

Market transition as a coordination problem

Daniele Girardi* and Roberto Veneziani**

Feb 2020

* University of Massachusetts Amherst

** Queen Mary University of London

What makes transition a success or a disaster?



- **This paper:** Capacity of the state to *coordinate expectations* and enforce its plans.

Market transition as a coordination problem

Premises:

- Transition is a success if economic actors 'stick to the plan';
- Strategic complementarities in 'sticking to the plan';
- Law enforcement apparatus imposes costs on non-compliers but is costly and can go corrupt;

Market transition as a coordination problem

Premises:

- Transition is a success if economic actors 'stick to the plan';
- Strategic complementarities in 'sticking to the plan';
- Law enforcement apparatus imposes costs on non-compliers but is costly and can go corrupt;

Implications:

- Both 'Russian' and 'Chinese' outcomes can be equilibria;
- Getting the speed of transition right helps, but is not necessary nor sufficient for success;
- A weak state is unlikely to achieve successful transition;
- Successful transition with regime change is not an equilibrium.

Three versions of the model

1. Economic transition in a basic model;
 2. Economic transition and state apparatus;
 3. Economic transition, state apparatus and regime change.
- I'll skip (2) for reasons of time

1 - The basic economy

Assumptions about production

- K firms, each with one unit of capital and a manager;
- AK technology:

$$y_{jt} = A_{jt} k_t$$

- Productivity of SOEs:

$$A_s = 1$$

- Productivity of private firms during transition:

$$A_{p1} = A(\beta, \gamma) \quad \text{with} \quad \frac{\partial A}{\partial \gamma} < 0$$

- Productivity of private firms after transition:

$$A_{p2} = P \quad \text{with} \quad P > 1 \text{ and } P \geq \max_{\beta, \gamma} A(\beta, \gamma)$$

- Revenues from informality:

$$A_{i1} = A_{i2} = B \quad \text{with} \quad \max_{\beta, \gamma} A(\beta, \gamma) > B > 1$$

Timeline

- **t=0**: government sets speed of transition β so as to minimize informality γ ;
- **t=1**: before knowing their status, managers can stick to the plan or go informal; production takes place;
- **t=2**: transition ends, all firms in the official sector are privatized; production takes place.

1 - The basic economy

Equilibria of the basic economy

- Managers will stick to the plan iff

$$\beta A(\beta, \gamma) + (1 - \beta) + \delta P \geq (1 + \delta)B \quad (1)$$

- 'Chinese' equilibrium ($\gamma = 0$) exists iff

$$\beta A(\beta^*, 0) + (1 - \beta^*) + \delta P \geq (1 + \delta)B$$

- 'Russian' equilibrium ($\gamma = 1$) exists iff

$$\beta A(\beta^*, 1) + (1 - \beta^*) + \delta P < (1 + \delta)B$$

- For any β , a tipping-point $0 < \gamma'(\beta) \leq 1$ exists, such that (1) holds iff $\gamma \leq \gamma'(\beta)$

3 - Transition, state apparatus and regime change

Transition, state apparatus and regime change

- $N = K$ identical policemen, each monitors a firm;
- If firm manager goes informal, policemen catches them with probability q_m ;
- Policemen wage bill: $K\bar{w} + K\kappa q_m \gamma w$;
- Financed by taxes on both private firms (τ) and SOEs (λ);
- Policemen can also go corrupt;
- The corruption subgame:

		Firm manager	
		<i>Stick to the plan</i>	<i>Go informal</i>
Policeman	<i>Enforce the law</i>	a_1, α_1	a_2, α_2
	<i>Corruption</i>	a_3, α_3	a_4, α_4

3 - Transition, state apparatus and regime change

The transition game

- Players
 - Government;
 - K policemen;
 - K managers.
- Government strategy space
 - Privatization plan β ;
 - tax schedule $\tau(\Gamma, k)$;
 - police wage structure: $\bar{w}(\Gamma, k)$ and $w(\Gamma, k)$.
- Timeline
 - **t=0**: government sets its optimal strategy $(\beta, \tau, \lambda, \bar{w}, w)$;
 - **t=1**: before knowing firm status, each policeman-manager pair plays the corruption subgame; production takes place;
 - **t=2**: transition ends; production takes place;

3 - Transition, state apparatus and regime change

Equilibria of the corruption subgame: existence conditions

- **Chinese-style transition:** $\gamma = 0, \kappa = 1$.

$$y(\beta, \tau, 0) - (1 - q_m)(1 + \delta)B + q_m J_m \geq T(\beta, \tau; 0) \geq \left[\frac{(1 - q_c)\mu}{q_c + (1 - q_c)\mu} \right] y(\beta, \tau, 0) - \frac{q_c}{q_c + (1 - q_c)\mu} J_c$$

- **Russian-style transition:** $\gamma = 1, \kappa = 0$.

$$q_m \zeta B \geq q_m w \quad \text{and} \quad (1 + \delta)B \geq (1 - \mu)\Pi(\beta, \tau; 1)$$

- **Failed transition without regime change :** $\gamma = 1, \kappa = 1$.

$$w \geq \zeta B \quad \text{and} \quad (1 - q_m)(1 + \delta)B - q_m J_m \geq \Pi(\beta, \tau; 1 - q_m).$$

- **Successful transition under weak state:** $\gamma = 0, \kappa = 0$.

$$\frac{(1 - q_c)\mu}{q_c + (1 - q_c)\mu} y(\beta; 0) - \frac{q_c}{q_c + (1 - q_c)\mu} J_c \geq T(\beta, \tau; 0)$$

$$\text{and} \quad y(\beta; 0) - (1 + \delta) \left[\left(\frac{1 - q_m \zeta}{1 - (1 - q_c)\mu} \right) B \right] \geq T(\beta, \tau; 0).$$

3 - Transition, state apparatus and regime change

The government and the equilibria of the transition game

- Government maximizes $\pi_G = 1 - \gamma + \nu\kappa$

3 - Transition, state apparatus and regime change

The government and the equilibria of the transition game

- Government maximizes $\pi_G = 1 - \gamma + \nu\kappa$

Main results (so far):

1. Gov't can design a policy such that Chinese-style transition is unique equilibrium iff $(1 + \delta)B \leq \Pi(\beta, \tau, 1)$;
2. Russian scenario cannot generally be ruled out through economic policy;
3. Successful transition w/ regime collapse will always be ruled out by rational gov't;
4. Failed transition without regime change cannot be fully ruled out but is unlikely.