FINTECH, DECENTRALIZATION, AND UTILITY TOKENS

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OUTLINE

- **Decentralization and Its Challenges**
  - Key theme of FinTech
  - But there are strong forces against it

- **Utility Tokens**
  - Technology and market power
  - The role of utility tokens in promoting decentralization

- **Concluding Remarks**

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DECENTRALIZATION AND ITS CHALLENGES

WHAT IS SPECIAL ABOUT FINTECH?

- Since 2016, when we launched the FinTech initiative at the *Review of Financial Studies*, one constant pushback has been on the basic definition
  - What is new about FinTech?
  - After all, technology has always influenced the way the financial industry operates
- We pointed to two particular features:
  - The **pace** at which new technologies are tested and introduced into finance is faster than ever before
  - Much of the change is happening from **outside the financial industry**, as young start-up firms and big established technology firms are attempting to disrupt the incumbents

A KEY THEME: DECENTRALIZATION

- An important theme about FinTech, related to the features above, but with increasing momentum is: **Decentralization**
  - Consider the emergence of DeFi
- Traditional finance features central players, such as financial intermediaries and governments, who facilitate transactions and recordkeeping
- Many financial technologies and their applications are motivated by the attempt to break this dependence
- Much of this motivation is based on **distrust** in central players that gained momentum in the aftermath of the global financial crisis
  - Decentralization alleviates the **systemic risk** from the failure of a central player
  - Decentralization eliminates **market power** and rent extraction by large intermediaries

SOME CHALLENGES WITH DECENTRALIZATION

- Experience with financial technologies suggests that financial intermediaries cannot be easily displaced
  - Experience with **peer-to-peer lending** shows that financial intermediaries can end up dominating new technologies
  - Various forces in **blockchain economics** push back to concentration
    - Mining pools
    - Large investment in equipment
    - Interactions with blockchain governance

SOME CHALLENGES WITH DECENTRALIZATION

- Traditional **benefits of intermediation** are still present
  - Monitoring
  - Liquidity transformation
- Blockchain **impossibility triangle**
  - The idea is that blockchain can achieve only two out of the three objectives:
    - Consensus
    - Decentralization
    - Scalability

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TECHNOLOGY AND MARKET POWER

- Despite the connection between technology and decentralization in finance, we see a growing link in the opposite direction in the broader economy
- **Platform companies**, such as Facebook and Amazon, benefit from **excessive market power**
  - They are subject to congressional focus on how best to regulate them
  - Some policy proposals recommend breaking them up
  - But, breaking up large platforms can reduce benefit from network
- Can FinTech help restore efficiency in such networks?
  - Reduce market power of platform owner
  - While still maintaining benefits from having many on the platform

THE ROLE OF UTILITY TOKENS

- In a paper with Deeksha Gupta and Ruslan Sverchkov, "**Utility Tokens as a Commitment to Competition**," we show that:
  - Utility tokens (crypto tokens used as currency on a specific platform) can reduce rents and improve efficiency in **two-sided online marketplaces**
  - If platform tends to go to monopoly pricing, tokens serve as a commitment device for platform to maintain **competitive pricing**
  - Applications include platforms such as
    - Filecoin (simple homogenous services),
    - Uber (more complex heterogenous services),
    - or even Facebook (different business model based on ads)

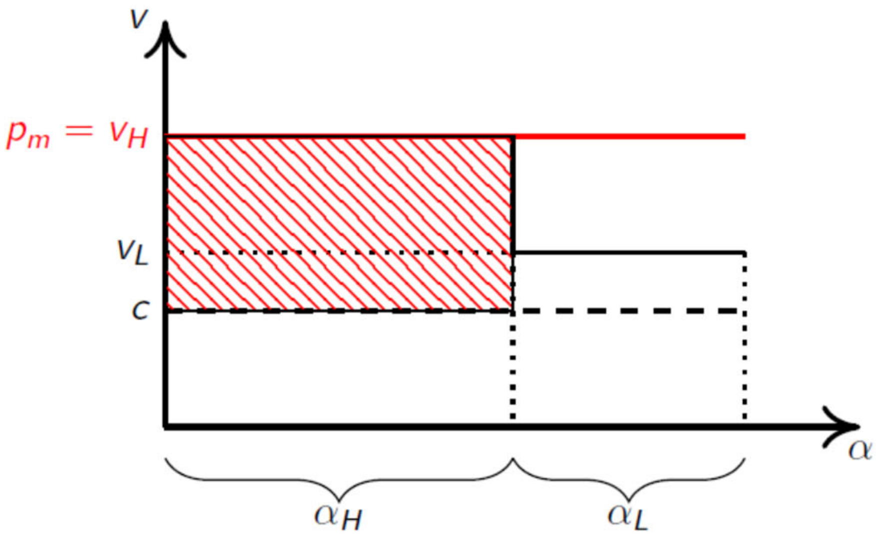
IMPORTANT FEATURES OF UTILITY TOKENS

- Tokens are the **sole currency** on the platform with a **fixed token to service price**
- Tokens must be allowed to be traded in **resale market** with floating price relative to another currency (such as USD)
- Tokens essentially transfer the service into a **durable good** from the point of view of the platform owner
- **Smart contracts** are essential for achieving commitment to token rules

EXAMPLE: MONOPOLISTIC CASE

- Consider two periods
- Platform matches providers and consumers
- Competitive providers produce service at cost c
- Heterogeneous consumers value one unit of service every period
  - Fraction α_H value at V_H and fraction α_L value at V_L
  - $V_H > V_L > c$
- Platform owner acts as a monopoly every period
  - Pays providers c per unit of service
  - Charges V_H and serves only α_H consumers
  - Inefficient outcome

EXAMPLE: MONOPOLISTIC CASE



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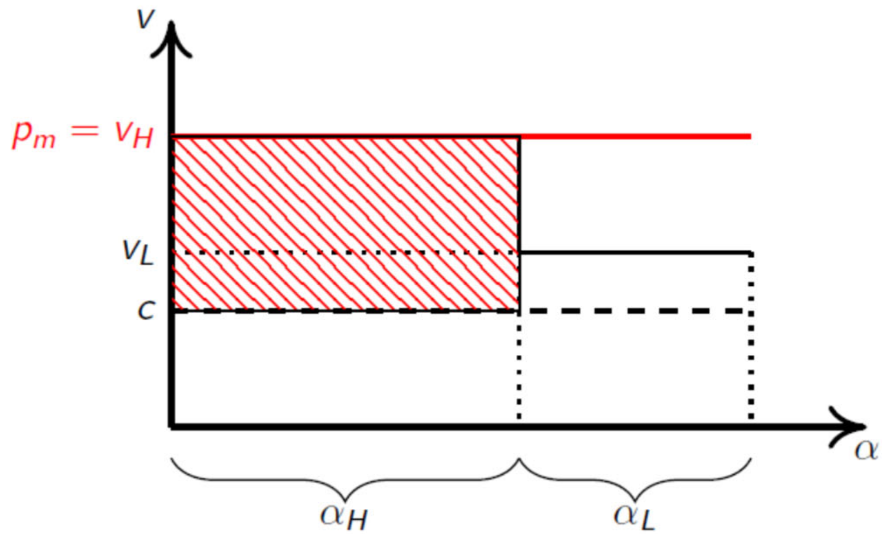

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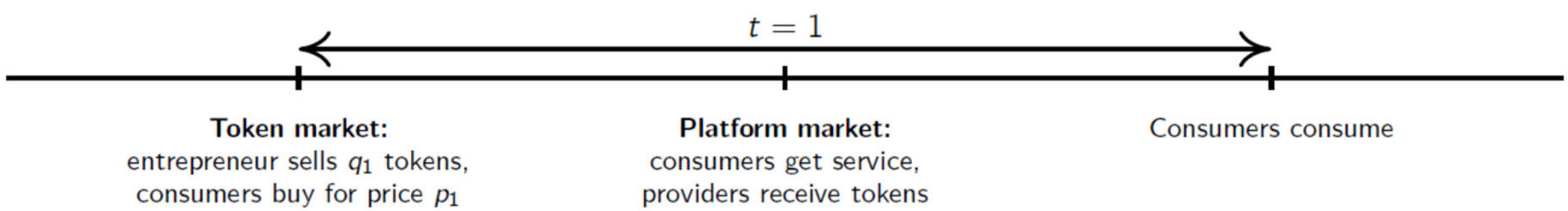
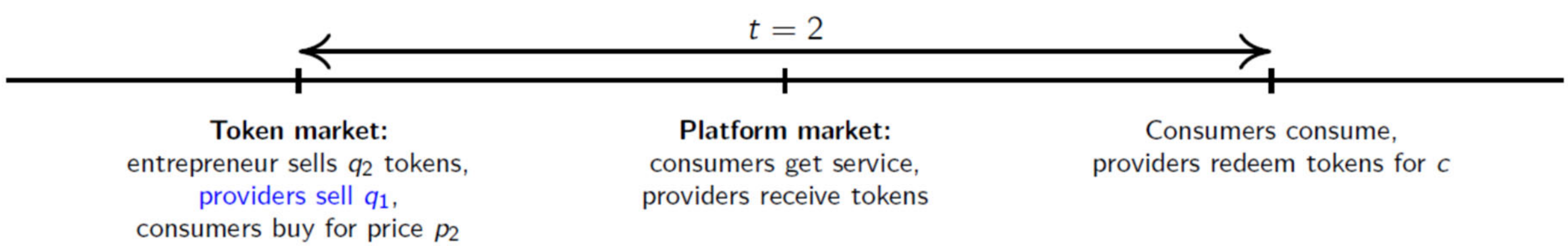
EXAMPLE: INTRODUCING TOKENS





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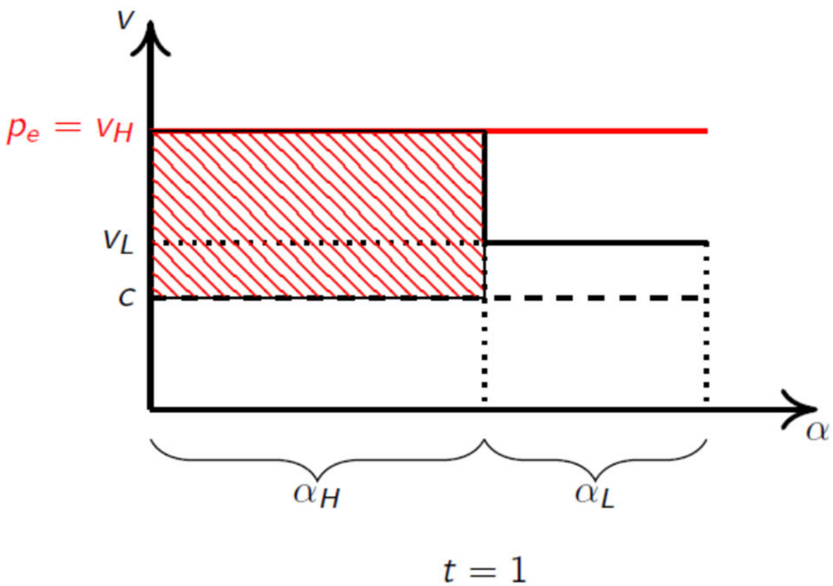

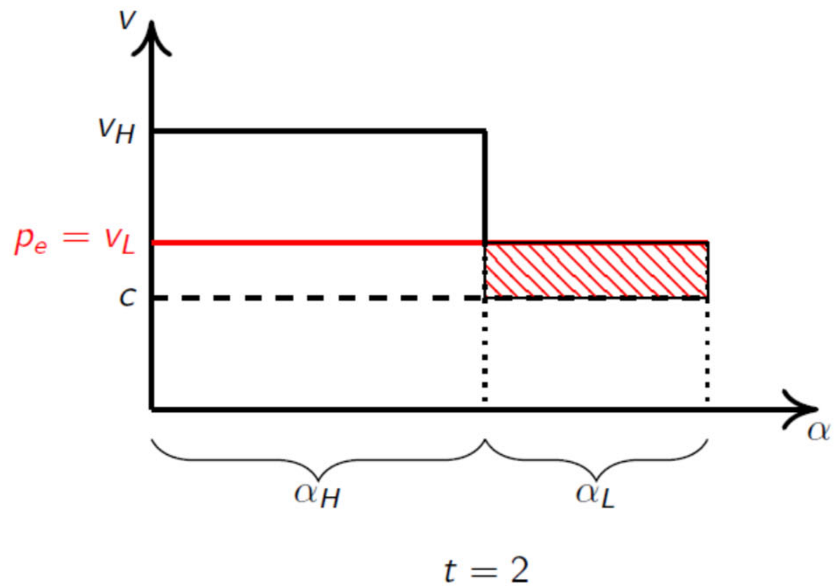

EXAMPLE: INTRODUCING TOKENS

- The platform will optimally choose to sell α_H tokens in the first period and α_L in the second period
- Token prices will thus be V_H in the first period and V_L in the second period
- After putting α_H tokens into circulation, the platform loses the ability to make profit over them, and so the only way to continue to make a profit is to put additional α_L tokens into circulation, and push down the price accordingly
- Mechanism is based on **limited stock of market power**
  - Each time platform wants to monetize, it increases competition in later periods
  - Similar to the limits of monopolies in a model of durable goods
  - Eventually, surplus is maximized as under competitive solution

EXTENSIONS AND IMPLICATIONS

- **Will platforms choose to issue tokens on their own?**
  - YES, if they are financed by future users who internalize their effect on platform viability
  - YES, if they face a threat from competitors
  - BUT, not always, and so regulation may be needed to require tokens
- Is a large platform with tokens better than two smaller ones who compete with each other?
  - YES, tokens enable achieving the network benefits while maintaining the surplus from competition
  - **No need to break up platforms**
- Can the mechanism work in more complicated settings?
  - YES, it can accommodate **heterogeneous services**
  - YES, it can accommodate **demand uncertainty**

CONNECTION TO INITIAL COIN OFFERINGS

- The market for ICOs has been facing **fluctuations** since its inception
  - Rapid growth between 2016-2018
  - In 2019, ICO activity slowed to a crawl
  - ICOs have been labeled as scams and 2017-2018 described as a bubble
  - Now there is large **regulatory uncertainty** going forward
- We show that they can play an important role
  - Important to guide regulation as to when they are useful and what features of them are important

CONCLUDING REMARKS

CONCLUSION

- The idea of **decentralized finance**, key to FinTech development, has a lot of positive aspects
- FinTech can also help in decentralizing other **technology-driven platforms**
- Strong challenges remain:
  - **Counter forces** for centralization are strong
  - Developments in FinTech exhibit a lot of **noise and illicit behavior**, hurting the public trust
  - **Regulation** is needed to separate the good from the bad and achieve the long-term benefits