

Thesis Abstract

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“Tax Compliance, Payment Choice, and Central Bank Digital Currency” (Job Market Paper)

This paper studies the implications of tax evasion for the choice of payment methods and the design of central bank digital currencies (CBDC). I build a general equilibrium framework to explicitly allow tax evasion by agents and tax audits by a tax authority. As a benchmark, I assume only cash and bank deposits are available as payment. Bank deposits have a higher return, but it is easier to conceal cash from the tax authority. Under the optimal tax schedule, an increase in inflation prompts agents to substitute away from cash, but this also lowers the tax authority’s incentive to audit agents, resulting in more tax evasion. When CBDC is introduced as a new payment instrument, the effect on tax evasion depends crucially on the degree of anonymity of CBDC, which determines the probability of the income received in CBDC being observed by the tax authority. Specifically, if CBDC offers less anonymity than cash, the introduction of CBDC reduces tax evasion. However, if CBDC also offers more anonymity than bank deposits, introducing CBDC lowers the deposit rate and decreases the output from agents who report their income honestly. Furthermore, a higher interest rate on CBDC decreases tax evasion if CBDC offers the same or more anonymity than bank deposits, but it increases tax evasion if less anonymity is offered. Finally, I show that the findings regarding CBDC and its effects on tax evasion and output hold regardless of whether cash remains available as a payment instrument after the introduction of CBDC.

“Liquidity and Private Information in Asset Markets: To Signal or not to Signal”

(*Journal of Economic Theory* 190, November 2020)

This paper examines how multidimensional private information by asset sellers affects market equilibrium. I find that when asset quality is the only source of private information, sellers with high-quality assets signal their quality to buyers through partial retention of assets if and only if their liquidity holdings are large. However, when sellers’ valuations of liquid assets are also private information, some sellers with high-quality assets signal their quality even if their liquidity holdings are small. The model is extended to study the implications for discount window lending and government asset purchases. I find that it is possible to have only sellers with high-quality assets borrow from the discount window even though the discount window does not attempt to screen the borrowers. I also find that after a negative quality shock causes the asset market to freeze, the government can unfreeze the market by purchasing bad assets. However, it is not optimal for the government to purchase all bad assets from the market.

“Signaling in Competitive Search Equilibrium: Illiquidity vs. Partial Retention” (Under Review)

This paper develops a simple competitive search framework to study illiquidity and partial retention of assets as signals of asset quality in markets with private information. I find that both signals are used in equilibrium. However, for sellers with high-quality assets, illiquidity is preferred over partial retention, while the opposite is true for sellers with low-quality assets. Specifically, among sellers with relatively high quality assets, those with higher-quality assets sell marginally fewer assets but with significantly lower probability. In contrast, among sellers with relatively low quality assets, those with higher-quality assets sell significantly fewer assets but with only marginally lower probability. Building on these results, I study aggregate liquidity and quality shocks. For sellers with high-quality assets, the shocks generate larger changes in trading probability than in trading volume, while the opposite happens for sellers with low-quality assets.