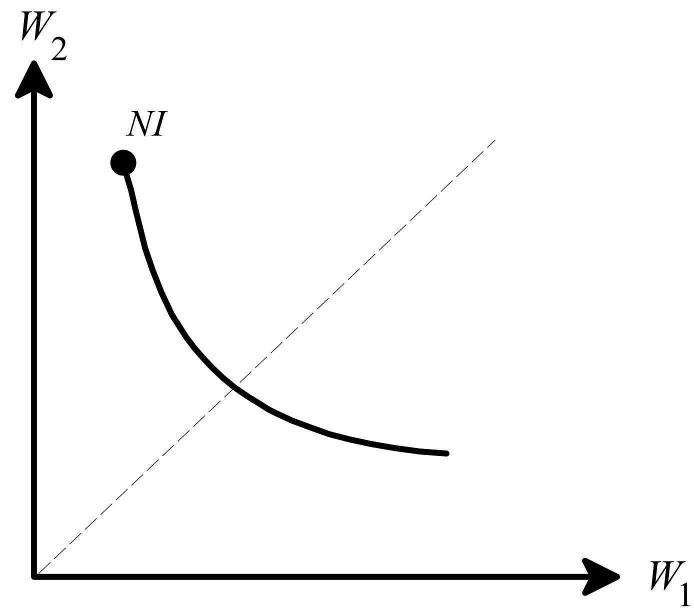
Examples: $h(50) = 61,\ h(100) = 60$ (this is contract *B*), $h(150) = 59,\ \ h(200) = 58$

Will the consumer still choose contract $B = \left(h_B = 60,\ d_B = 100\right)$?

By the familiar slope argument…



Of course, there is also the possibility that there is no point on the isoprofit line that is better than no insurance, as in the following picture:



This happens if the premium that corresponds to the full-insurance contract on the isoprofit line is larger than the maximum premium that the consumer is willing to pay for full insurance, which we know is equal to