

On the Evolution of Market Institutions: The Platform Design Paradox

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February 15, 2008

1. Introduction

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- Market institutions matter for efficiency, surplus distribution, convergence to market clearing outcome (Plott 1982, Holt 1995, Ockenfels and Roth 2002)

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- Is there any mechanism that guarantees that actual markets are characterized by efficient institutions?

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 - unused platforms are abolished ("die out")

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 - the trading fees demanded from the traders
 - market clearing properties of the platform
- Competition between platforms - Traders learn which platform to use.
- Will this process lead to the introduction of market clearing institutions?

Related Literature:

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- Our paper:
 - different research question
 - all externalities internalized by price of trade, fees neutral
 - non-market clearing institutions allowed
 - traders learn

- Literature on choice between exogenously given market institutions (Ellison and Fudenberg (2002), Neeman and Vulkan (2002), Ellison et al (2004), Gerber and Bettzuege (2002))

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- Alos-Ferrer and Kirchsteiger (2004)
no market designers, only competition between market platforms

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- $\pi_i^D = f_i p_i Q_i$

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- $\beta_i \neq 1$: traders at long market side equally rationed

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- Sellers: Firms with identical CRS-technology with marginal costs $c \Rightarrow$ supply correspondence
- Buyers: Firms or consumers, buyer n endowed with continuous and monotone demand function $d_n(p)$. $d_n^{-1}(0) > c$.

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- Example for payoff-function:

$$\pi_i^n = \begin{cases} \frac{1}{p_i} = \frac{1 - f_i}{\beta_i c} & \text{if } i \text{ active and } \beta_i \geq 1 \\ 0 & \text{else} \end{cases}$$

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- Markov process with typical state ω given by distribution of traders over platforms; state space Ω

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- μ^* determines long run expected average revenues generated on platform i , ER_i :
- $ER_i = \sum_{\Omega} \mu^*(\omega) p_i[N_i(\omega), M_i(\omega), \beta_i, f_i] Q_i[N_i(\omega), M_i(\omega), \beta_i, f_i]$

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- If one platform is market-clearing, and the other is favorable for sellers, in the long run traders will coordinate on the biased platform.

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- designer chooses unbiased institution $\beta = 1$

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"Competition forces the market designers to introduce non-market clearing platforms."

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If designers are not rational, but have to learn the same way as traders:

Theorem: The support of the limit invariant distribution of the co-learning process of designers and traders consists only of states where at least one platform with $\beta > 1$ exists, and where all trade takes place at such platforms.

4.3.2. Decreasing returns to scale

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- limit invariant distribution of traders choice depends on exact specification of demand, of supply, of the random switching opportunity process, and of the experimentation process;
- Specific example with decreasing returns to scale, where in equilibrium only platforms with $\beta > 1$ are chosen.

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 - multi-homing: Which trades result for a trader, who is active on both platforms?