

Exercises

# MARKET REGULATION (3)

# Tradable quotas

Assume that 11 sectors of the economy of Zelandia could each use one Mt of coal for their activities and all coal is imported. The government of Zelandia rations coal imports to 5 Mt through quotas.

The table shows each sector's WTP for one Mt of coal, in decreasing order.

Based on a random draw, sectors B, E, G, I and J were granted one of the five import quotas for one Mt of coal each. The quotas cannot be split. For the time being, we assume that a quota gives access to coal for free.

- 1) Draw the demand curve for coal and therefore quotas
- 2) Compute the total benefit (WTP) of the sectors granted quotas

The government allows for the trade of quotas and set up a market to facilitate it; it is efficient, i.e., all quotas are traded at the same, market-clearing price

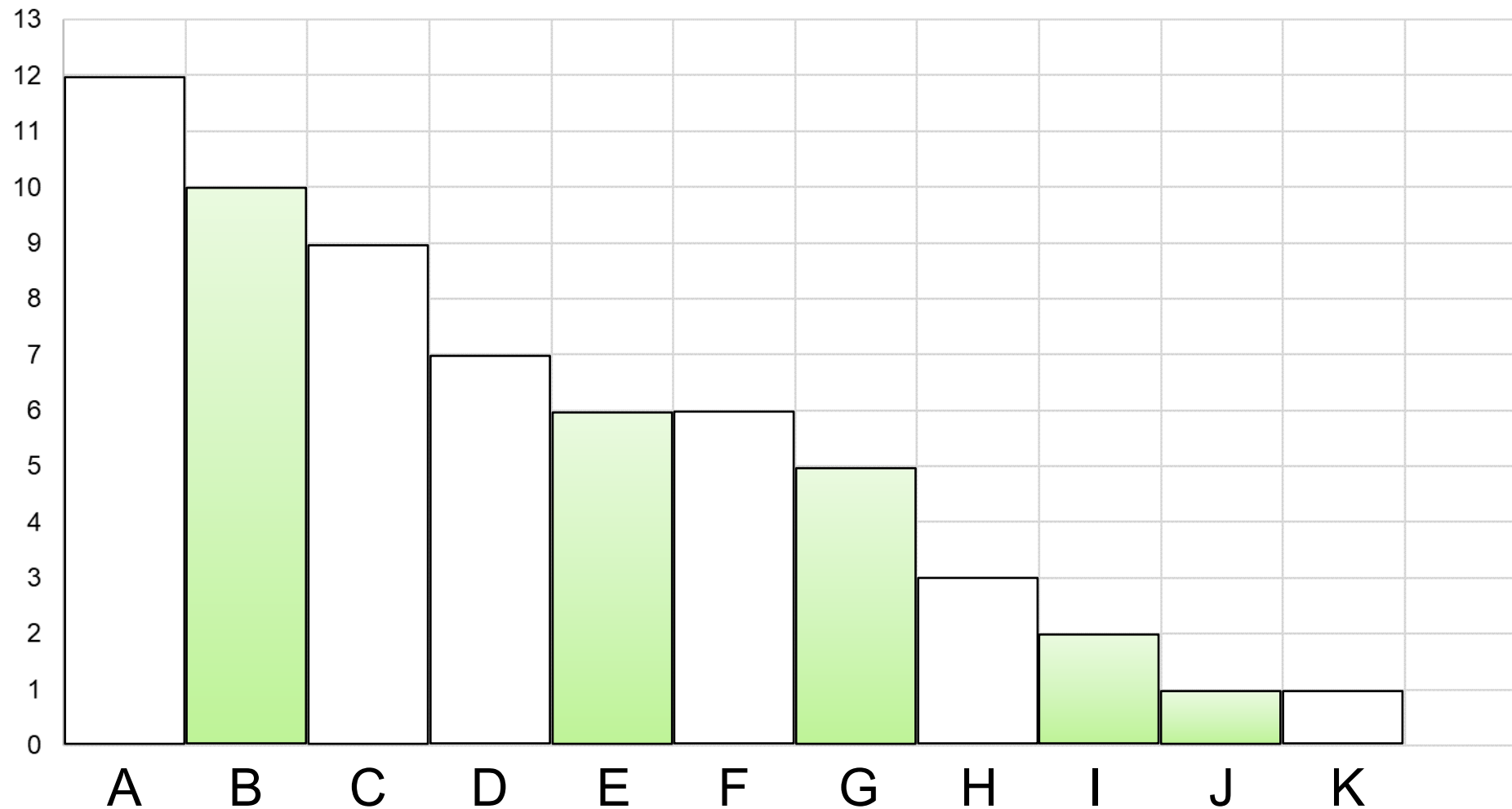
- 3) Represent the market for quotas and compute the market-clearing price

Sector	WTP
A	12
B	10
C	9
D	7
E	6
F	6
G	5
H	3
I	2
J	1
K	1

# Tradable quotas

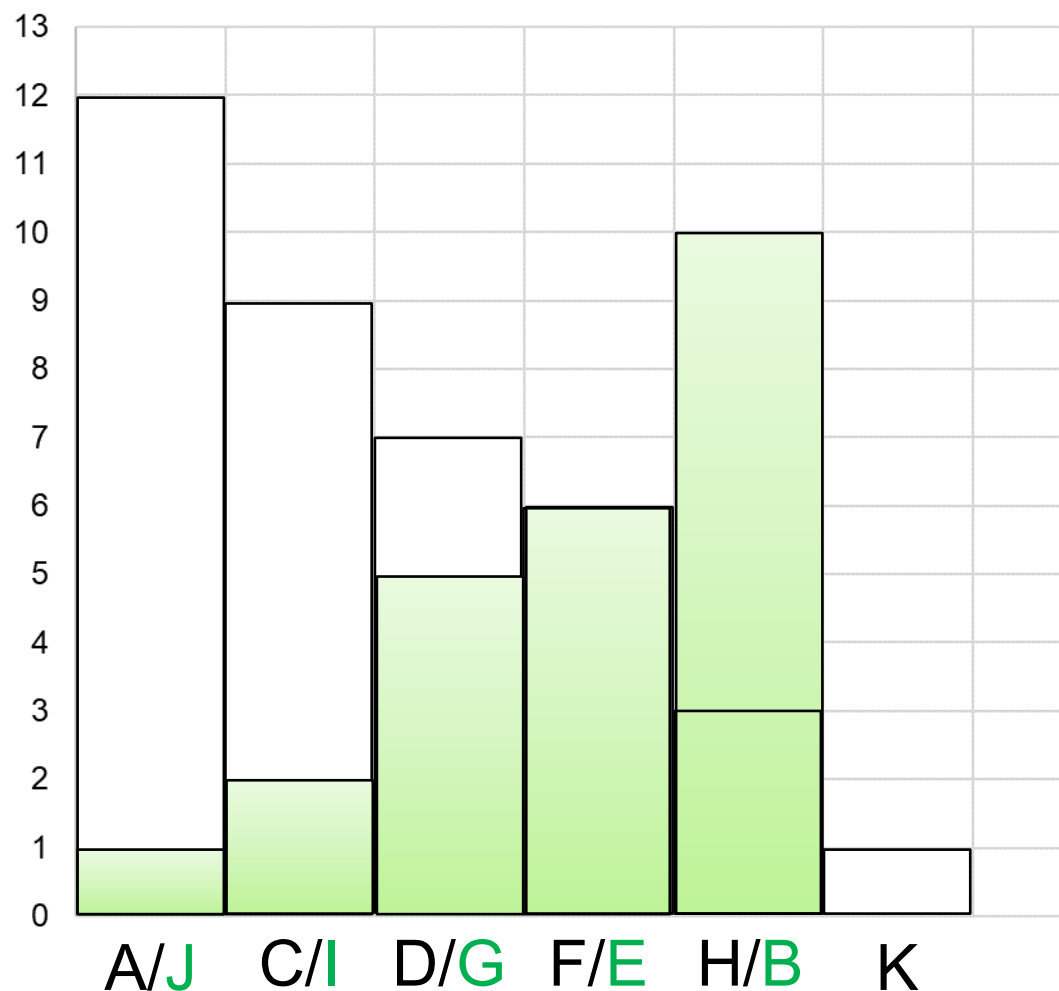
## Answer: initial allocation

Sum of WTP of sectors granted an import quota = 24



# Tradable quotas

Answer: supply, demand and equilibrium



Potential coal buyers with a quota are potential quota sellers for a price exceeding their WTP for coal (= WTA' for quota)

Equilibrium price for quotas = 6

Buy quotas: A, C, D

Keep their quota: B, E

Total WTP for coal of new quota owners =  $12 + 10 + 9 + 7 + 6 = 44$

# Tradable quotas with price for good

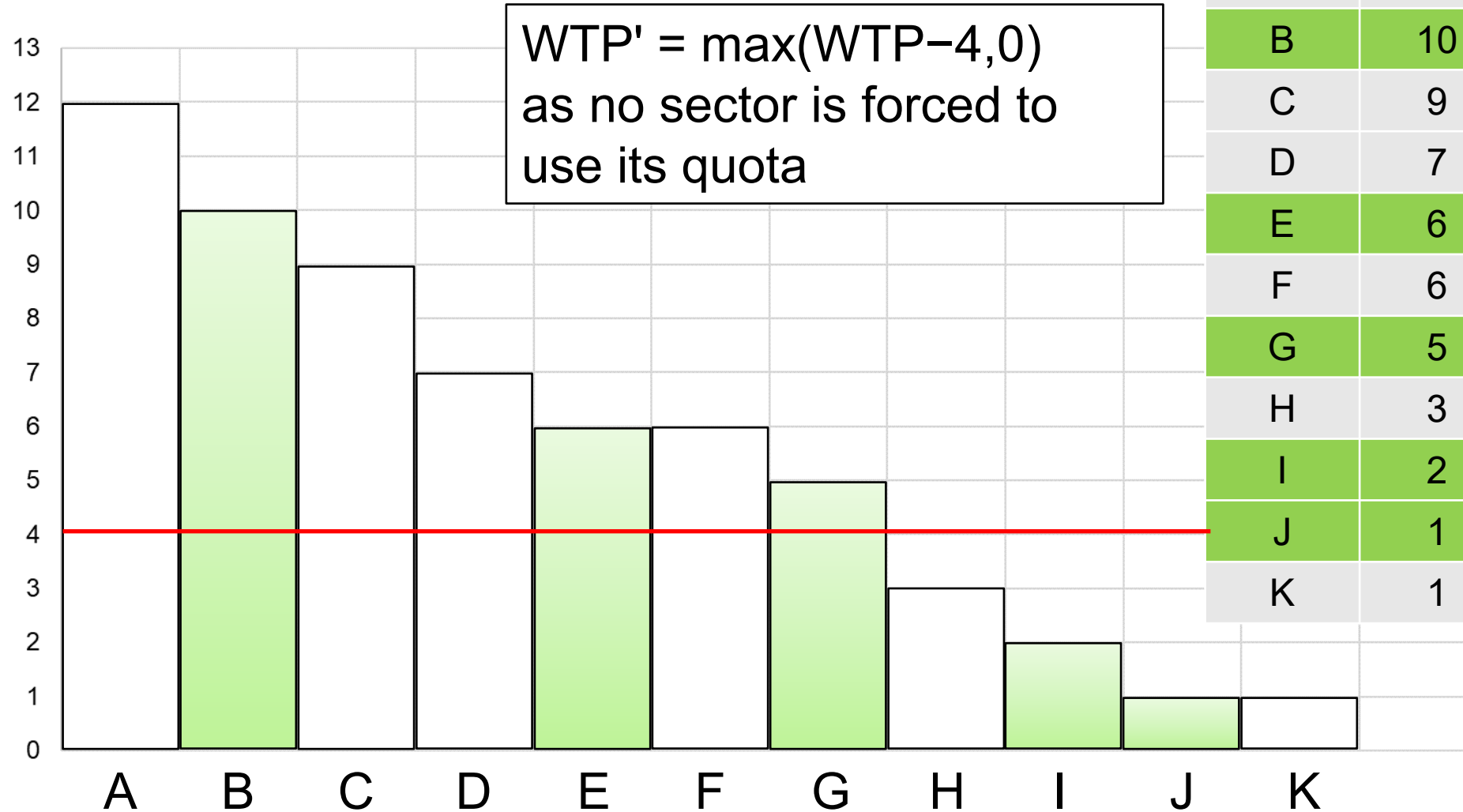
Same problem as before, but now the sectors must pay the world market price of 4 / Mt coal when they import it, in addition to holding an import quota.

- 1) Compute the sectors' WTP' for quotas
- 2) Represent the market for quotas and compute the market-clearing price

Sector	WTP
A	12
B	10
C	9
D	7
E	6
F	6
G	5
H	3
I	2
J	1
K	1

# Tradable quotas with price for good

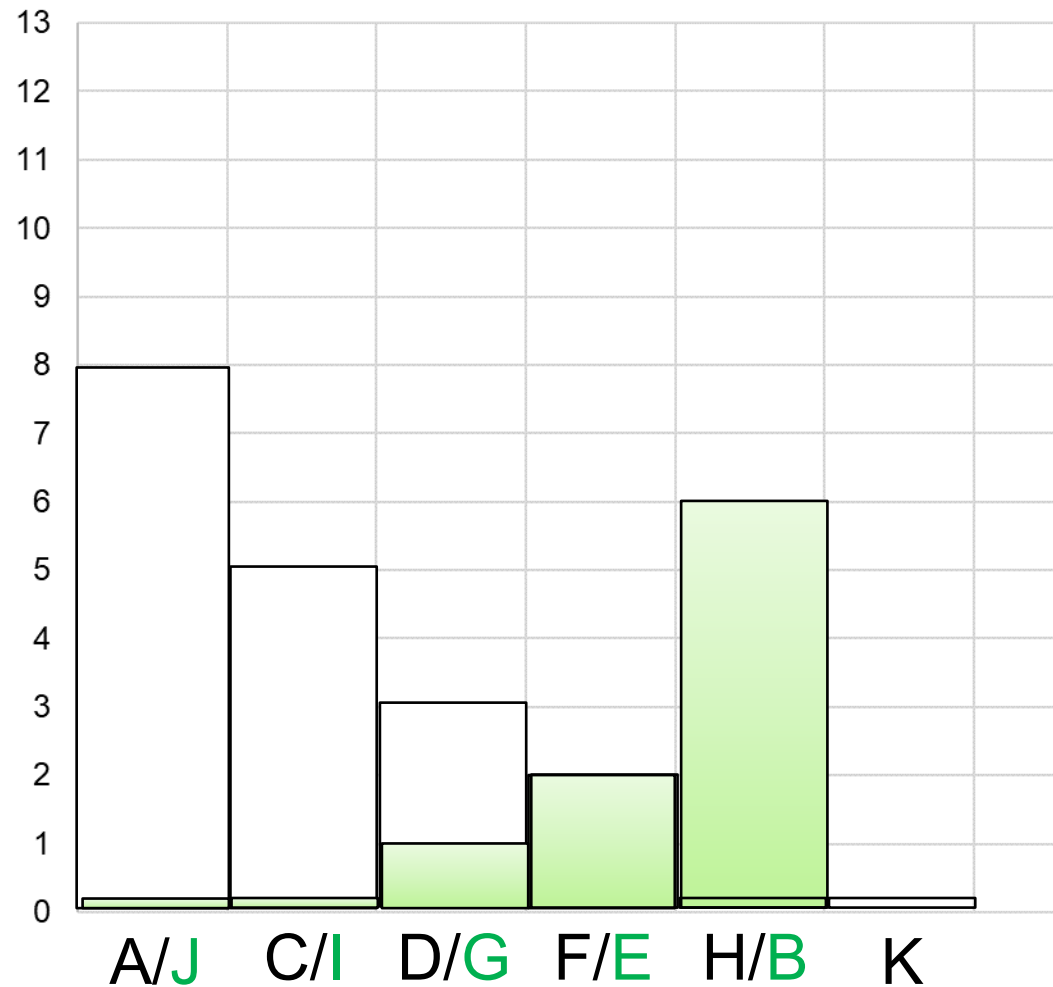
## Answer: initial allocation



Sector	WTP	WTP'
A	12	8
B	10	6
C	9	5
D	7	3
E	6	2
F	6	2
G	5	1
H	3	0
I	2	0
J	1	0
K	1	0

# Tradable quotas with price for good

## Answer: supply, demand and equilibrium



Equilibrium price for quotas when they entitle to buy coal for  $4/\text{Mt} = 2$