

A brief discussion on PS2

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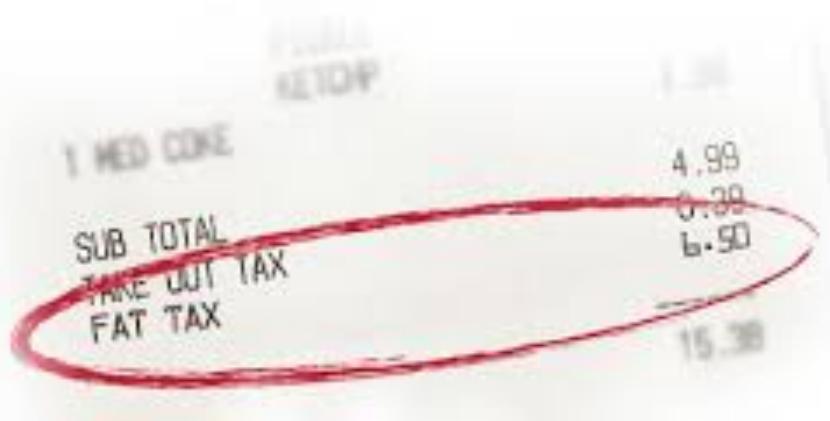
School of Public Health

A note on price discrimination

Schut, F, and P Van Bergeijk, “International **price discrimination**: the pharmaceutical industry,” World Development, 1986, vol. 14(9): 1141-1150.

What is price discrimination?

Price discrimination occurs when firms sell the same good to different groups of consumers at different prices.



Is junk food tax a kind of price discrimination?

What might be an evidence of price discrimination?

Problem set 2 questions

Research question

Frederick Schut and Peter Van Bergeijk (Schut & Van Bergeijk 1986) published an article in which they attempted to see if the pharmaceutical industry practiced international price discrimination by estimating a model of the prices of pharmaceuticals in a cross section of 32 countries.

The authors felt that **if price discrimination existed, then the coefficient of per capita income in a properly specified price equation would be strongly positive.**

The reason went as follows: the higher the ability to pay, the lower (in absolute value) the price elasticity of demand for pharmaceuticals and the higher the price a price discriminator could charge.

Problem set 2 questions (cont.)

Empirical results

Y = price	(1)
Per capita GDP	1.435*** (0.213)
Per capita volume of consumption of pharmaceuticals	-0.595** (0.223)
Patents (dummy)	7.224 (6.091)
Strict price control (dummy)	-15.62** (6.896)
Encouraged price competition	-11.37

If we are interested in how different these estimates are from zero, which type of hypothesis test should we use (one-sided or two-sided)?

What are your null hypothesis and alternative hypothesis?

According to the results in the table, at 5% significance level, the impact of which variable on the pharmaceutical price level is statistically different from zero?

Problem set 2 questions (cont.)

Empirical results (cont.)

Y = price	(1)
Per capita GDP	1.435*** (0.213)
Per capita volume of consumption of pharmaceuticals	-0.595** (0.223)
Patents (dummy)	7.224 (6.091)
Strict price control (dummy)	-15.62** (6.896)
Encouraged price competition	-11.37

With the estimates and standard errors, we are able to construct 95% interval estimates (check your slides for the details).

Please use your own words to explain why we prefer a narrower interval range?

Problem set 2 questions (cont.)

Empirical results (cont.)

Y = price	(1)	
Per capita GDP	1.435*** (0.213)	Do you think Schut and Van Bergeijk concluded that international price discrimination exists? Why or why not?
Per capita volume of consumption of pharmaceuticals	-0.595** (0.223)	
Patents (dummy)	7.224 (6.091)	
Strict price control (dummy)	-15.62** (6.896)	
Encouraged price competition	-11.37	

Problem set 2 questions (cont.)

Empirical results (cont.)

Y = price	(1)
Per capita GDP	1.435*** (0.213)
Per capita volume of consumption of pharmaceuticals	-0.595** (0.223)
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If we want to test the inverse relationship between price and quantity (a topic in microeconomics), then we need to develop a one-sided t-test at 5% significance level, where $H_0: \beta_{CVN} \geq 0$ and $H_a: \beta_{CVN} < 0$.

Can you finish the rest steps of the test? What is your conclusion? Here is the information you may need: the t critical value = -1.71.

An extension from PS2

Are health insurance market competitive?

A competitive market is one in which a large numbers of producers compete with each other to satisfy the wants and needs of a large number of consumers. In a competitive market no single producer, or group of producers, and no single consumer, or group of consumers, can dictate how the market operates.

Leemore S. Dafny, “Are health insurance markets competitive?,” The American Economic Review, 2010, 100(4): 1399-1431.

How will you design your research?

An extension from PS2

Are health insurance market competitive (cont.)?

To gauge the competitiveness of the group health insurance industry, I investigate whether health insurers charge higher premiums, **ceteris paribus, to more profitable firms**. Such "direct price discrimination" is feasible only in imperfectly competitive settings. Using a proprietary national database of health plans offered by a sample of large, multisite firms from 1998-2005, I find firms with positive profit shocks subsequently face higher premium growth, even for the same health plans. Moreover, within a given firm, those sites located in concentrated insurance markets experience the greatest premium increases. The findings suggest health care insurers are exercising market power in an increasing number of geographic market

An extension from PS2

Are health insurance market competitive (cont.)?

1)
$$\begin{aligned} \ln(\text{premium})_{emcjt} = & \alpha + \gamma_1 \text{profit margin}_{e,t-2} + \gamma_2 \text{demographics}_{emcjt} \\ & + \xi_e + \nu_m + \Psi_c + \eta_j + \delta_t + \omega_{jt} + \varsigma_{em} \\ & [+ \rho_{emcj}] [+ X_{mt}\beta] [+ \phi_{mt}] + \varepsilon_{emcjt}. \end{aligned}$$

An extension from PS2

Are health insurance market competitive (cont.)?

TABLE 2—THE RELATIONSHIP BETWEEN EMPLOYER PROFITS AND HEALTH INSURANCE PREMIUMS

	Dependent variable = $\ln(\text{annual premium})$; $N = 50,217$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lagged profits	0.024*** (0.009)	0.026*** (0.009)	0.043*** (0.014)	0.052*** (0.014)	0.043*** (0.014)	0.051*** (0.014)	0.030** (0.014)	0.040*** (0.014)
Family size	0.317*** (0.003)	0.317*** (0.003)	0.297*** (0.005)	0.297*** (0.005)	0.297*** (0.005)	0.297*** (0.005)	0.299*** (0.005)	0.298*** (0.005)
Plan design		0.362*** (0.024)		0.411*** (0.032)		0.413*** (0.032)		0.451*** (0.032)
Plan fixed effects	N	N	Y	Y	Y	Y	Y	Y
Market-year covariates								
Unemployment rate					0.023 (0.185)	0.002 (0.184)	N/A	N/A
$\ln(\text{average}$ Medicare costs)					0.073** (0.033)	0.084*** (0.032)	N/A	N/A
Market-year interactions							Y	Y

Notes: Models are estimated using the LEHID-FI-Compustat Sample. The unit of observation is the employer-market-carrier-plan type-year. Specifications correspond to equation (1) in the text, and are estimated by FGLS to account for serial correlation of errors among observations of the same employer-market-carrier-plan type (or “plan”). All specifications include fixed effects for employer, market, carrier, plan type, year, plan type-year, and employer-market.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.