LAND MARKET

EE562
SELECTED TOPICS IN DEVELOPMENT ECONOMICS 2

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Content

- How land prices are determined?
- Determination of the land use
- Urban development

Measurement of Land Values

- Price
- Rent
- Value
- Appraised price
- Market price

$$V = \frac{r_1}{1+i} + \frac{r_2}{(1+i)^2} + \ldots$$

$$n \rightarrow \infty \text{ then } V = \frac{r}{i}$$

Determination of Land Prices

Demand-determined	Characteristics of Supply	Application
• Ricardian (land varies in fertility) • Von Thunen (land varies in location) • Alonso (applied von Thunen's concept)	• Surplus attached to occupation • Competitive use of land • Uncertainty	• Ownership • Development gains tax • Compulsory purchase

Ricardian Economics

- Mainly agricultural land
- Land prices are demand-determined.
- Willingness to pay for price of land is determined by marginal productivity and price of output

Von Thunen's model

- Land is a flat plain area
- Monocentric city
- Homogeneous land which can be used for agricultural production only.
- Market is only at the city centre which is equally accessible from all directions (uniform transportation)
- Products are exchanged in a perfectly competitive market.
- Cost of production does not vary by location.
- The highest bidder is the winner.

Land Price Graident

- In Von Thunen's framework, land price is determined by the leftover principle

- Downward sloping of bid-rent curve

$$BID = \frac{TR - C - tx}{L}$$

$$\frac{dB}{dx} = -\frac{1}{L}t \Rightarrow$$

Transportation cost determines the slope of land price curve.

Note: ① Economies of Scale

$x \uparrow \rightarrow$ Price per unit of land $\downarrow$

$\rightarrow L \uparrow$.

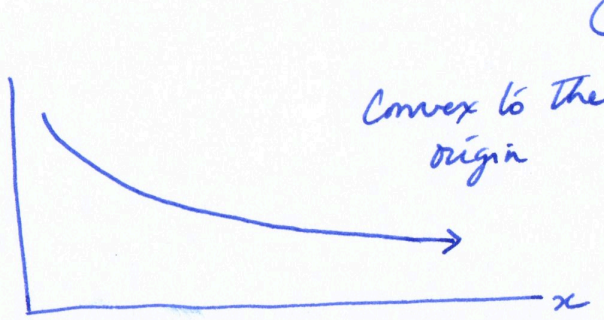
$\therefore L = f(x)$.

② Long-haul economies

③ Varying proportion of land-capital combination in production function

$$\frac{dB}{dx} = -\frac{1}{L(x)}t$$

$$\frac{d^2B}{dx^2} = \frac{1}{L^2(x)}t$$



What determines the Shape of Bid-rent?

- Economies of scale: at farther distance, one can acquire a larger piece of land
- Long-haul economies: the marginal cost of transport declines with distance
- Substitutability of land and capital in the production function

Adjustment to New Equilibrium

- Reduced cost of travel
  - The land value gradient will become less steep and the boundary of the city will move outwards
- Population growth
- Economic growth

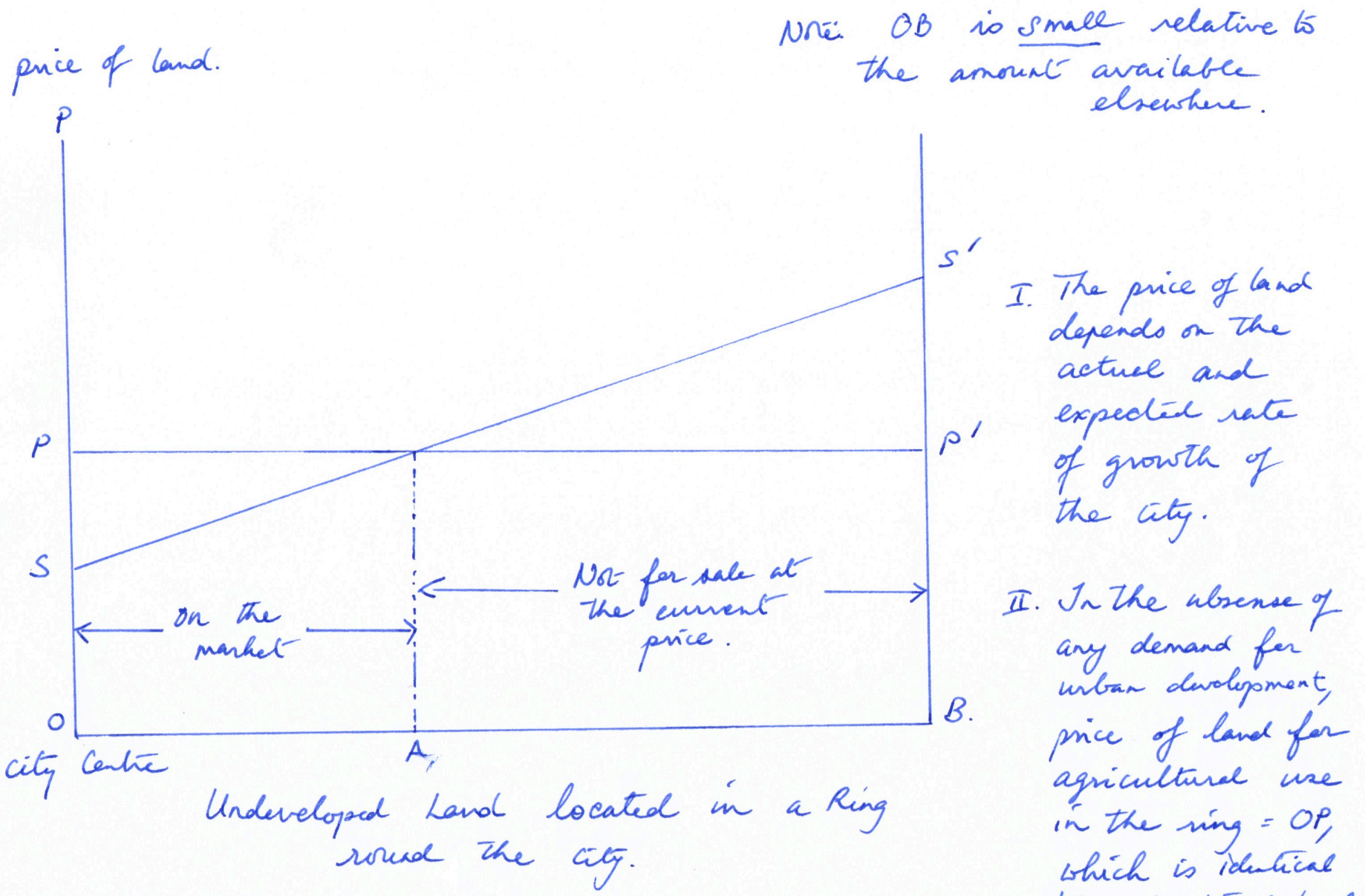
serrated/ discontinuous land value gradients

Observation of Puzzling Features of Urban Property Markets

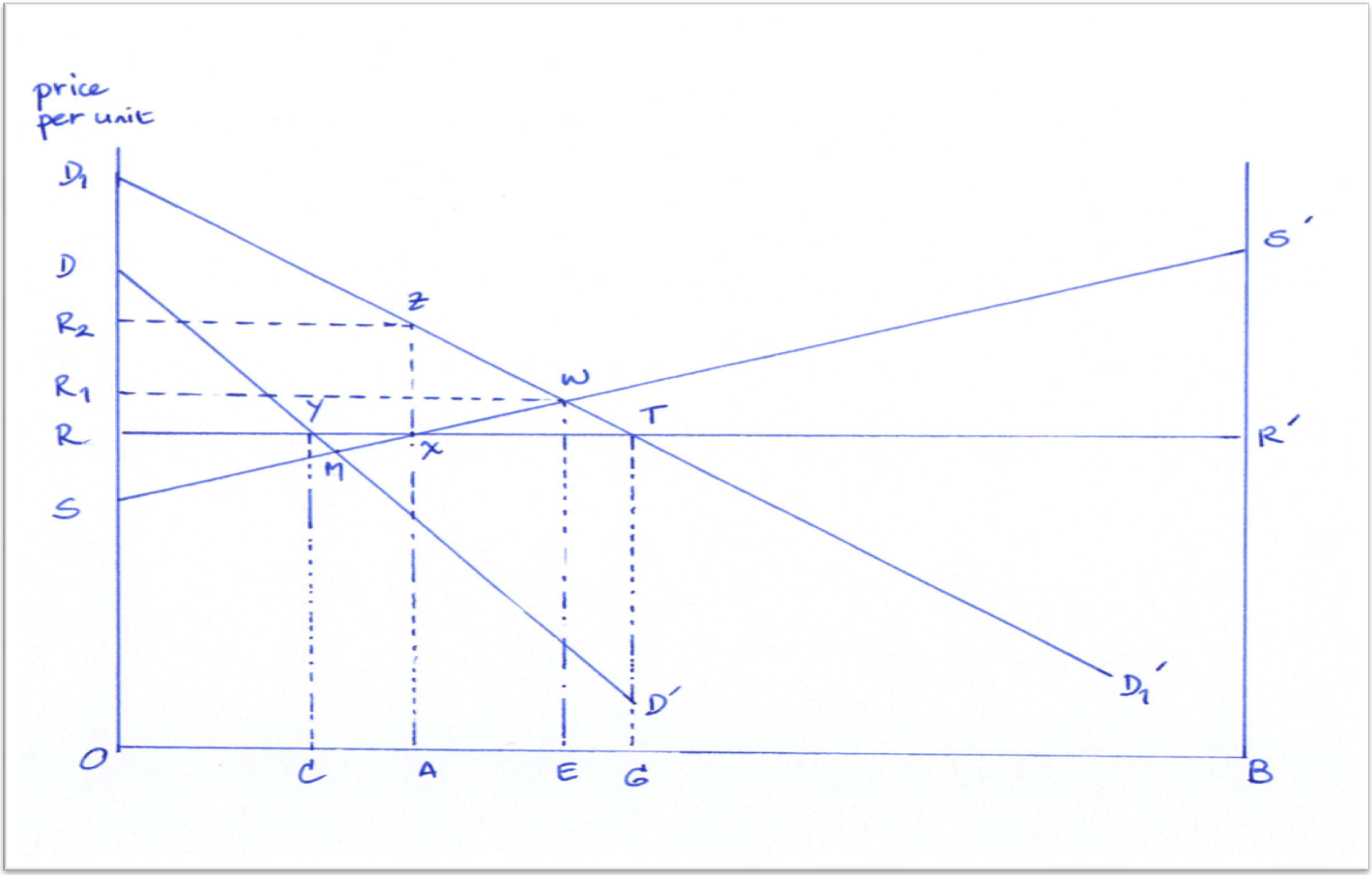
- Vacant and under-utilised land can be found in close proximity to highly developed land.
- Considerable margin exists at the urban fringe between the price of land used for urban purposes and its price for non-urban purposes.
  - At urban fringe, urban values are frequently many times rural values
  - Within the cities, land used for commercial or office development generally changes hands at much higher prices than residential and industrial land even where they abut one another.
- Urban sprawl
- Scattered Development

Supply of Land and Determination of Land Prices

- Aggregate supply of land is fixed (vertical supply curve) but supply of land to a particular activity is very elastic
- Surplus attached to the occupation/ ownership



Source: Evans (1983)



Source: Evans (1983)

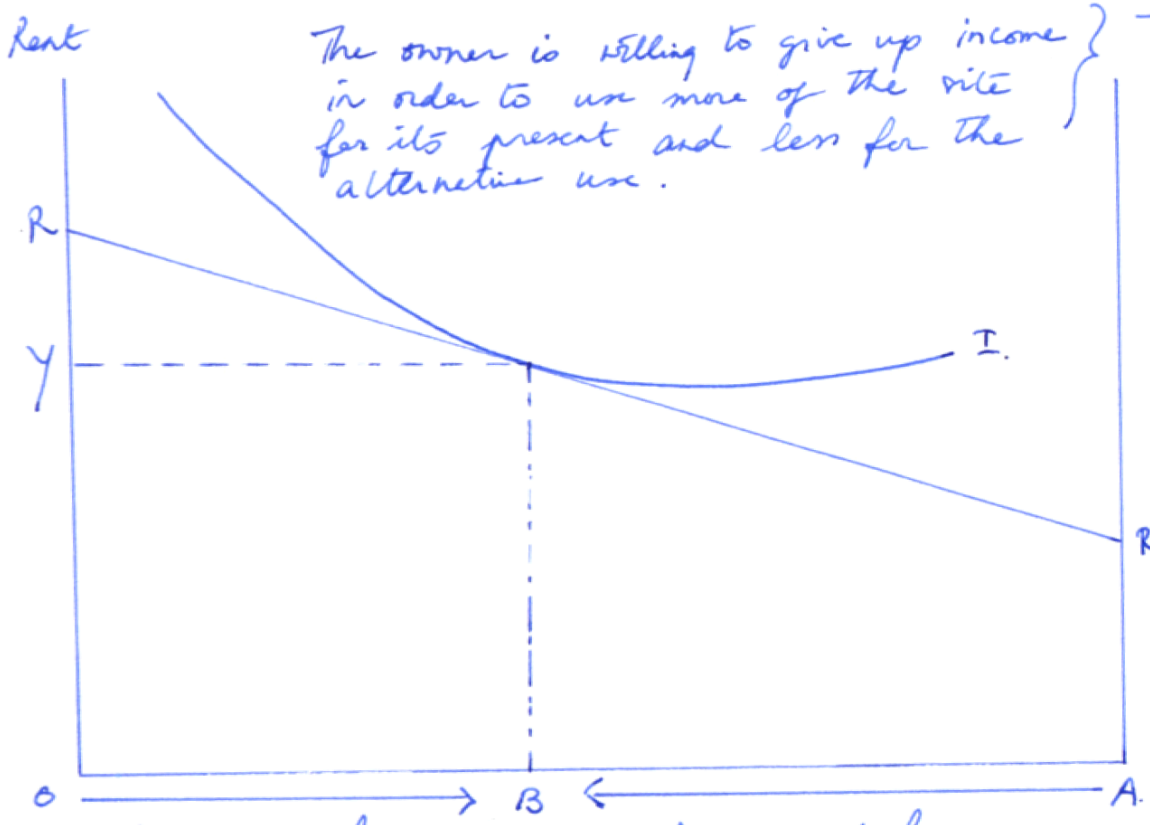
Ownership & Conflict

- Because of the degree of conflict in the system, one can predict neither the exact rate of development nor the exact market price.
- The process of development and the resolution of the conflict will depend upon the political power of the two groups, and their respective legal powers.
- Security of tenure for tenants + fair rent legislation which ensure that rents were similar to those elsewhere ➔ land developed = OA and price = OR2
- Lack of security of tenure and a willingness to pay the higher rents ➔ land developed = OE, price = OR1
- Lack of security of tenure but unwillingness to pay unfair rents ➔ land redeveloped = OG, price could be slightly above the agricultural price OR but with considerable political conflict.

Let’s explain

- Compulsory Purchase
  - For large-scale investment, such as railway, spatial configuration requires contiguity.
  - Natural sales can cause inordinately long delays.

Trade-off between Two Land Uses



- Slope of I shows the rate at which he or she is willing to switch from a preferred to a less preferred use if compensated by an increase in rental income.
- If the whole site was converted to the alternative use, the total income = OR.
- RR' = income possibility frontier.

Note: The I could be concave downwards if an owner preferred to have all of his land in one use or the other rather than some in each.

Change of Land Use and Land Prices

- The value of land for a particular purpose is the present value of the expected flow of net returns if it is used for that purpose.
- If there is to be a change in use, the value of the site is the present value of the flow from the first use up to the time of the change and thereafter from the new use.

Neutze (1987)

Change of Land Use and Land Prices

- The net return from any particular use can also change over time.
- The value of land can then be defined as follows:

$$v_0 = \int_0^D f(t)e^{-rt}dt + \int_D^\infty h(t,D)e^{-r(t-D)}dt\,e^{-rD}$$

V_0 = value of the site at time 0
f(t) = net returns per period from the first use, a function of time;
r = discount rate;
D = date of conversion from the first to the second uses;
h(t,D) = net returns from the second use.

Essay of the Day

Behaviour of the land owner can influence the pace of urban development

(max 500 words)

Reference:

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