A Discussion of **"Measuring the Velocity of Money"**

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Monetary Economics in Slums

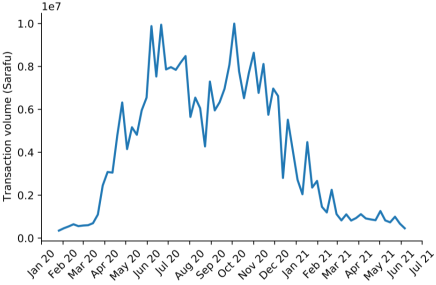
- Sarafu is a network of multiple block-chain based community currencies in the underdeveloped communities of Kenya, issued by "Grassroots Economics".
- These communities ("slums") are subject to wild volatilities.
  - Times of relative prosperity are often followed by extreme downturns where economic activity slows down.
  - So much poverty in slums: there is no buffer and no surplus money to inject into the system to keep its economy moving.
  - Fundamental problem: lack of money/credit to facilitate the economy. "Fisher deflation" $\rightarrow$ velocity of money declining, hoarding of currency and shortage.
  - Lack of banking service means that "money shortage" cannot be easily resolved from the banking system.
- During downturns, the residents still have the goods and services to offer each other. However, nobody have the money to pay for it!

Analogy: the Great Bullion Famine

- From 1457 to 1464 (middle ages), due to outflow of gold and silver to the East (import of spices, silks, etc.), European countries coins went out of circulation and caused a severe deflation.
- Hoarding of gold/silver, and hard to make transactions with official coins.
- Barter became so common place that the spice pepper was used in place of bullion, with the Germans calling their bankers, peppermen.
- The famine caused millions of deaths. Peasants forced to kills working animals. Large output drops.

GDP Growth and the Popularity of Community Currency

- Community currencies serve as gap fillers for economic downturns.
  - Kenya faced large contractions in 2020, without much monetary expansion.

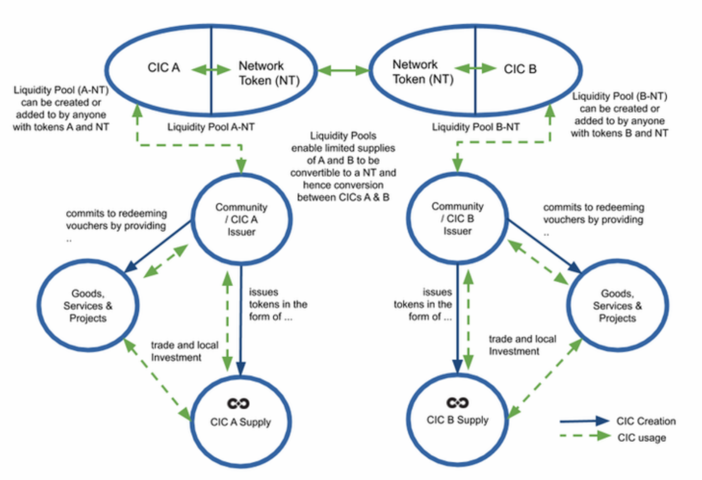


History of Community-Inclusion Currency in Kenya

- At a high level: community-inclusion currency allows the local community to create their own transaction and credit system without the need of banks.
  - Fill the huge gap in less developed areas and under-banked areas.

- Kenyan Bangla-Pesa (one of the five community currencies in Sarafu) in 2012:
  - 400 Euro worth of money injection (109 business contributed as mutual credit) increased local sales by 22% and sales through Kenyan shillings didn't decrease.
  - These participating businesses are responsible to convert Bangla-Pesas to goods and services (NOT Kenyan Shillings)

The Sarafu Network



Source: `https://grassrootseconomics.org/community-currencies`

This Paper

- Measure the velocity of money in the Sarafu network, using detailed transaction-level data.
- Measurement equation:
$$V = \int_0^\infty P_T(\tau)\frac{1}{\tau}d\tau$$
where $P_T(\tau)$ is the empirical density of holding time.
- Main results:
  - Large heterogeneity in the holding time distribution.
  - Difference across rural and urban areas.
  - Improvement over conventional measures.

Lots of Open Questions: Microeconomics and Banking

- Economic meaning of transaction velocity:
  - Time-series variation: An indicator of usefulness for the currency?
  - Cross-sectional variation Why it varies across merchants and users?
- Community currency as replacement for banking:
  - Fragility: Banking fragility inherent in the community currency mode. What if issuers misreport their collateral or go bankrupt?
  - Trust of Sarafu: Sarafu acts at the "central bank" of these five community currencies. Who determines the monetary policy and how?
  - Sustainability: In the U.S. history, there were local bank notes and New York Clearing House Association acting as the "quasi central bank". But this mode was replaced by the current system.

Lots of Open Questions: Macroeconomics

- Monetary economics:
  - Substitution effect: How substitutable is the community currency with respect to official currency? Impact on monetary policy?
  - See Krishnamurthy and Li (2022) RFS for an estimation of a general demand function of money, including government debt and shadow bank liabilities.
- International finance:
  - Exchange rate: Each community currency is a different currency. What drives the exchange rates?
  - Currency account: How does local community currency supply affects the import and export of each community?
  - Reserves: Each community currency has a choice of underlying asset backing the currency. How do reserves affect the stability and adoption of the currency?