The Effect of Quality Information on Consumer Choice of Health Plans: Evidence from the Buyers Health Care Action Group

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Defining “Health plan quality”

- Provider quality
  - Adherence to best practices
  - Consumer perception of medical treatment
- Administrative quality
  - Coverage decisions
  - Claims paid
  - Pre-authorization

Research Questions

- What factors lead employees to search for information on quality when selecting a health plan?
- What effect does this information have on the decisions of employees to switch health plans?

Health Plan Choice

Expected Utility Model:

$$U_{ij} = \alpha P_{ij} + \beta Q_{ij} + v_{ij}$$

$$where \quad P = premium \quad of \quad j^{th} \quad plan$$

$$Q = quality \quad of \quad j^{th} \quad plan$$

Decision-maker will choose plan j if:

$$\alpha(P_{ij} - P_{ik}) + \beta E(Q_{ij} - Q_{ik}) > (v_{ik} - v_{ij}) \; \forall \; k \neq j$$

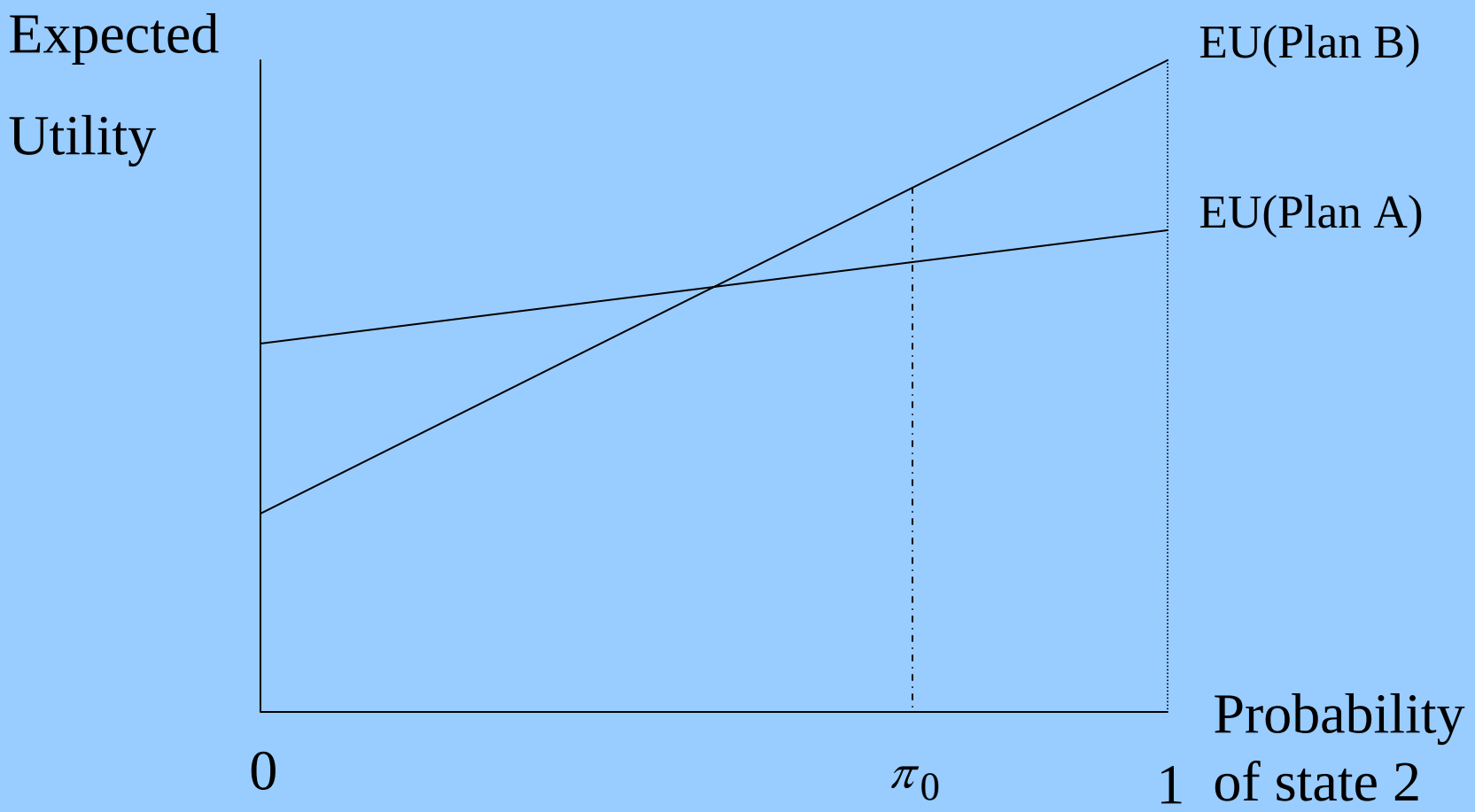
Conceptual Model Basics

- An individual has several health plans from which to choose
- Choice is made based on imperfect information
- Different “states of the world” with respect to health plan quality
- Individual can search for information and receive “messages” regarding plan quality
- Individual generates a set of posterior beliefs on which she makes her final decision

Model Illustration

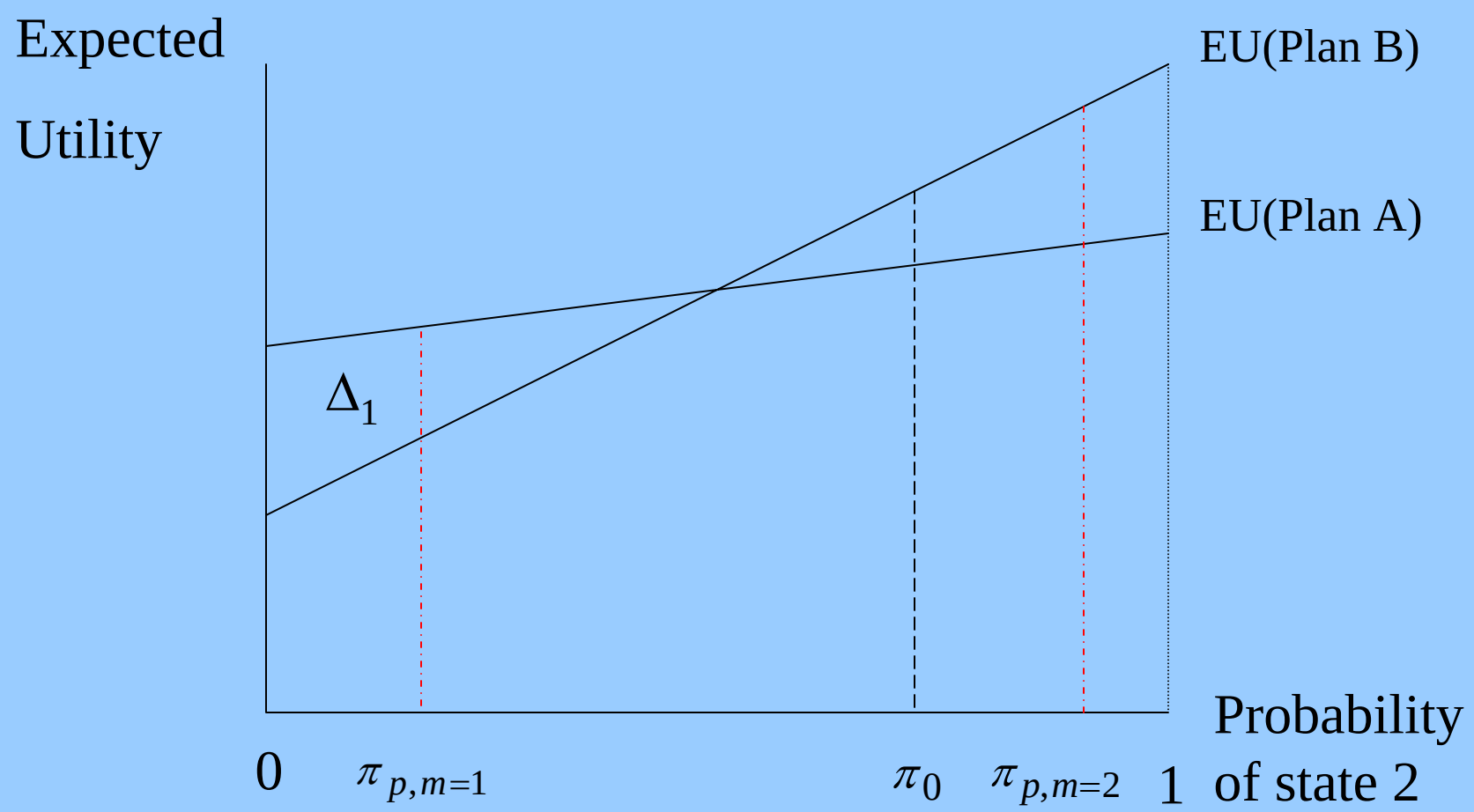
- Assumptions
  - Two plans: A and B
  - Two quality levels: high and low
  - Two "states of the world"
    - State 1: Plan A – High quality and Plan B - Low quality
    - State 2: Plan A – Low quality and Plan B – High quality
- Individual is enrolled in Plan B in period t and is now considering her enrollment decision for t+1
- Individual has initial set of beliefs regarding probability of each state
- EU of each plan is an average of the quality levels (Q), weighted by the probabilities of each state

Initial set of beliefs:



Model Illustration

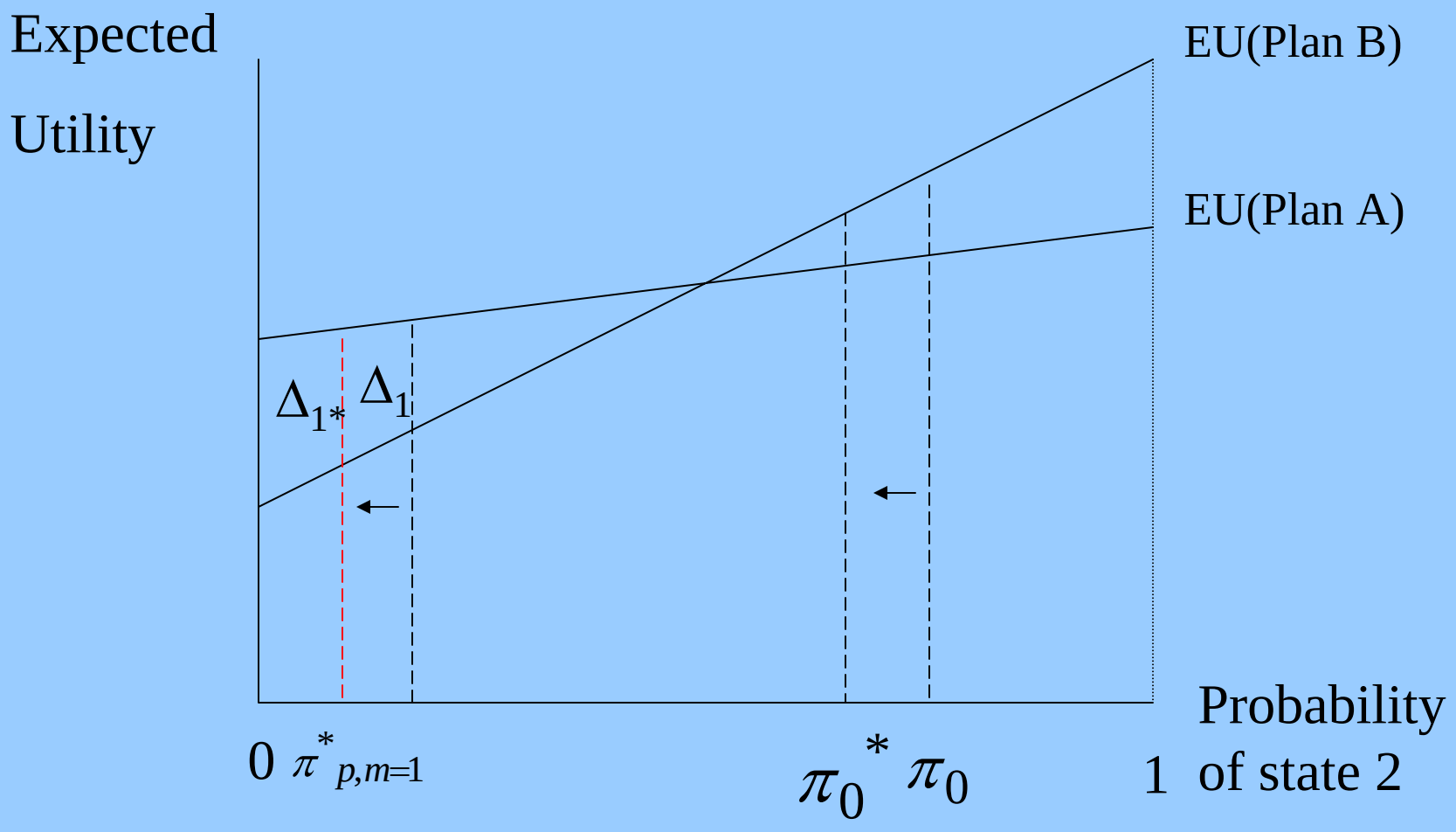
- Search for information
  - Receives one of two possible messages
    - m=1: State 1 is true
    - m=2: State 2 is true
- Posterior probabilities regarding states: $\pi_{p,m}$
- Expected value of information
  - Probability of receiving each message
  - Value of each message
    - Gain in EU from switching to a better choice after the message is received


Expected
Utility
EU(Plan B)
EU(Plan A)
Δ_1
0
$\pi_{p,m=1}$
π_0
$\pi_{p,m=2}$
1
Probability
of state 2

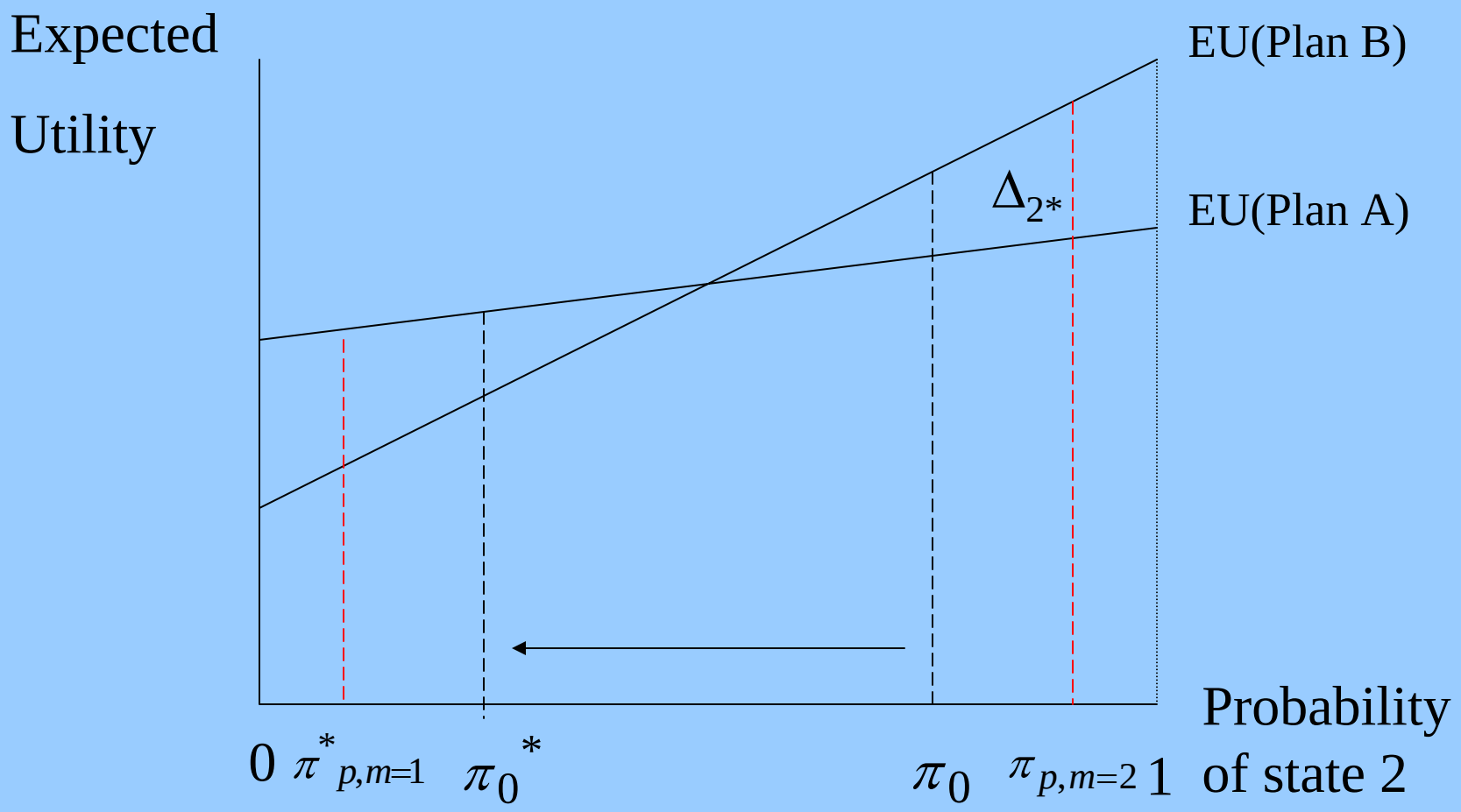
Impact of a “Bad Experience” on Information Search

- Exogenous shock to health plan quality
  - Affects the likelihood of search if the expected value of information changes
- Two examples
  - Bad experience
  - Really bad experience

Bad Experience:



Really Bad Experience:



Study Setting:
Buyers Health Care Action Group

- Health insurance purchasing and reform coalition
  - 24 of these employers offered “Choice Plus”
  - Focus on 16 employers where “Choice Plus” is the dominant plan
- Choice Plus
  - Direct contracting model
  - 17 care systems: integrated teams of primary care providers, affiliated specialists, hospitals, and allied professionals
  - Three cost tiers
  - Primary care physicians can affiliate with only one care system

Care System Quality

- Consumer survey results
  - Mail survey of 16,000 enrollees conducted by an independent survey organization
  - Experiences with clinics and medical care in prior year
  - Ratings for each care system on different dimensions for adults and children
  - Conducted every 2 years

Care System Quality

- Excellence in Quality Awards Criteria
  - Receipt of good consumer survey scores
  - Delivery of preventive care services to a large majority of their patients
  - Proof of quality improvement and outcomes of care in at least one important way
  - Demonstration of care system's commitment to patient safety
- Financial Award
  - Gold ($100,000); Silver ($50,000); Special Recognition
- Use in marketing for 2 years

Data

- Primary data collection in Spring 2002
- Stratified sampling
  - Family structure
  - Employer
  - Over-sampled switchers
- Focus on single employees
  - N=651

Measures

- Quality information awareness
  - "During the open enrollment period…do you recall seeing the "Quality Awards and Consumer Survey Results" that rated all the care systems on several aspects of quality and consumer satisfaction?"
    - 33% responded yes
  - During the open enrollment period…do you recall seeing or hearing about the "Excellence in Quality Awards" that care systems can earn…?
    - 23% responded yes
- Switched care systems in 2002
    - Self-reported and confirmed by enrollment file
    - 25.3% switched (un-weighted)

Measures

Person Attributes:

- Male
- Age
- Education
- Job tenure
- Twin Cities tenure
- Chronic disease
- Overall care system rating
- Have personal doctor/nurse
- Lost personal doctor/nurse

Employer communication:

- Performance results booklet distributed to all
- Performance results booklet distributed on request

Plan-related Attributes:

- Tax adjusted premium difference
- Quality award comparison
- Quality rating comparison

Model:

$$Information = f(Person\ attributes; Employer\ communication) + \varepsilon_1$$

$$Switch = f(Information; Plan\ attributes; Overall\ care\ system\ rating; Provider\ relationship; Chronic\ disease) + \varepsilon_2$$

Estimation Strategy:

(1) Bi-variate Probit

(2) Two-Stage Least Squares

Hypotheses: Care System Switching

- Employees are more likely to switch if:
  - They were dissatisfied with their 2001 system
  - They were aware of the consumer survey results and/or quality award
  - There was an award-winning or high quality system among close alternatives
  - The premium of their 2001 system increased relative to close alternatives
  - They did not have a personal doctor or nurse or they were at risk of losing him.
  - They did not have a chronic condition.

Bi-variate Probit

Information Awareness - Key Results	**Coefficient (SE)**	**Marginal Effect**
Overall care system rating	.066* (.039)	.025
Male	-.282** (.132)	-.107
Education level	.152** (.075)	.058
Ln(Job tenure)	.124* (.071)	.051
Chronic disease	.014 (.135)	.005
Booklets distributed to all	.255* (.149)	.099
Booklets distributed on request	.481*** (.152)	.187

*p<.10, **p<.05, ***p<.01

Note: all other variables in model are statistically insignificant

Switch	Coefficient (SE)	Marginal Effect
Any information awareness	.278 (.684)	.029
Have personal doctor/nurse	-.478** (.196)	-.063
Lost personal doctor/nurse	.628*** (.206)	.090
Tax-adjusted premium dif.	.073*** (.014)	.007
Quality award comparison	.145 (.127)	.014
Quality rating comparison	.141 (.192)	.014
Overall care system rating	-.029 (.047)	-.003
Chronic disease	-.250 (.164)	-.023
Constant	-1.312*** (.375)	…

2SLS Results

- Information awareness
  - Male (-), Education (+), Ln(job tenure) (+); Employer communications (+)
- Switching
  - No effect of information awareness, care system rating, quality award comparison, or quality rating comparison on switching probability
  - Have provider (-), Lost provider (+),

    Tax-adjusted premium difference (+)
    - Slightly larger effect of premium on switching relative to BVP

Sensitivity Checks

- Definition of “best alternative”
  - No effect
- Interaction of quality comparison measures with information awareness
  - No effect
- Non-linear relationship between satisfaction and switching
  - No effect
- Included premium difference in information awareness model
  - No effect
- Measured premium change not taking into consideration changes in alternative premiums
  - Big effect

Implications

- Employer decisions about quality information provision
- Implications for managed competition
- Investment in health plan quality measurement and information dissemination