



BANCO CENTRAL  
DEL URUGUAY



# Central Bank Digital Currency

## A central banker perspective

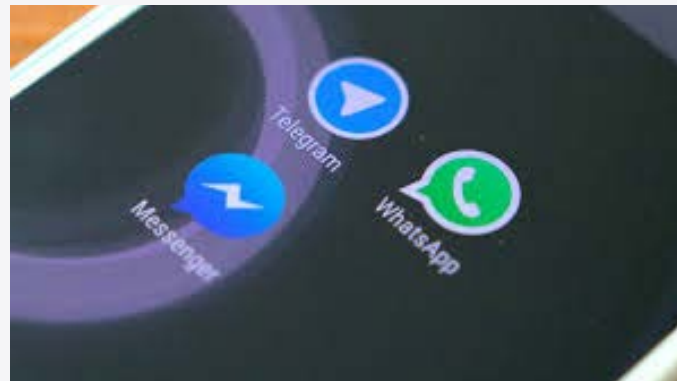
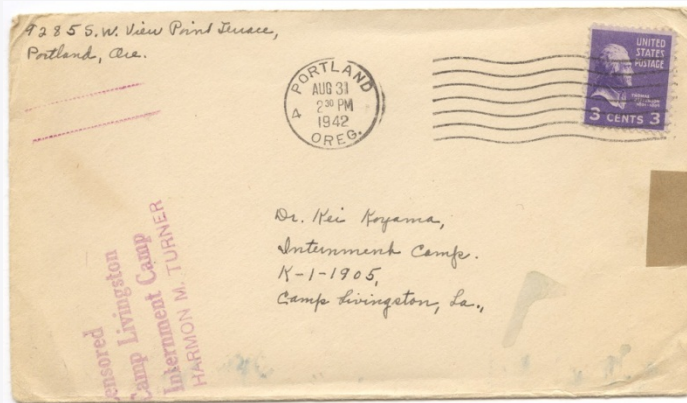
Ana Claudia de los Heros

Regional Payments Week 2019

Willemstad, Curacao, 19th November 2019

(The views in this presentation are those of the author and not of the Banco Central del Uruguay)

# CBDC: Is this the future?



# Outline

- What has Banco Central del Uruguay done?
- What is Banco Central del Uruguay doing now?
- Why?

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# What has Banco Central del Uruguay done?

- Issue, put in circulation and test in the real world a Central Bank Digital Currency (CBDC) called e-Peso
- e-Peso is the Uruguayan Peso in digital



# A pilot plan for CBDC

- e-Peso:
  - legal tender digital currency issued by the Central Bank
  - electronic platform for the Uruguayan Peso
- Pilot plan:
  - needed for verification of technical issues
  - needed to keep risks under strict control
- Conditions set forth by the Central Bank
  - No cost for CB
  - No cost for final users

# Proposal and assessment



Legal

- Legal framework was sufficient for the issuing electronic bills as a complement of paper bills



Security

- Cyber and information risks have been reasonably mitigated
- Other risks (e.g. financial and reputation) have been reasonably hedged



Technology

- Successful testing of the system's component (e-Peso production, digital vault, digital wallets, transactional system, infrastructures, etc.) and business continuity

# Participants



Issues digital bills

**antel**

Provides telecom network

**RGC**

GSMT (Global Solutions for  
Money Technologies)

**IBM**

Storage, management,  
control of circulation and call  
center



Management of users,  
transfers and transactions

**redpagos**

*Cash-In and  
Cash-Out*



# Pilot plan



**6 months**  
**Nov. 17 to Apr. 18**  
**(e-Peso bills are being destroyed now)**



**Limited bill issuance**  
**(20 million)**

**antel**

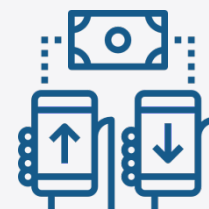
**10.000 mobile phone users**

**Limited**

**\$30000 per wallet**  
**(aprox. 1000 EUROS)**  
**\$200000 for registered business**



**Payment transactions in registered stores and business**



**Transfers P2P among registered users**

# Timing

1°

Stage

- Issuing \$20,000,000 Uruguayan pesos in digital (e-Peso)
- Transferring to virtual vault
- Transferring to *RedPagos* first \$7,000,000 e-Pesos
- Starts Nov. 17 for 6 months
- Antel users install e-Peso app (digital wallet)
- Cash-In through *RedPagos* (incentives to the first 1000)
- Random, monthly, monetary incentives for active users
- Making transactions
- Cash-Out through *RedPagos*
- Returning of e-Pesos to the BCU for destruction
- Evaluation of the Pilot and decision on future steps

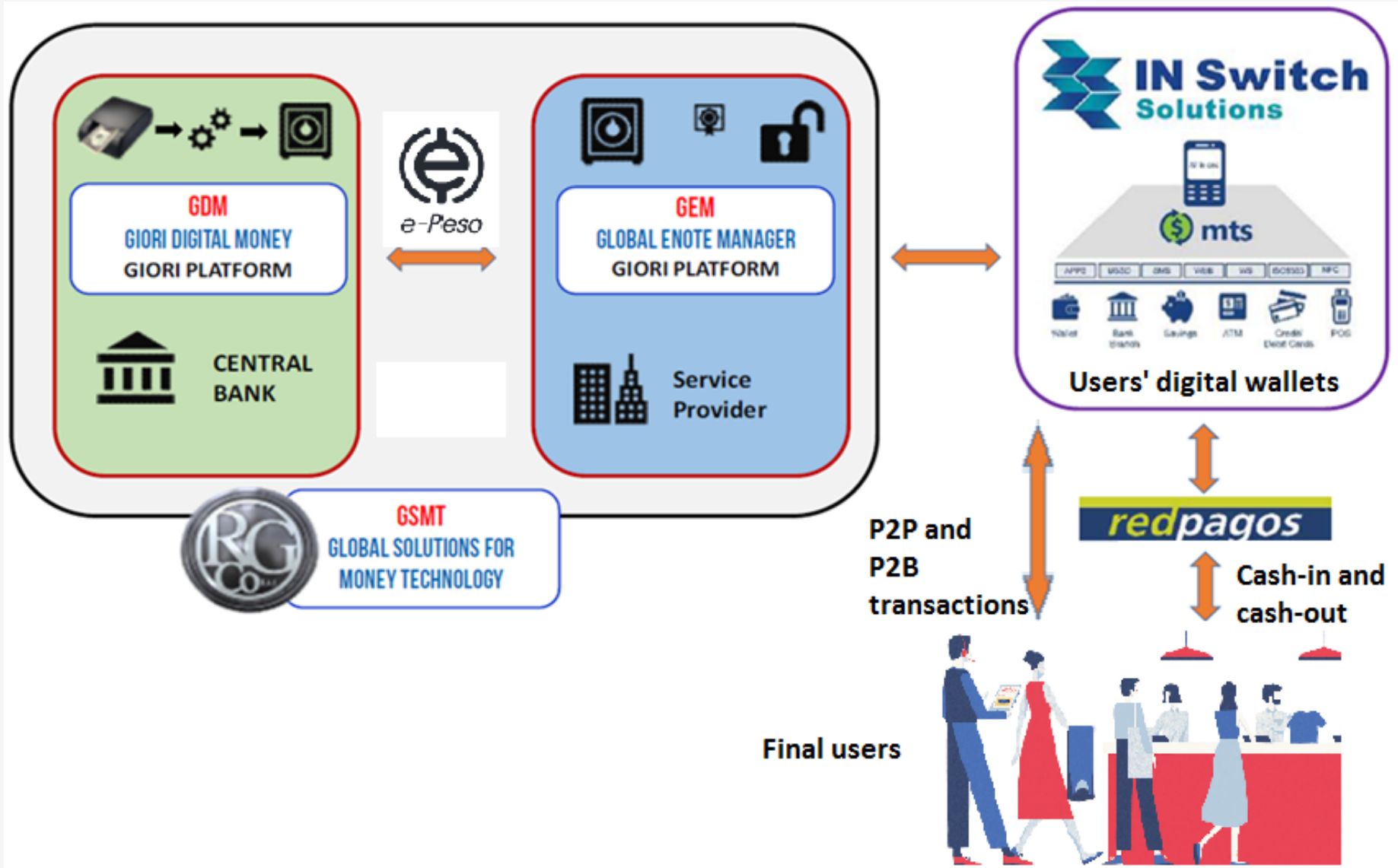
2°

Stage

3°

Stage

# Description of the system



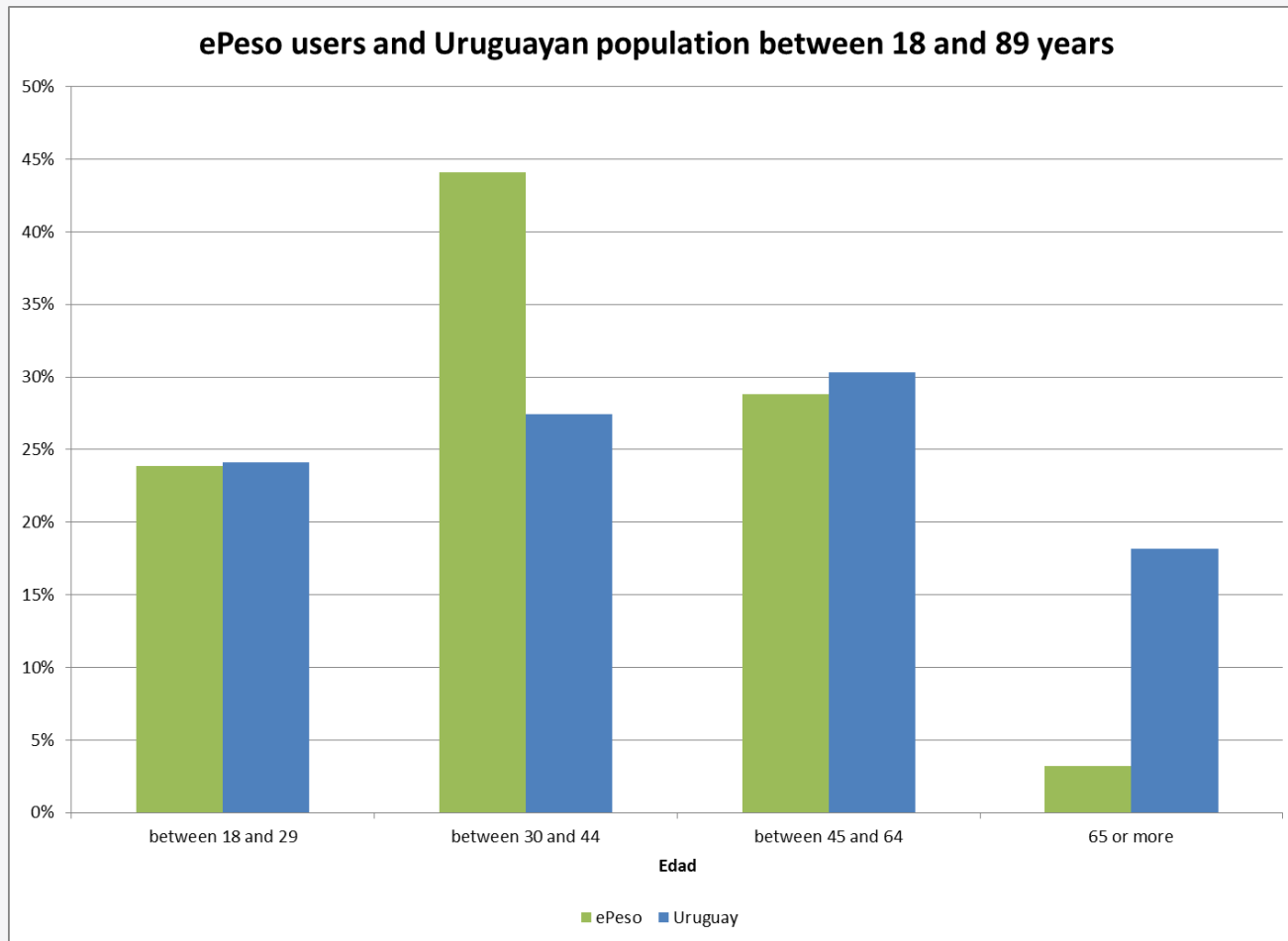
# Characteristics of the system

- Instant settlement
- Does not require internet connection (just a mobile phone line)
- Anonymous but traceable
  - users' wallets and encrypted Global E-note Manager (GEM)
- Security improved
  - e-Pesos are secured at GEM even if users lose their phones or password of digital wallet
  - Unique, traceable bills prevent double-spending and falsification
- Digital bills difficult complete fungibility
  - but GEM may change automatically

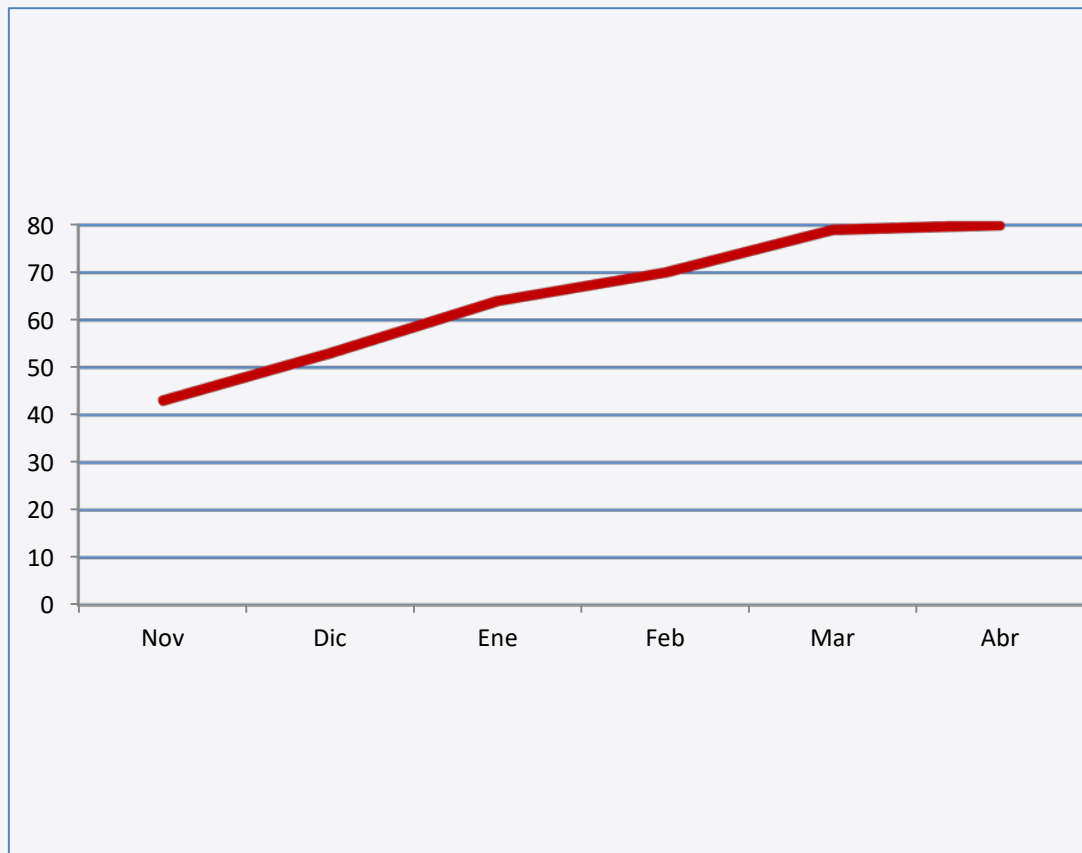
# Experience and preliminary evaluation

- Very positive experience
- Developed according to expectations
- No technical incidents
  
- Mostly P2P transactions
- Increasing number of stores and business
- Banks interested in being part
  
- Zero cost for BCU

# Age composition of e-peso users



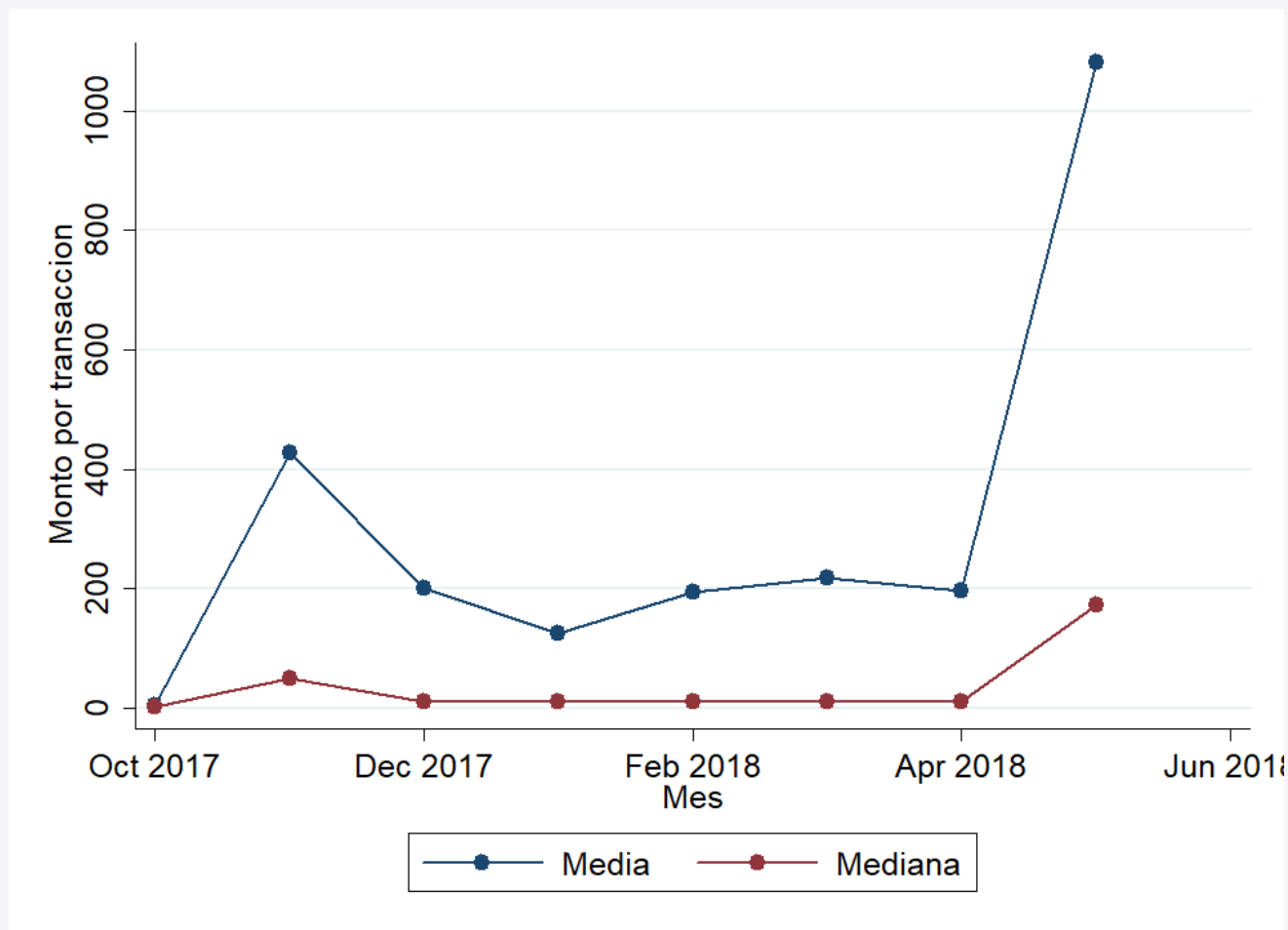
# Number and sectors of participating firms



## sectors:

- Gas Stations
- Professionals
- Transport
- Importers and Distributors
- Food; Selfservice markets
- Fitness
- Medical Services
- Others

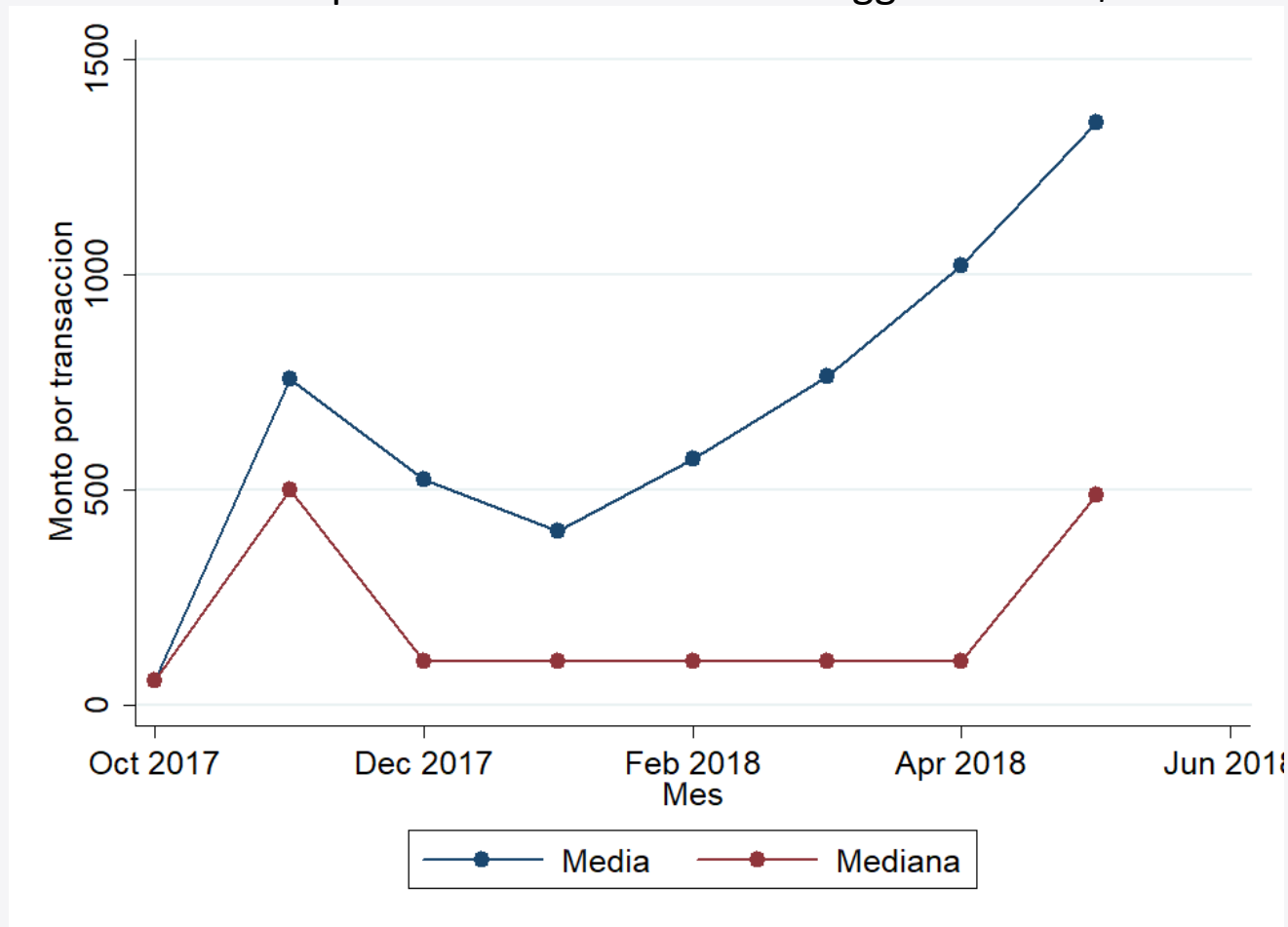
# Monthly evolution of transaction size





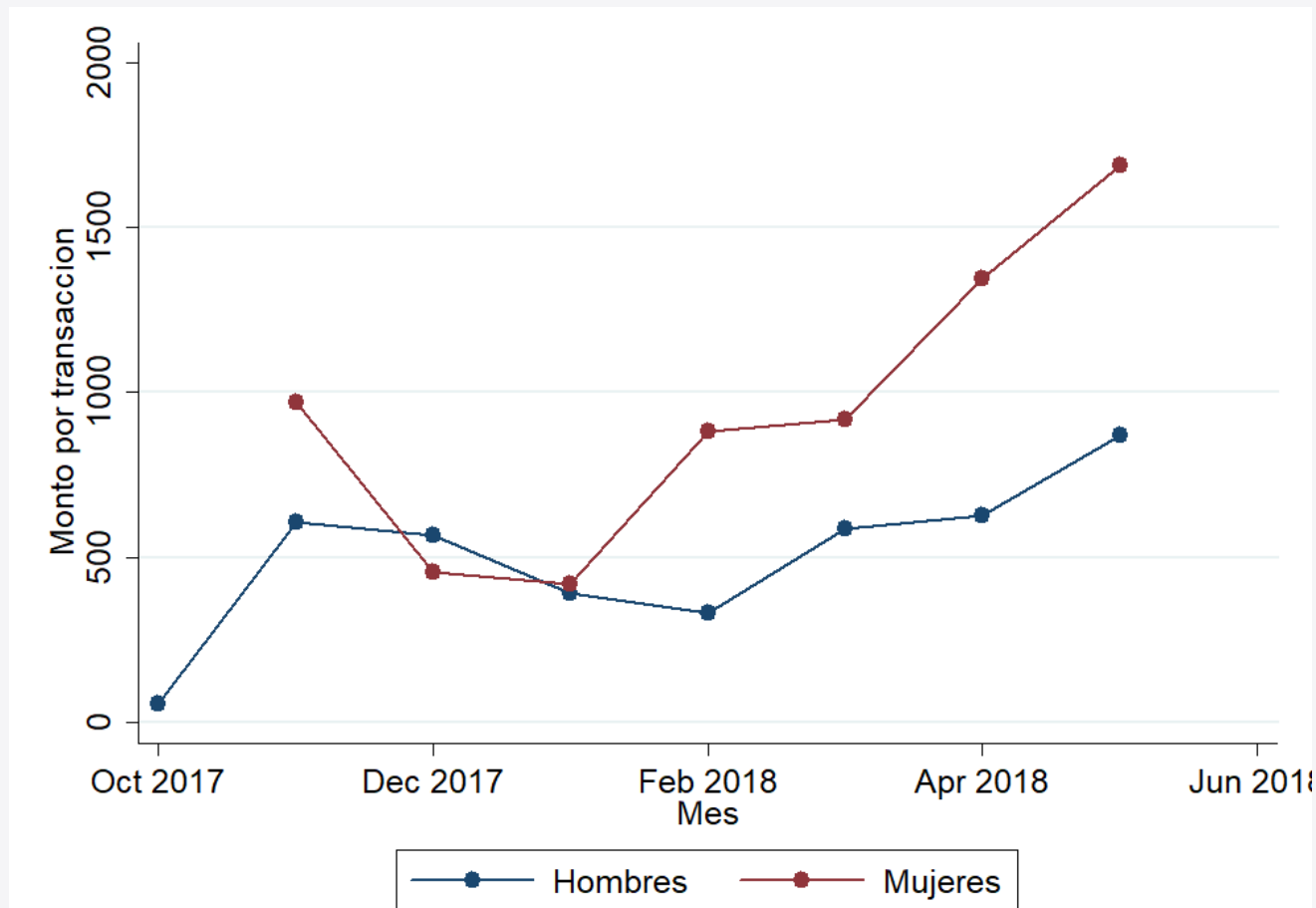
# Size of transactions

Computed for all transactions bigger than 10\$



# Gender and transaction size

Computed for all transactions bigger than 10\$



# Outline

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# What is Banco Central del Uruguay doing now?

- Evaluating the experience of the e-Peso from a Payment System perspective. (Strategic goal 2019-2020)
  - Analyze the feasibility of issuing legal tender in digital format and implement it in the National Payment System
    - compatible with the systems used
    - part of a payment industry, existing and challenged by the new technocologies
  - Propose different product design alternatives, showing benefits and restrictions of each of them
  - Its possible impact on the monetary policy and financial inclusion objectives (2020)

# Concerns that we must deepen

- Legal power to develop it.
- Emulate the physical ticket: anonymity of the user?
- User accounts in BCU - competition
- Introduction to the National Payment System, how do the other participants play?
- Link with commercial establishments

# Main questions to solve

- Model Definition
  - Who owns each module?
  - Who operates each module?
- Role of the BCU?
- Role / participation of the rest of the NPS agents ... how to generate synergies?
- Storage: accounts or devices?
- How to promote its use / accession of shops?
- Disruptive project: impact on the market? Orderly implementation

# Actions done and to do

- Payment System report and proposal
- Meetings with the industry
  - Banks
  - Electronic Money Issuing Institutions
- Analysis of electronic wallets in development
  - TuApp
- Possible new pilot (2021)

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# Change of paradigm

- This digital era and *Fintech* imply challenges:
  - rapid and big changes in payment systems
  - potential disruptive impact on financial markets
  - risks to monetary policy and financial stability
  - risks to tax evasion and financing of illegal activities
  - challenges to customer protection
- Digital technologies also imply opportunities:
  - reduce transaction costs and improve efficiency
  - improve safety in financial transactions (crime vs. cyber risk!)
  - serve financial inclusion objectives
  - *Regtech* contributes to price and financial stability

# Central banks in a digital era

- Central banks should:
  - be part of the new paradigm
  - be prepared to fulfill their mandates in a digital era
  - be able to profit from new technologies in their favor in order to:
    - improve efficiency,
    - protect the payment and financial systems, and
    - ensure financial stability

# Reducing transaction costs

- Central banks digital currencies could help to reduce transactions costs to operate means of payment and store of value by:
  - reducing costs of printing physical/paper bills
  - reducing logistics and cash management issues (importing, storing and distributing bills in the territory)
- Reducing paper bills related crime, which is:
  - positively correlated with demand for paper currency
  - negatively correlated with credit and debit card penetration

# Increasing transparency and security

- Central banks digital currencies could also help to:
  - increase efficiency and transparency in the payment system
  - improve safety in day-to-day operations
  - improve control of illegal activities and tax evasion
  - improve customers protection and personal data security

# Promoting financial innovation

- Central bank digital currencies could promote further financial innovation:
  - central banks are part of it together with the industry
  - prolific field for startups developing new products and services (e.g. digital wallets with enhanced customers' experience)
  - potential for incumbent banks to offer new products and services

# Promoting financial inclusion

- Central bank digital currencies could promote financial inclusion:
  - traditionally financially excluded sectors of the population do access mobile phones

*Financial inclusion was declared a priority by the Uruguayan government, and the financial inclusion program was created in 2011*

- Financial inclusion Law (19210) was passed in 2014
  - Target
    - Universal access
    - Labor market formalization
    - Improving payments system efficiency

# Being proactive

- There is an unavoidable technological trend that sooner or later will challenge central banks:
  - jurisdictions going cashless
  - markets are organized based on electronic platforms, some of them without well-defined owners and without assets
  - cryptocurrencies: unit of value, mean of payment and reserve of value? And, who to “blame”? However, increasingly traded
  - better customers experience is highly demanded
  - new products and new ways to provide traditional ones should not escape prudential regulation when involving the same risks



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*e-Peso*

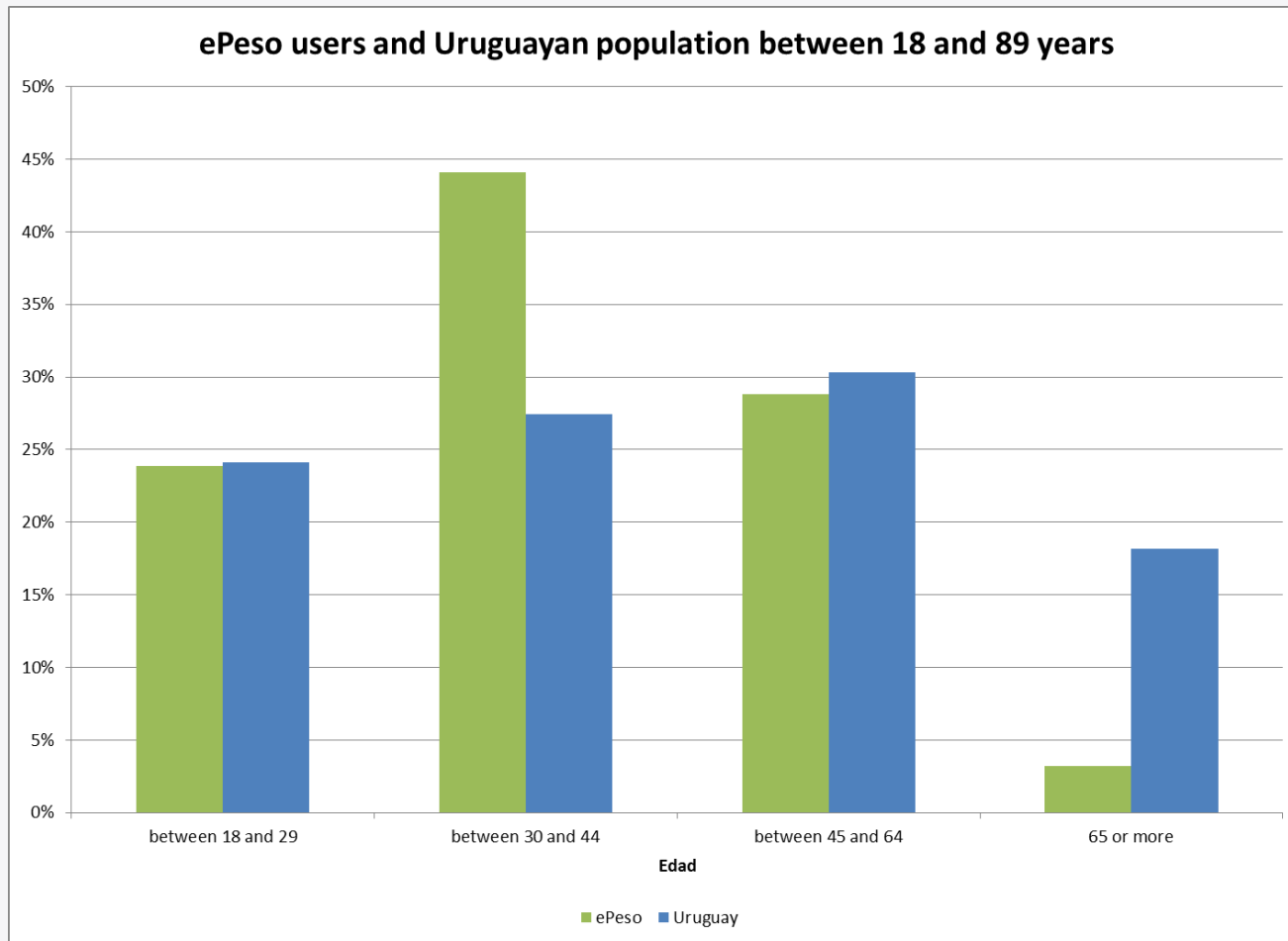
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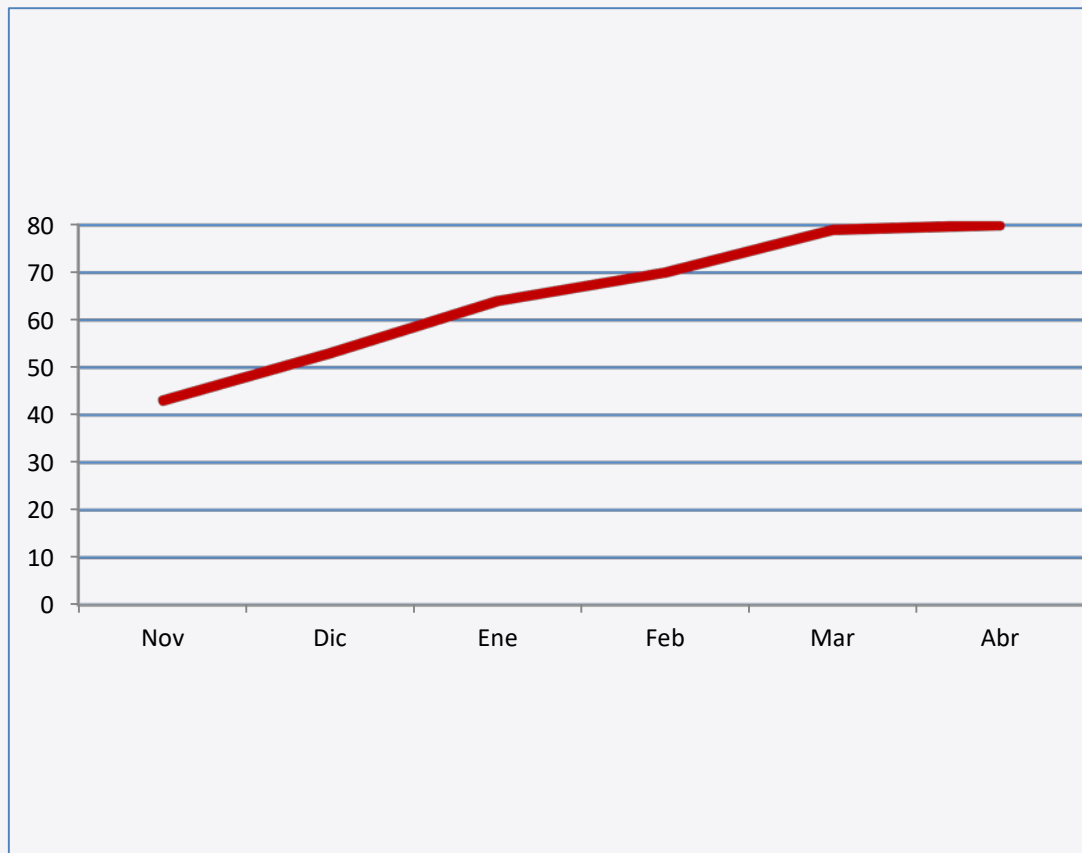
# Thank you!



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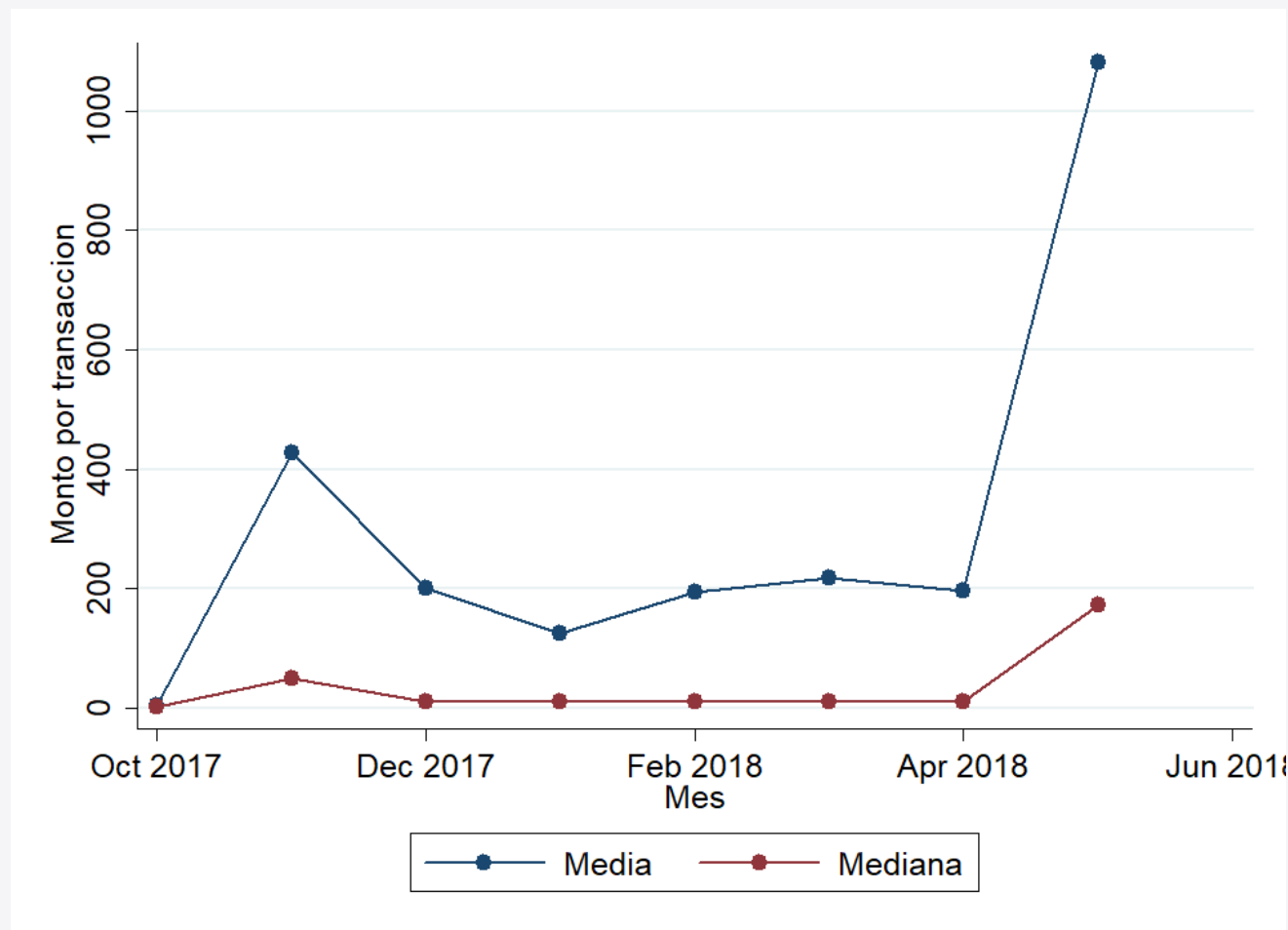
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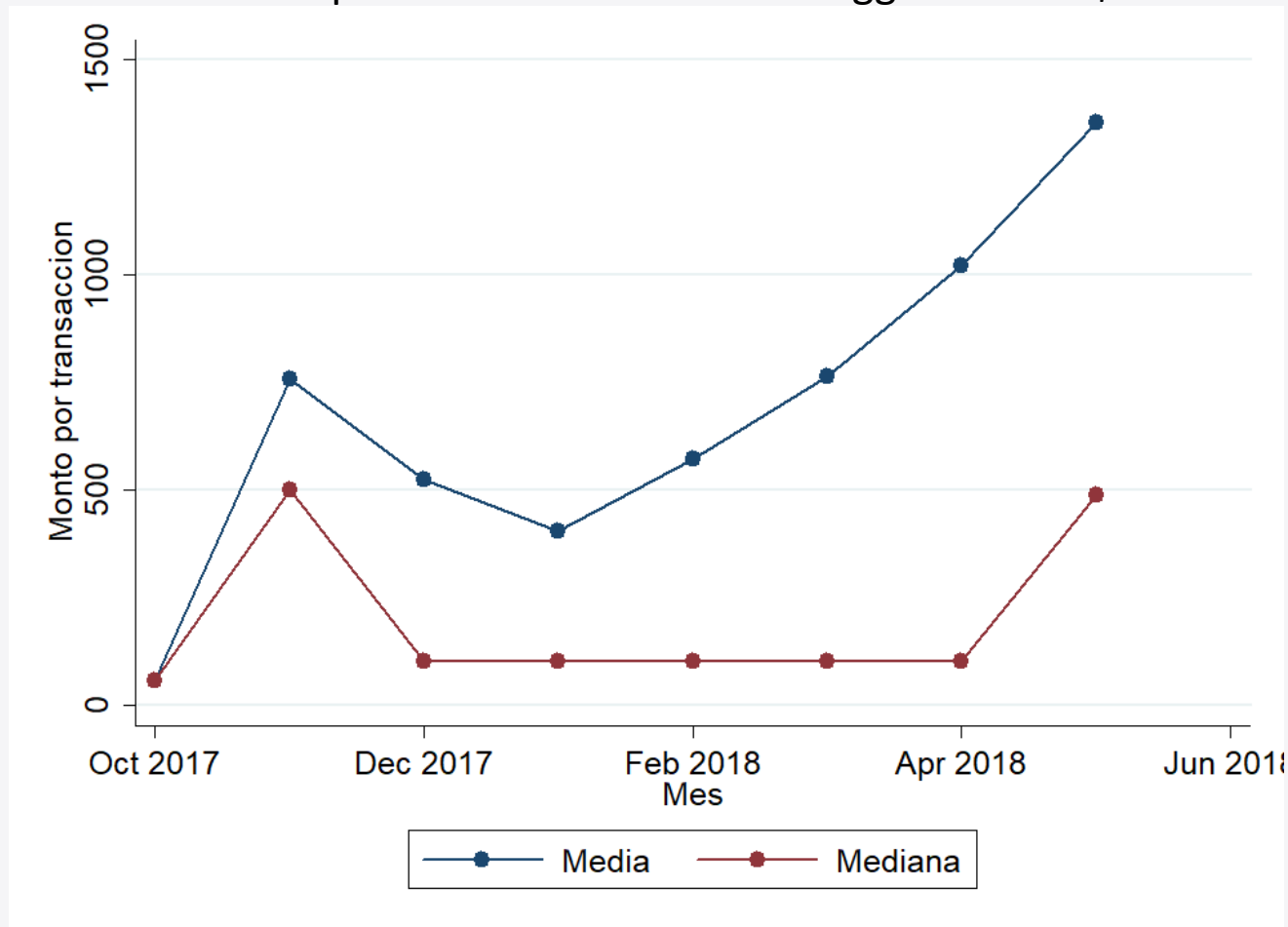
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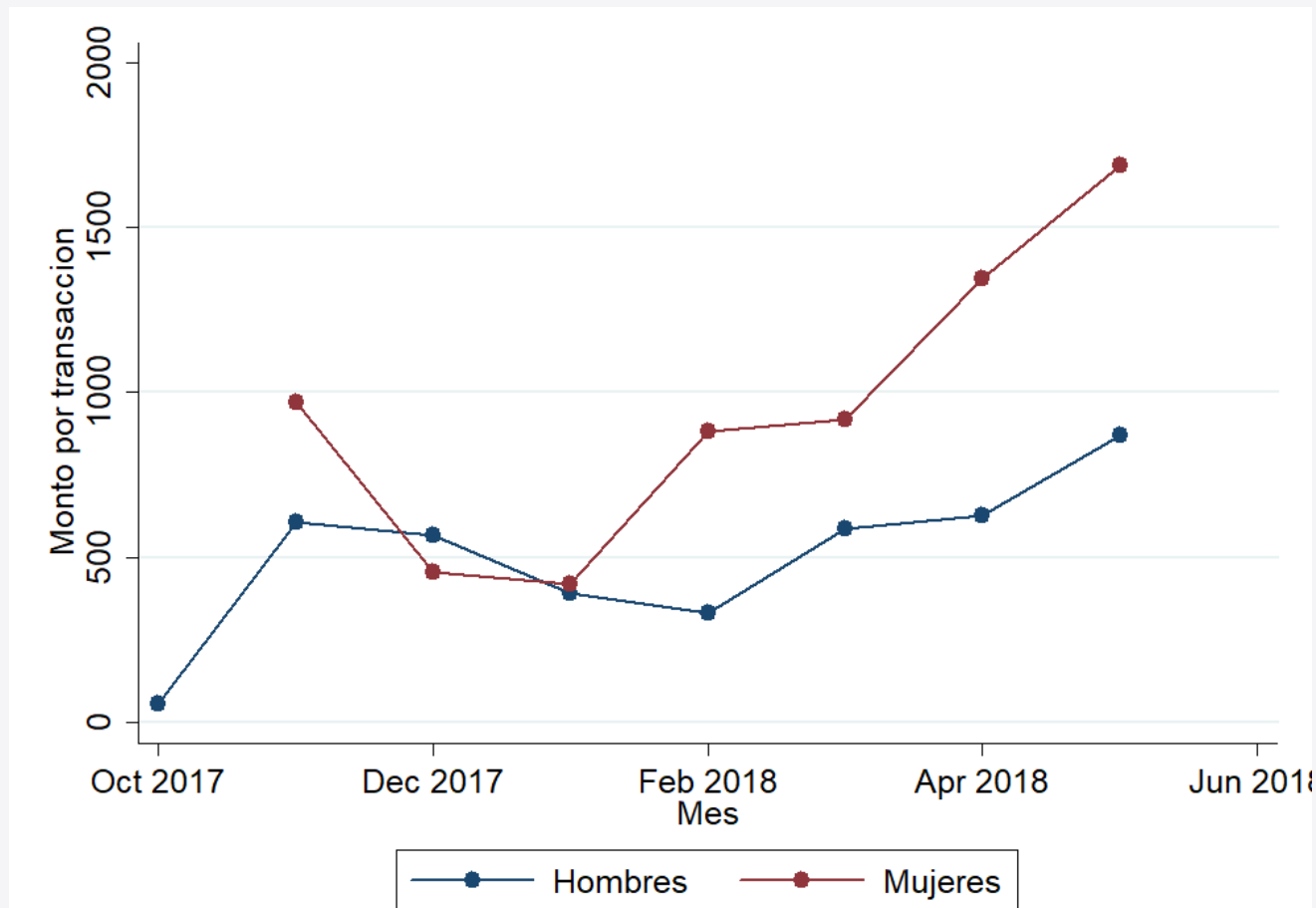
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# Questions and (some tentative) answers

- Impact on banks and other incumbents?
  - new equilibrium: in practice banks are interested to be onboard
- Impact on monetary policy?
  - positive: more transparent and systematic information in real time
- Impact on crisis times?
  - neutral or positive: e-Peso is legal tender as physical bills are

# Questions and (some tentative) answers (cont.)

- Impact on users expenditures and consumption patterns?
  - limited: e-Peso will complement, not substitute, means of payment
- Impact on information?
  - positive: analysis (monetary policy, expenditure, etc.) and prevention of tax evasion, money laundry and terrorism financing
- Impact on competition and resilience?
  - positive: providing interoperability regulation and competition policy