Real Estate and Land Supply

15:00-17:00, November 9, 2022

Lecturers: Dr. Michiel N. Daams and Dr. Sarah L. Mawhorter

Please note:

- The exam has 8 questions;
- All questions have the same maximum number of points;
- Questions should be answered in English and within the associated text-box or, if the (sub-) question is about drawing a graph, directly on the provided graph;
- Questions are generally graded as either 'right' (full points), 'half-right' (half the points), or 'wrong' (no points). For strongly related sub-divided questions answers are graded interrelatedly, not separately;
- Too long answers (longer than the maximum amount of words) are in principle only graded up until this maximum amount of words, the rest of the answer does not count;
- No toilet breaks during the exam.

Question 1.

Consider an area with a hierarchical planning system. In this area, all land is put to use. The only two uses of land are 'housing' and 'retail.' Only one part of the area, however, can be used for retail, whereas all of the area may be used for residential purposes. The situation is illustrated in the figure below. In the figure, the amount of land that is currently used for retail is marked as IS on the horizontal axis.

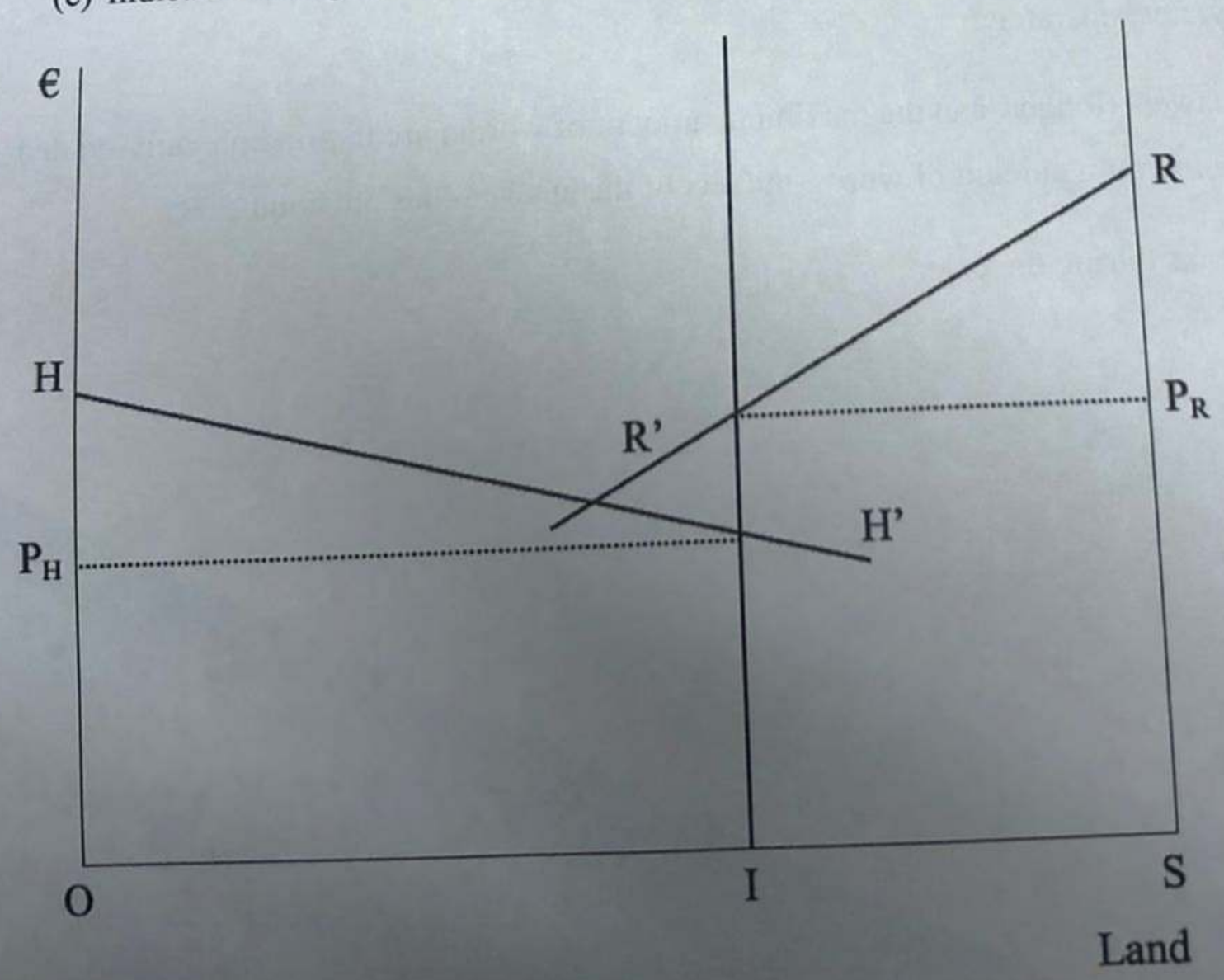
Consider a new situation in which the demand for housing has increased, with the demand for industry remaining the same as in the initial situation:

(a) Indicate by drawing in the graph whether/how any curve(s) change in the new situation. **6pts max** ***(see graphs in Evans Ch. 2; graded interrelatedly with c)***

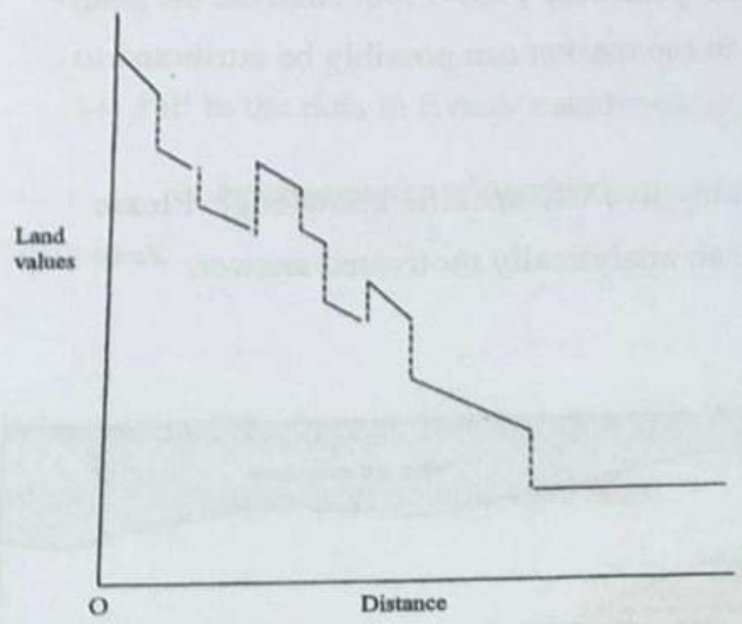
(b) Motivate the outcome in terms of land allocation to retail/housing in the new situation (max. 15 words). **4pts max**

Ricardian or Neoclassical supply shift(s) due to relative pricing should be motivated as applicable (Evans Ch.2). Answers that are descriptive only are typically given half points.

(c) Indicate in the graph the new equilibrium pricing of land. **[score integrated with *a*]**



Question 2. This question consists of a set of sub-questions about views by key authors in the land supply literature. Consider Figure 2.8 in Evans (that is, the figure below).



(a) Is the idea behind this figure a breakthrough in comparison to the thinking of Alonso? Argue in favor and against. **6pts max**

Answers may argue the importance of the abstract theoretical understanding of the role of
supply/zoning or core/unconstrained market processes.
Points are allocated not based on whether the figure is seen as a breakthrough or not,
but only in consideration of the arguments presented.

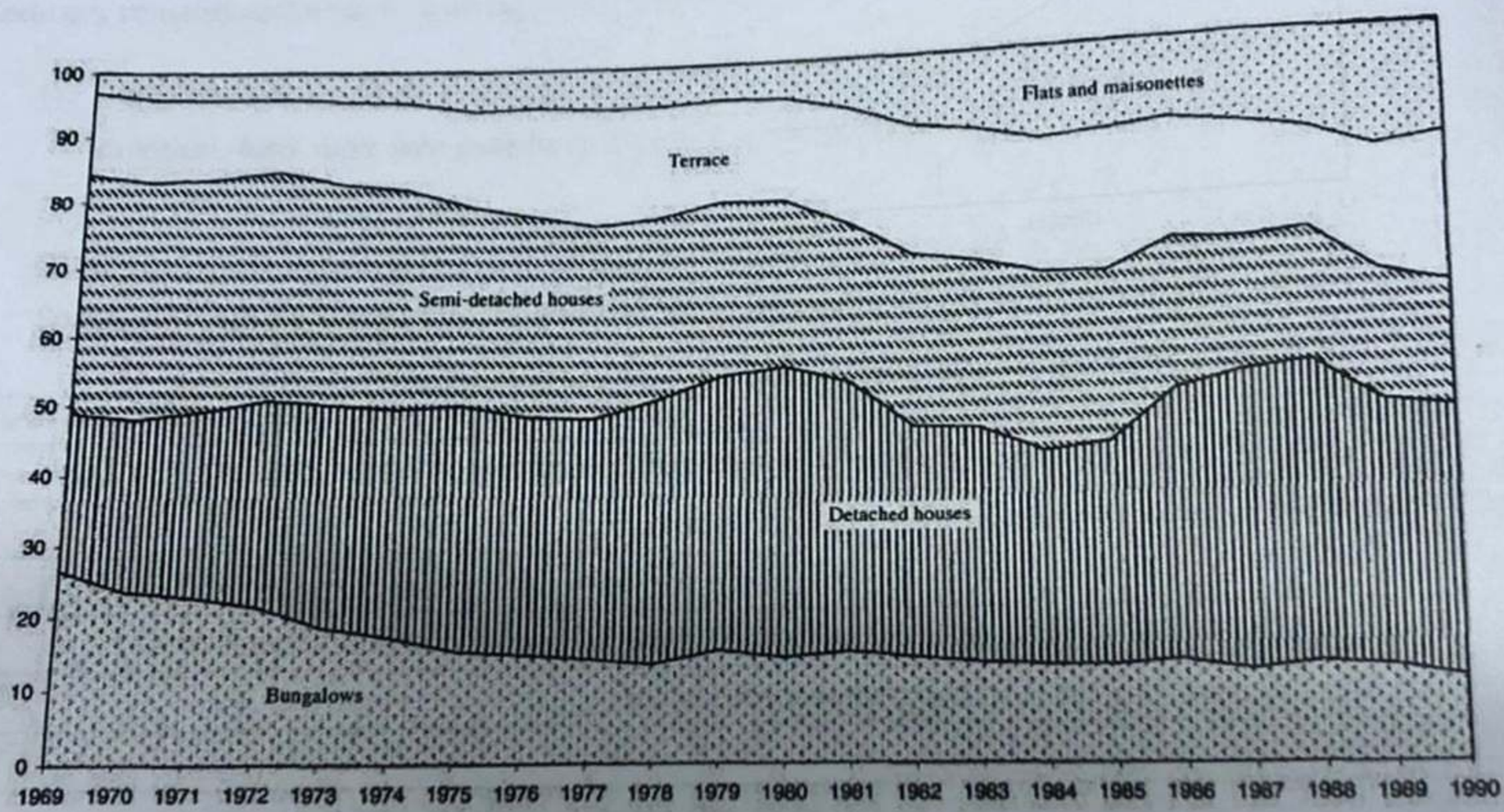
(b) How does the viewpoint of Glaeser and Gyourko (2016) regarding competition for land and how this shapes the allocation of resources crucially differ from the viewpoints of Alonso and Evans? **4pts max**

Note that Glaeser and Gyourko's view is less localized than the views of Evans and Alonso.
Answers may note that G&G consider how competition for land is influenced by zoning,
such that land values become a barrier to entry in productive places. As such, regulated
competition influences allocation processes (e.g. of workers or residents, or property
development) not just within cities (see Figure 2.8) but also across cities (G&G). Answers
may also relate to, e.g., 'regulatory tax', externalities, or even market convergence, the
uneven distribution of household wealth, or residents who vote against new development.
This is one answer, other answers may also be allocated points based on their arguments.

Question 3.

The figure below (Figure 3.5 in the Evans book) shows the relative shares of different types of houses that are newly produced in the UK, for each year over 1969-1990. Analyze the graph and motivate analytically whether any key shifts in the market can possibly be attributed to demand-side or supply-side causes. **10pts max**

* Note that the answer to this question should not involve UK-specific knowledge. Please refer to the graph, analytically in order to provide an analytically motivated answer.



Supply-side response to save on land (7-8x larger share of apartments)
Demand-side also considered by developers – fewer semi-detached, more detached.
Together these observations suggest a shift towards two ends of the density-spectrum.
This might reflect tight urban policy.

Question 4.

Evans writes: 'The primary reason for the inefficiency of the property market is……..'

(a) Fill in the dots in Evans's sentence to provide the answer which he proposes:

……*heterogeneity of property*…….. (max. 10 words)

3pts max

Wheaton and Nechayev (2005) argues that the commercial market for residential investment property is relatively efficient. **4pts max**

(b) What is Wheaton and Nechayev's observation that substantiates this claim?

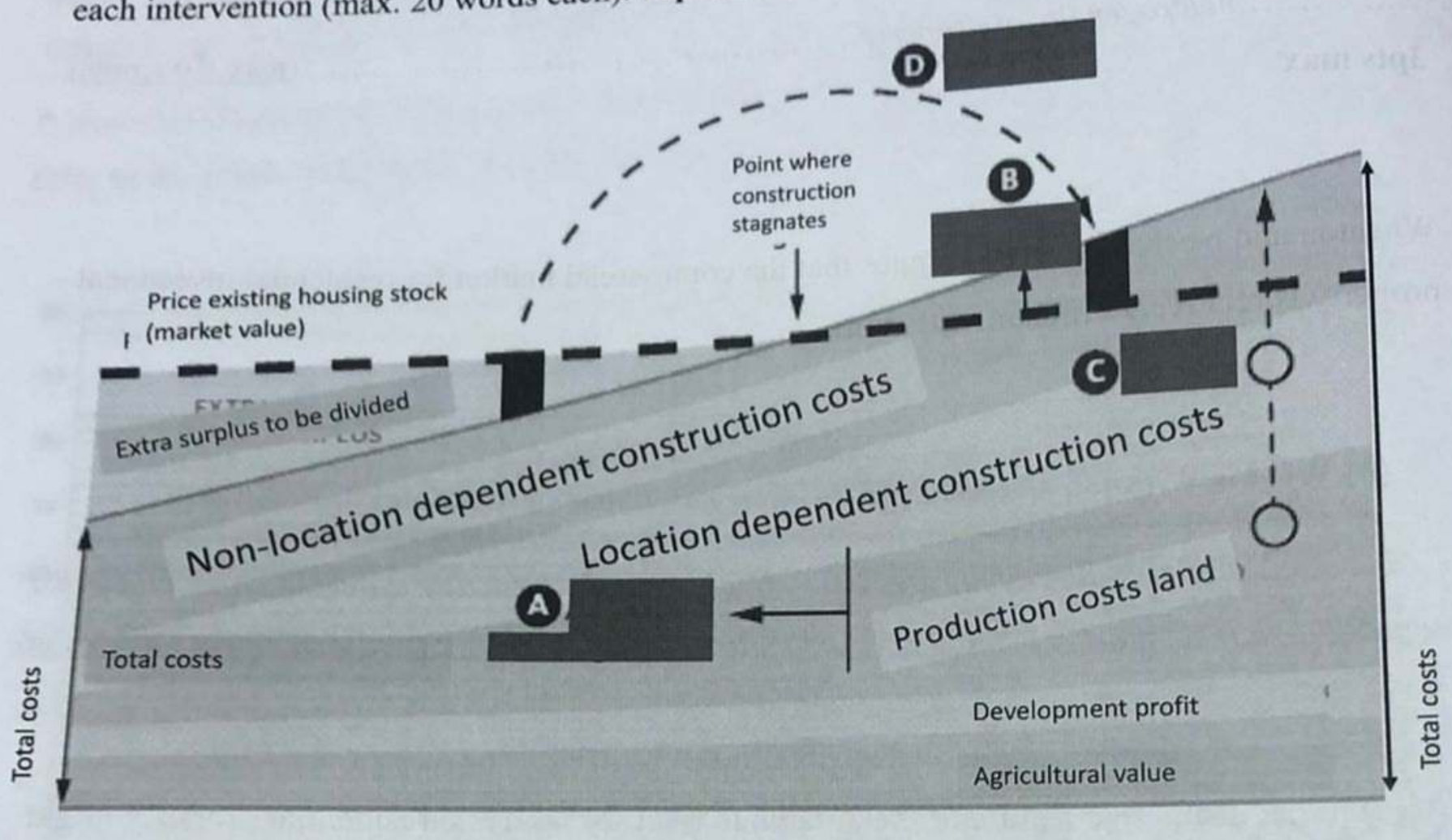
……*local rental growth rates have roughly the theoretically expected effect on yields, suggesting correct market pricing across locations* …… (max. 20 words)

(c) What distinctive feature of the Atlanta market for land and residential property might possibly have contributed to its efficiency? Answers may refer to in-class discussions or the insights of Wheaton and Nechayev. **3pts max**

……*relatively limited heterogeneity of location and property (in-class discussion); answers may also refer to market size, liquidity, and the presence of well-informed investors (Wheaton article)*…… (max. 15 words)

Question 5.

George de Kam in his guest lecture addressed four different policy options when total costs are higher than market value, i.e., four possible interventions in the land market for social housing. These interventions are marked A, B, C and D in the graph. Summarize the nature of each intervention (max. 20 words each). **10pts max**

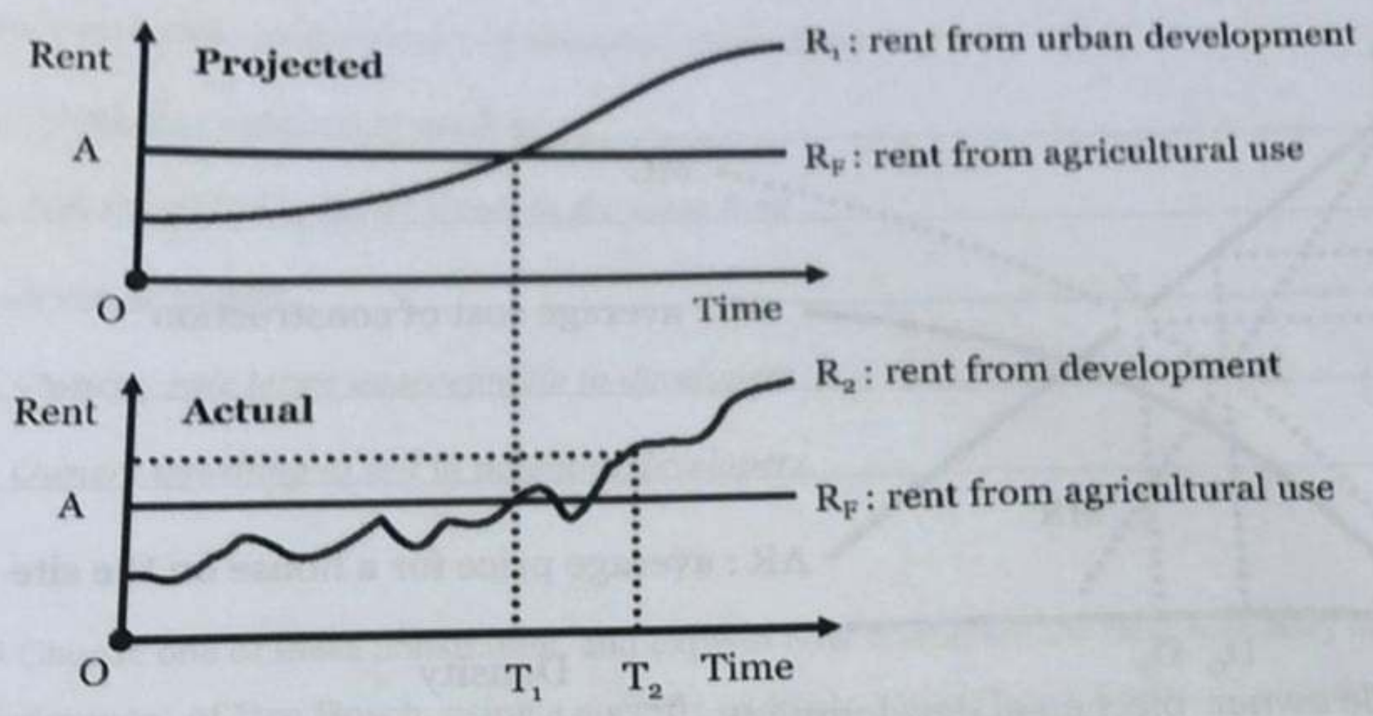


Bron: De Kam, 1996, p. 226.

Alternative spatial policy: designate land/locations to social housing (A)
Building in higher densities to achieve lower unit costs (B)
Giving a subsidy to overcome the deficit (C)
Cross-subsidizing within a project: let the surplus from the commercially viable
housing pay for the non-viable (D)
Answers are awarded points independent of (in)correct linkage to A, B, C, or D.

Question 6.

Evans includes the following figure to show the time when the urban development of agricultural land is predicted to occur, when the rent from urban development surpasses the rent from agricultural use. However, he also says that this model is inaccurate.



(a) Below, draw a more accurate graph indicating (1) a line for the rent from urban development and (2) a line for the time at which development should actually occur. *[Max. 4pts]*

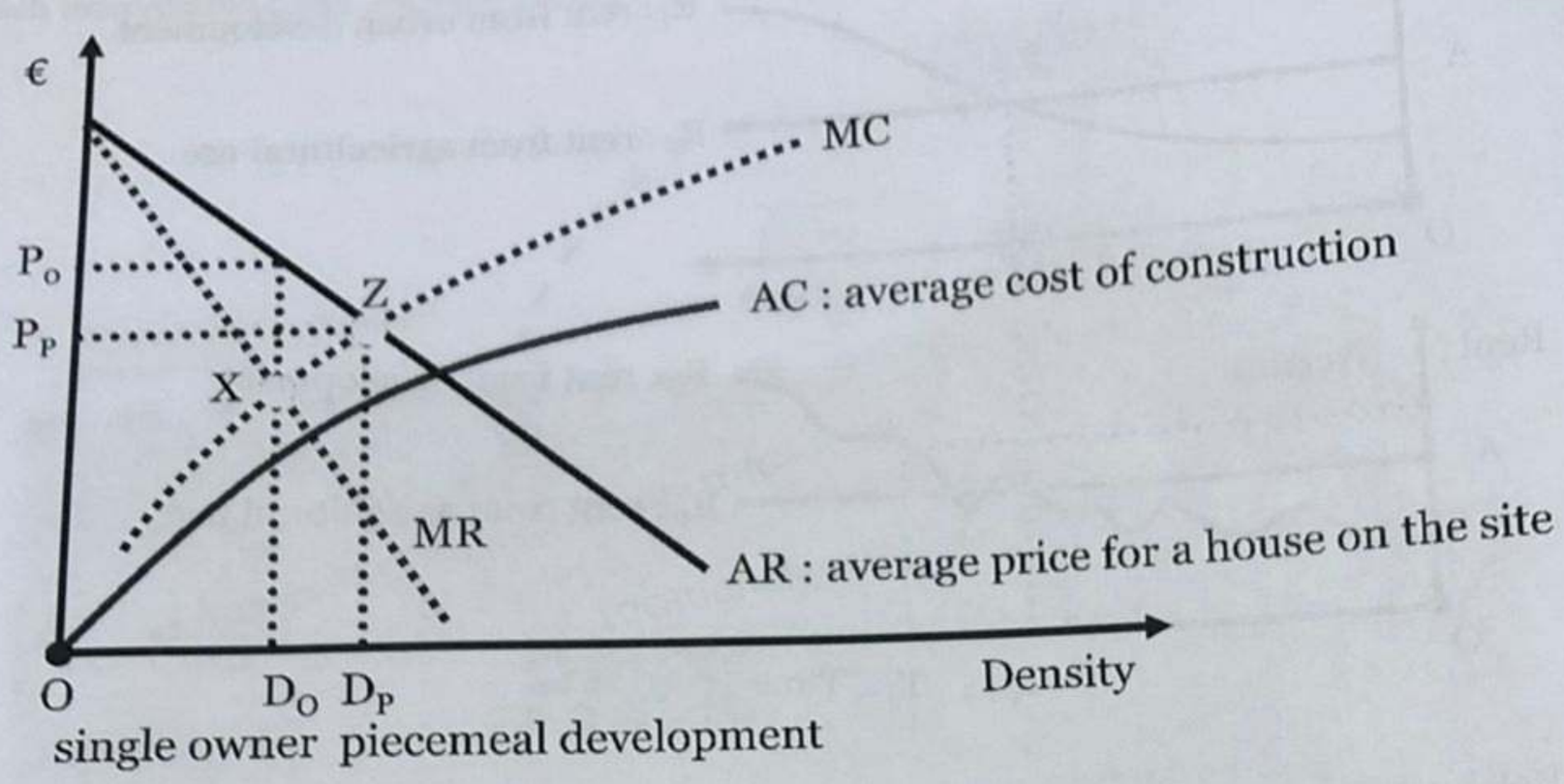
(b) As indicated in your more accurate graph, is the time of urban development **earlier**, at the **same time**, or **later** than the time predicted in the graph above. Circle the correct answer in the previous sentence. *[Max. 3pts]*

(c) Explain why the actual time of urban development (your graph below) may be similar or different to the projected time of development (Evans' graph above) (max. 50 words). *[Max. 3pts]*

The actual time of urban development is later than the theoretically projected time of
development because of uncertainty as urban rents may move up and down rather than
following a straight trend line.

Question 7.

Evans lays out the figure below in order to describe economies of scale and the predicted density of construction when there is a single owner/developer of a large site versus piecemeal development with multiple owners/developers.



(a) Draw and label two lines representing the (1) density and (2) price of development by a single owner/developer of a large site. *[Max. 2pts]*

(b) Draw and label two lines representing the (1) density and (2) price of piecemeal development with multiple owners/developers. *[Max. 2pts]*

(c) Is the density of single owner development **higher** or **lower** than the density of piecemeal development? Circle the correct answer. *[Max. 2pts]*

(d) Explain the reasons why the density of single owner development differs from piecemeal development with multiple owners/developers. (Max. 50 words) *[Max. 4pts]*

Single owner development has lower density than piecemeal development because the owner
can ask a higher price for preferred lower density housing, where the marginal cost meets the
marginal revenue curve. In piecemeal development, the density will be where marginal costs
meet average revenues.

Question 8.

Louw (2008) gives an example of the time it can take to assemble land for urban development in the case of Den Bosch. Louw also refers to five different land assembly constraints mentioned by Adams et al (2001).

(a) List the five land assembly constraints. *[Max. 5pts]*

1. *Ownership unknown or unclear*
2. *Sale restricted by lesser rights in the same land*
3. *Multiple owners*
4. *Owners' sale terms unacceptable to developers*
5. *Owners unwilling to sell to potential developers*

(b) Choose one of these constraints, and explain how it affected the land assembly and development of Den Bosch, using a specific example from Station Square, La Gare, or Paleiskwartier. (Max. 75 words) *[Max. 5pts]*

Owners unwilling to sell to developers: A holdout situation developed in the La Gare development, which meant that the developers could not assemble all the land needed for their original plan. Eventually they changed their design so that it did not include the site.