Implications of tariff and tax benefits for oil development in East Siberia

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Simplified field development model

$$q(t)=m\cdot Q(t)$$

$q(t)$ - annual production;

$Q(t)$ - residual recoverable oil reserves;

$m=const$ - recovery rate

$$\dot{Q}(t)=-q(t)$$

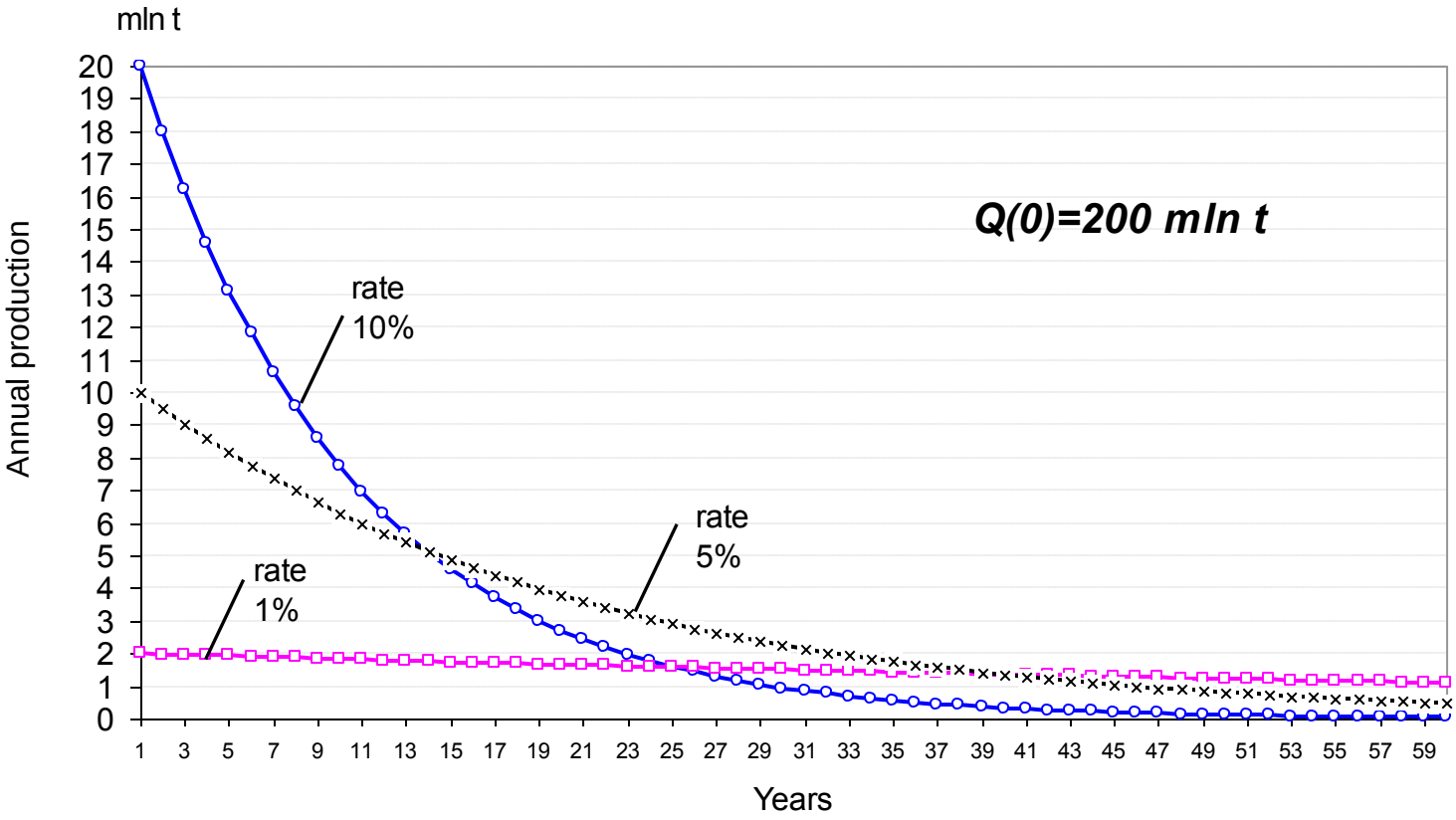
Capex

$$K = K_{\phi}+k\cdot m\cdot Q(0)$$

Opex

$$C(t)=c\cdot q(t)$$

Annual oil production on the field (3 options of recovery rate)



Discounted cumulative values

$$NPV = \sum_{t=0}^{\infty} \frac{1}{(1+E)^t} \left[R(t) - C(t) - Tax(t) - K(t) \right]$$

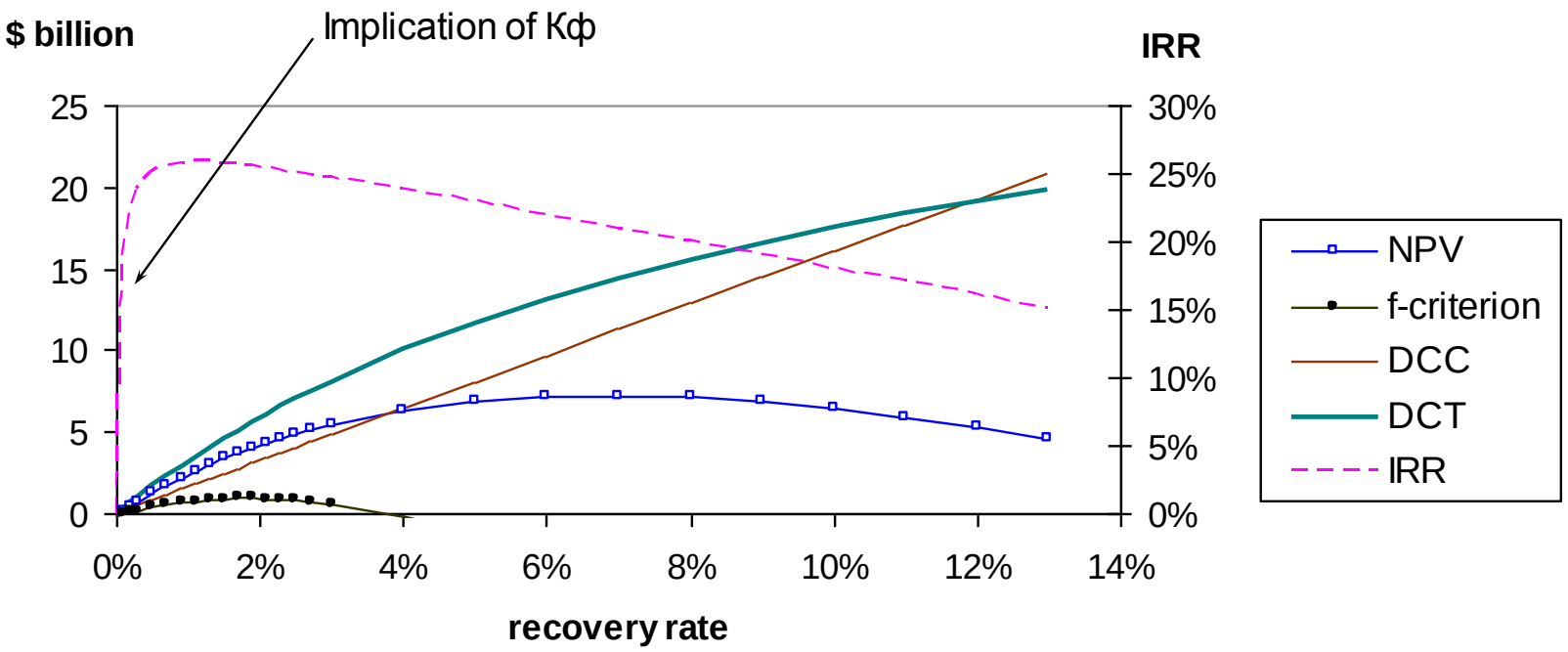
$$DCT = \sum_{t=0}^{\infty} \frac{1}{(1+E)^t} Tax(t)$$

$$DCC = \sum_{t=0}^{\infty} \frac{1}{(1+E)^t} K(t)$$

$$CDOP = \sum_{t=0}^{\infty} \frac{1}{(1+E)^t} q(t)$$

$$E = 10\,\%$$

Field development performance vs. offtakes



Optimal recovery rate

$$m_f = \sqrt{\frac{(p-c-h)E}{(1+f)k}} - E$$

p – price;

c – relative Opex ;

k – relative Capex per unit capacity ;

h – tax rate (summary), $/t

Condition of investment ΔDCC realization

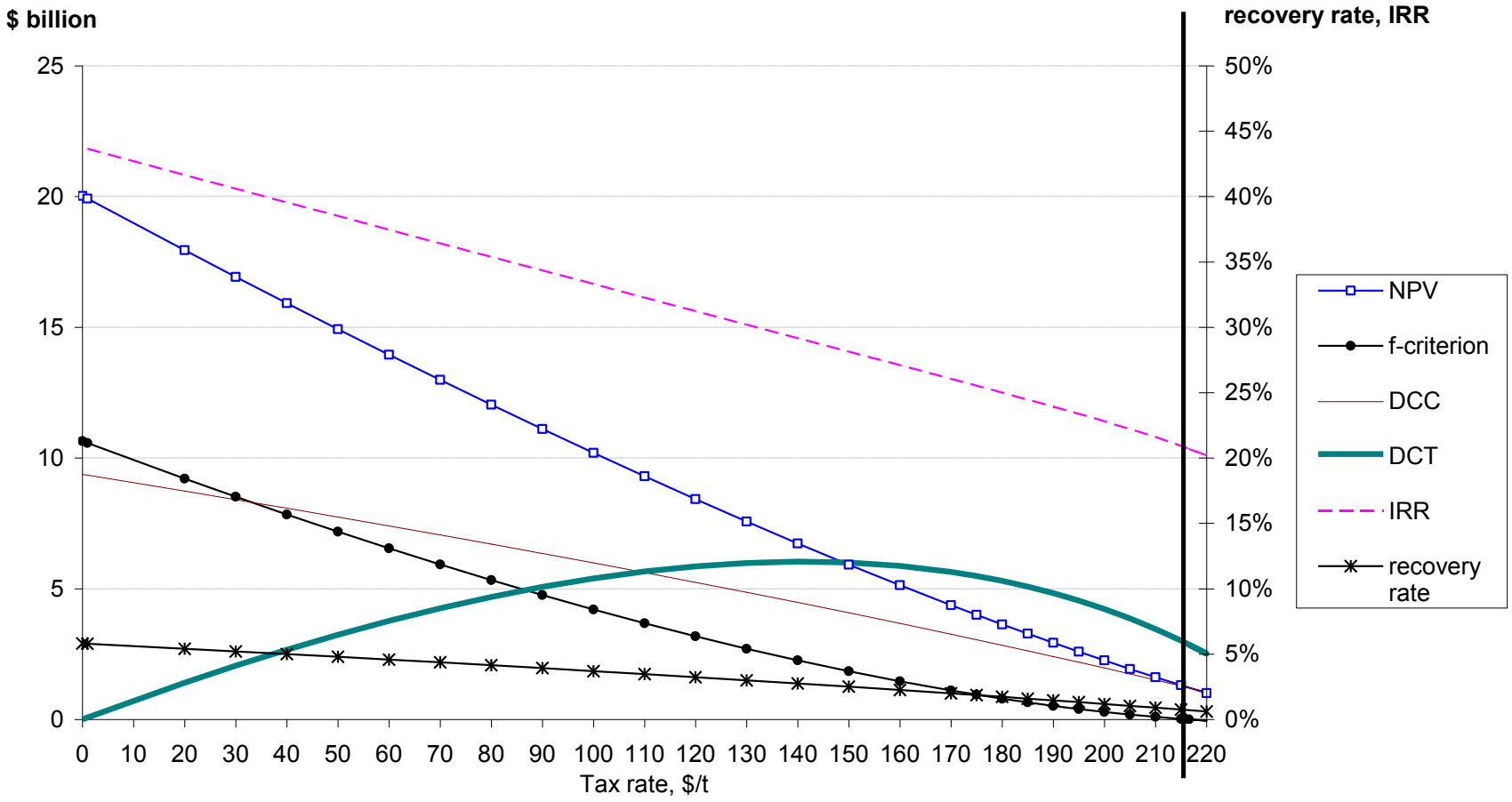
$$\Delta NPV > f \cdot \Delta DCC,$$

f – investment marginal performance ;

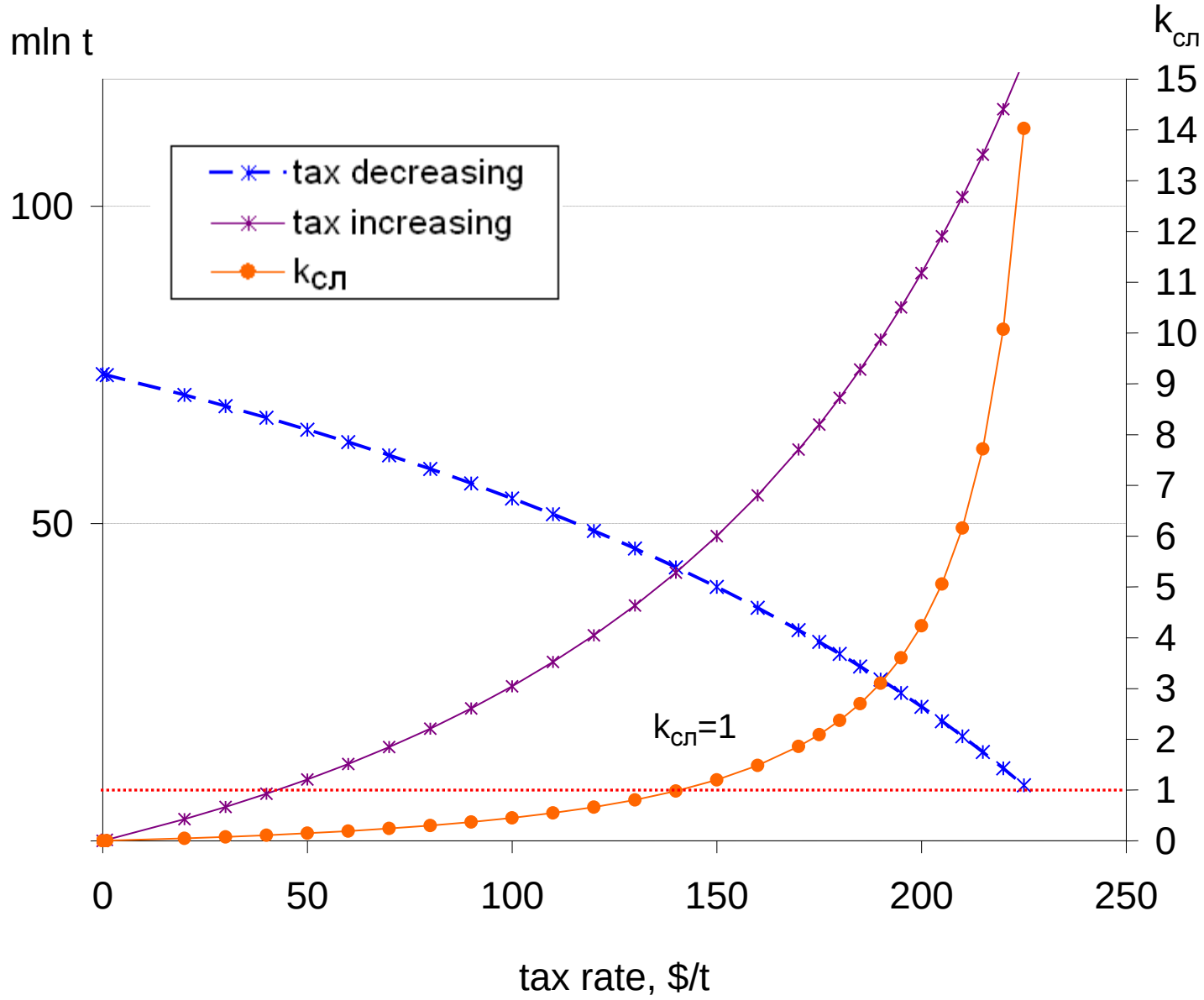
f -criterion

$$ЧДД - f \cdot ДК$$

Field performance vs. tax rate



Effect of reducing the tax rate on the amount of tax



A tax incentive consistency ratio

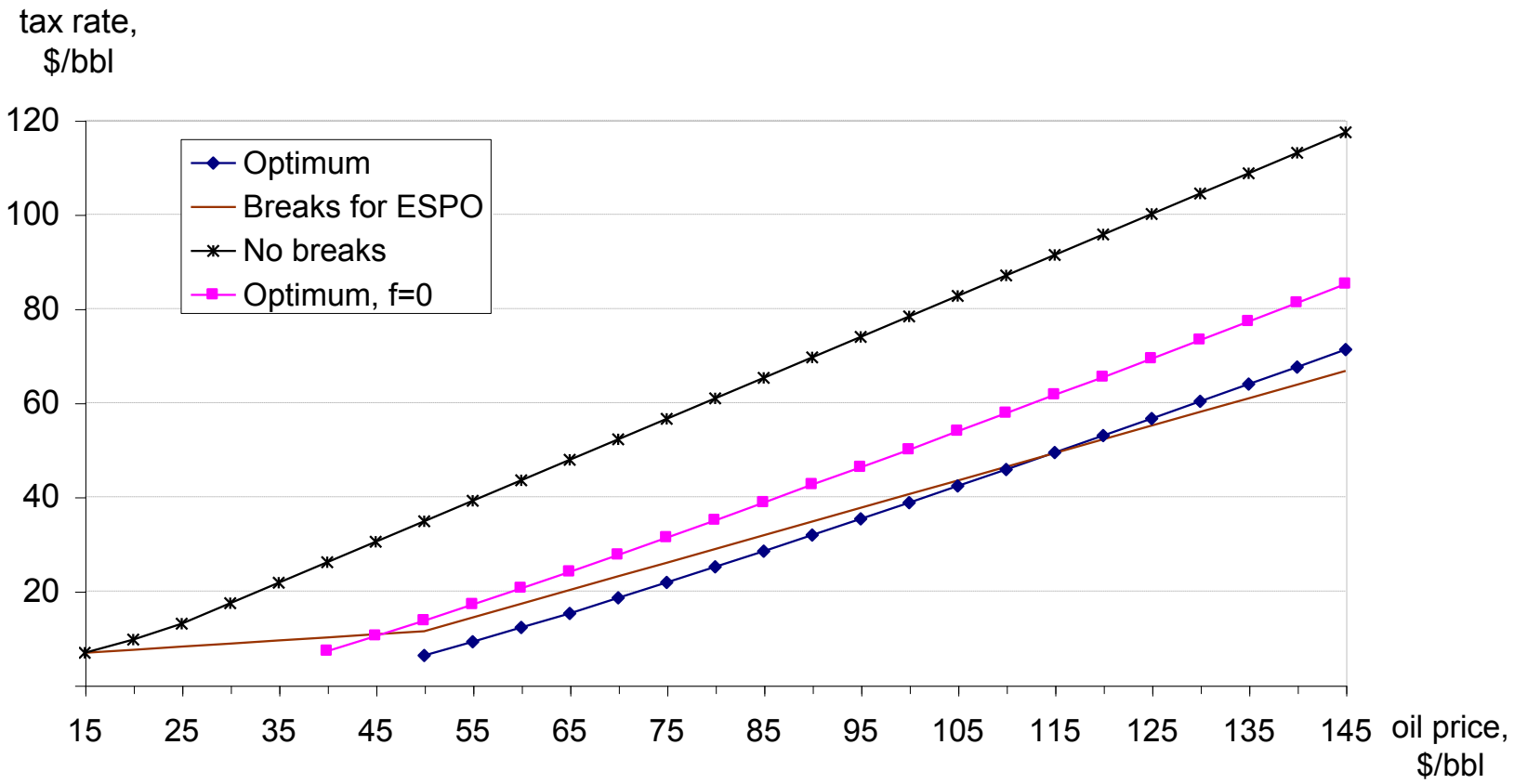
$$k_{сл} = \frac{Eh}{2(p - c - h)m_f}$$

$k_{сл} = 1$ – maximum tax

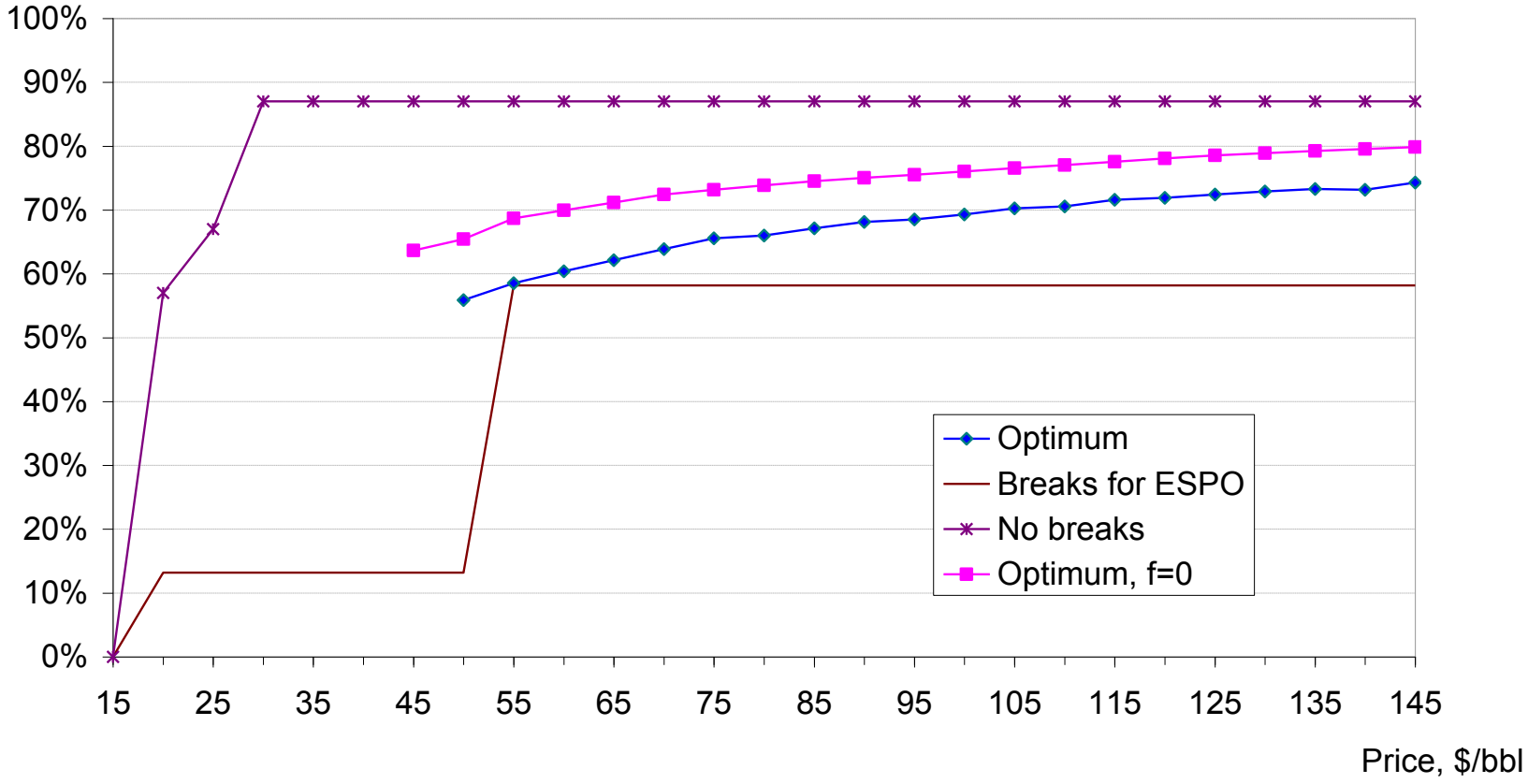
Efficient field entry condition

$$p > c + h + (1 + f)\left(\sqrt{Ek} + \sqrt{\frac{K_\phi}{Q_0}}\right)^2$$

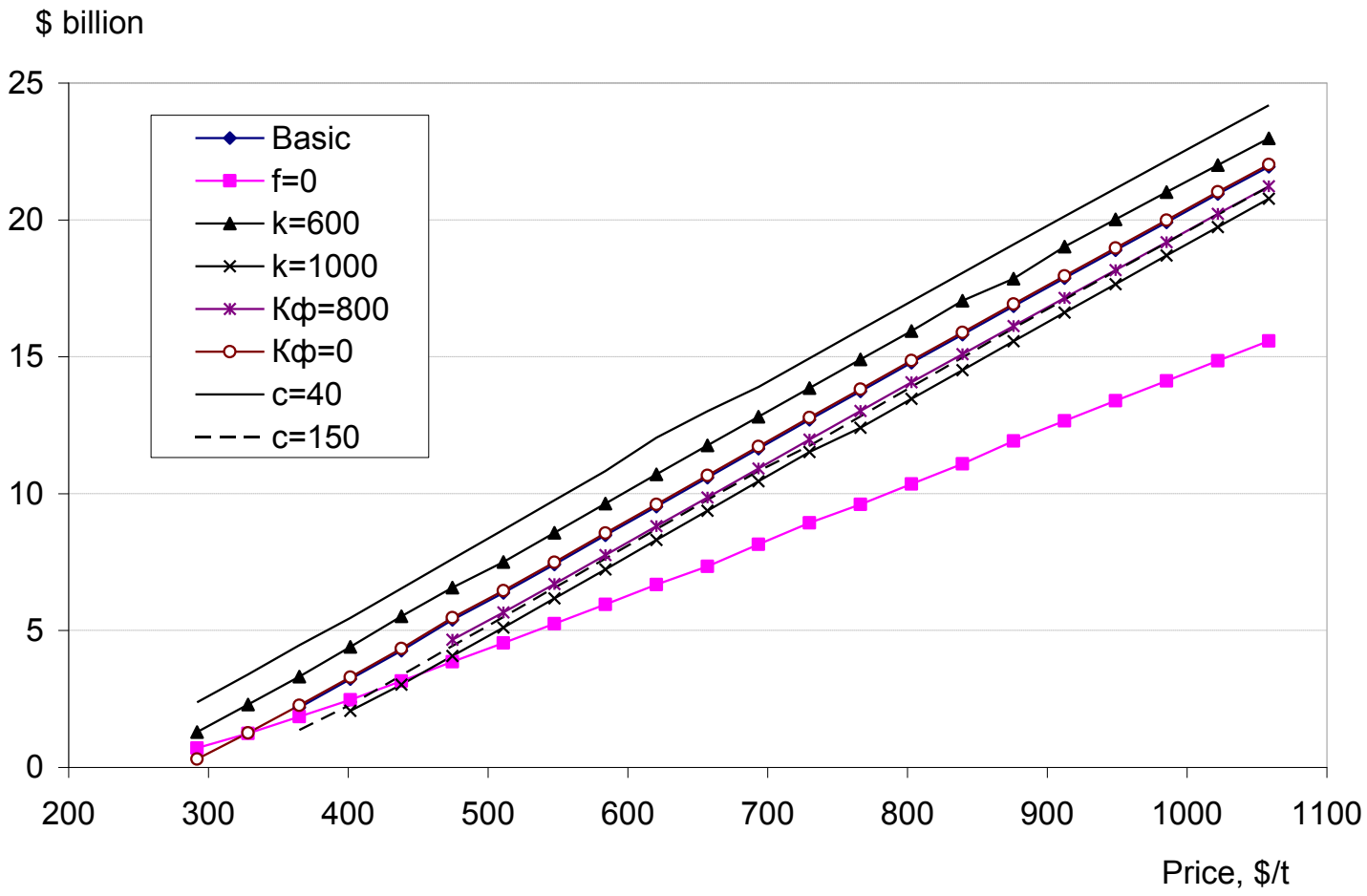
Oil price relationship for tax rate



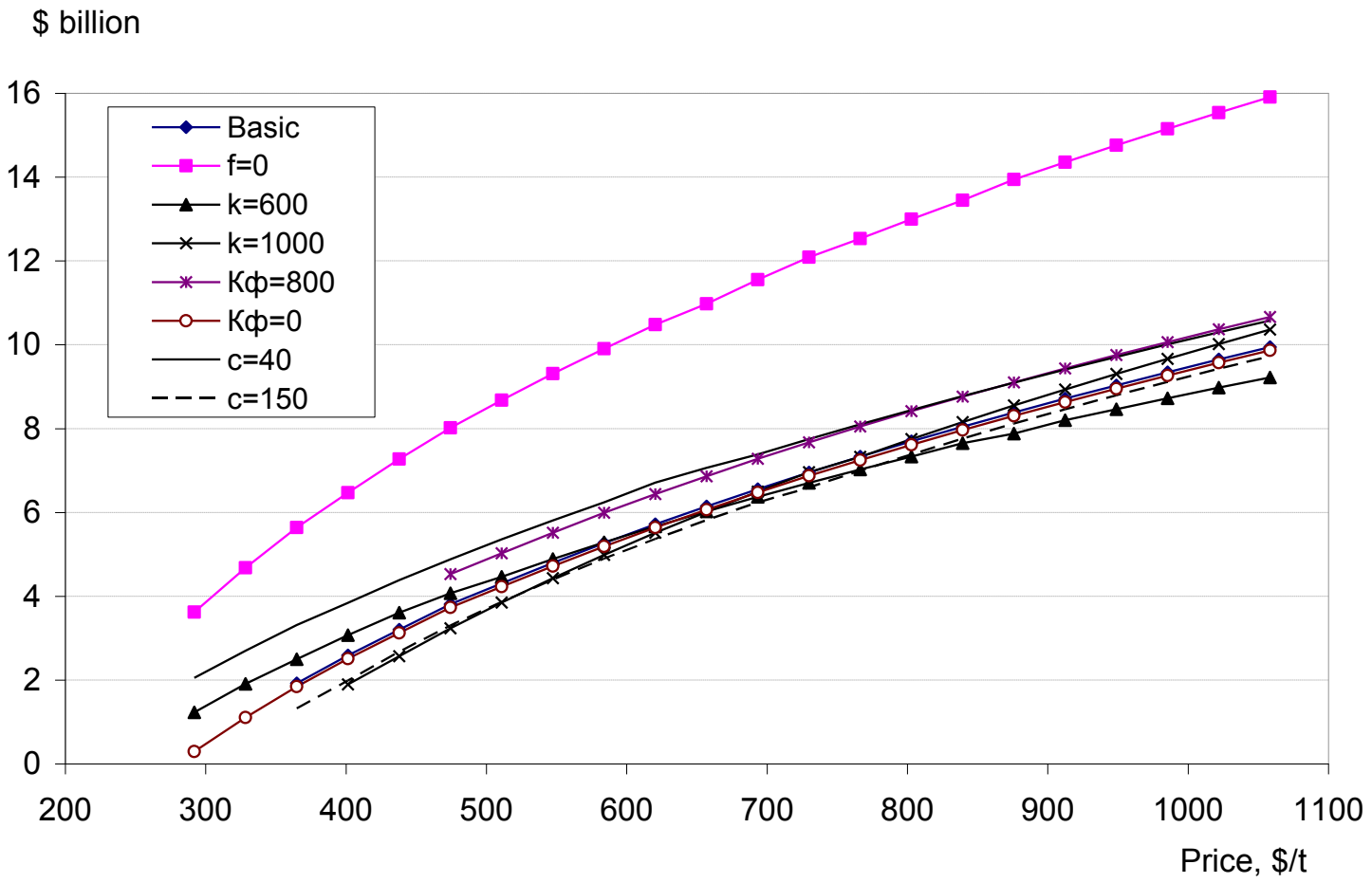
Line gradient for tax formula



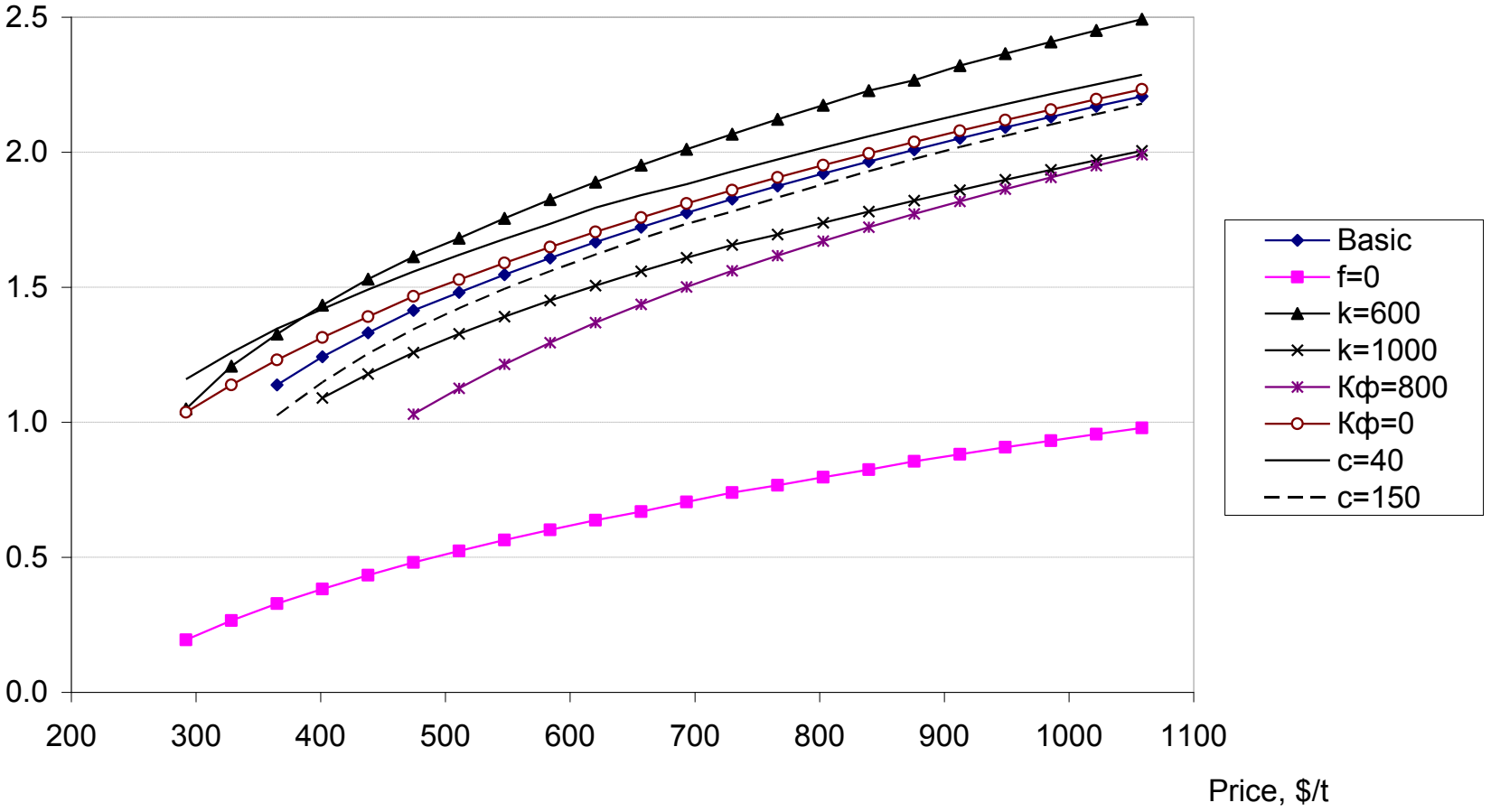
Net Present Value *(NPV)*



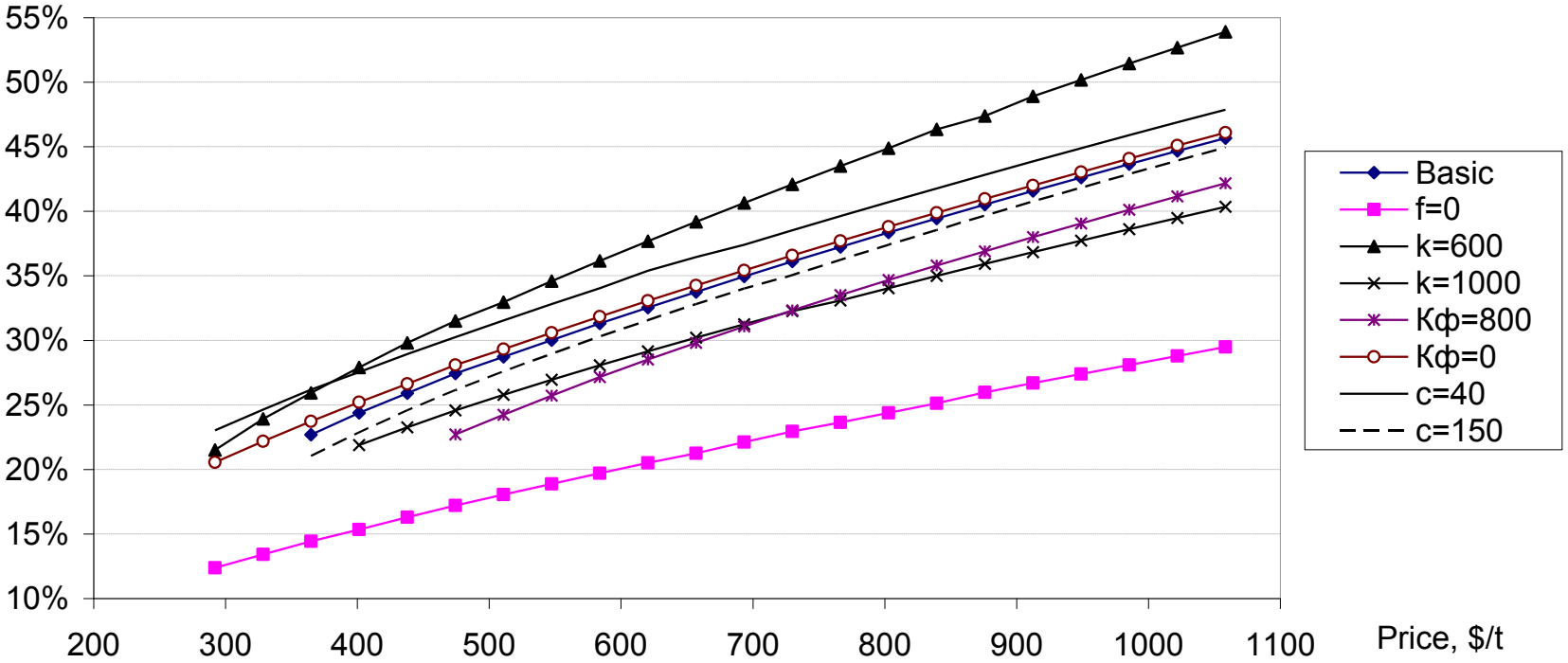
Discounted Cumulative Capex *(DCC)*



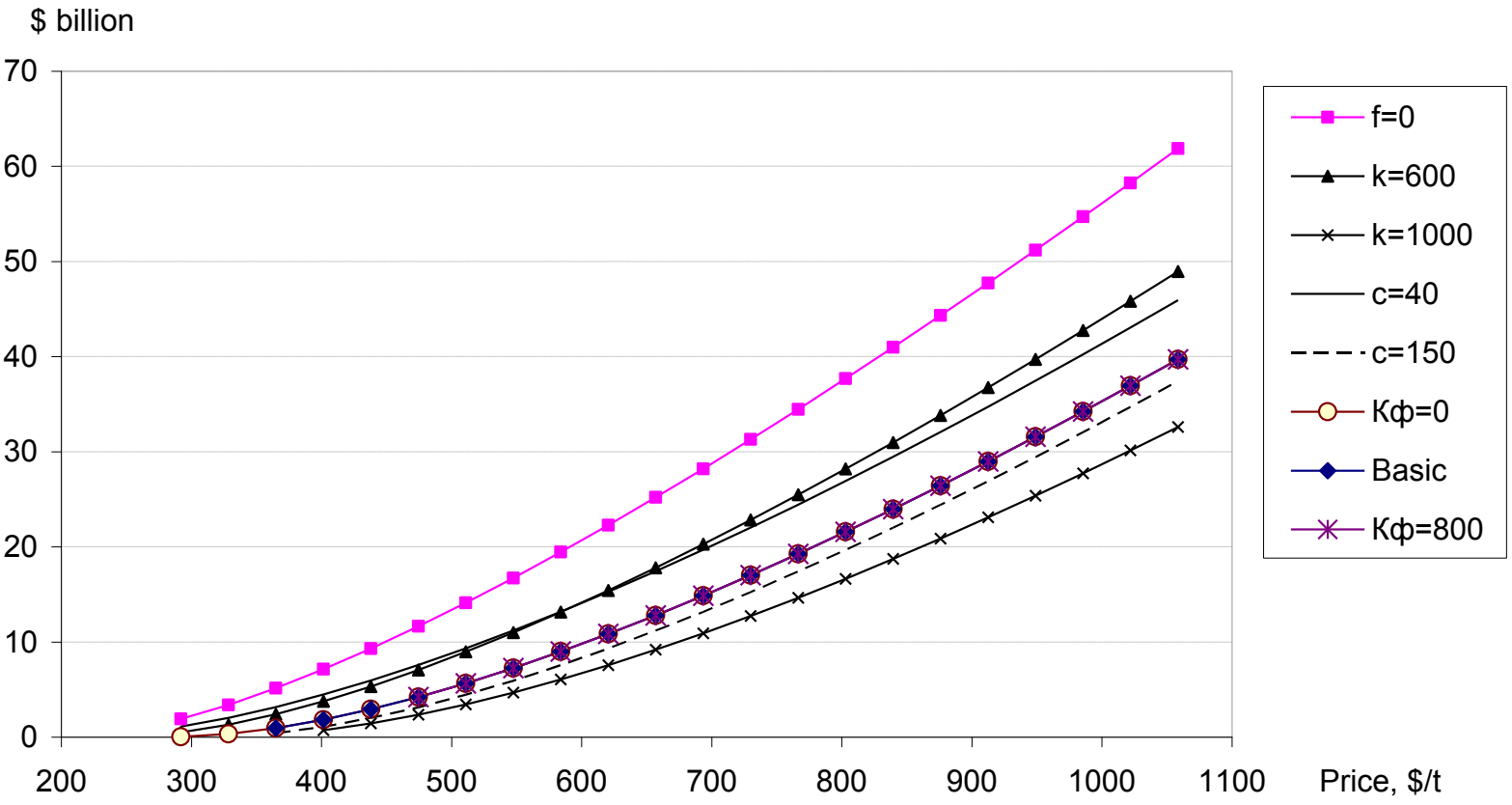
NPV/DCC ratio



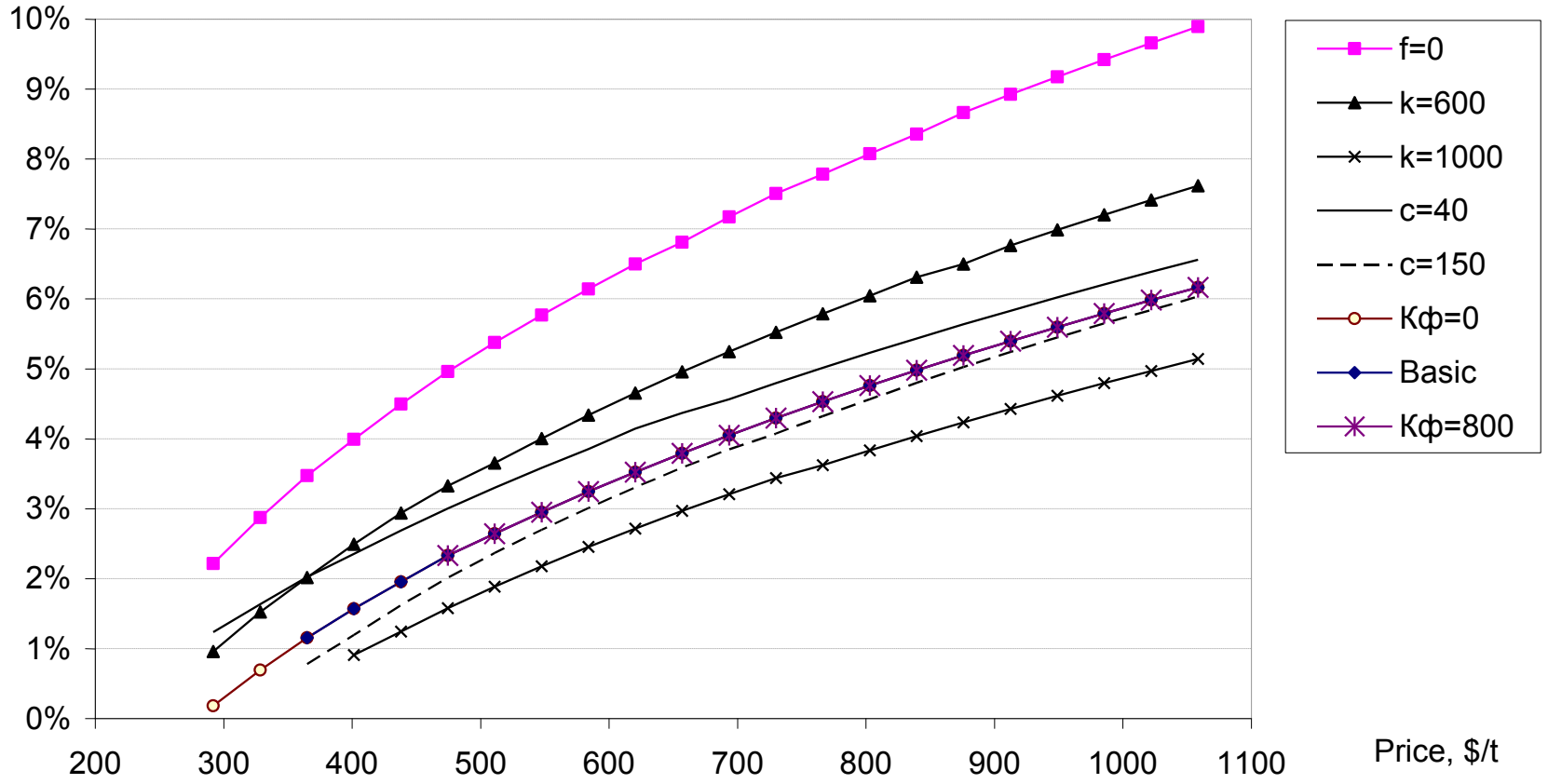
Internal Rate of Return *(IRR)*



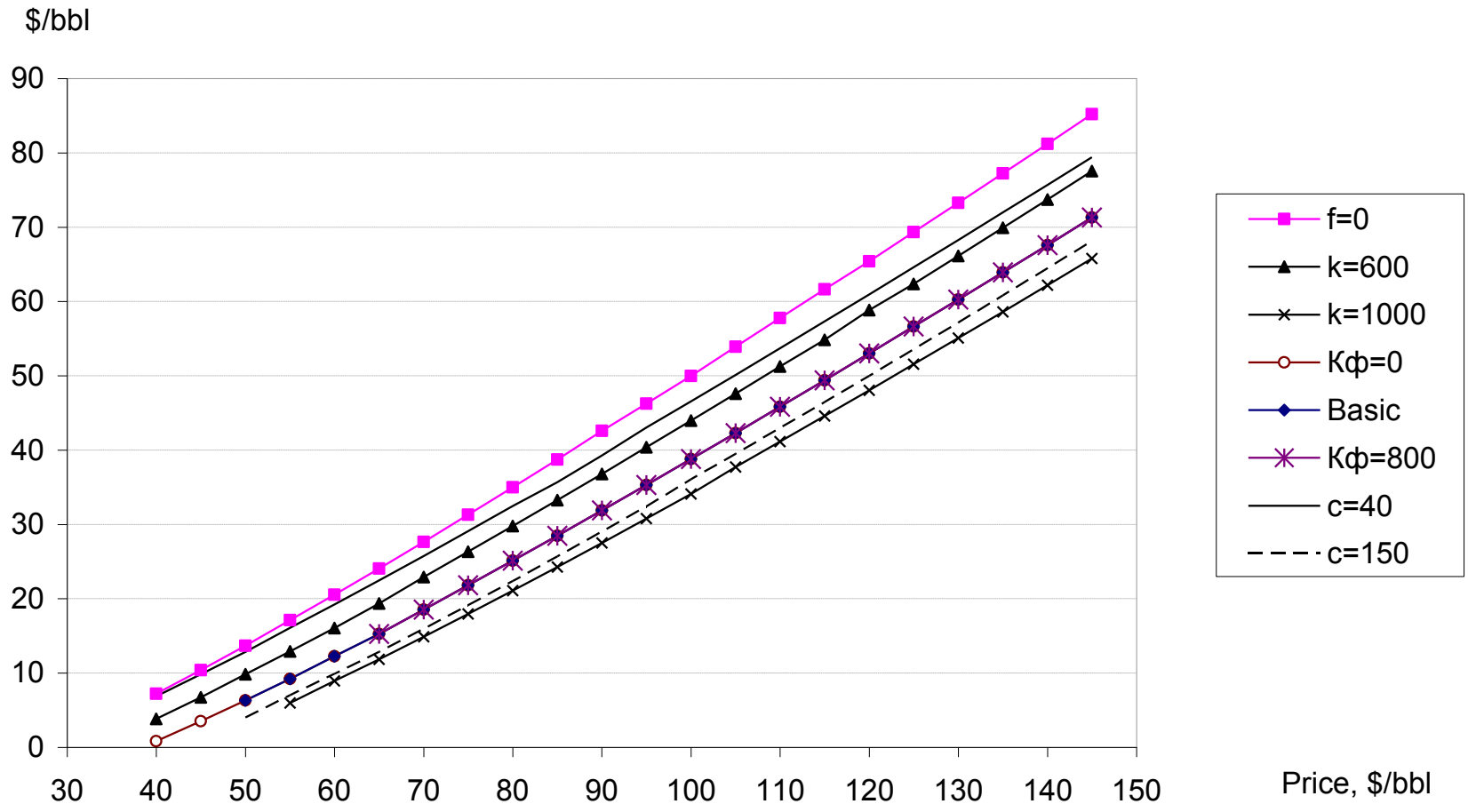
Discounted cumulative taxes and transportation costs *(DCT)*



Optimum recovery rate



Optimum tax (plus tariff) rate



Thank you for attention!