Insurance Participation and Adverse Selection

TheoryGuru applications

Background

As various individual-market health-insurance regulations were changed, policy analysts asserted that the consumers on the margin of ACA plans were subsidizing the plans (paying more in premiums than their expected claims and administrative costs). This assertion is sometimes called "adverse selection" and is difficult to reconcile with the fact that people were turning down free (or negative cost) ACA plans.

Examples of the regulations under consideration: the "individual mandate," short-term limited-duration insurance, association health plans, and autoenrolling consumers in ACA plans.

Here these relationships are investigated by machine in a model that allows for various insurance-market frictions. See also the Appendix of CEA's report on Deregulating Health Insurance Markets.

Setup

In[1]:= **`Get@"http://economicreasoning.com"`**

Proof & Logic Tools 6.3

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Type `ERCommands` for a list of commands in the package.

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Insurance participation is not a zero sum game.

The sign can go either way, with admin costs and dwcs making the sign negative and valueofinsurance (e.g., risk aversion) making it positive.

> *hassle* is a nonpecuniary cost of participation. E.g., stigma would fit in this category.

In[2]:= `ParticipationCosts = hassle + netpremium + dwcofsubsidy;`

In[3]:= `ParticipationBenefits = claims - uncompcare + valueofinsurance;`

Other definitions

In[4]:= `grosspremium = netpremium + subsidy;`

In[5]:= `VoluntaryParticipant = ParticipationBenefits ≥ ParticipationCosts;`

In[6]:= `WouldTakeFreeInsurance = VoluntaryParticipant /. netpremium | dwcofsubsidy → 0;`

In[7]:= `ParticipationisSubsidized = netpremium < admin + claims;`
```
(* if this describes the marginal plan participant,
then plan selection is not adverse on the margin *)
```

In[8]:= `SignConditions = {0 < dwcofsubsidy < subsidy, claims ≥ uncompcare ≥ 0, netpremium ≥ 0,`
    `hassle ≥ 0, admin > 0, valueofinsurance ≥ 0, grosspremium > admin};`

Results

Nonparticipation by itself does not indicate subsidy status

In[9]:= `TheoryGuru[{SignConditions, Not@VoluntaryParticipant},`
    `Not@ParticipationisSubsidized]`

Out[9]= `True for some, False for others`

When consumers are turning down free or subsidized plans, the value of insurance can be bounded from above

In[10]:= `TheoryGuru[{SignConditions, Not@VoluntaryParticipant,`
    `ParticipationisSubsidized},`
    `admin + dwcofsubsidy + hassle + uncompcare > valueofinsurance]`

Out[10]= `True`

The adverse selection case can be guaranteed by bounding the value of insurance from below

```
In[11]:= TheoryGuru[{SignConditions, Not@VoluntaryParticipant,
        valueofinsurance ≥ admin + dwcofsubsidy + hassle + uncompcare},
      Not@ParticipationisSubsidized]
```

Out[11]= True

With free insurance, there cannot be adverse selection (as defined above)

```
In[12]:= TheoryGuru[{SignConditions, Not@VoluntaryParticipant,
        netpremium == 0},
      Not@ParticipationisSubsidized]
```

Out[12]= False

Hassle is required to explain turning down free insurance

```
In[13]:= TheoryGuru[{SignConditions, Not@VoluntaryParticipant,
        Not@WouldTakeFreeInsurance},
      hassle > 0]
```

Out[13]= True

i.e., without nonpecuniary "hassle" costs, free insurance would be taken up. But if free insurance were taken up, there could still be hassle costs.

```
In[14]:= TheoryOverlap[{SignConditions, Not@VoluntaryParticipant},
      WouldTakeFreeInsurance,
      hassle == 0]
```

Out[14]= $\text{claims} - \text{uncompcare} + \text{valueofinsurance} \geq \text{hassle}$ is necessary but not sufficient for hassle = 0