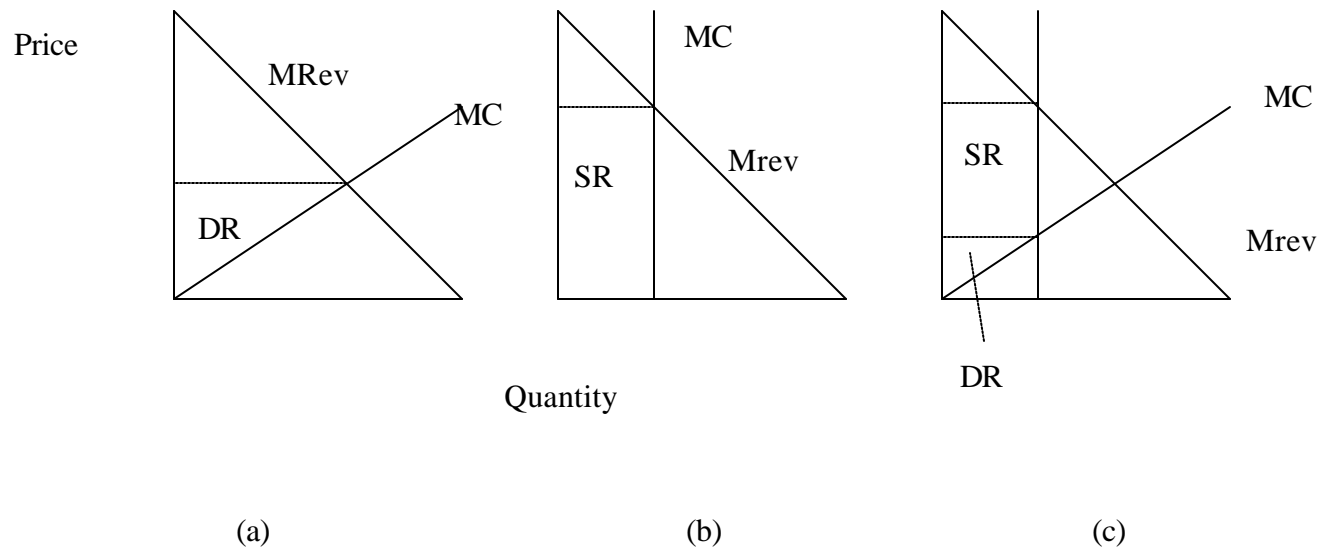


# The concept of rent and Diagrammatic Exposition

# Notion of Rent

Type of rent	Definition	Policy implications
<b>Resource rent</b>	Sum of scarcity rent and Ricardian rent	Careful design of policy can result in resource rents being taxed in such a way that the behaviour of suppliers of the resource is not changed.
Scarcity rent	Difference between MR and MC due to natural or induced scarcity of the resource	
Ricardian/differential rent	Excess of market value of the resource over and above marginal costs of supply $RR = TR - TC - TP$	
<b>Quasi-rent</b>	Returns accruing to man-made and human capital, i.e. $QR = TR - TVC = PS$	Taxation affects behaviour because what is being taxed is not natural capital.

# Notion of Rent

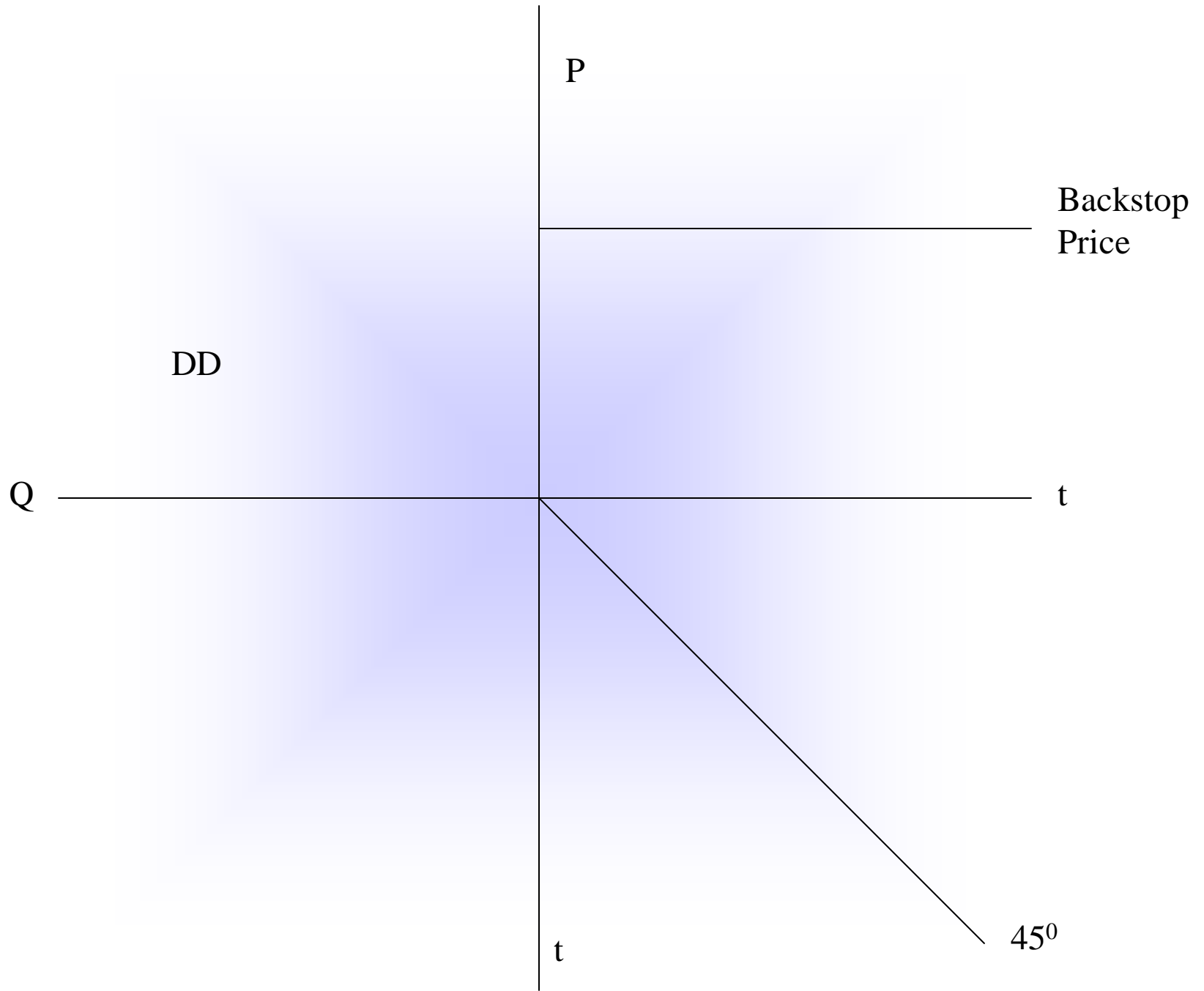


# Effect of change in various variables to resources path of price and extraction

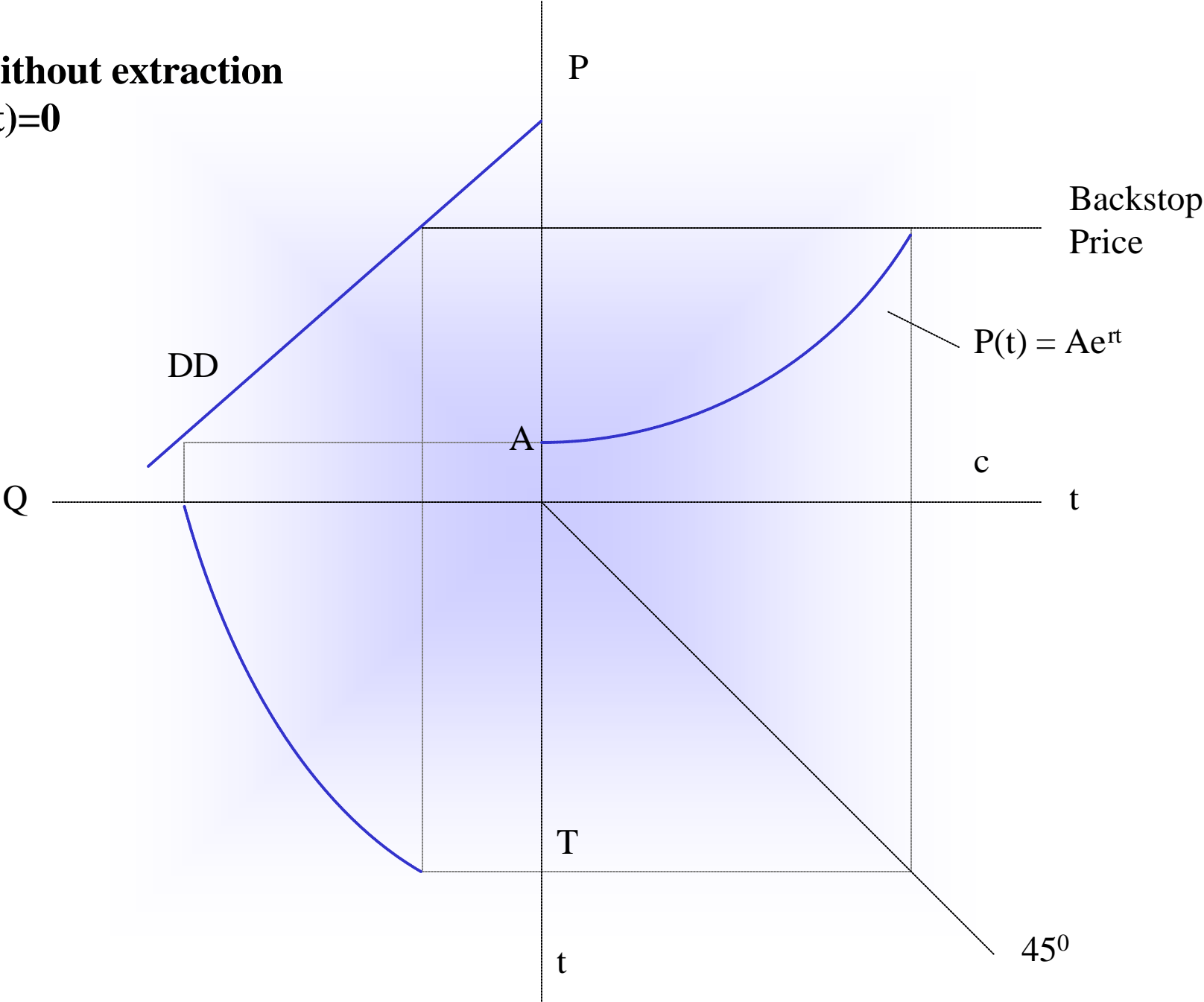
Diagrammatic Exposition of a more complete model

# Things to always remember!

- Rent that is  $(p - mc)$  increase at \_\_\_\_\_  $RENT(t) = RENT(0) e^{rt}$   
rate of discount (Hotelling Rule!)  $RENT(t) = P(t) - C(t)$
- Accumulated extraction is equal \_\_\_\_\_  $\int_0^T Q(t) dt = S$   
to total stock
- Addition:
  - There is a backstop price
  - Extraction is no longer costless



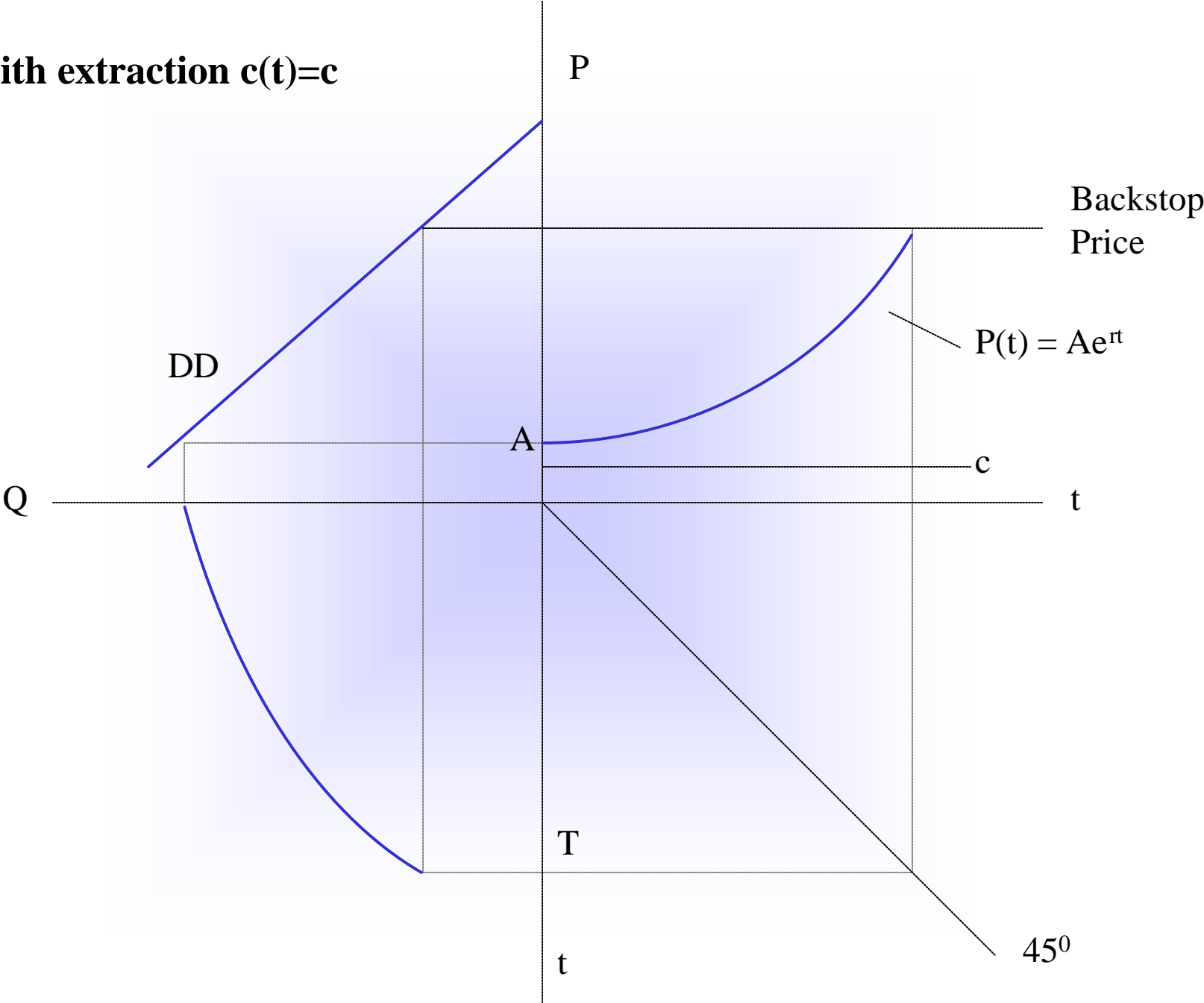
**Without extraction**  
 **$c(t)=0$**



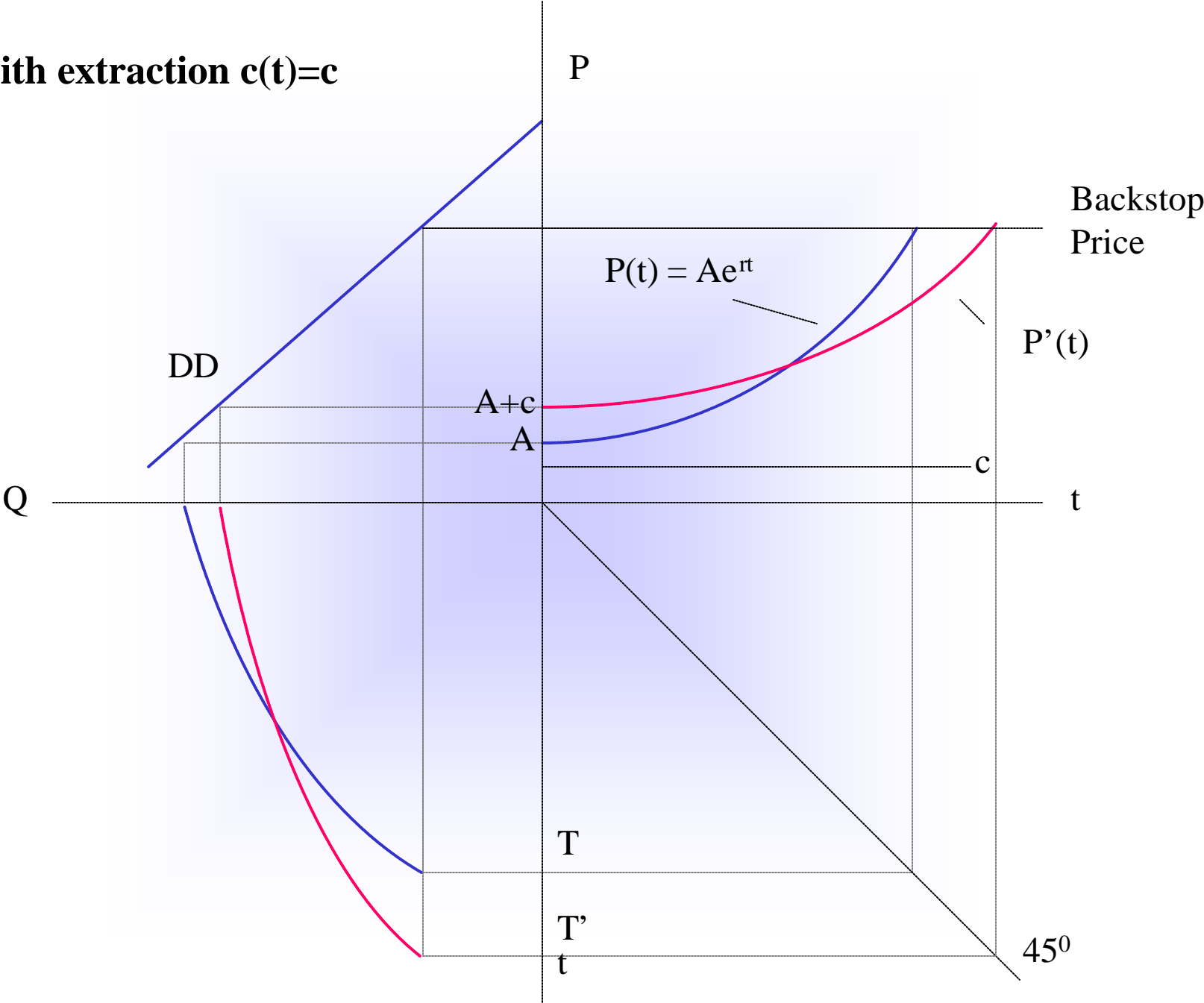
## With extraction cost / increase in cost

- With cost,  $c(t) = c$ , constant marginal cost
- Hotelling rule, rent increase at rate of discount
- $\text{Rent} = \text{Rent}(0)e^{rt} = Ae^{rt}$
- $P(t) - c = Ae^{rt}$
- $P(t) = Ae^{rt} + c$

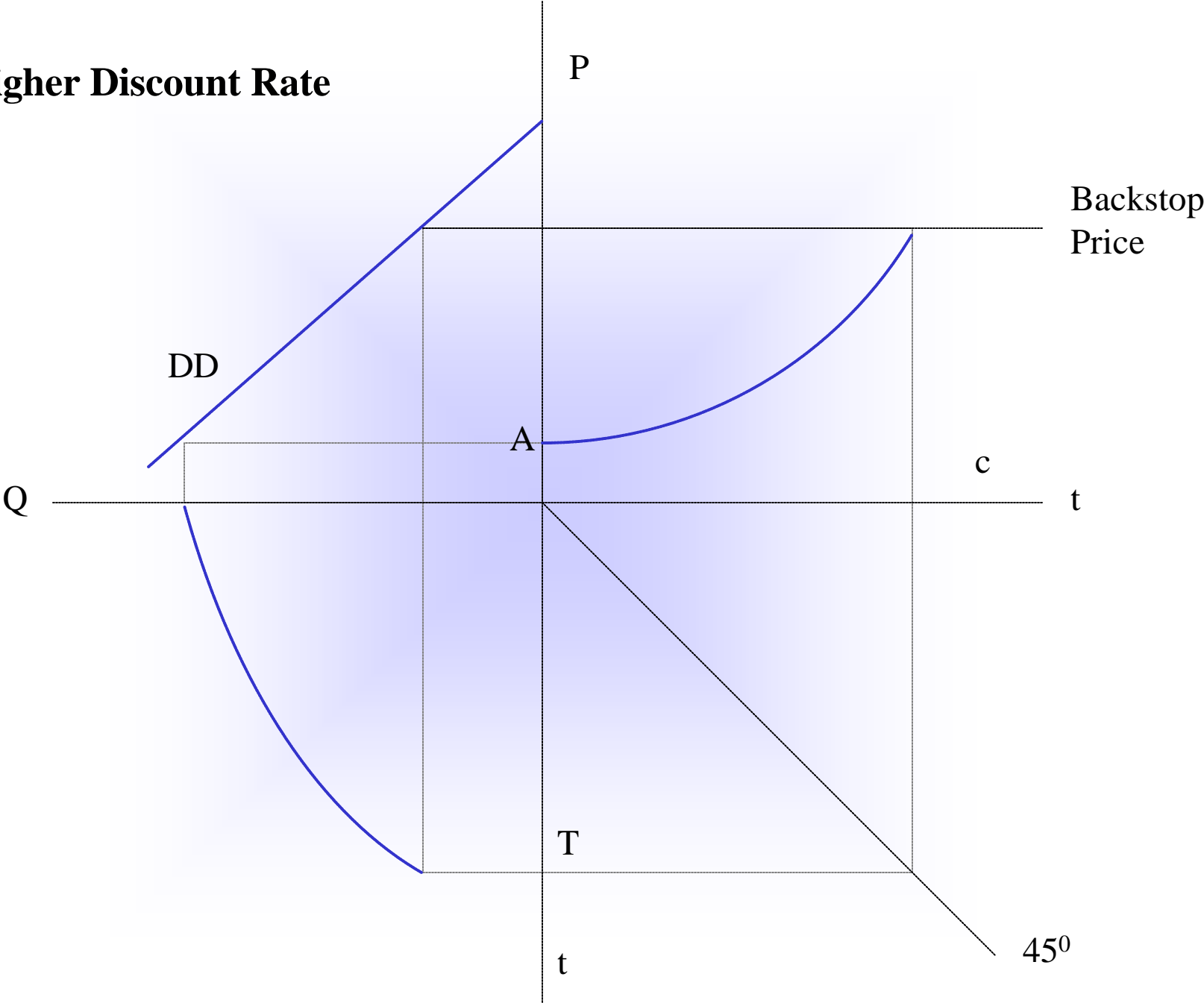
With extraction  $c(t)=c$



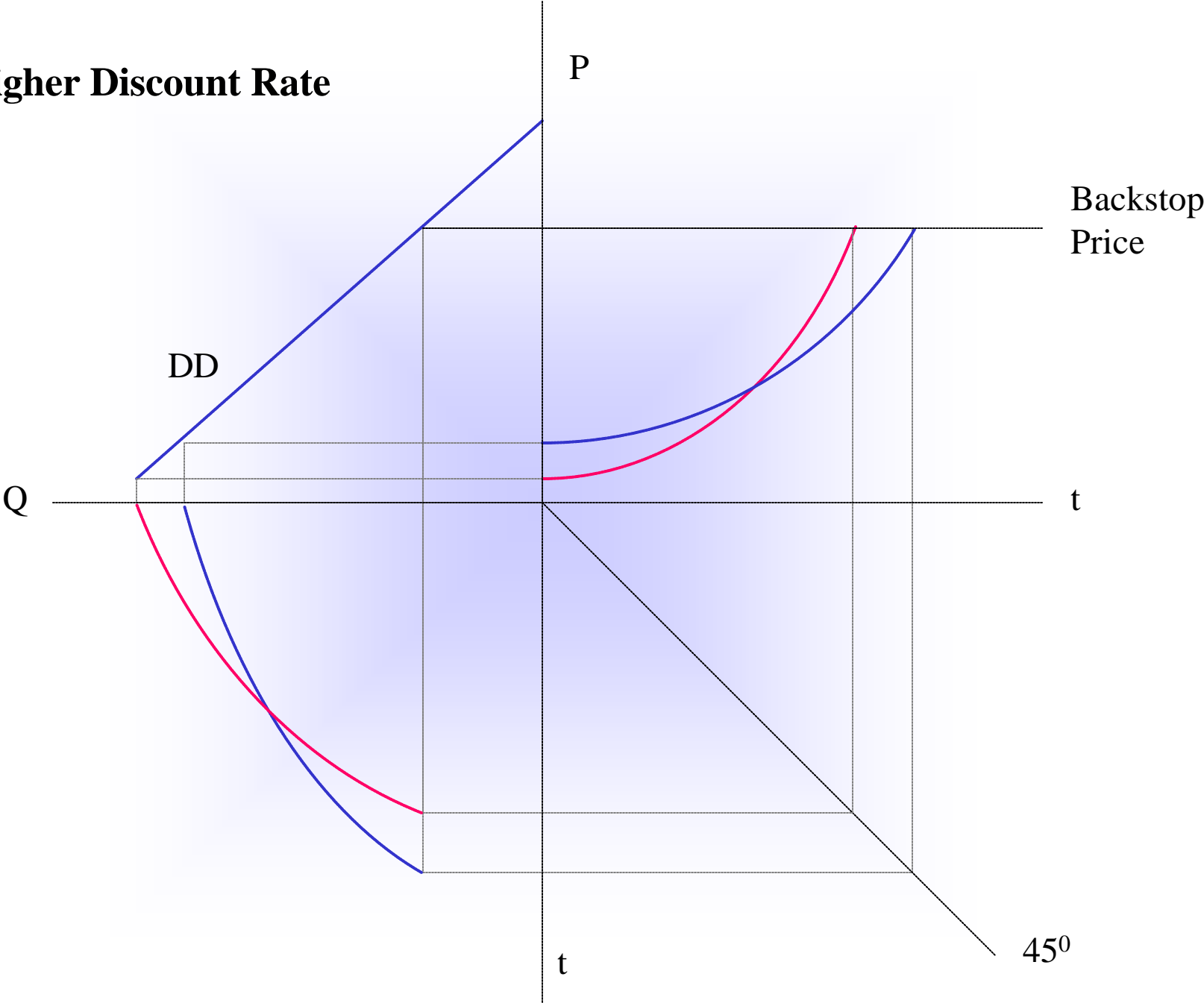
With extraction  $c(t)=c$



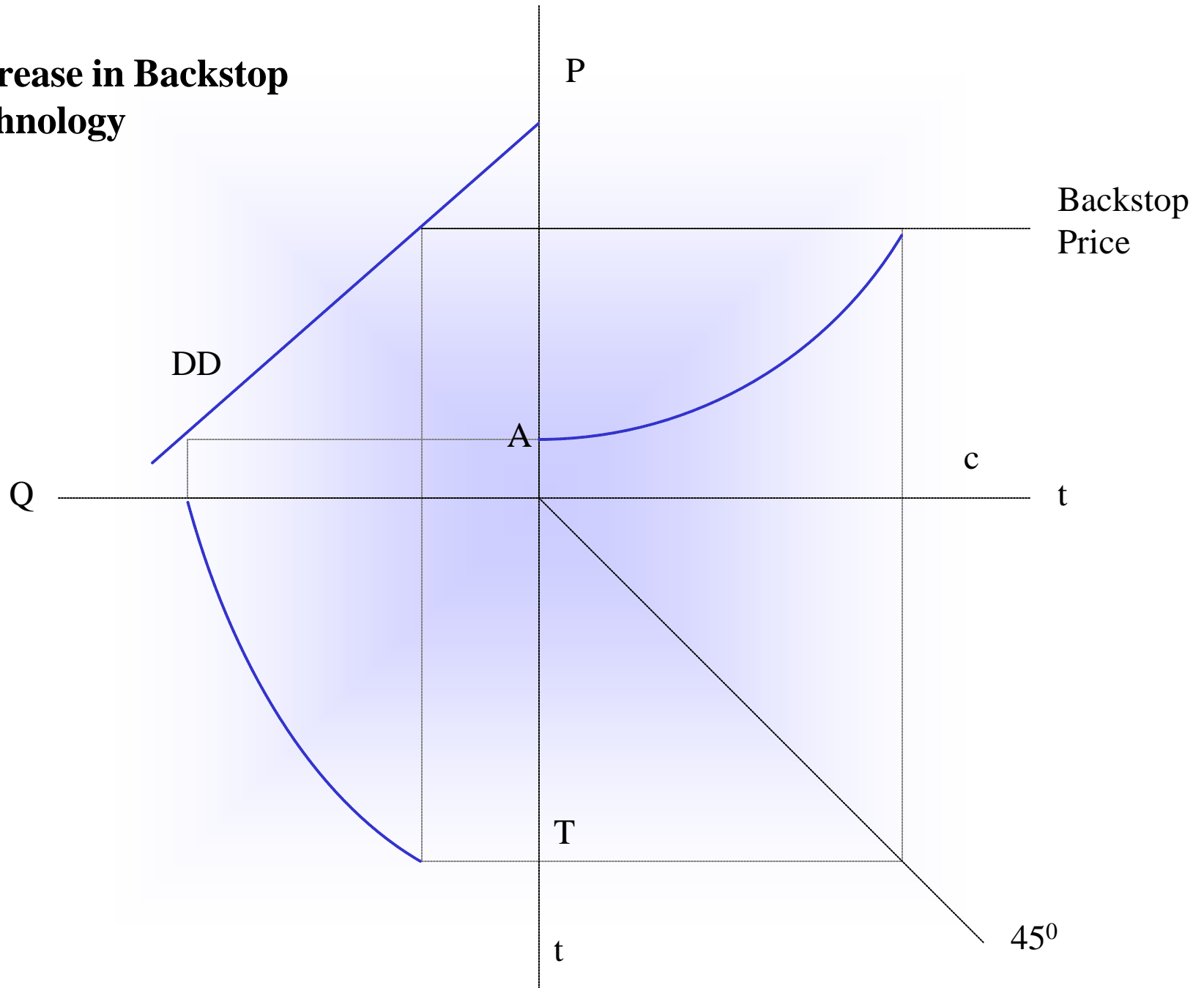
**Higher Discount Rate**



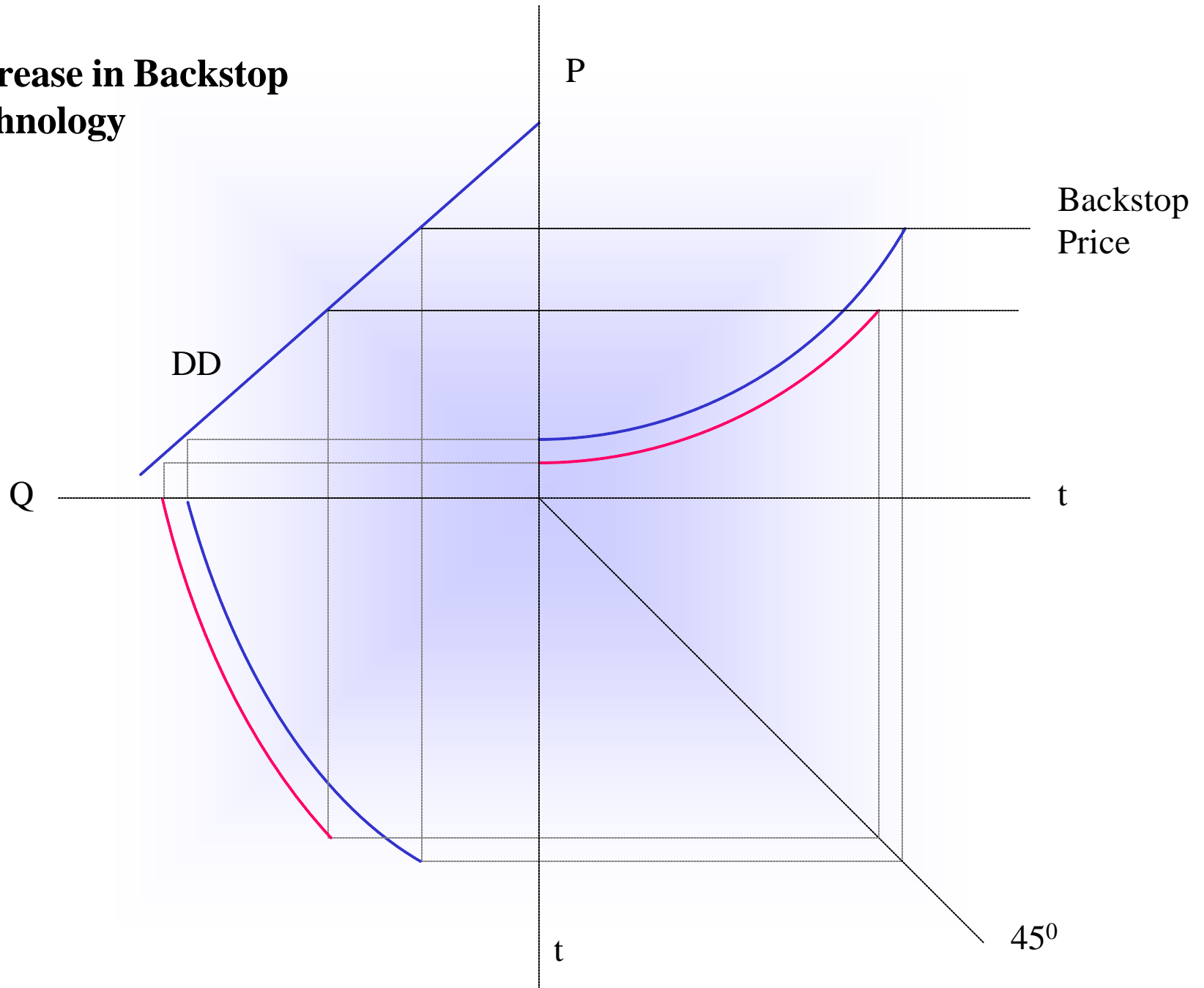
# Higher Discount Rate



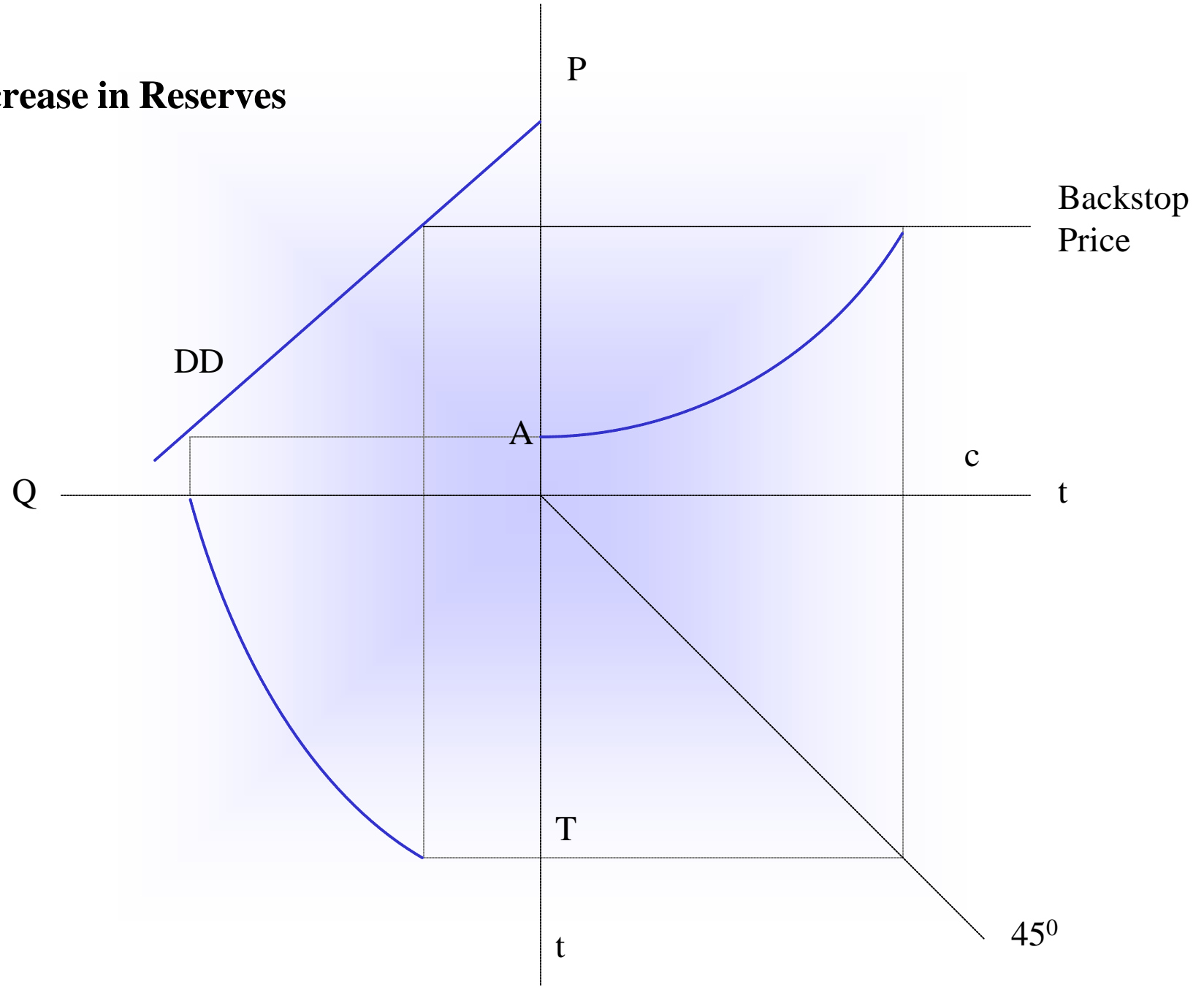
# Decrease in Backstop Technology



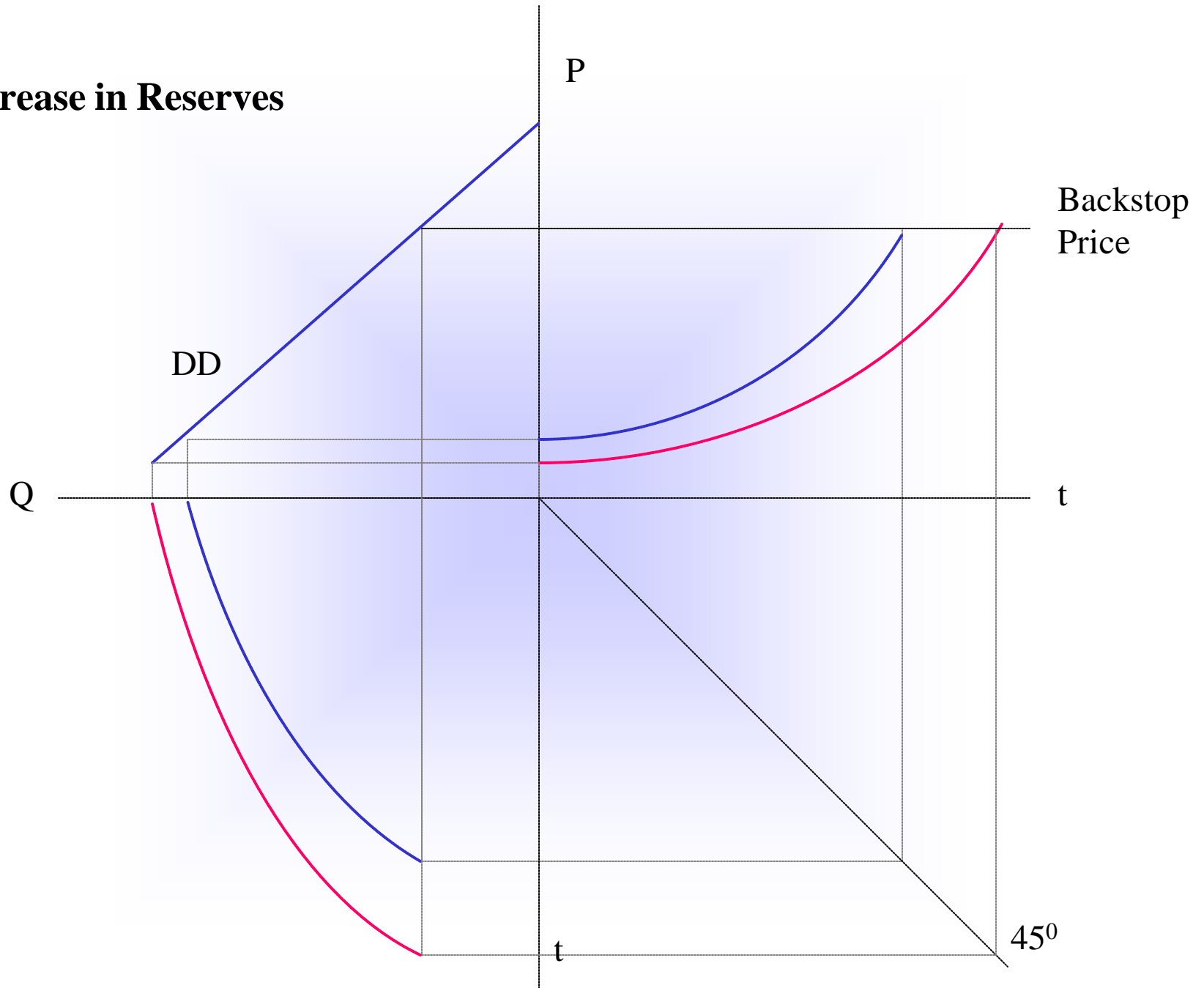
# Decrease in Backstop Technology



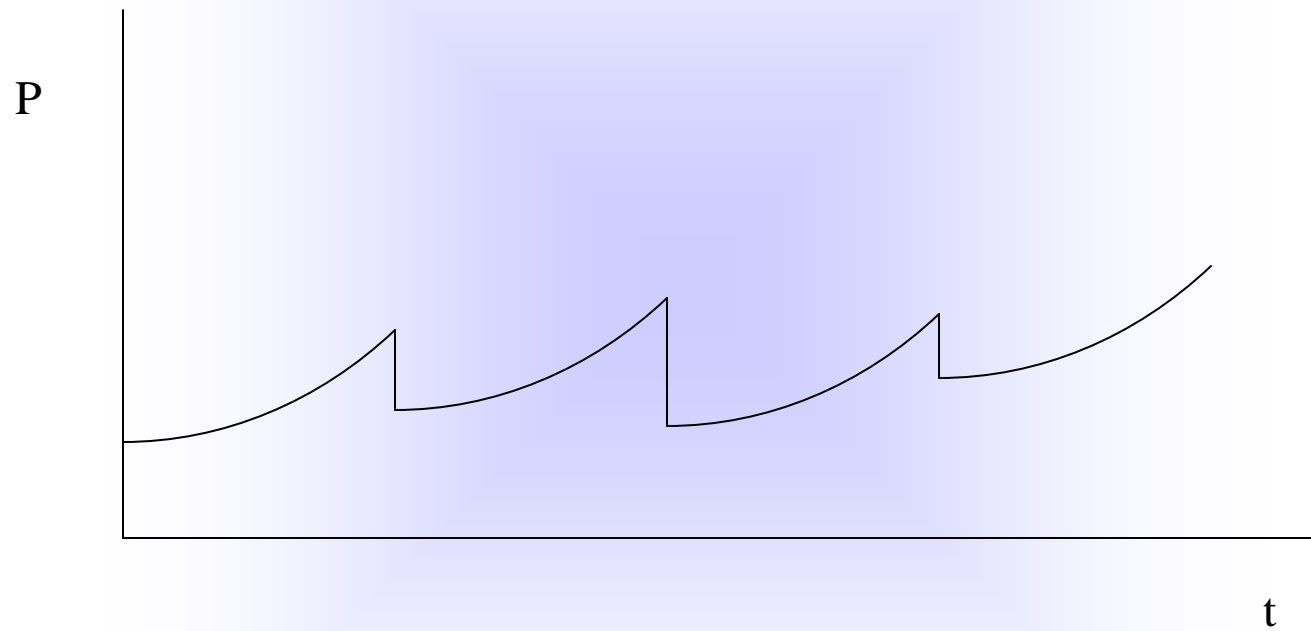
# Increase in Reserves



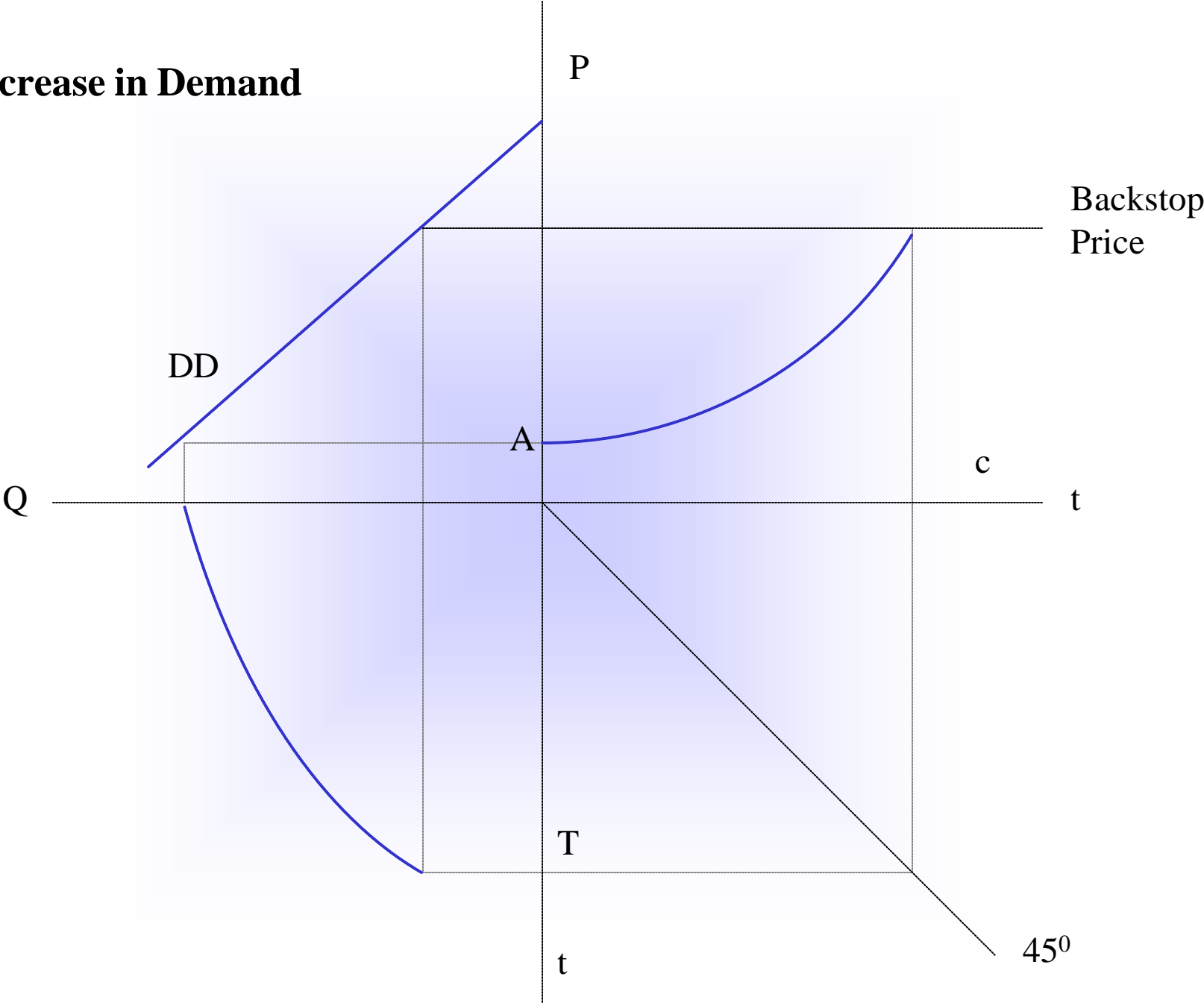
# Increase in Reserves



# Continuous increase in reserves: Price path



# Increase in Demand



# Increase in Demand

