The Demand for Insurance, Again

Lecture 22

Economics 157
Health Economics
Summer 2003

Announcements (1)

- Problem Set II will be distributed at the end of Class Today; It will be due Thursday 07/31/03
- Reading Assignments:
  - Ch 7 of Feldstein for Wed 07/30/03
  - Ch 9 of Feldstein for Thu 07/31/03
- Wed 07/30/03 The Uninsured by
  - Michelle Religioso

Announcements 2

- **Thurs 07/31/03**
  - Health Maintenance Organizations (HMOs) & Preferred Provider Organizations (PPOs) by Alice Lin; Stephanie Watt; Paul Yi
- **Tues 08/05/03**
  - Enthoven & Managed Care by Richard Kim
- **Wed 08/06/03**
  - Optional Term Papers Due
  - Guest Lecturer:
  - Phyllis G. Weber, Executive Director
    California Transplant Donor Network

Why Study the Demand for Health Insurance ? (1)

- A Medical Care System involves aspects of:

  Uncertainty, big and small losses, incentives, supply and demand; optimization; big money; the most serious consequences as well as some not so serious ones
- Health Insurance is a primary part of the system both as to organization and structure as well as an instrument of social policy (equity)
- Society (ies) is (are) pushing for more medical care, as well as lower costs or at least a lower fraction of GDP

Why Study the Demand for Health Insurance ? (2)

- Consumer sovereignty is part of the optimization routine assumptions
- If we understand how individuals in the pursuit of maximization of their own welfare choose to buy insurance, we will go a long way towards understanding how to build a better system

Indemnity Insurance

- Pays fixed amount for something regardless of how spent (e.g. auto insurance take the money and live with the dents)
- Lowers moral hazard (loss is exogenous)
- Has never caught on in health insurance
- Med. community does not like it: encourages shopping around for lower prices etc

Other Policies

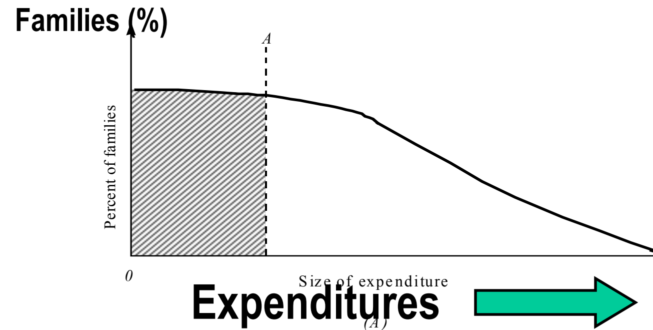
Service Benefit

- Can have fee-for-service components such as coinsurance & deductibles
- Is the policy we talked about in the Blue Cross Service Benefit Policy (Ch 6, App 1)

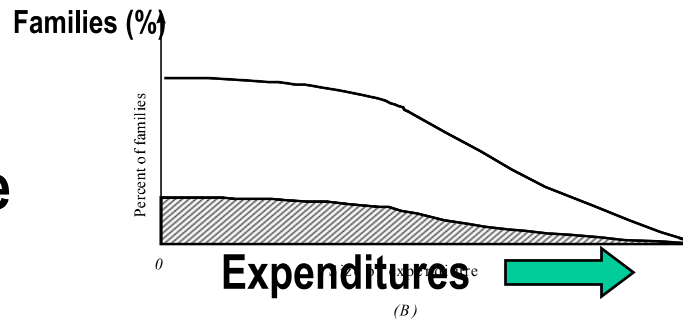
Figure 6-1 (Feldstein) The expected distribution of family medical expenses with different types of copayments;

Health Insurance Terminology

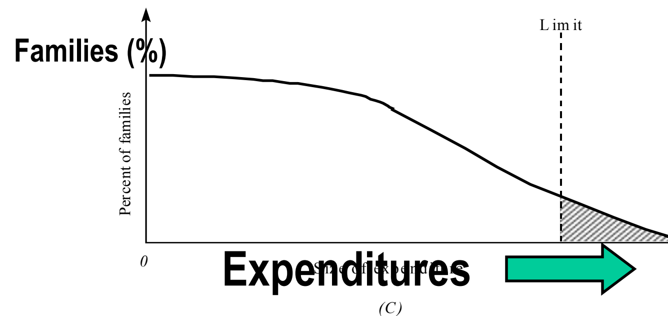
Deductible



Coinsurance



Max limit to coverage



A Quick Actuarial Exercise: Cost Sharing in Jane Doe's Insurance Plan (1)

- Jane Doe has a standard commercial insurance plan. Specifically, her deductible under the policy is $100, and the co-pay is 20 percent. The only health care she received last year was 20 regular office visits to her doctor, at $50 per visit. Calculate her out of pocket expenditures last year.

  $100+(0.2 x ($900)) = $280

A Quick Actuarial Exercise: Cost Sharing in Jane Doe's Insurance Plan (2)

- Now suppose that her deductible increases from $100 to $200. By how much will her out of pocket expenditures rise?
- New out of pocket is:

  $200 +(0.2 x ($800)) = $360

- Δ = $360 - $280 = $80

A Quick Actuarial Exercise: Cost Sharing in Jane Doe's Insurance Plan (3)

- Suppose Jane also has a $2,500 Max Limit per year. Besides office visits she had drug expenses of $1,500 for the year (co-pay is also 20 %). How many visits to her doctor (deductible = $200) does she need before she would face no patient obligations for additional services received ?
- Lets take that as a home work assignment!

The Value of Insurance: Intuition (1)

- Assume that insurance does not itself affect the loss (no moral hazard)
- Insurance moves money from one prospective "state of the world" to the other
- Compared to no insurance, buying a policy lowers your wealth in the no loss state and raises your wealth in the loss state

The Value of Insurance: Intuition (2)

- This will increase your utility if the marginal value (utility) of the dollars you give up in no loss state is less than marginal value of dollars you gain in the loss state

- You will be willing to pay something for this service if you experience diminishing marginal utility. You will pay more the greater the divergence between the MUs

- Why don't widows buy nursing home insurance?

- Why don't people (always) buy coverage for preventive care?

In Theory, Why Non-poor People Do and Do Not Buy Conventional Health Insurance

<u>They buy</u> because…they prefer a small certain payment to the risk of a large loss

they cannot afford a costly but rare expense

<u>They do not buy</u> because…

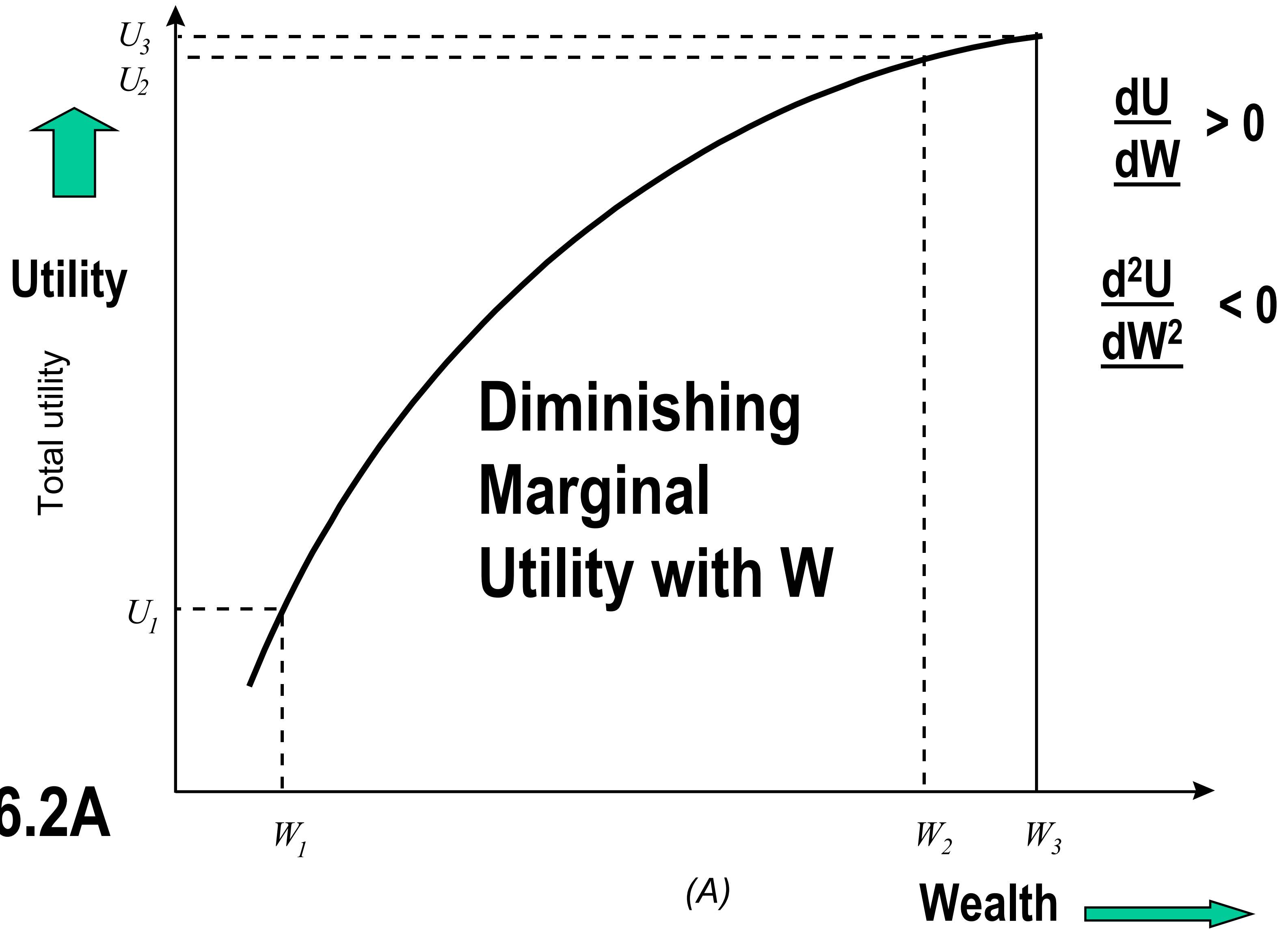
1. At the premium they face, insurance is a bad deal because of…

   administrative expenses (loading)

   imperfect risk rating (adverse selection)

2. Insurance causes higher expenses (moral hazard)

Pauly


U3
U2
U1
Utility
Total utility
$\frac{dU}{dW} > 0$
$\frac{d^2U}{dW^2} < 0$
Diminishing
Marginal
Utility with W
W1
W2
W3
(A)
Wealth
Fig 6.2A

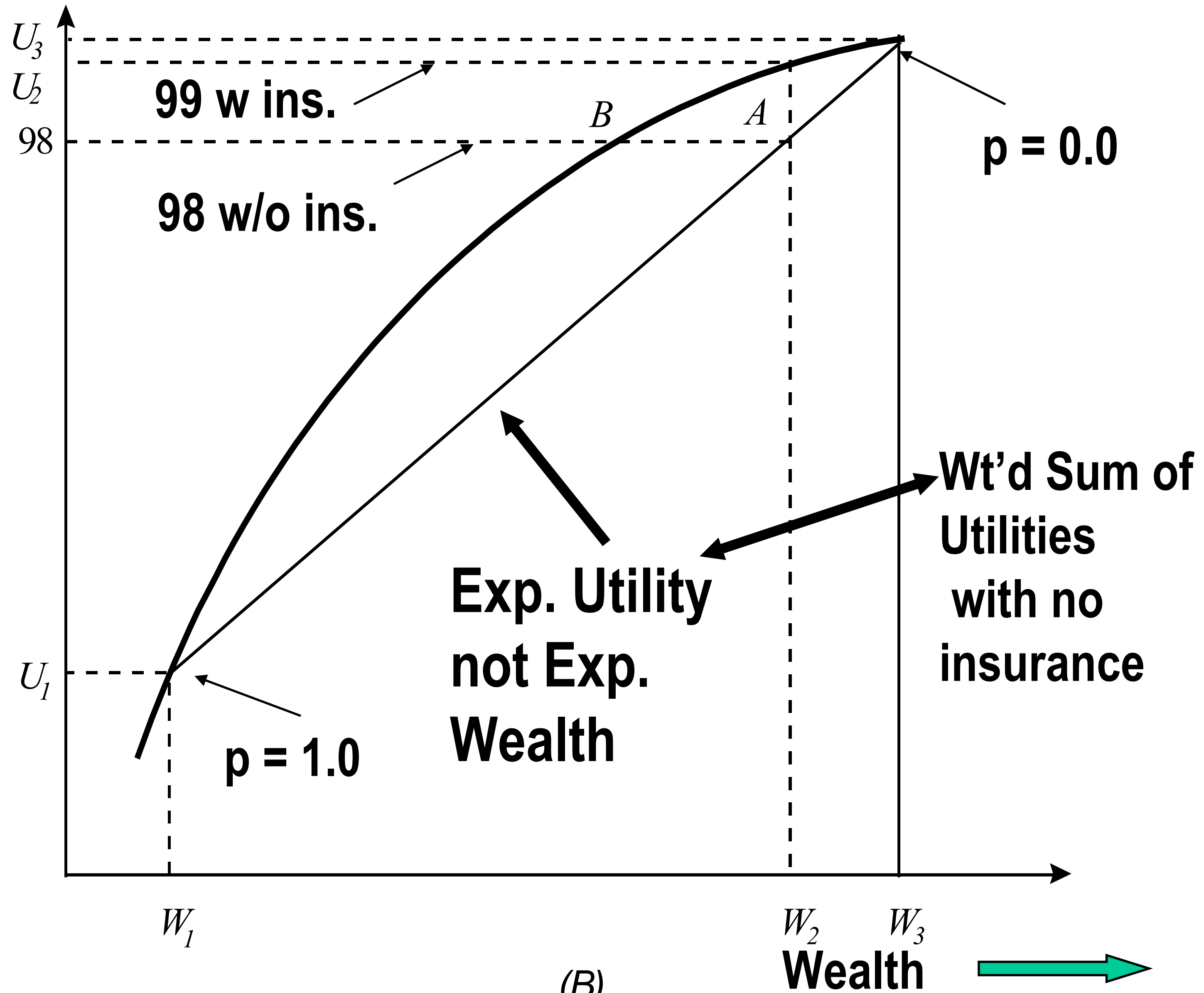
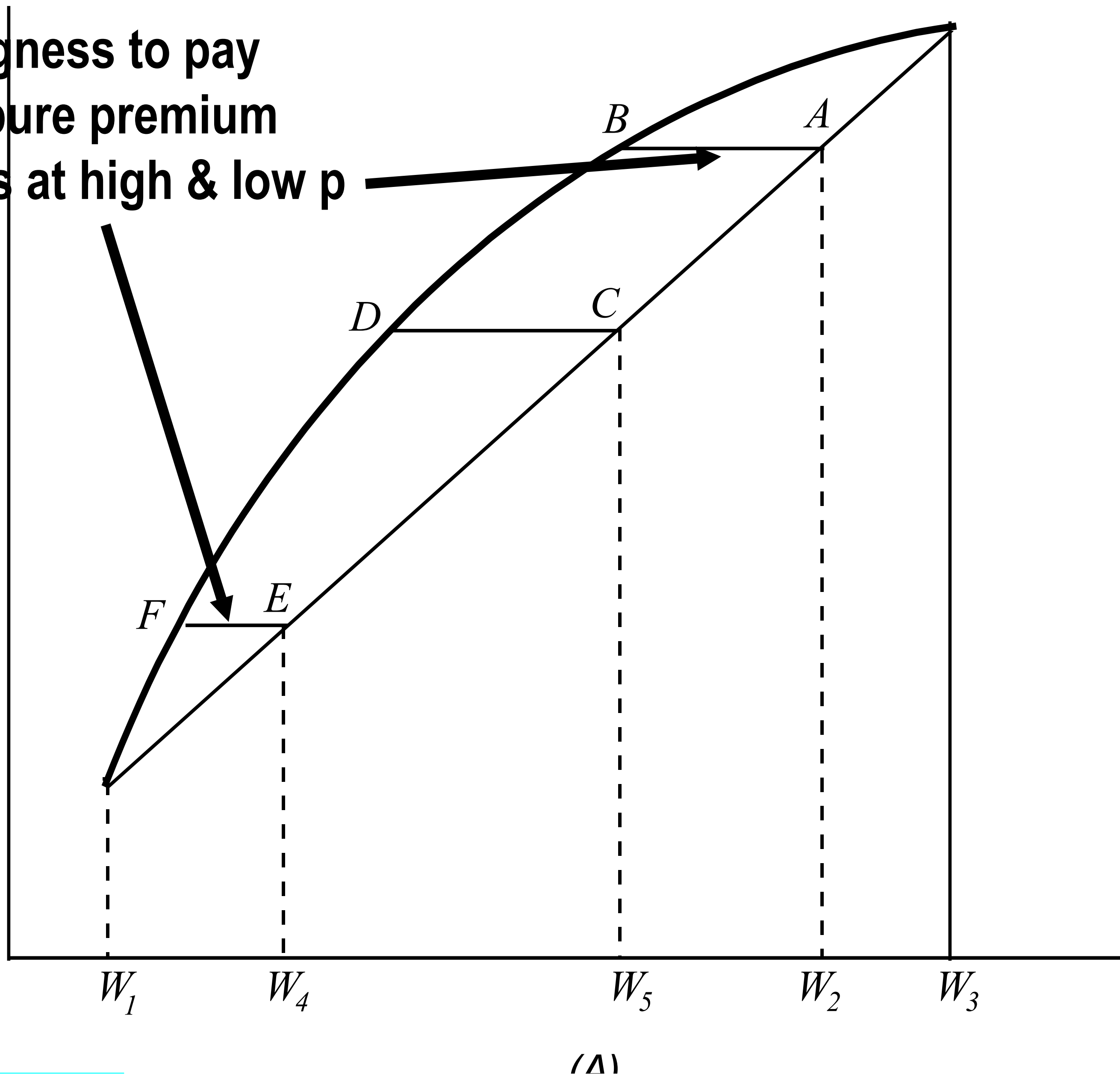
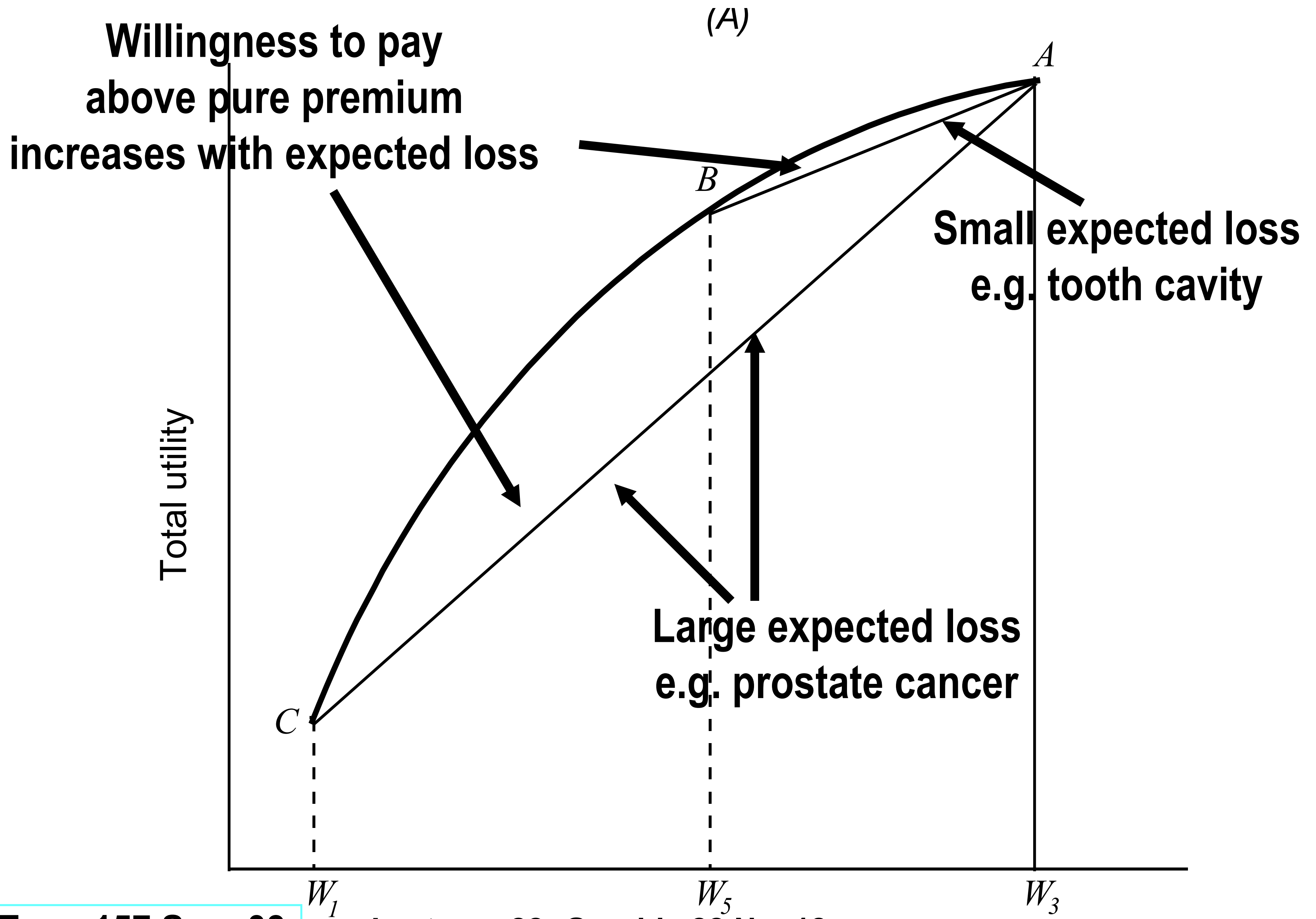


Fig 6.2B


Willingness to pay
above pure premium
decreases at high & low p
Total utility
B
A
D
C
F
E
W_1
W_4
W_5
W_2
W_3



(B)

Test of the theory: individual demand for health insurance

Table 6.1 Feldstein

Classification of Medical Services by Probability of Occurrence, Potential Loss, and Insurance Benefits, 1957-1958

Type of Med. Service	Probability of Occurrence	Magnitude of Expense	Percent of Expenditures Covered by Insurance	Expenditures on This Type of Service as a Percent of Total Medical Expenditures
Hospital care	Low	High	58	23
Physician charges for:				
Surgery	Low	High	48	7
In-hospital visits	Low	High		
Office visits	High	Low	7	24
House calls	High	Low		
Drugs and medicines	High	Low	1	20
Other medical services	Low	Low	1	8
Dental care	High	Low	--[a]	15

Fig. 6-5 Feldstein: Adverse Selection: “Customer Info > Ins. Company Info”

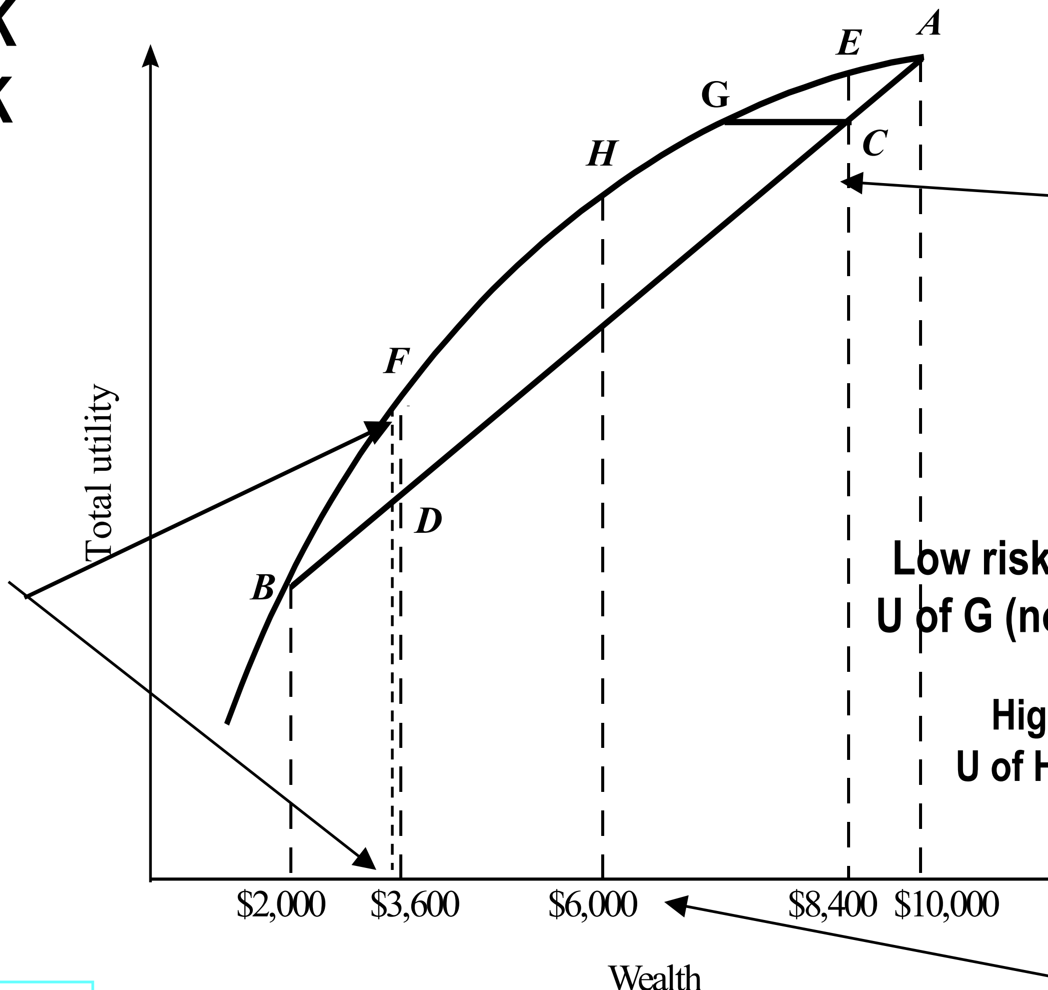
Loss is $8K = $10K-$2K

Pure Premium = p X loss

High Risk Case

P = 0.8

Pure premium = $6,400



Low Risk Case
P = 0.2
Pure premium = $1,600

Low risk will not buy because U of G (no ins.) > U of H (w ins.)

High risk will buy because U of H (w ins) > U of F (no ins.)

Pure premium for avg is $4,000

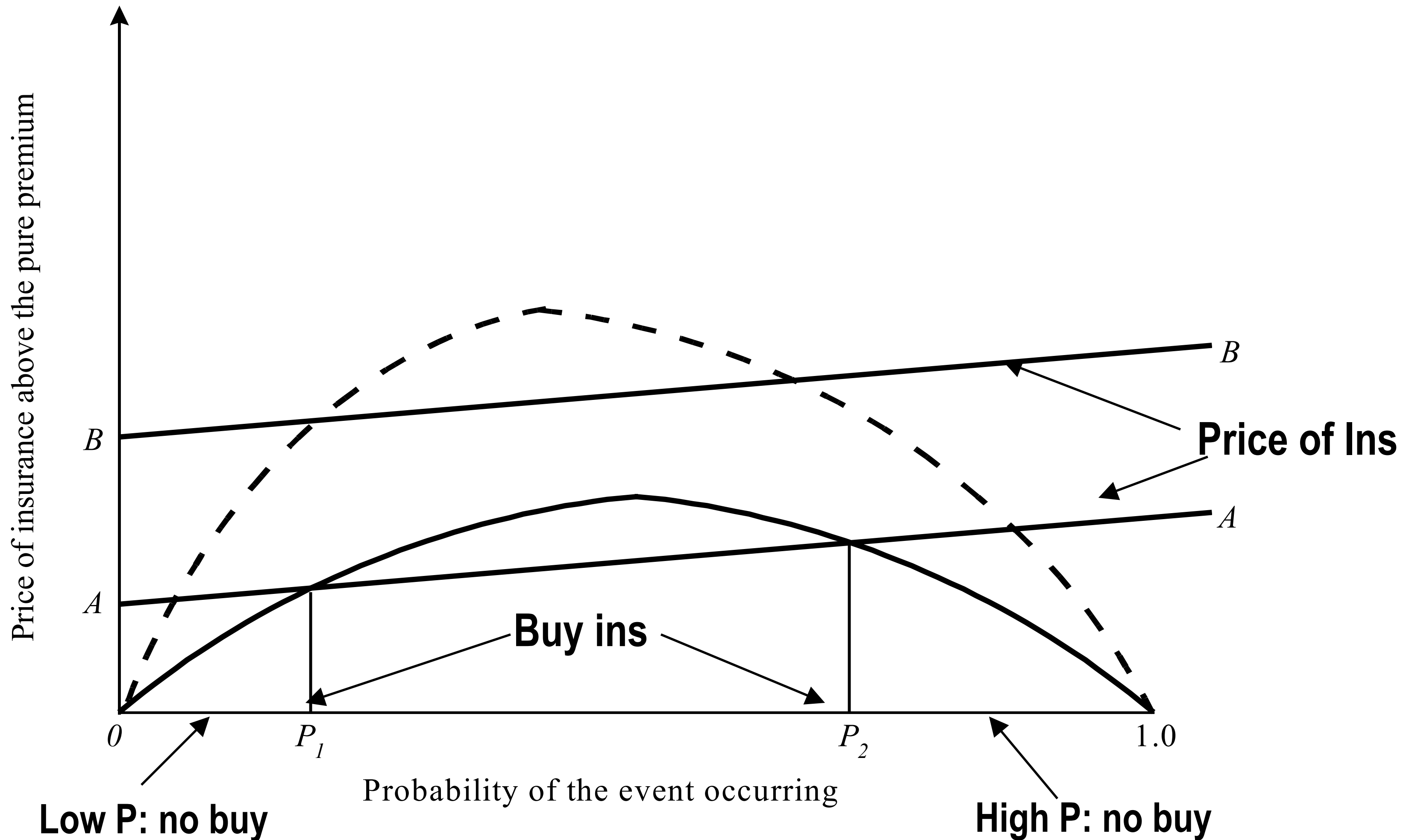
Insurance Company Reactions to Adverse Selection

- Do not like to lose money
- Try to rebalance the information delta
- Exclude for 1-yr preexisting conditions
- Have tests performed that help to rebalance
- Time limits before covering something
- Low risk individuals may send signals
- But in the end is a continuing problem

Preferred Risk Selection (Insurance Company Seeks the Low Risk Cases)

- Insurers receive the same premium but individuals have different risks
- Go after the low risk persons by
  - Emphasizing healthy choices e.g. sports med
  - Down play serious disease like cancer care
- There is much evidence that HMOs have done this with Medicare patients

Fig. 6-4 Feldstein: The relationship between price of insurance and quantity demanded.



Concluding Comments on Risk Selection (Feldstein p. 140)

- Adverse selection would be limited if everyone were required to have health ins.
- Preferred risk selection could be limited if risk adjusted premiums. Make all patients equally attractive to insurers
- Practically: risk adjusted premiums has not been very successful

The Rational Economic Consumer "…Will not Want Complete Comprehensive Health Insurance" p 141

- Without Moral Hazard: loading charges and transaction costs can be inefficient
- With Moral Hazard: leads to other inefficiencies such as dead weight loss

The Effect of Deductibles on the Demand for Medical Care: Deductibles May, but Not Necessarily, Reduce Moral Hazard

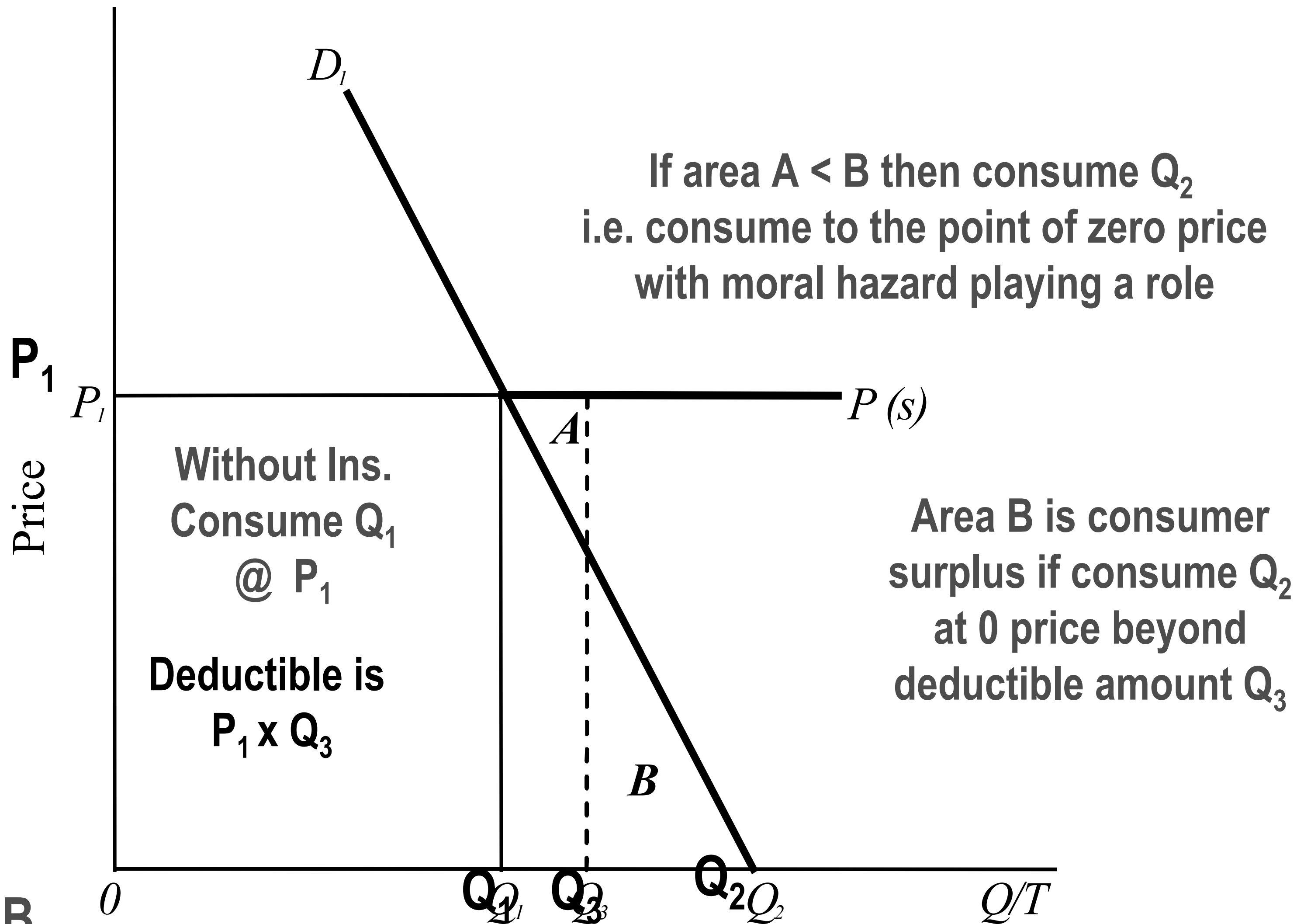


Figure 6.7B

(B)

Feldstein's Conclusion p 145-146

- Insurance coverage for 100 % comprehensive services for all persons is not warranted; Why?
- With different demands and transaction costs, no single insurance policy is best for everyone
- Moral Hazard only reinforces the social desirability of choice and variety in health insurance

(1) Summary of the Demand for Health Insurance pgs. 146-149

- Very good and very long
- Note: Justification for Figure 6.8
- Indemnity Insurance: keeps relative prices in tact and leads to cost minimization
- Capitation Payments are supported

(2) Summary of the Demand for Health Insurance pgs. 146-149

- **Method of provider reimbursement has historically been shown to be important e.g. cost reimbursement leads to inefficiencies**

When is the Quantity & Quality of Medical Care Consumed Optimal?

- When the price of care equals the cost of that care produced in a competitive system and which

Equals

- The marginal benefit of that care

Fig. 6-8 (Feldstein) The effect of health insurance on the expected distribution of medical expenses among families