Optimal Development
and Seeds of Change
in Economic Trends

Trieste, October 4, 2011
Competition

Turkish gas market, 2001

[Map showing routes for Russian gas, Turkish gas grid, planned lines in Turkey, existing pipelines, and LNG routes to Turkey. Notable locations include Blue Stream, Transcaspian, 2003?, 2002?, and potential routes through Turkey.]
Competition

**Profit** $P_1$

**Bonus supply**

**Equilibrium supply**

**Time**

**Investment**

**Project 1**

**Profit** $P_2$

**Equilibrium supply**

**Time**

**Investment**

**Project 2**
Competition

Nash equilibrium

Best reply curve

\( \hat{t}_1 \)

\( \hat{t}_2 \)

\( t_1 \)

\( t_2 \)
\[ P_1 = -C_1(t_1) + B_1(t_1, t_2) \]

\[ \frac{\partial P_1}{\partial t_1} = a_1(t_1) - b_1(t_1 | t_2) \]

\[ C_1(t_1) = C_1^0 - \int_{0}^{t_1} a_1(t) \, dt \]

\[ B_1(t_1, t_2) = \int_{t_2}^{T} b_1(t | t_2) \, dt \]
Competition

best reply curve

slow-fast Nash equilibrium

fast-slow Nash equilibrium

$t_1^+$

$t_1^-$

$t_2^-$

$t_2^+$

$t_1$

$t_2$
Competition

Turkish gas market, 2001

- Blue Stream
- Transcaspian

2002 - 2003

slow-fast Nash equilibrium