

BUILDING ECONOMICS TIMING OF REDEVELOPMENT

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2004

PRIMARY SOURCES:

Heilbrun, J. and P.A. McGuire. Urban Economics and Public Policy, 3rd edn, 1987, pp. 341-345.

TIMING OF REDEVELOPMENT

Net annual return and market value of a site and existing building (diagram)

- The net annual return is the difference between the gross annual return and operating costs
- Depreciation is excluded from the net annual return, as it is a taxable allowance. Note that under perfect competition normal profit is zero and replacement of capital is already accounted for.

The gross annual return may increase or decrease over time:

- An example of increases in gross annual returns - complementary developments may eventuate thereby raising rents.
- An example of decreases in gross annual return - super profits that accrue to an initial development attract similar developments which lower future rental returns of the initial development.

Operating costs rise over time:

- Structures physically deteriorate over time.
- Older buildings tend to be less adaptable to new technical requirements.

The market value of a site and an existing building on it is equal to the present worth of the expected net future returns from the property in its existing use.

- New and higher uses within the existing building may succeed the original use of the building.
- New and higher uses may justify major rehabilitation in which case operating costs would decline.
- The economic horizon of the building would be extended and the market value of the site and the existing building may increase or remain constant over time.

Timing of redevelopment (diagram)

Land-use succession occurs when it is profitable to demolish the existing building and replace it with a new one.

- Let V_o (old) be the market value of the site and existing building.
- At time T_1 when the existing building was constructed, the building was presumably the highest and best use for the site.
- For the sake of simplicity, assume that this market value remains constant over time.
- Let V_n (new) be the anticipated market value of the same site and a new building. V_n includes an allowance for the developer's normal profit.
- At year T_1 the value of the best alternative use would have been below that of the current use.
- The value of the best alternative use tends to rise over time because new buildings specifically designed for a new use tend to earn higher net annual returns.
- Let D_o (old) be the costs of demolishing the existing building and clearing the site.
- Let C_n (new) be the costs of constructing a new building excluding the cost of purchasing and clearing the site.
- For the sake of simplicity, assume that the costs of demolition and clearing the site and the costs of rebuilding for the new use, including ripening costs and normal profit, remain constant over time.
- If a developer wishes to construct a new building on the site then the developer has to pay the market price for the existing building and land and pay the costs of demolition and site clearance.
- The costs of acquisition and clearance is $V_o + D_o$.

The value of a cleared site is equal to the present value of the highest and best use of the site less the costs of building for that use.

- The highest price the developer can afford to pay for the cleared site and still earn a normal profit is the value of the cleared site in its new use.

Land-use succession can be undertaken profitably only if the value of the cleared site in its new use is greater than the value of the site and existing building in its existing use plus the costs of demolition and clearing the site

$$V_n - C_n \geq V_o + D_o.$$

- At time T_2 the expected value of the project is not yet great enough to justify carrying out a redevelopment of the site.
- At time T_3 the value of the cleared site in its existing use is equal to the value of the site in its prospective use
- Redevelopment does not take place at time T_3 because, in order to acquire a clear site for the new building, the developer not only has to pay for value of the land in its existing use but also the value of the existing building and the costs of demolition and site clearance. (i.e. the full market value of the site and building in its existing use plus demolition).
- Land-use succession takes place at time T_4 .

The economic life of the existing building is that period during which its capital value plus the costs of demolishing and clearing the site is greater than the capital value of the cleared site in its new use.

- After year T_4 the building becomes economically inefficient because resources can be switched to a new use having a greater value.
- The building can still be technically efficient after year T_4 for it can still continue to earn net annual returns.

If no redevelopment has taken place by the time the capital value of a land resource in its current use has declined to zero then the land resource is left derelict.

- By this stage, net annual returns would be zero.

THE RATE OF REDEVELOPMENT

The rate of redevelopment depends upon changes which occur over time in the relationship between the present value of the existing use of the land resources, the present value of the best alternative use, the cost of demolition and site clearance, and the cost of rebuilding.

Changes on the demand side affecting rental income

- Let us assume that the current use of a site in the inner city is large residential apartment buildings and that the best alternative use is offices. A change in the demand for inner-city apartments can arise through changes in:
 1. tastes (a switch in preference towards smaller suburban houses);
 2. real income (higher marginal taxes forces the wealthy to vacate expensive inner-city apartments);
 3. price of substitutes (cheaper suburban houses);
 4. transport costs or facilities (fare increases or building of an underground railway);
 5. mortgage terms;
 6. government policy (capital value rating which shifts the rate burden towards expensive apartment buildings).

Rents from offices would be affected by increases in both occupation and investment demand.

- A rise in occupation demand for professional services or for offices in city-centre locations would increase rents.
- Investment demand would increase the capital value if rentals were expected to increase with inflation. The current yield on offices would be capitalised at a lower rate for investment purposes, thereby increasing the capital value of offices.

Changes on the supply side affecting operating costs

- Maintenance costs may rise.
- Technical improvements may allow a more intensive use.

The timing of land-use succession is hastened when V_0 declines over time as a result of obsolescence and V_n increases over time as a result of an increase in demand for new buildings.

Changes in the rate of interest affecting the rate of development (diagram)

- For each successive year over the economic life of an existing building there are fewer remaining years of future yields resulting in progressive decline in the present capitalised value of the building.
- Because the economic life of the next-best-use building has not yet started, there are more years of future yields to be capitalised.

A rise in the rate of interest favours the existing use of buildings since it will reduce the capitalised value of net annual returns of the next-best-use more than that of the current use.

A rise in the rate of interest will increase the ripening and waiting costs of the next-best-use.

The net result of a rise in the rate of interest is to retard redevelopment.

Conversely, the net result of a fall in the rate of interest is to accelerate redevelopment.

Changes in building and demolition costs affecting the rate of redevelopment

The result of a rise in building costs is to retard redevelopment due to a decrease in the value of the cleared site.

Conversely, the result of a fall in building costs is to accelerate redevelopment due to an increase in the value of the cleared site.

The result of an increase in demolition and site clearance costs is to retard redevelopment.

The result of a decrease in demolition and site clearance costs is to accelerate redevelopment.

If a building has scrap value then the costs of demolition and site clearance are negative and the timing of land-use succession is hastened.