Fundamental Pricing of Utility Tokens

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Motivation and Approach

- Question: The valuation of utility tokens?
- Approach: Endogenoize the velocity of circulation.
- Time:
  - Speculative phase: investors, or speculators (early adoption)
  - User phase: users (full adoption)
- Market:
  - Trading market: Trade non-used tokens
  - Commodities market: Consume your token and enjoy!

Some specific points

- "The spice": Token-in-advance requirement.. Tx fee is high while obtaining the coin during the active trade..
- Incentivization feedback: Token appreciation vs. user adoption
- A different insight: User base changes with the technological literacy in the community.
  - More literacy (expertise) → lower tx access cost → more token holding
- Calibration: MakerDAO coin wallets metrics + price of the L2 coin.

Main Results

- Adoption of utility tokens and price are correlated inherently.
- Speculators → excess volatility → (over-fundamental) return → more adoption.

Suggestion: Including the cross-effect of z and χ

- z is the productivity of the platform or demand shift.
- User adoption is an increasing function of z and, the technological expertise of the community ($G^{-1}(1/\chi)$).
- The model assumes that z and χ are independent, but are they in reality?

Suggestion: Including the cross-effect of z and χ

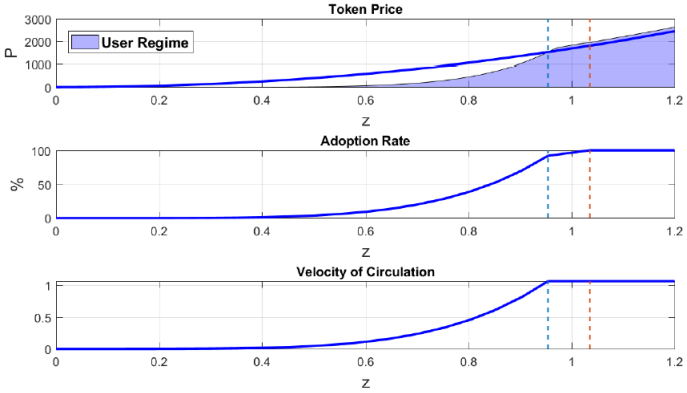
- Let's assume a positive mean shock to dz_t ($\mu > 0$).
  - The distribution of expertise in the community will be, $G(\chi)$, left skewed.
  - $\upsilon(p', z) * \chi_i > 1$ for each marginal user shift further right. Adoption increases. The main result stays same.
- This time, let's assume an uncertainty shock to dz_t ($\sigma_{shock} > \sigma_{normal}$)
  - The users do not like the volatility (maybe?), so $G(\chi)$ will be right skewed.
  - Then, the investor stage extends. How much μ can compensate users to push the token to the user-stage?

Suggestion: Adoption and underlying fee regimes

- The model assumes that the platform fees are negligible with the adoption of single token.
- However, as user adoption increases:
  - we may expect a bottleneck (depending on the L2 structure), which lowers the velocity of tokens, especially at high volatility periods.
  - the layer 1 platform fees increase.
- These two factors work oppositely for (token-in-advance) utilities and reserve holdings of each users.
- You can check with the current data to see which factor has a dominant effect.

Suggestion: Inaccessibility vs. velocity

- The lower panel of figure 5 shows that the velocity of circulation hits the arrival of users to the platform, λ, under full adoption. It makes total sense!



Suggestion: Inaccessibility vs. velocity

- Here, the rate of user arrival, λ, does not affect either monetary base, M, or productivity, z, after full adoption.
- Question: Will platforms keep M the same if the rate of user arrival or velocity drops due to the inaccessible tokens?
- One extension:
  - Define λ_i with a hazard rate (maybe even link to the inverse of technology expertise χ_i).
  - Define M with two parts M_{fixed} and M_{lost} where M_{lost} is an increasing function of λ_i hazard rate.
  - Proxies such as unspent tokens (M_{lost}) or non-active token-full addresses ($\lambda_i(h_t) = 1$).
  - Then, we can answer: What should be the optimal token issuance scheme with changing velocity levels?

Conclusion

- Paper with a strong theoretical framework + empirical support for token pricing.
- Assumptions are well-set, yet some can be relaxed in a spin-off model.
- Overall a well-written paper + good luck with the publication!