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Banco De La República

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The Global Network of Payment Flows
Motivation & Approach

A payment is virtually tied with every other economic transaction. What can payments say about the economy?

First dip into a large scale database provided by SWIFT.

We "Don't know what we don't know". Broad investigation on what kind of insights can be gained from global payment flows.

Provide many questions rather than few answers by measuring over time:

- Flows
- Structure
- Communities
- Centrality


Update forthcoming in proceedings of CPMI Conference - Pushing the frontiers of payments: towards a global payments area
A total of 8 billion MT103 messages exchanged among 231 countries in 176 currencies, provided by SWIFT Institute

MT103 are single customer credit transfers

Links are established between correspondent banks.

The data was aggregated by Swift to links between countries.
Monthly total message volume
Monthly message volume - Seasonal variation

Peaks in December

Bottoms in February and August
Monthly message volume - Trend

Financial crisis "cost $5 trillion" in lost payments

Reduced growth since 2014
Countries and Correspondent Links

Growth in links until GFC with developing countries

Decrease in links with offshore financial centers -> "de-risking"
SWIFT Network

Showing the maximum spanning tree of the network which is a filtering technique that identifies the strongest links and the community structure. [Link]
Communities restructure over time

Using an community detection algorithm (Clauset, Newman, and Moore, 2004), we identify communities of countries that deal more with each other, than across other communities. [Link]
Communities : April 2008
Centrality - Most important countries

Countries with highest Sinkrank (Soramaki and Cook, 2013).
Centrality - Countries with largest change

Countries where Sinkrank changed the most in the last 5 years
Backbone Network

Countries that account for 50% of total traffic
Final thoughts

This paper shows some interesting insights drawn from payments data from a macro perspective. But payment data can be used for many other purposes too.

1. **Country** Level
   Geopolitical Insights (this paper)

2. **Bank** Level
   Liquidity & Solvency (Banco de la República)

3. **Company** Level
   Supply Chain analysis

4. **Customer/Payment** Level
   Payment Anomalies for AML/CFT/Fraud
Thank you

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