

## Applying the Concepts Chapter 14

### 1. Bang per Buck of Low-Income Housing Tax Credits?

- Over a 10-year period, your tax credit is \$90,000, computed as 9 percent per year for 10 years.
- Based on Quigley's results, the market value of the house is \$73,800, computed as  $0.62 \times \$90,000$ .
- The market value is less than the building cost because new low-quality housing competes with used low-quality housing, and its market value is anchored by the market value of used housing, not its building cost. Given the plentiful supply of used housing, the price of used housing is low relative to the building cost. In addition, the project is relatively risky, so its capital cost is relatively high.

### 2. Nil Effects of Public Housing

- Mr. Wizard's assumption is that the supply curve for privately produced housing is horizontal.
- In Figure 14-3, if the supply curve were horizontal, the leftward shift of the demand curve by 100 dwellings would decrease the quantity of privately produced (unsubsidized) housing by 100 dwellings and not affect the price.

### 3. Computing the Market Effects of Vouchers

- The vouchers shift the market demand curve to the right, increasing the equilibrium price and quantity.
- Using the price change formula discussed in Chapter 5, the increase in demand increases the equilibrium price of housing by 2 percent (from \$400 to 408), computed as  $2 \text{ percent} = 10\% \text{ increase in demand} / (1.0 + 4.0)$ .

### 4. Filtering and Price Effects

In the moderate-quality (low-income) market, the equilibrium price rises from \$500 to \$580 (16 percent). In the medium-quality (middle income) market, the equilibrium price increases from \$1,000 to \$1,030. The supply in the medium-quality market shifts by a relatively small amount.

### 5. Harmed by Vouchers?

- You be [helped, **harmed**] by the voucher program because the program increases the demand for housing, increasing its equilibrium price.
- The harm from a voucher program will be relatively large if the elasticity of supply is relatively [large, **small**].
- If you owned your home, an increase in housing prices increases the value of your asset, generating benefits.

### 6. The Price Effects of Vouchers and Recipient Welfare

- The new voucher budget line (with a price of \$1.50) includes the following {housing, other goods} combinations: {300, \$650}, {400, 500}, {540, \$290}.

- b. For a household that chooses 300 units of housing service, its spending on all other goods is \$650, computed as income of \$800 plus the \$300 voucher minus \$450 spent on housing at \$1.50 per unit of housing service.
- c. The slope of the budget line is \$1.50 per unit of housing, compared to \$1.00 if vouchers don't affect housing prices.
- d. Given the price effects of a voucher program, the typical recipient would be [better, worse] off with public housing because the new voucher budget line lies everywhere below the indifference curve for public housing ( $U_1$ ), so public housing generates higher utility.

### 7. Ask Dr. Elastic

- a. Your question is, What is the price elasticity of supply of housing?
- b. Vouchers will be better if the answer to the question is a [**large**, small] number.
- c. Subsidized public housing will be better if the answer to the question is a [large, **small**] number.

### 8. Deadweight Loss from the Mortgage Subsidy

- a. This is similar to Figure 14.6, with the marginal private cost at \$0.80 instead of \$0.72 and the housing consumption points 1,000 and 1,200 instead of 2,000 and 2,420.
- b. The deadweight loss is \$20 computed as  $\$20 = (1/2) \times \$0.20 \times 200$  square feet.
- c. For the typical consumer, the consumer-surplus gain from the subsidy is \$220, computed as  $\$220 = \$0.20 \times 1,000$  square feet +  $(1/2) \times \$0.20 \times 200$  square feet.
- d. The revenue loss for the government is \$240, computed as  $\$240 = \$0.20 \times 1200$  square feet.
- e. The revenue loss is [**greater**, less] than the consumer-surplus gain because the marginal social cost of square footage beyond 1,000 exceeds the marginal social benefit.

### 9. Fruit Fly Economist

According to Frieda the fruit fly, "A rent-control law implemented today will simply redistribute income from property owners to consumers. I will never see any deadweight loss from the rent-control program."

- a. Over the short life span of a fruit fly (a few weeks typically), the supply of housing is perfectly inelastic (vertical).
- b. Frieda's statement is literally correct because when supply is perfectly inelastic, a maximum price below the equilibrium won't reduce the quantity supplied, and thus does not generate a deadweight loss.
- c. Dumbo lives for decades, and observes the long-run supply curve for housing, which has the conventional positive slope. A maximum price below the equilibrium price decreases the quantity supplied and generates a deadweight loss like the one shown in Figure 14-7.

### 10. Rent Control and Elasticity

- a. Compared to Elastic City, Rigid City will experience a [**smaller**, larger] reduction in the quantity of housing supplied and a [**smaller**, larger] deadweight loss from rent control.

b. In Rigid city, the relatively inelastic (steep) supply curve generates a small reduction in quantity and thus a small deadweight loss. In Elastic city, the relatively elastic (flat) supply curve generates a large reduction in quantity and thus a large deadweight loss.