

Research session  
**Data in digital markets  
and money**

Thursday 7 October  
15:00 CEST (UTC +2)



#BISResearchConference  
#RegulatingBigTech



**"Harms of AI"**

**Daron Acemoglu**

Institute Professor  
Massachusetts Institute of Technology



**"The Digitalization of Money"**

**Markus Brunnermeier**

Edwards S Sanford Professor of Economics  
and Director of the Bendheim Center for Finance,  
Princeton University

Chair: **Jean-Charles Rochet** Full Professor, Geneva Finance Research Institute



Between financial regulation,  
anti-trust and data privacy

# Platforms and Tokens

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Princeton University

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7. October 2021

# Tech Trends: Platforms and Money

- Smart phone
- DLT (Blockchains)
- Token (vs account-based)

M-Pesa

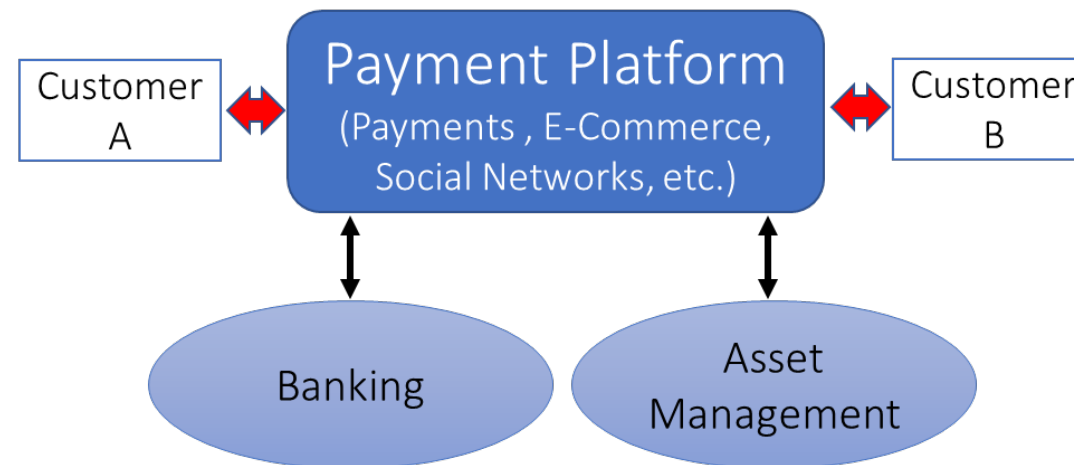
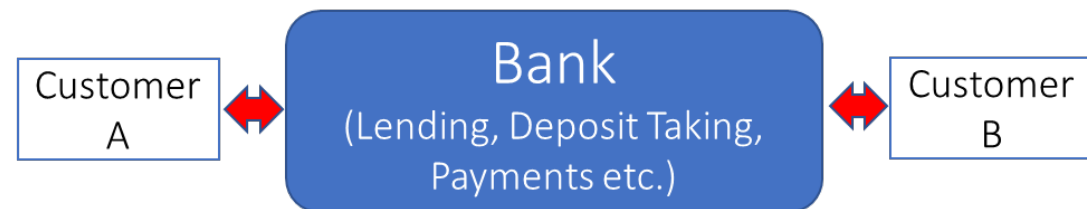
Bitcoin

- Big data, AI, deep learning,
- Digital platforms/ecosystems –



inverse selection

Alipay, WechatPay



- Smart contracts and money
- Internet of things: payments from machine to machine
- Micropayments

# New Developments

- Digital platforms
  - Digital tokens
- Interaction
- matching technology
  - payment technology
- 
- Consequences
    1. “Inverse Selection”  
with Rohit Lamba and Carlos Segura-Rodriguez
    2. “Lock-in Effects”  
with Jonathan Payne

# 1. Inversion of “Information Advantage”

- Information advantage for customer

- Borrower
- Insurance client, ...

soon, for seller/platform

- Lender (platform) “will know more about me than I know about myself”
- Insurance company
- Asset managers, ...

Privacy regulation

- Customer has multiple attributes and knows most of them, but only platform can better connect/statistically infer them

- STATISTICAL INFORMATION

- Correlation between attributes
- Traditional example:
  - I like a red car
  - Insurance companies knows (from big data) that drivers of red cars are more accident prone

*Informed principal problem*

# 1. From Adverse Selection to Inverse Selection

## ■ First generation

Rothschild Stiglitz

- Asymmetric information matters for markets
- Markets can unravel, so role for market design
- Coverage is increasing in riskiness (*Counterfactual!*)

## ■ Second generation – advantageous selection

Finkelstein Einav, Fang

- Asymmetric information is multidimensional
- Low-risk types buy lots of insurance due to their high risk aversion
- Heterogeneity in risk aversion

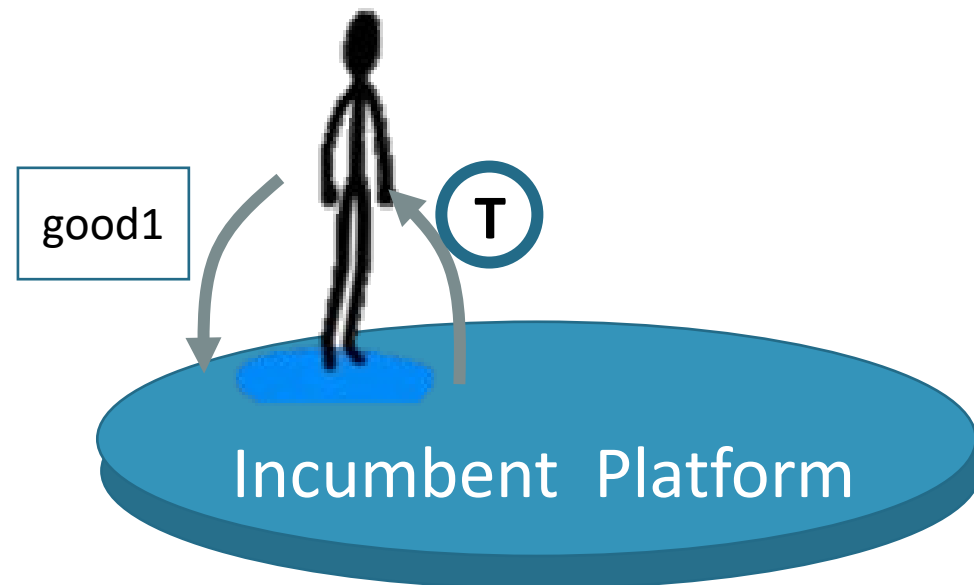
## ■ Third generation (?)

- Big data changes the notion of asymmetric information
- “who knows what” needs to be updated
- Once insurer/platform knows some basic information about you, statistical inference allows it to know more about risks

## 2. “Lock-in Effects”

with Jonathan Payne

- Interaction btw.
  - Network effects/externalities and
  - Lock-in effect of private tokens (money)
    - Ability to lock in “future purchases” to a platform

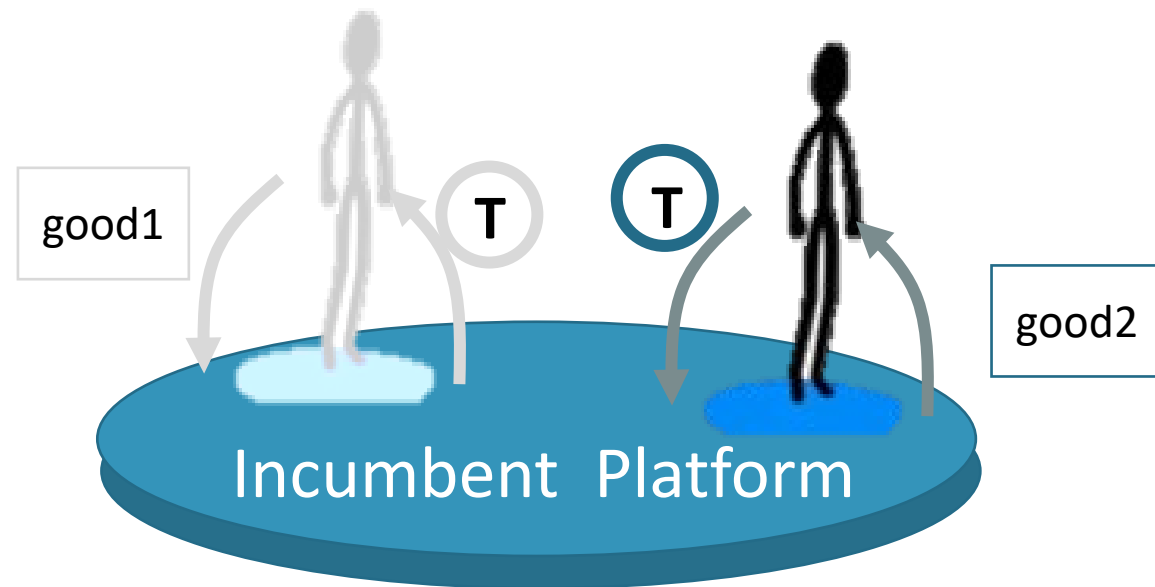


- Token issuing private platform can extract rents (fees, inflation seigniorage) up to a threshold (after which competing platform will enter).
- Should regulation limit these lock-in effects? If so, how (much)?

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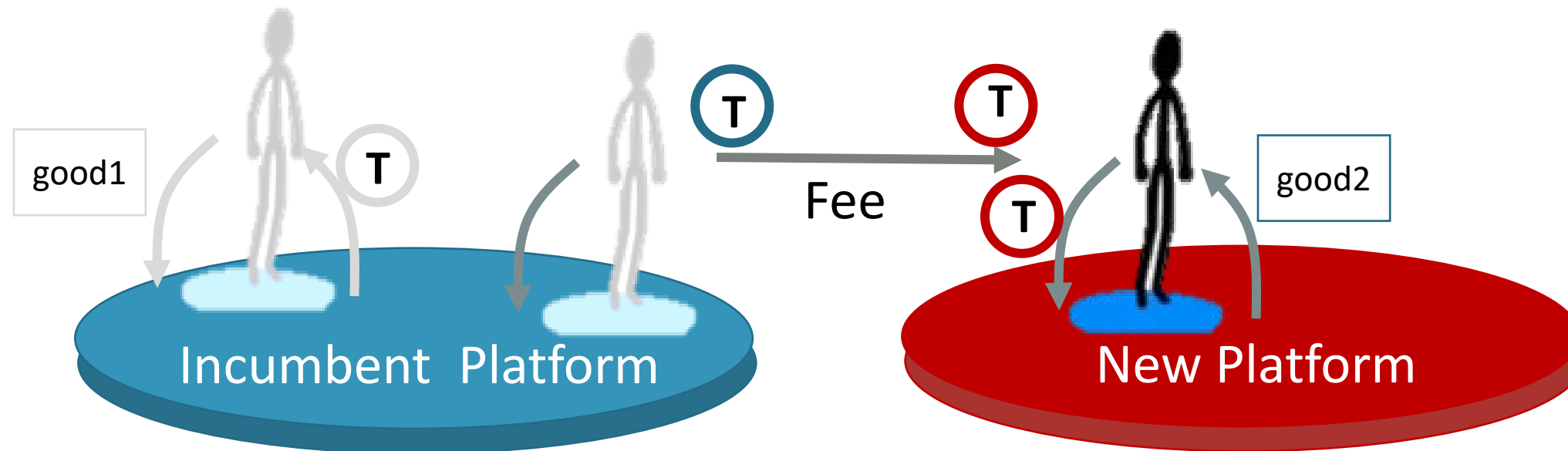




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- Interaction btw.
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  - Lock-in effect of private tokens (money)
    - Ability to lock in “future purchases” to a platform
- Even though one can choose the platform and the token, incentive to “sell” one’s services in exchange to a particular private token since others do so too in the future, when one wants to “buy” a service.
  - “as if” one is born in a “digital currency area”
- Token issuing private platform can extract rents (fees, inflation seigniorage) up to a threshold (after which competing platform will enter).
- Should regulation limit these lock-in effects? If so, how (much)?

## 2. “Lock-in Effects”

with Jonathan Payne

- Should regulation limit these lock-in effects? If so, how (much)?
  
- **How?** 2 Ways to implement regulation
  1. **Regulate** competition **among** private platforms  
Enforce “**Currency interoperability**”  
all tokens have to be useable on all platforms and exchangeable without a fee
  2. **Compete with** private platform  
CBDC as “**Digital Legal Tender**”  
private platforms are obliged to accept CBDC
    - Without charging a fee
    - Without granting a discount for private tokens

## 2. “Lock-in Effects”

with Jonathan Payne

- **Should** regulation limit these lock-in effects?
- **Yes**, interoperability regulation
  - Lowers “entry hurdle” for new platforms/token issuers
  - Restores efficiency (fully)
  - In dynamic setting: competition leads to more innovations (in payments)
- **No**, interoperability hurts since lock-in effect is desirable
  - Setting 1: trade on a network (buyer and sellers meet directly)
    - Interoperability allows agents to switch to competing token/platform
    - Current platform cannot enforce repayment of credit (via exclusion)  
⇒ less credit (less “digital collateral”)
  - Setting 2: trade is intermediated by platform (like Amazon market place)
    - Exclusion from platform might be sufficient to enforce credit repayment

# Token differentiation – Uniformity of Money

- Token differentiation
  - Privacy focused token
  - “programmable tokens”
- Segments markets – introduces “information sensitivity”  
hurts uniformity of money

# Conclusion: Regulating BigTech Platforms

- Platforms
  - Token issuers
  - **Inverse selection** (instead of adverse selection)
    - Platform has information advantage (not consumer surplus)
  - **Lock-in effects** (i) platform and (ii) token
    - Incumbent platform can extract rents at expense of participants + less innovation
    - Platform can extend credit
  - How to regulate?
    - Regulate competition among private platforms/token issuer
    - Compete with private platforms/token issuer
    - *Extra*: Should platforms and payment platforms be allowed to merge?
  - Uniformity of money
- interoperability outlaw exchange fees  
CBDC as “digital legal tender”