

ECN 275/375 Environmental and natural resource economics

Exercise set 13

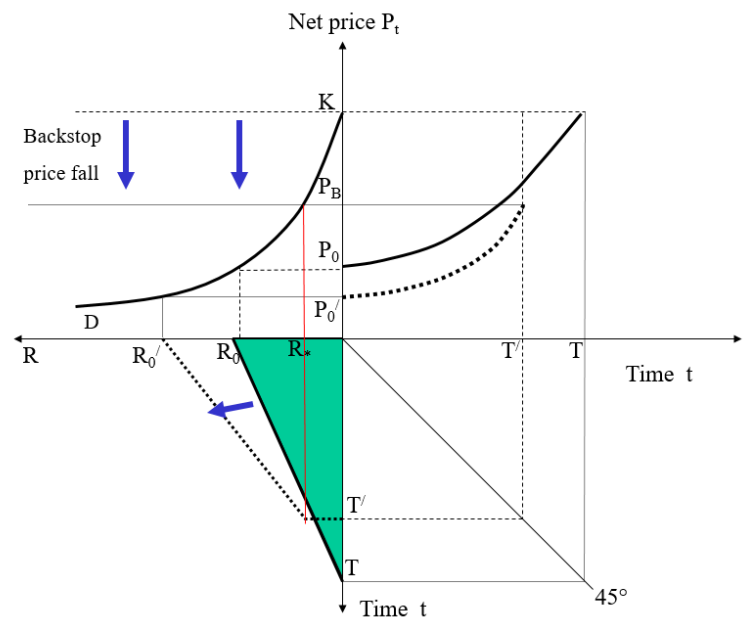
Exercise 13.1 – Hotelling’s rule

- (a) State Hotelling’s rule (i) mathematically (explain terms) and (ii) verbally, and (iii) explain its implications.
- (b) When one looks at prices for major resources like oil, they frequently deviate a lot from the “Hotelling price path”. What are possible reasons for this? For each item you list, provide a short justification.

Exercise 13.2 – Analysis of resource extraction

Use Fig. 5.3 (the graph with four paneled graphs) as a starting point for the analysis.

- (a) Test yourself on 1-2 of the scenarios presented in the chapter – do you get similar results as in the book.
- (b) Consider a situation where the choke price (K) drops as in the figure to the right to a P_B (fig. 15.10 – left panel). Explain the changes that take in the figure.
- (c) Suppose extraction costs decrease over time, i.e., $\dot{c} < 0$, for example due to technological progress. Explain why decreasing extraction costs over time causes the new Hotelling price path to differ from the initial price path. Draw the new Hotelling price line.



Hint: Change notation, and give another symbol for the Hotelling price than P_t , for example θ_t .