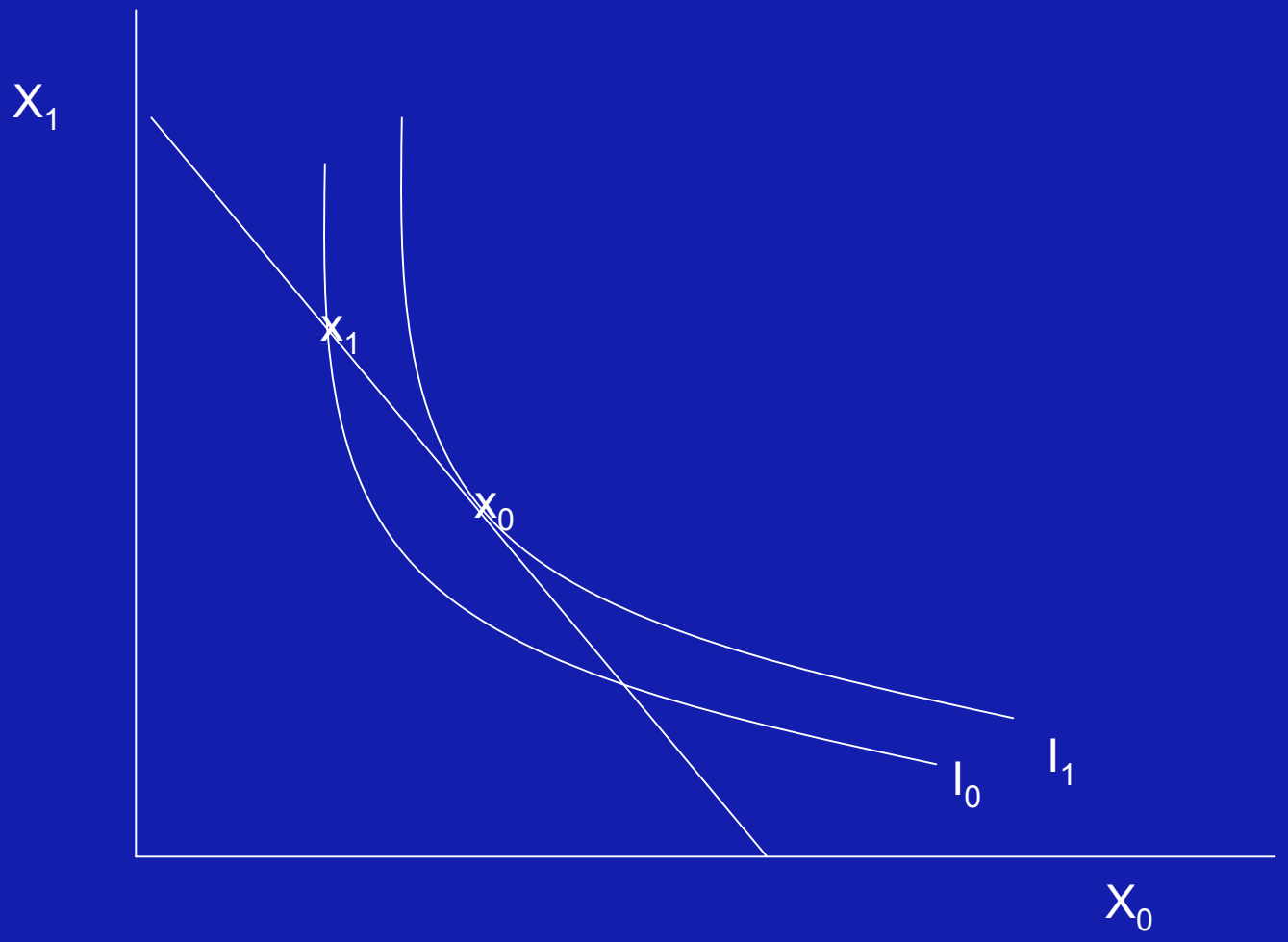
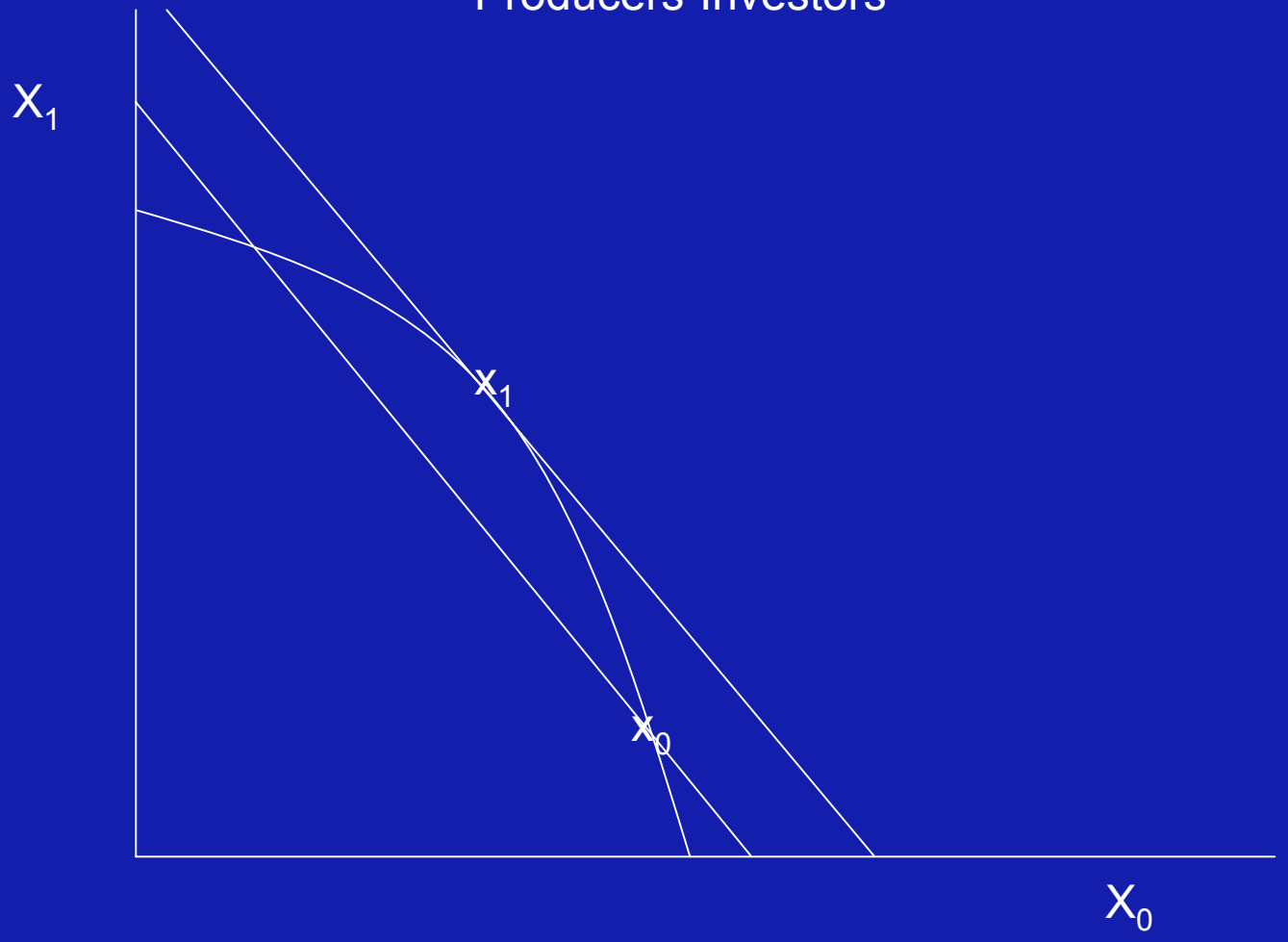
Social Discount Rate

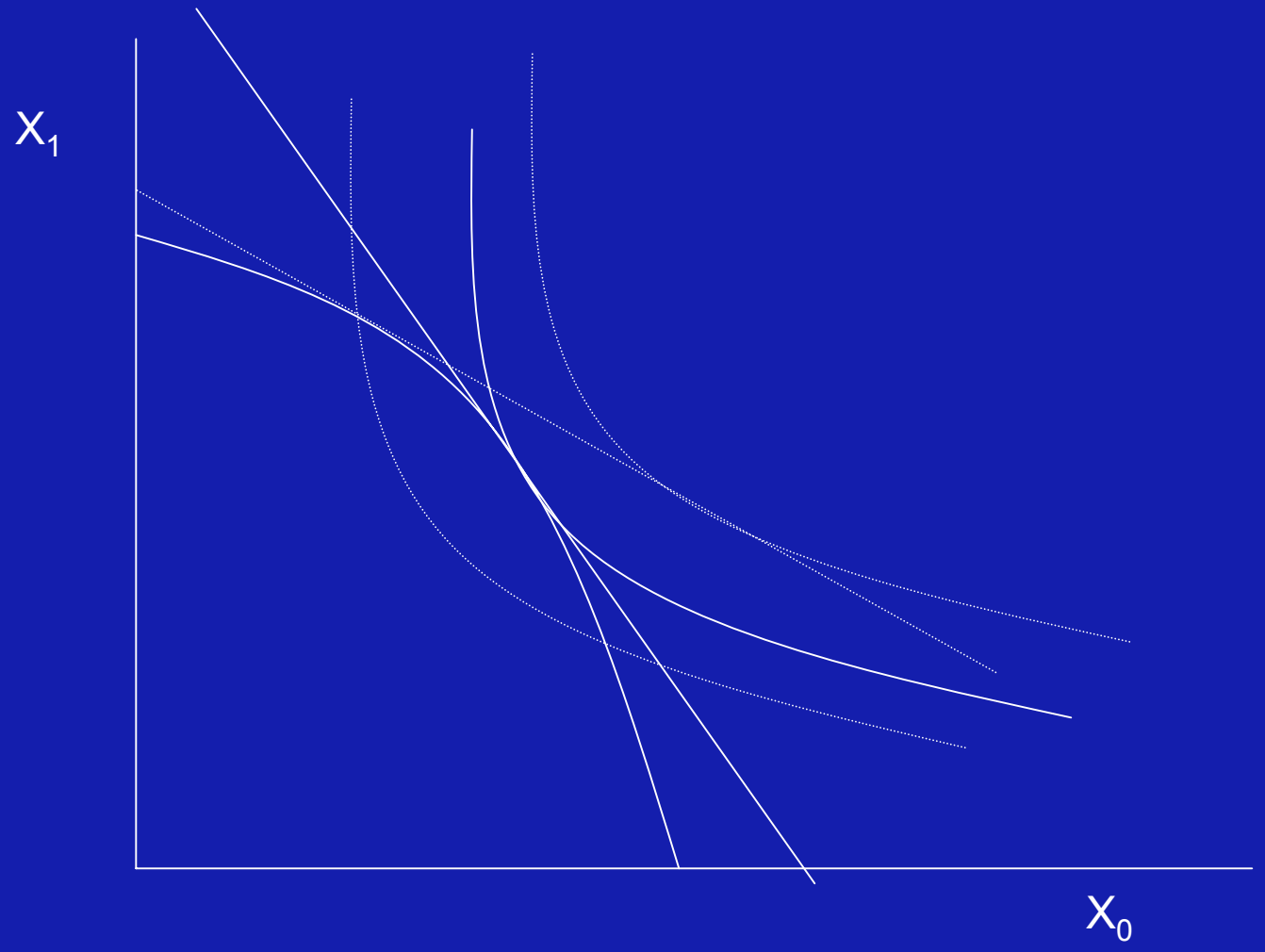
- Consumers (Savers): Marginal Rate of Time Preference (MRTP)
- Producers (Investors): Marginal Rate of Return on Investment (MRRI)
- Under appropriate assumptions:
  - Social Discount Rate (SDR) = MRTP = MRRI
  - Equals “market” interest rate

Consumers-Savers



Producers-Investors



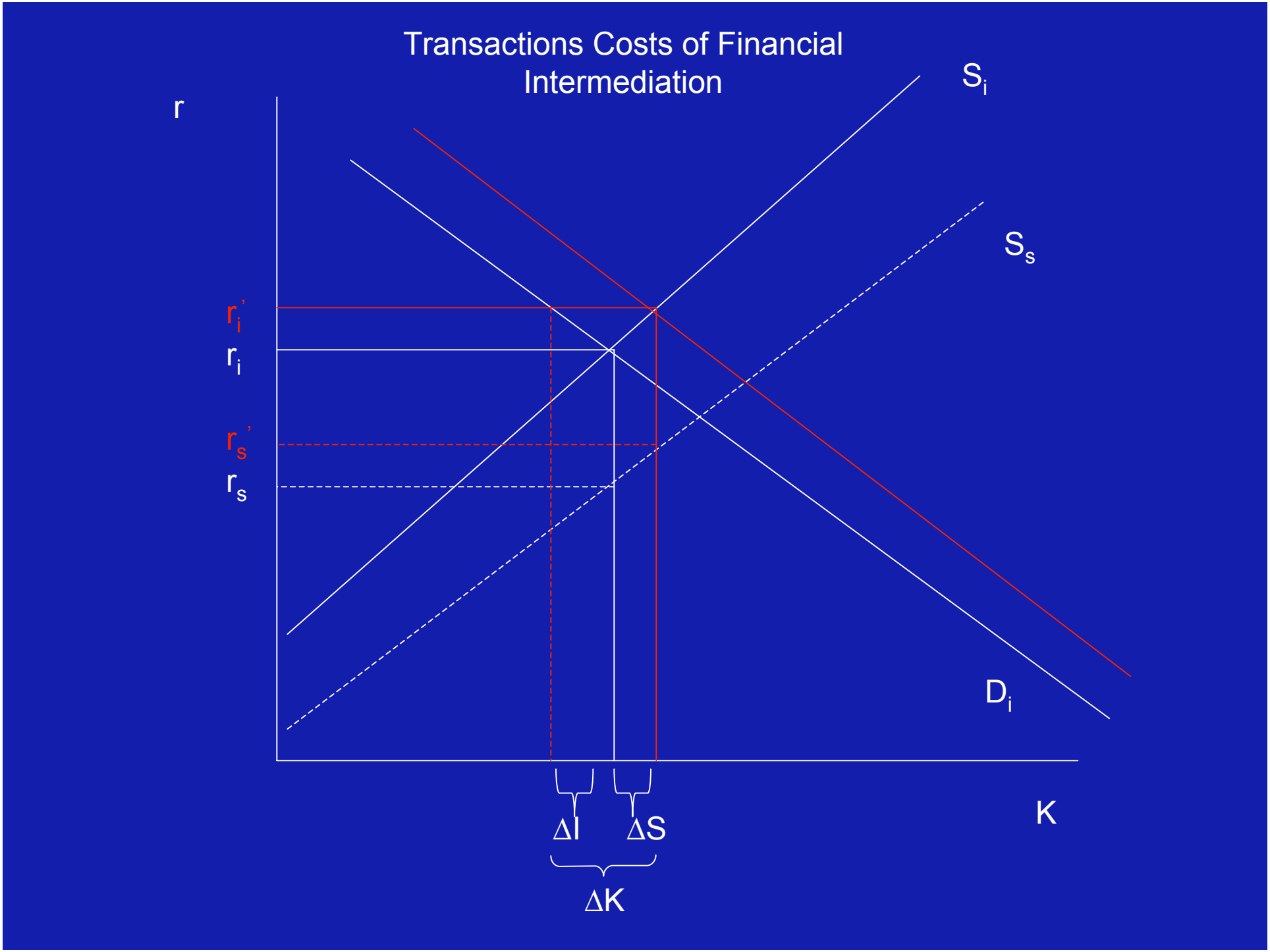

X_1
X_0

Social Discount Rate

But in reality not a single interest rate for all savers and investors

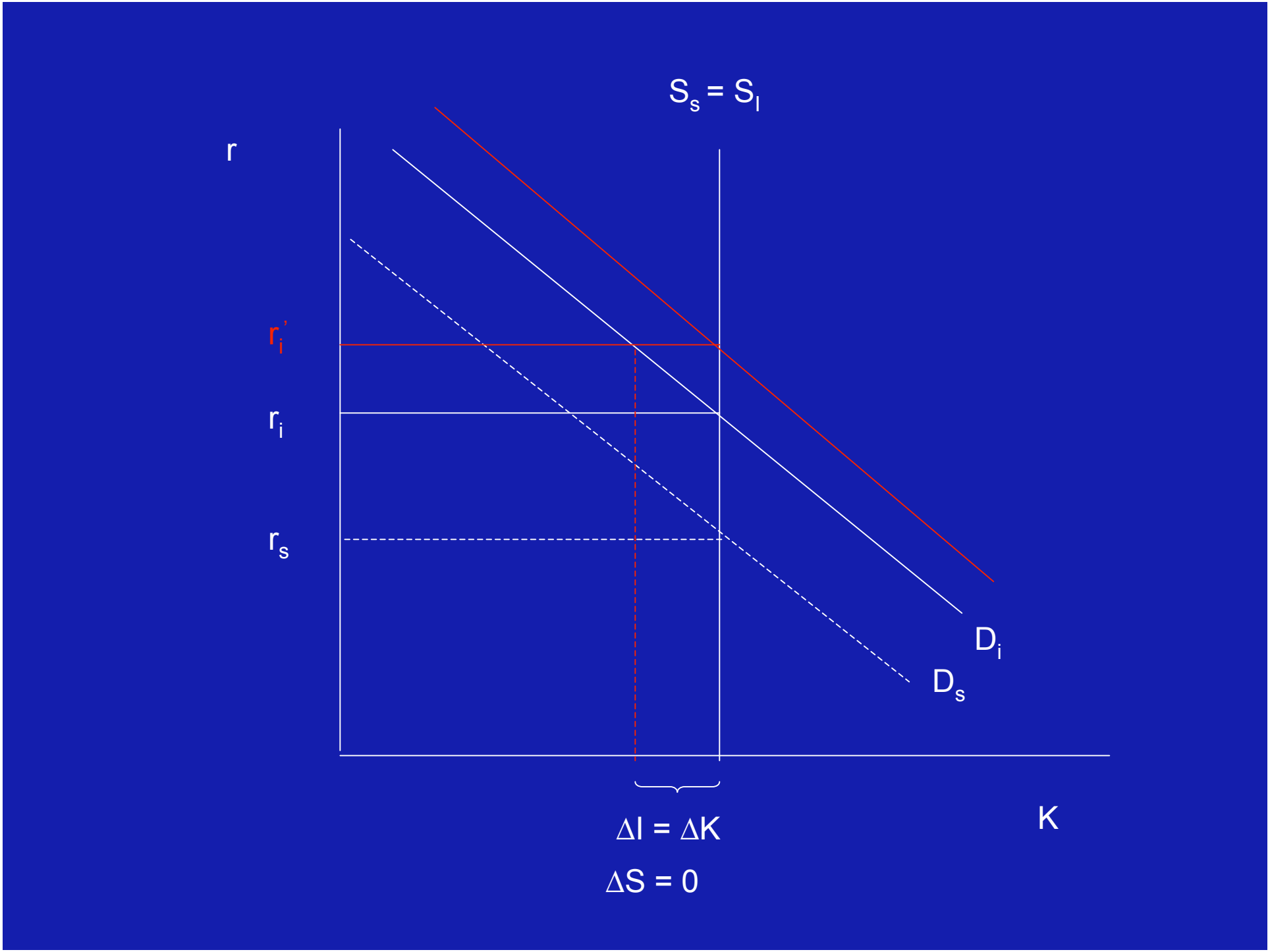
- Factors affecting interest rates:
  - Transactions costs
  - Differences in risks
  - Different time horizons
  - Taxes
  - Direct interventions in credit markets

Transactions Costs


Transactions Costs of Financial Intermediation
r
S_i
S_s
r_i'
r_i
r_s'
r_s
D_i
K
ΔI
ΔS
ΔK

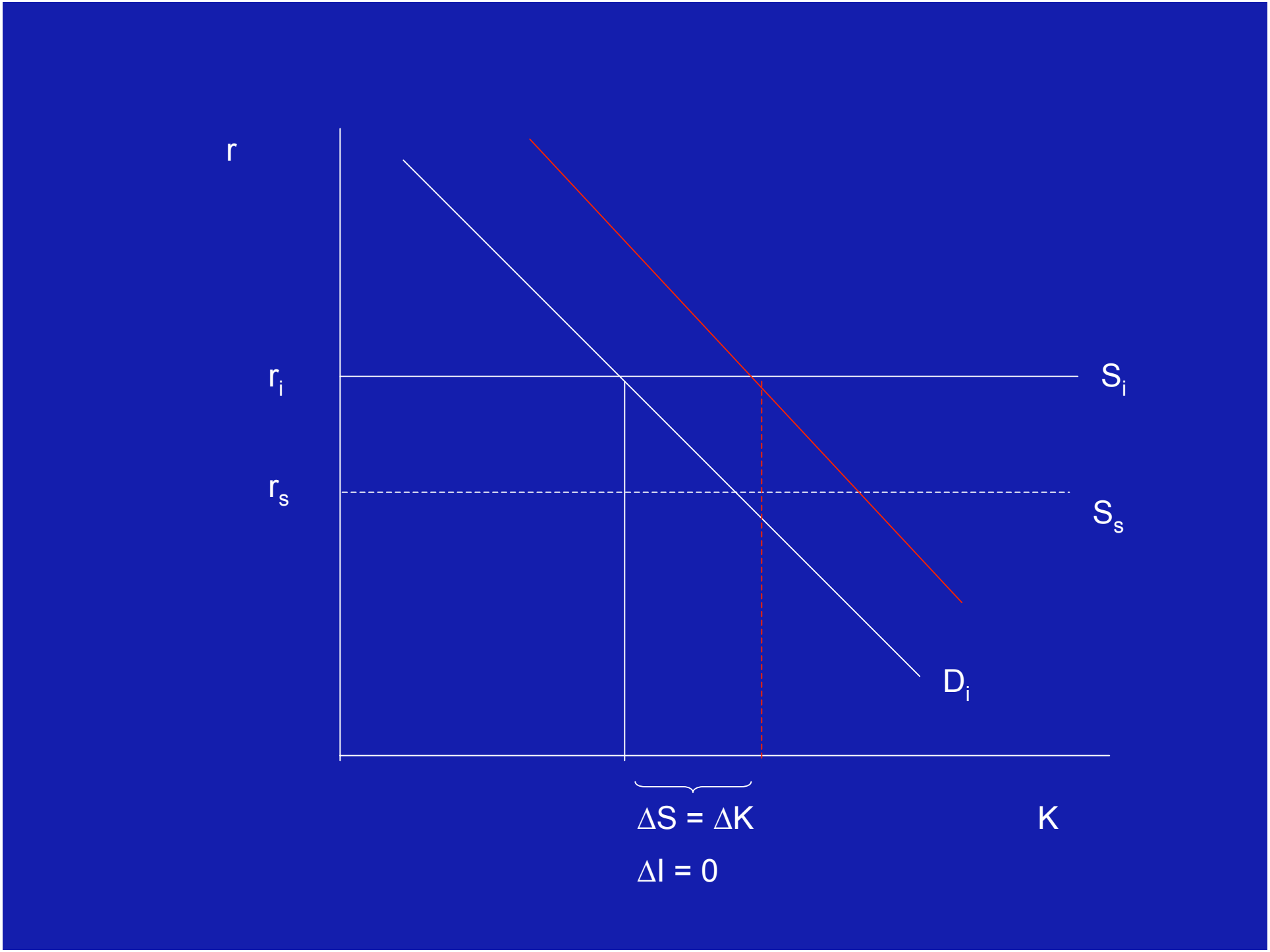
Blended Rate

- Capital for project is combination of additional savings and reduced investment in private sector (crowding out)
- $\Delta K = \Delta S - \Delta I$
- $SDR = (\Delta S/\Delta K)*r_s + (\Delta I/\Delta K)*r_i$
  - Harberger: Empirical studies show savings rates insensitive to interest rates ($\delta S/ \delta r \cong 0$), so $\Delta S \cong 0$
  - $SDR \cong r_i$


$S_s = S_l$
r
r_i'
r_i
r_s
D_i
D_s
$\Delta I = \Delta K$
$\Delta S = 0$
K

“Small” Investments

- In the previous examples, we have examined the effects of “large” investments
- The amount of capital needed for the new investment is enough to affect market interest rates
- But many investments are not so big, will not affect interest rates
  - For these scale of investments, the supply of savings may be considered to be perfectly elastic


r
r_i
r_s
S_i
S_s
D_i
$\Delta S = \Delta K$
$\Delta I = 0$
K

“Small” Investments

- $\Delta K = \Delta S - \Delta I$
- $SDR = (\Delta S/\Delta K)*r_s + (\Delta I/\Delta K)*r_i$
- But now $\Delta I = 0$
- $SDR = r_s$
- So, for “Small” investments, the social opportunity cost of capital should be consumers marginal rate of time preference (MRTP), which is < MRRI