



BANCO CENTRAL  
DEL URUGUAY



*e-Peso*

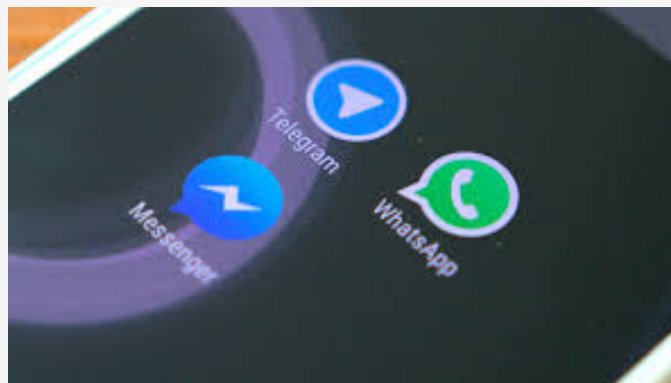
# Uruguayan e-Peso on the context of financial inclusion

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Basel, November 16<sup>th</sup> 2018

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

# CBDC: Is this the future?



# Outline of the presentation

- Central Banks and Digital currencies
- E-Peso in context
- The experience of the E Peso
  - Aim
  - Design
  - Results
- Questions in the Balance

# Central banks and Digital currencies

- Are CBDC really necessary? What needs do we have that the current transaction tech does not deliver?
  - Money already exists in electronic form
  - Do CBDCs improve financial inclusion?
    - Tax collection
    - Territorial reach
  - Are CBDCs more efficient? Costs of Cash
  - Are CBDCs safer?
  - CBDCs might improve monetary policy (interest bearing).

# E-peso in the Uruguayan context

- Financial inclusion was declared a priority by the Uruguayan government, and the financial inclusion program was created in 2011
- Financial inclusion Law (19210) was approved in 2014
  - Target
    - Universal access
    - Labour market formalization
    - Improving payments system efficiency
- Main measures
  - Wage and social benefits payable in (free) bank accounts
  - Tax benefits for debit and credit card payments
  - Mandatory electronic payments in large transactions (effective 2018)
- Other measures of the program
  - Facilitating access . Subsidy to POS investment
  - Competition policies. Reduction in fees for credit and debit card transactions

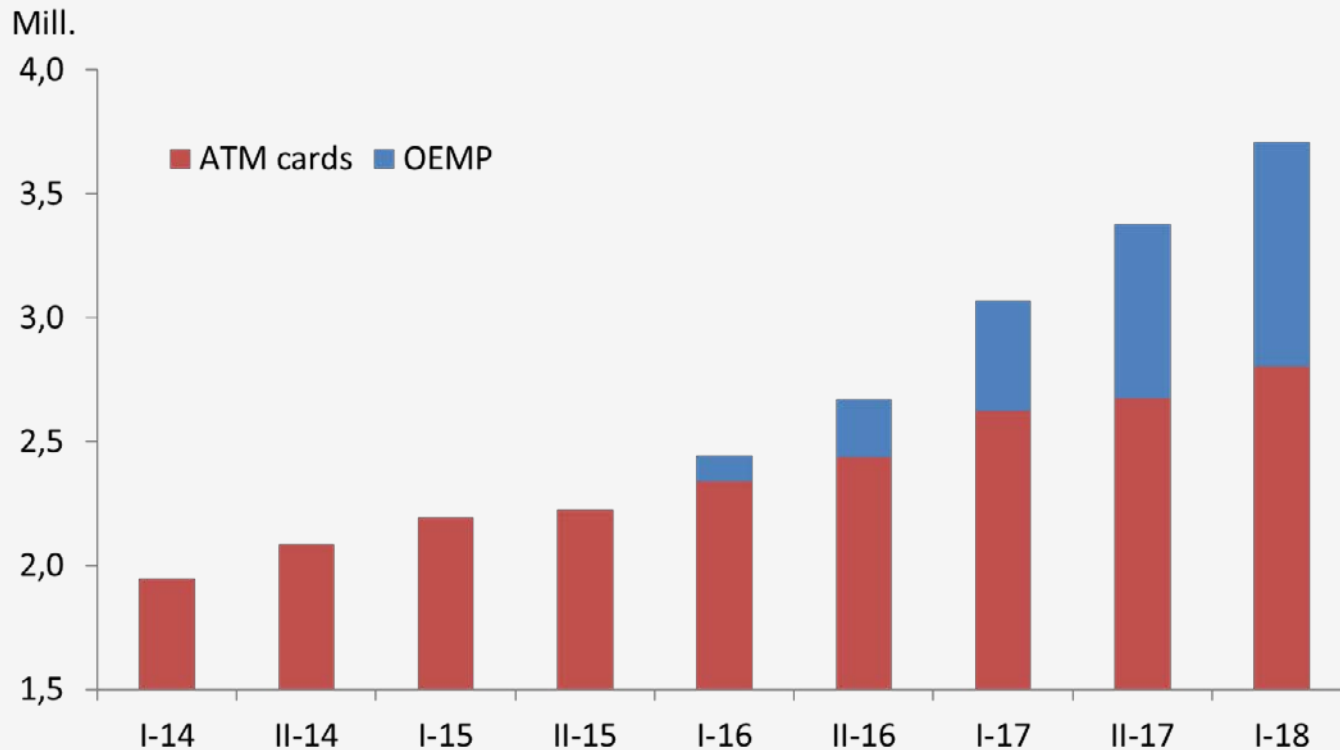
## Fees on debit and credit card reduced to 3,5 and 1,3%

	Aranceles máximos	
	Tarjeta de débito	Tarjeta de crédito
Chile	1,5%	3,0%
Argentina	1,5%	3,0%
Brasil	2,5%	3,8%
Paraguay	3,0%	5,0%
Perú	3,3%	4,2%
Colombia	4,2%	6,2%

Fuente: CEPAL, junio 2017

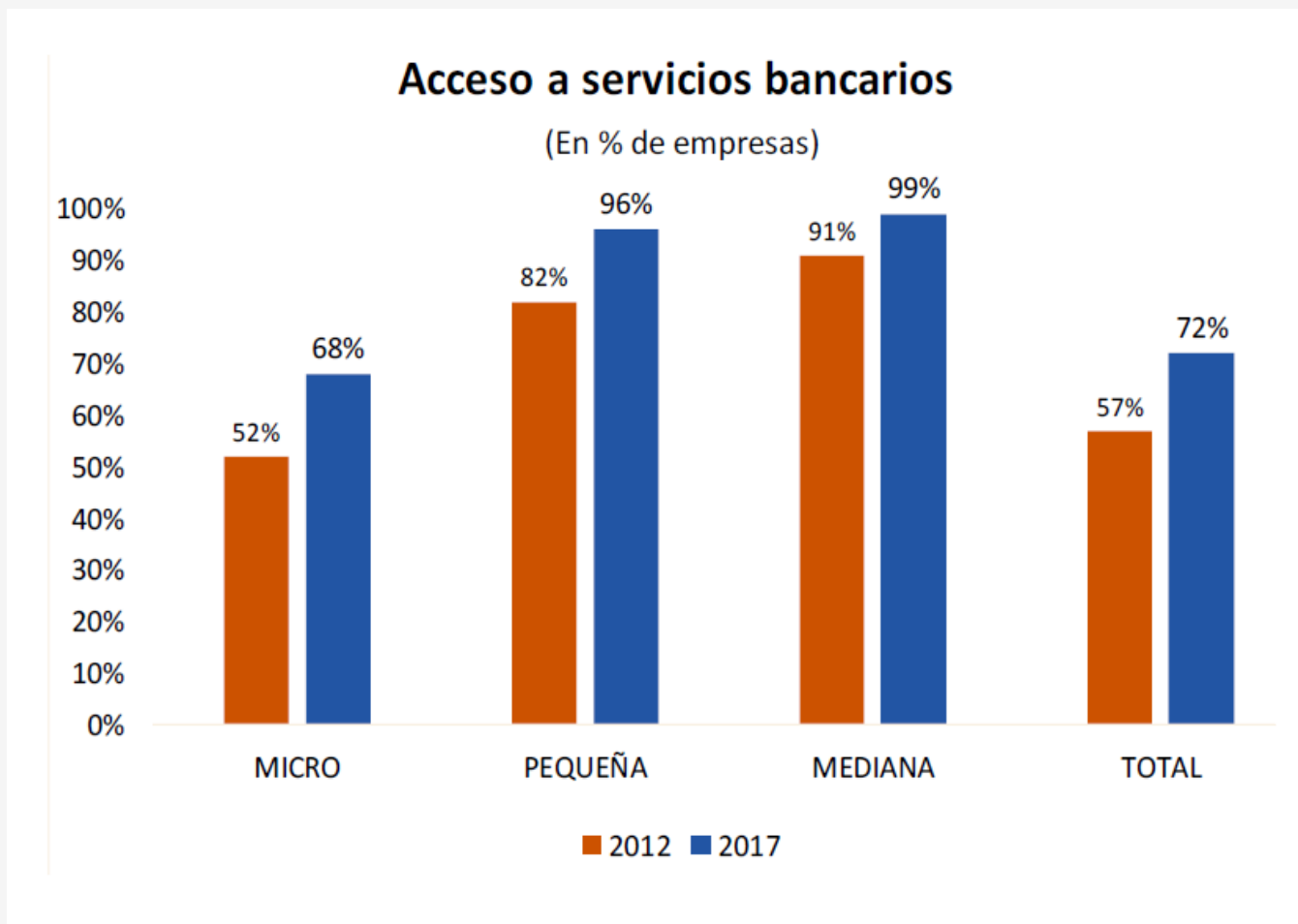
# The number of debit cards and electronic money instruments has doubled

## ATM cards and other electronic means of payment



Source: BCU

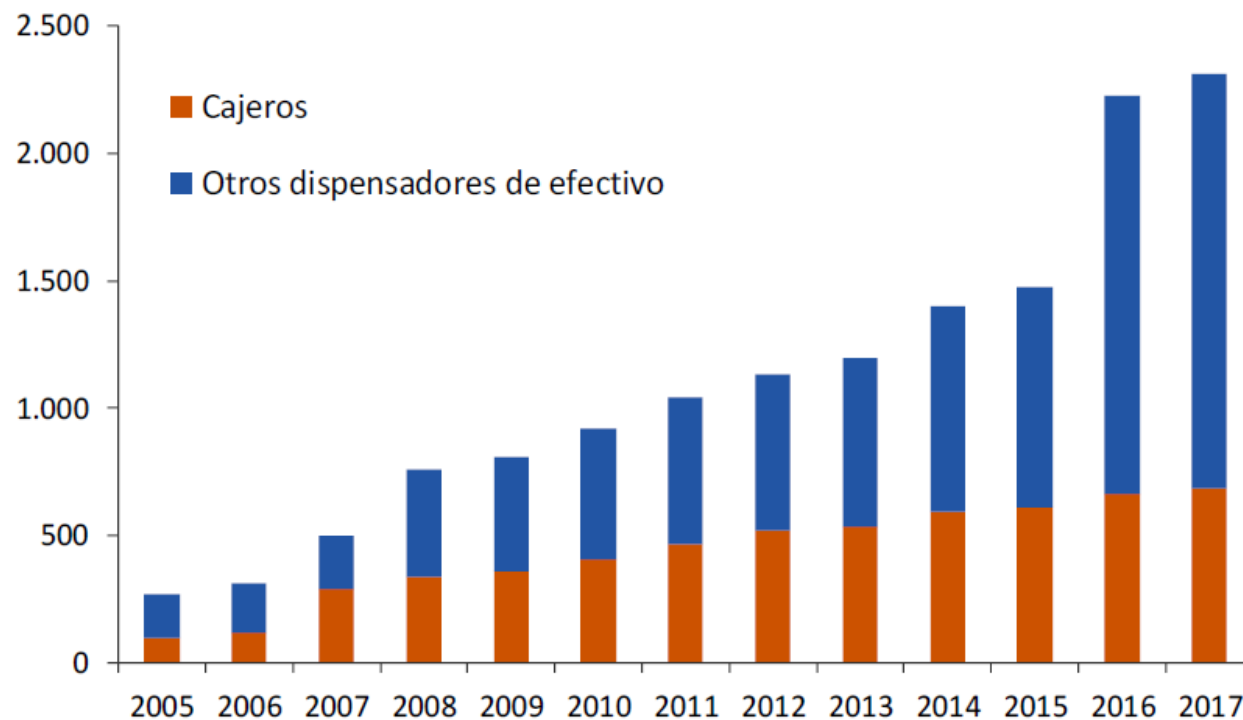
# Access to banking system by firms has increased substantially





# As has the number of atm's and other cash dispensers mechanisms

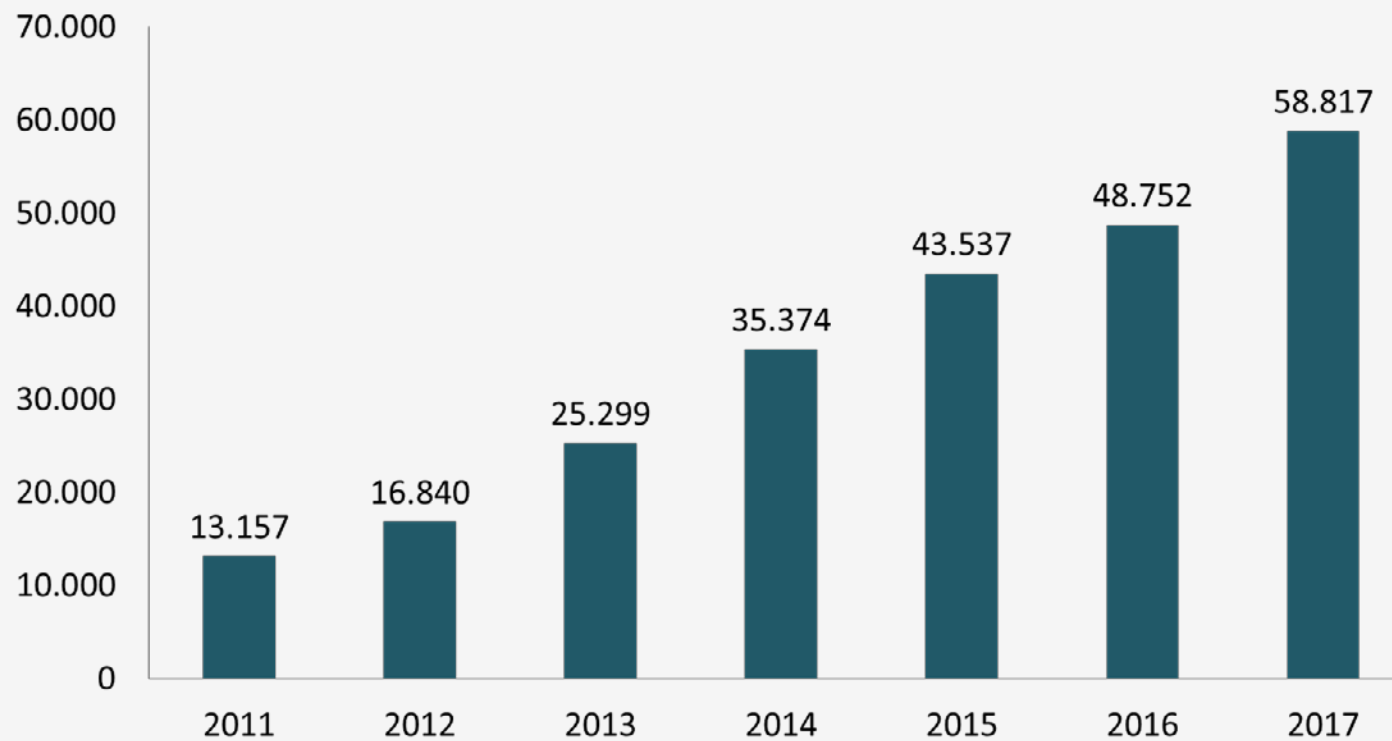
## Cajeros y correspondales financieros



Fuente: BCU

# POS terminals have almost doubled

## POS Terminals

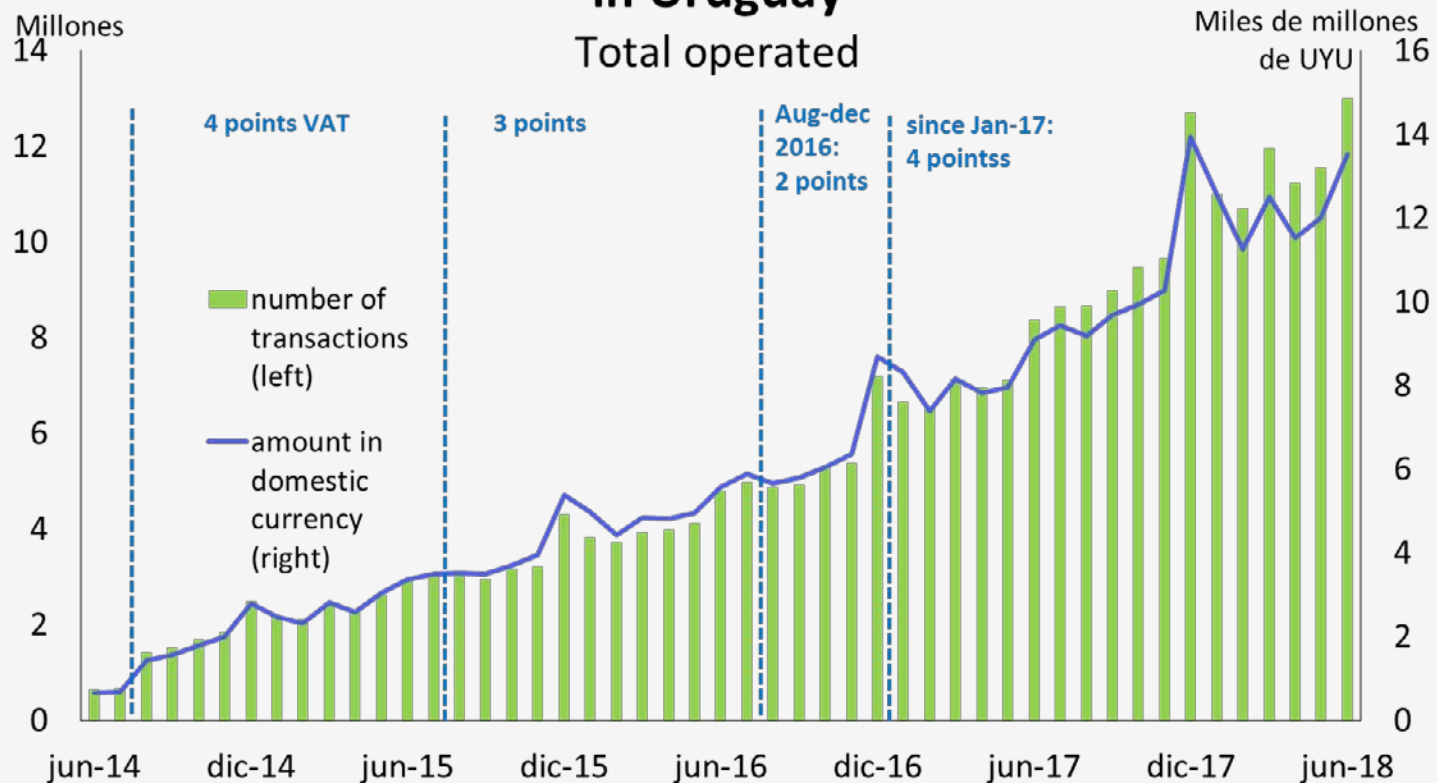


Source: BCU

Both the number of operations and their amount have multiplied by six

## Debit cards: Amount purchased and number of transactions in Uruguay

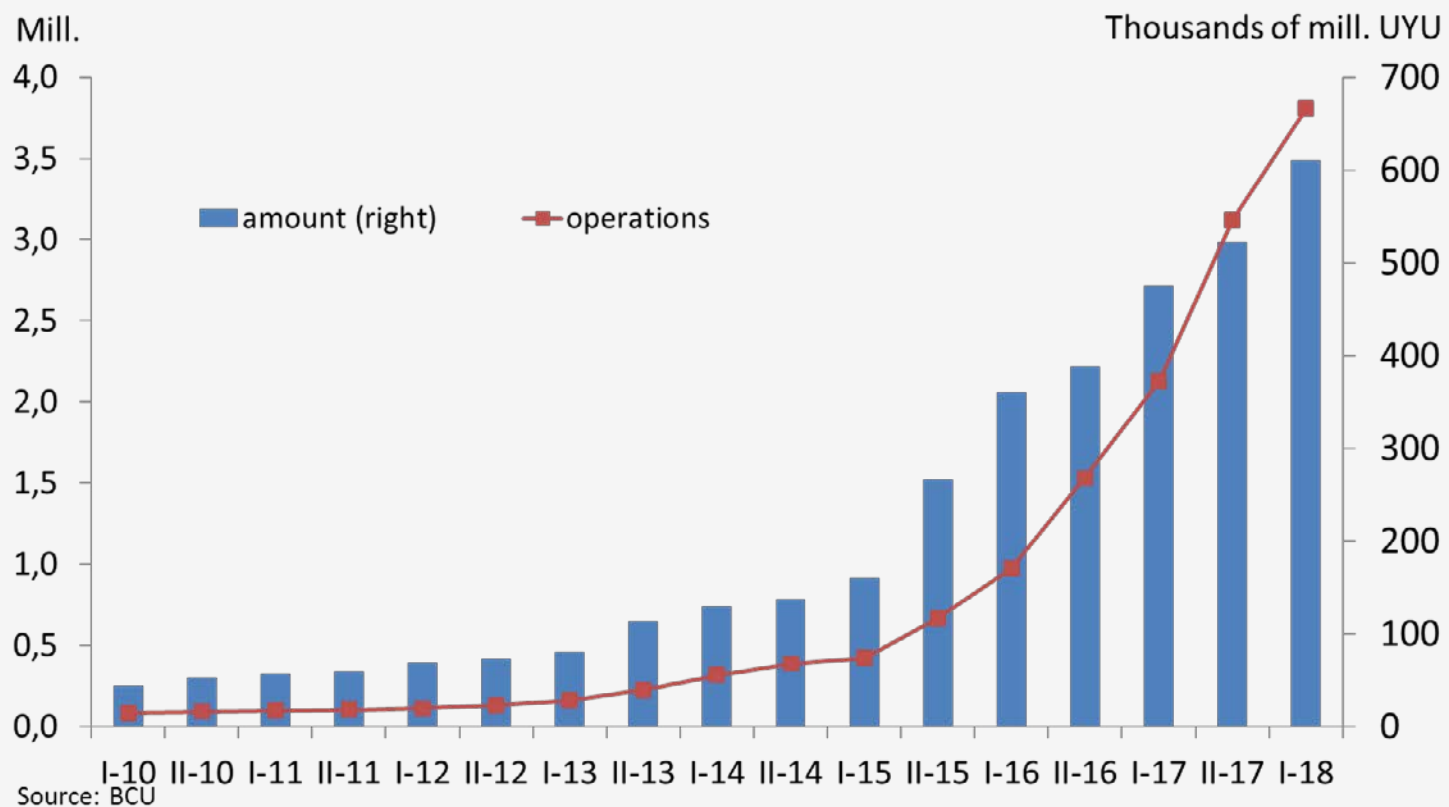
Total operated



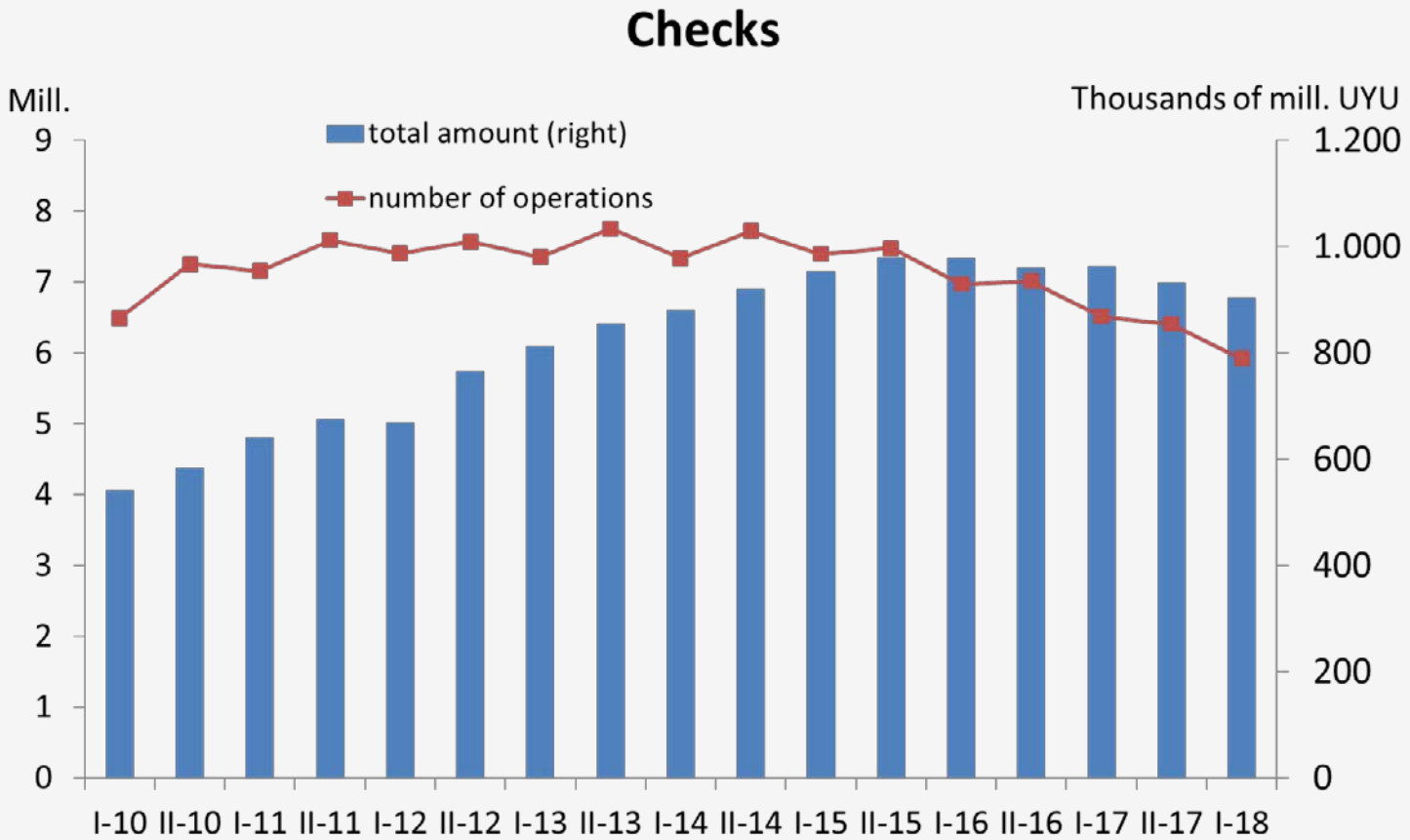
Source: BCU. Does not include automatic debits.

# Electronic transfers multiplied by 5 and are expected to spike next year

## interbank transfers



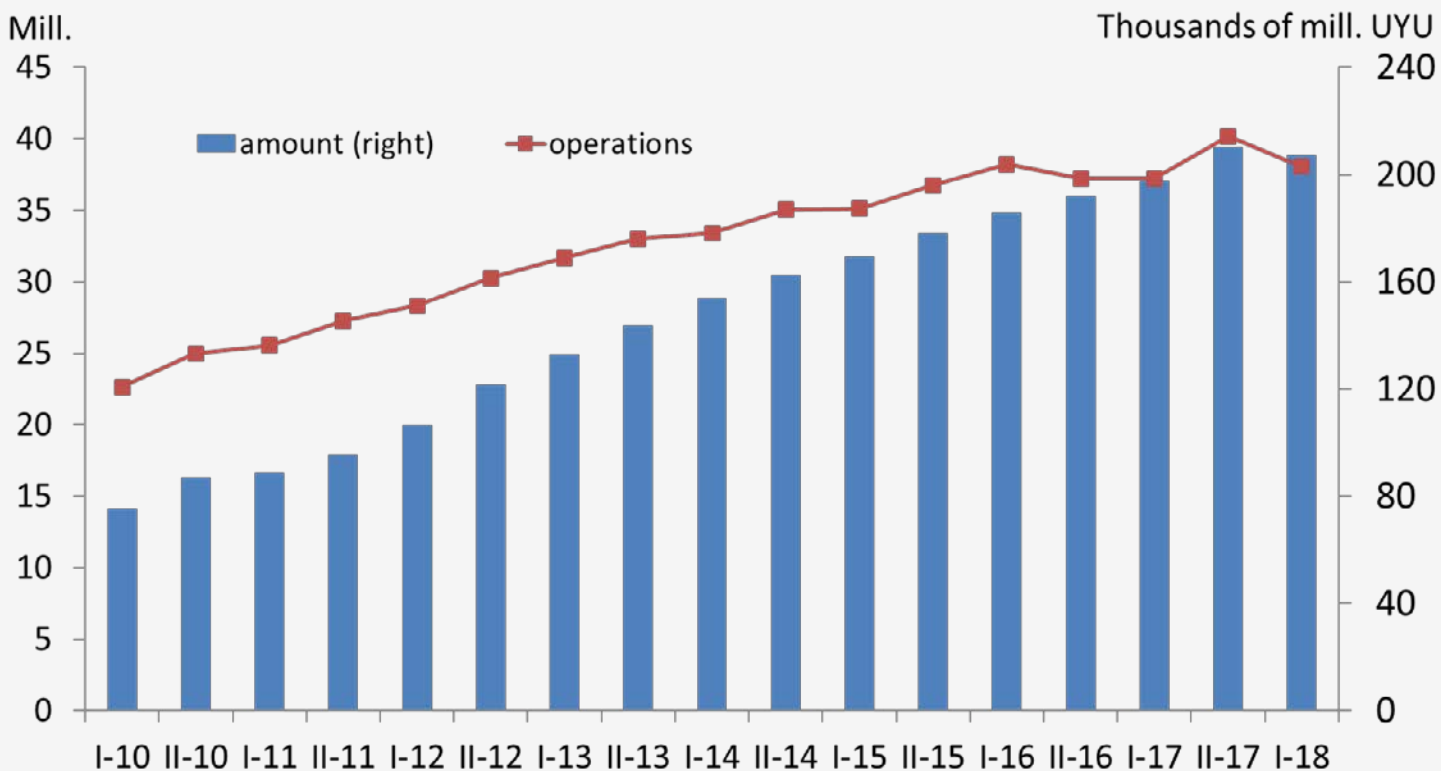
# Check usage is on the fall



Source: BCU

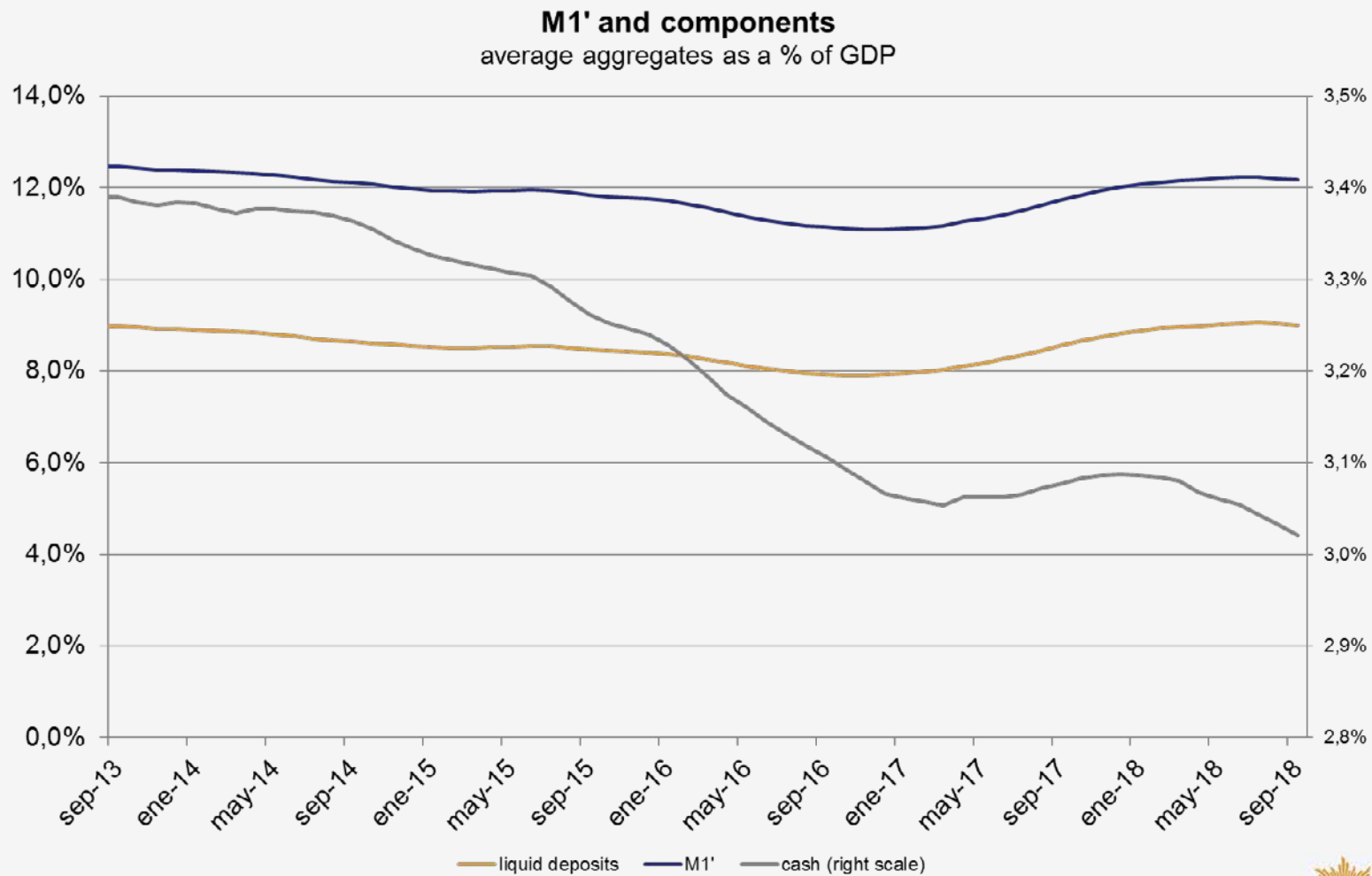
Despite the increase in accounts and cards, cash withdrawals are reaching a peak

### ATM cash withdrawals



Source: BCU

# In the aggregate, there is a change in composition in the components of transactional money



# 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

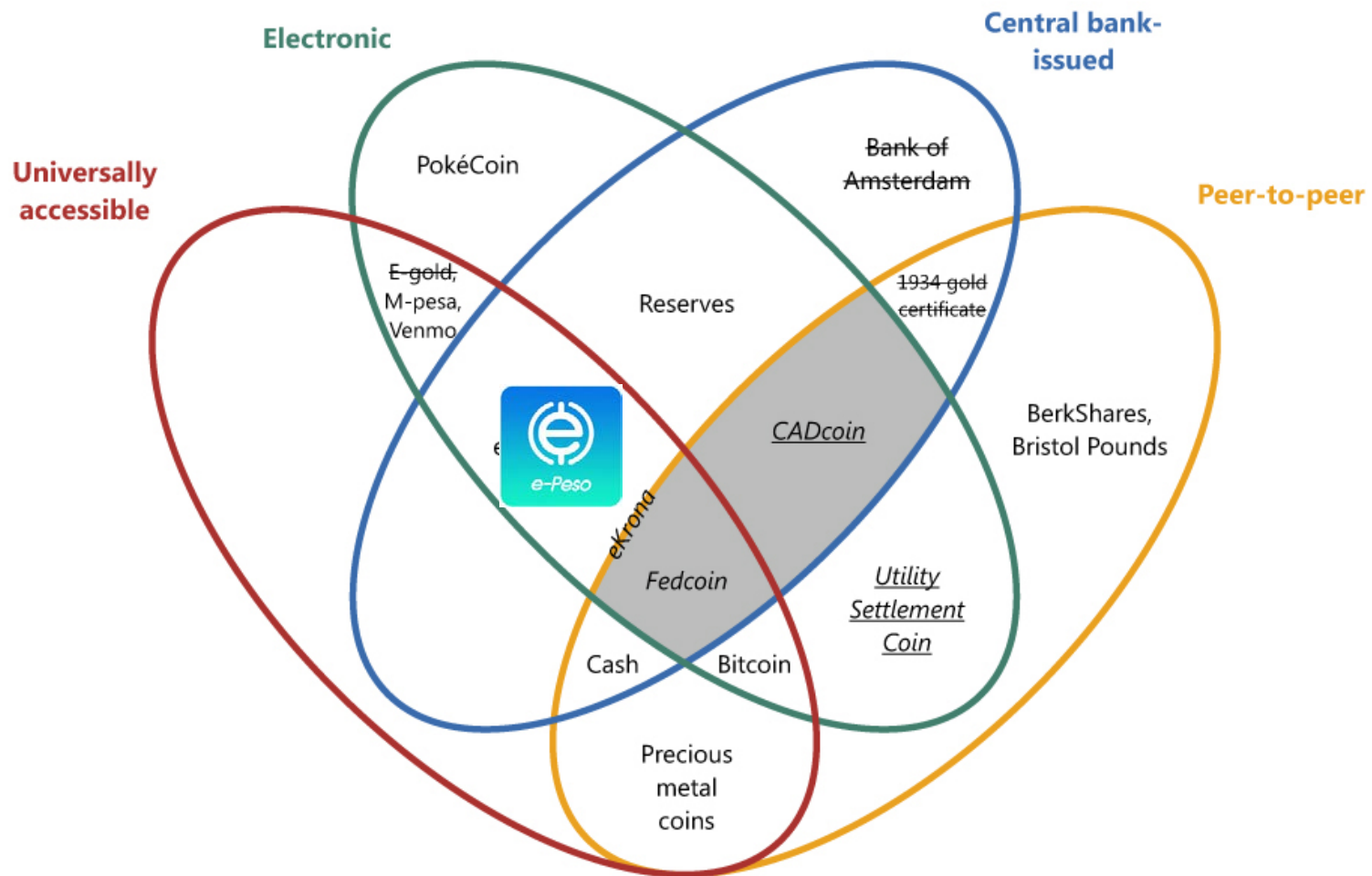




# The E-peso in BIS's money flower

The money flower: example

Graph B



A standard font indicates that a system is in operation; an *italic* font indicates a proposal; an *italic and underlined* font indicates experimentation; a ~~struck through~~ font indicates a defunct company or an abandoned project.

# A pilot plan for e-peso

- 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



Tecnology

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

# Timing

1°

Stage

- Issue \$20,000,000 Uruguayan pesos in digital (e-Peso)
- Transfer to virtual vault
- Transfer to *RedPagos* first \$7,000,000 e-Pesos

2°

Stage

- 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
- Make transactions

3°

Stage

- Cash-Out through *RedPagos*
- Return of e-Pesos to the BCU for destruction
- Evaluation of the Pilot and decision on future steps

# Participants and their roles



Issues digital bills



Provides telecom network

## RGC

GSMT (Global Solutions for Money Technologies)  
Supplies GDM/GEM, training, management and tech support



Storage, management, control of circulation and call center

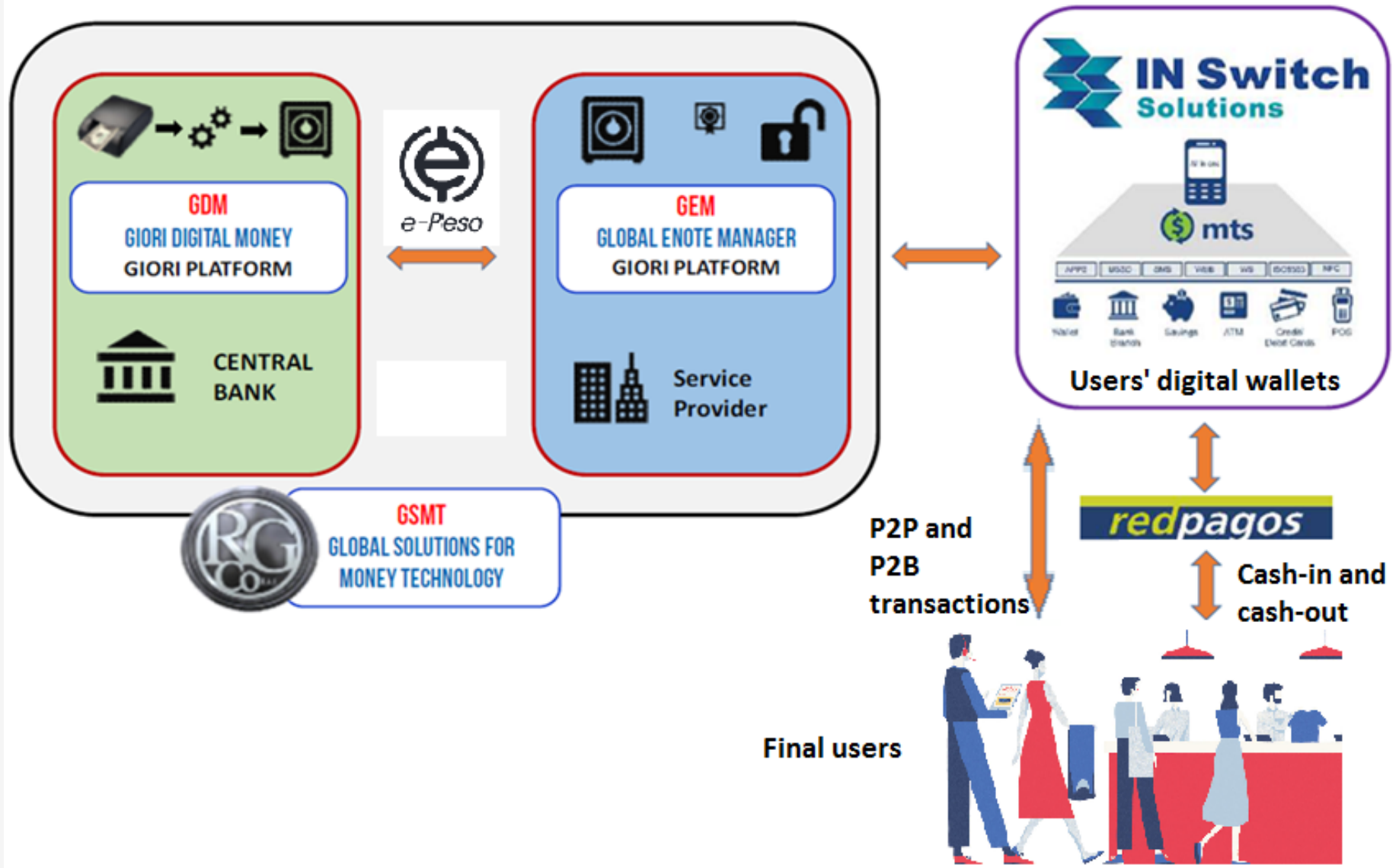


Management of users, transfers and transactions

## redpagos

*Cash-In and Cash-Out*

# Description of the system



# Pilot plan



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



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

**antel**

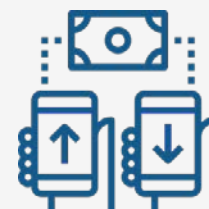
**10.000 mobile phone users**

**Limited**

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



**Payment transactions in registered stores and business**



**Transfers P2P among registered users**

# Characteristics of the system

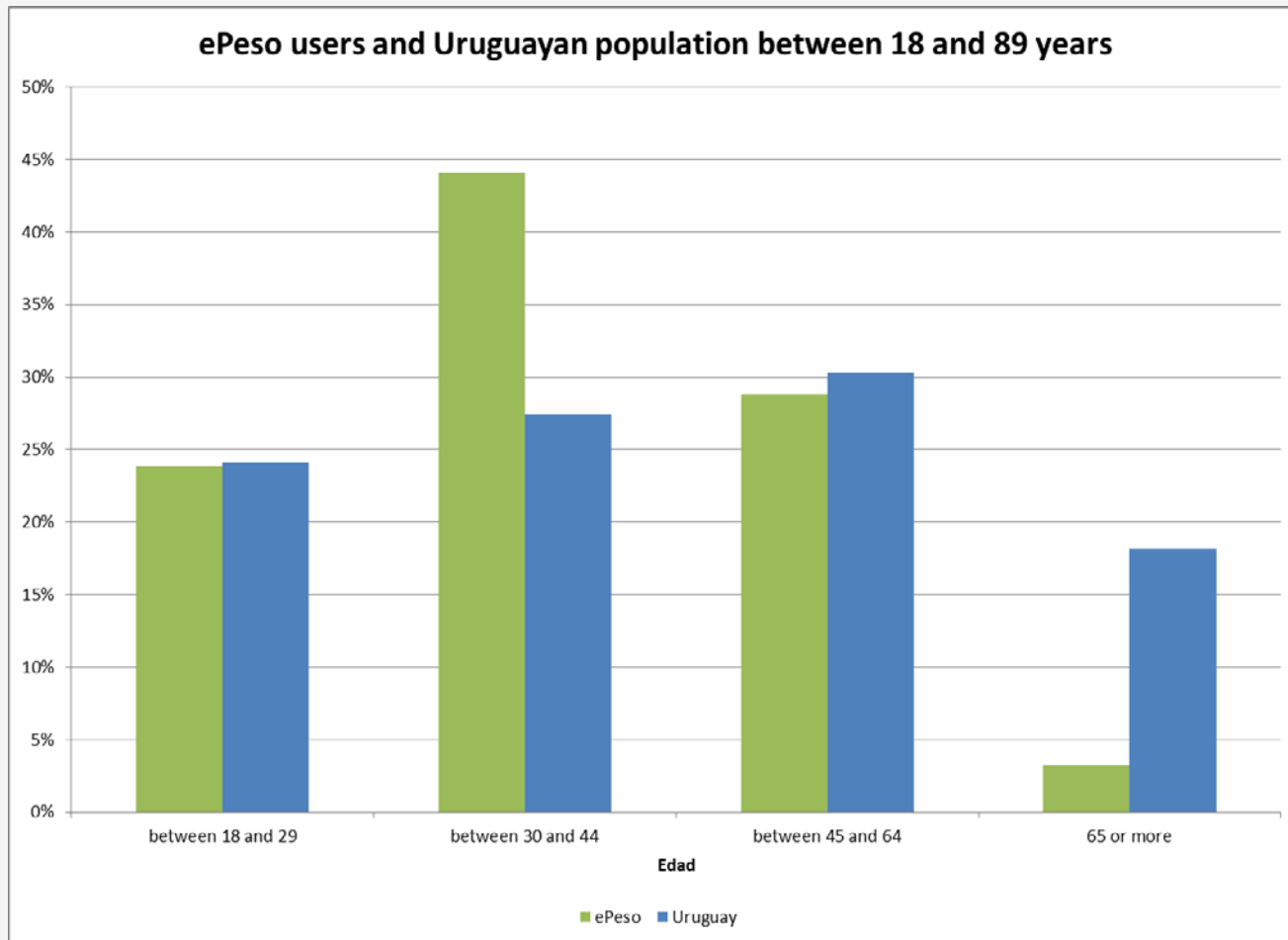
- Instantaneous settlement
- Does not require internet connection (just a mobile phone line)
- Anonymous but traceable
  - users' wallets and encrypted Global E-note Manager (GEM)
- Security improvements over cash
  - e-Pesos are secured at GEM even if users lose their phones or password of digital wallet
  - Unique, traceable bills prevent double-spending and falsification
- Unique bills difficult complete fungibility
  - GEM makes change automatically
  - The problem of the stock of fixed denominations
- Originally users would have been able to see the bills in the wallet, but that feature was not implemented



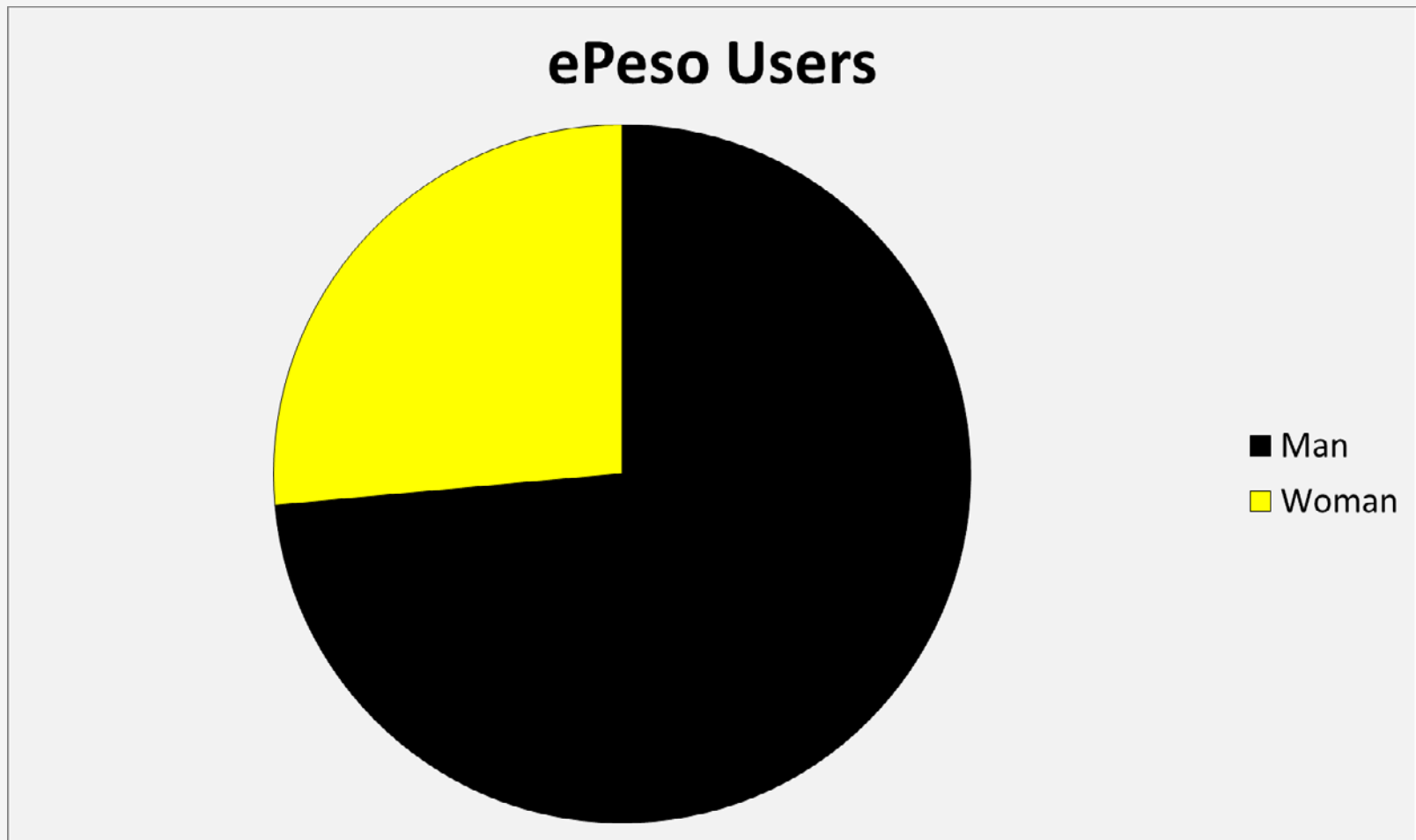
# Experience and preliminary evaluation

- Very positive learning experience
- Developed according to expectations
- No technical incidents
- Zero cost for BCU

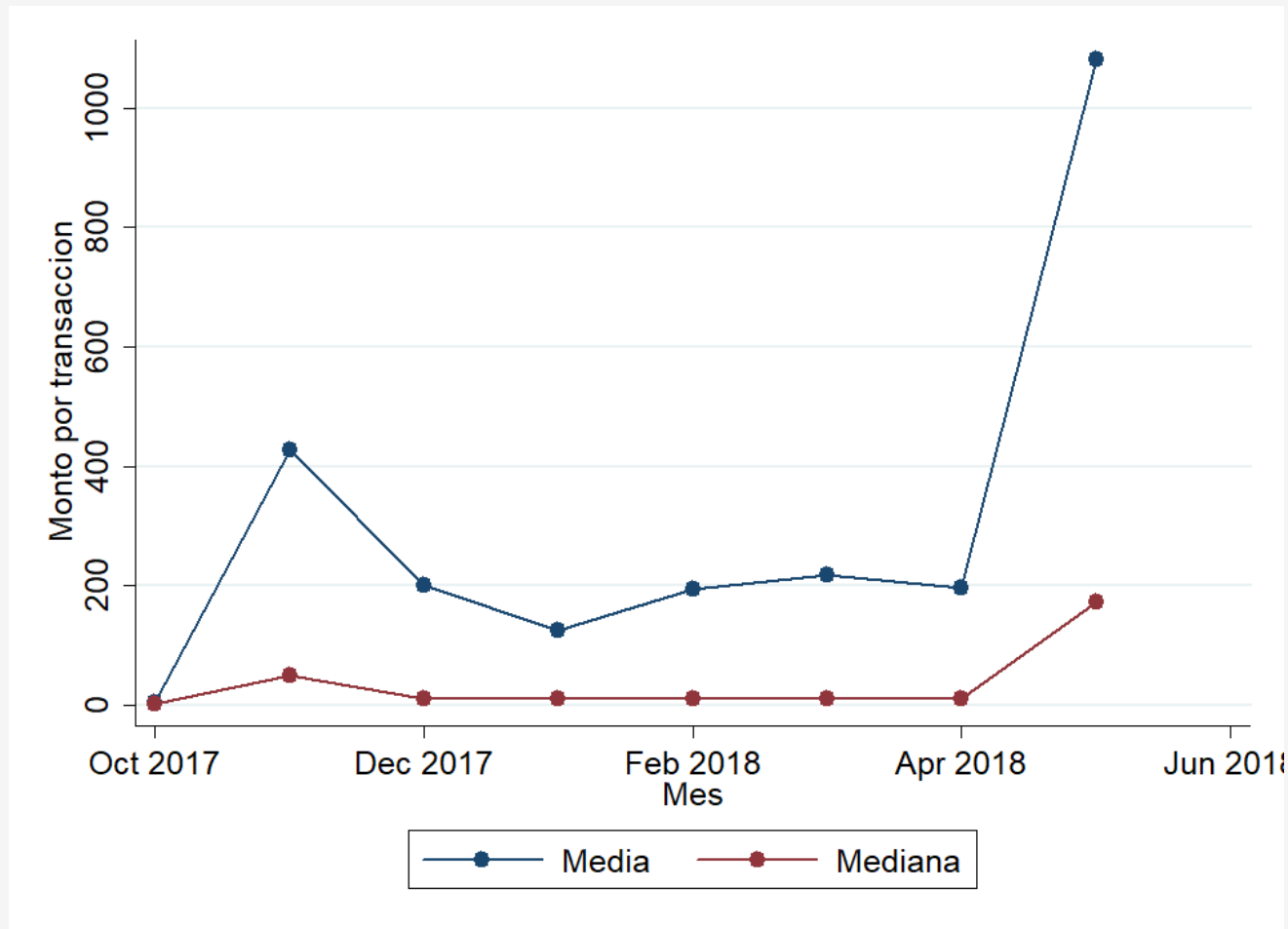
# Age composition of e-peso users



# Gender composition of e-peso users

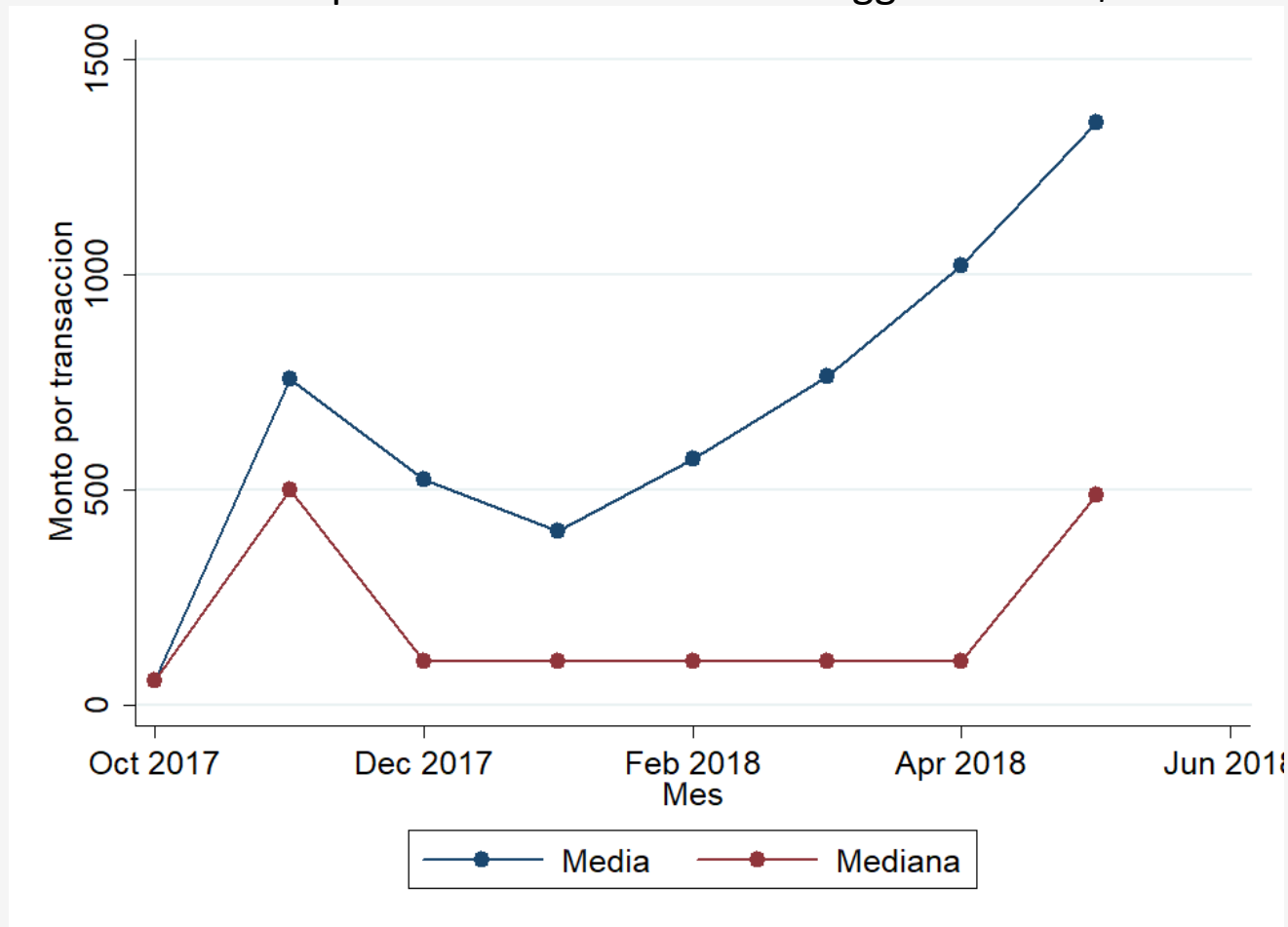


# Monthly evolution of transaction size



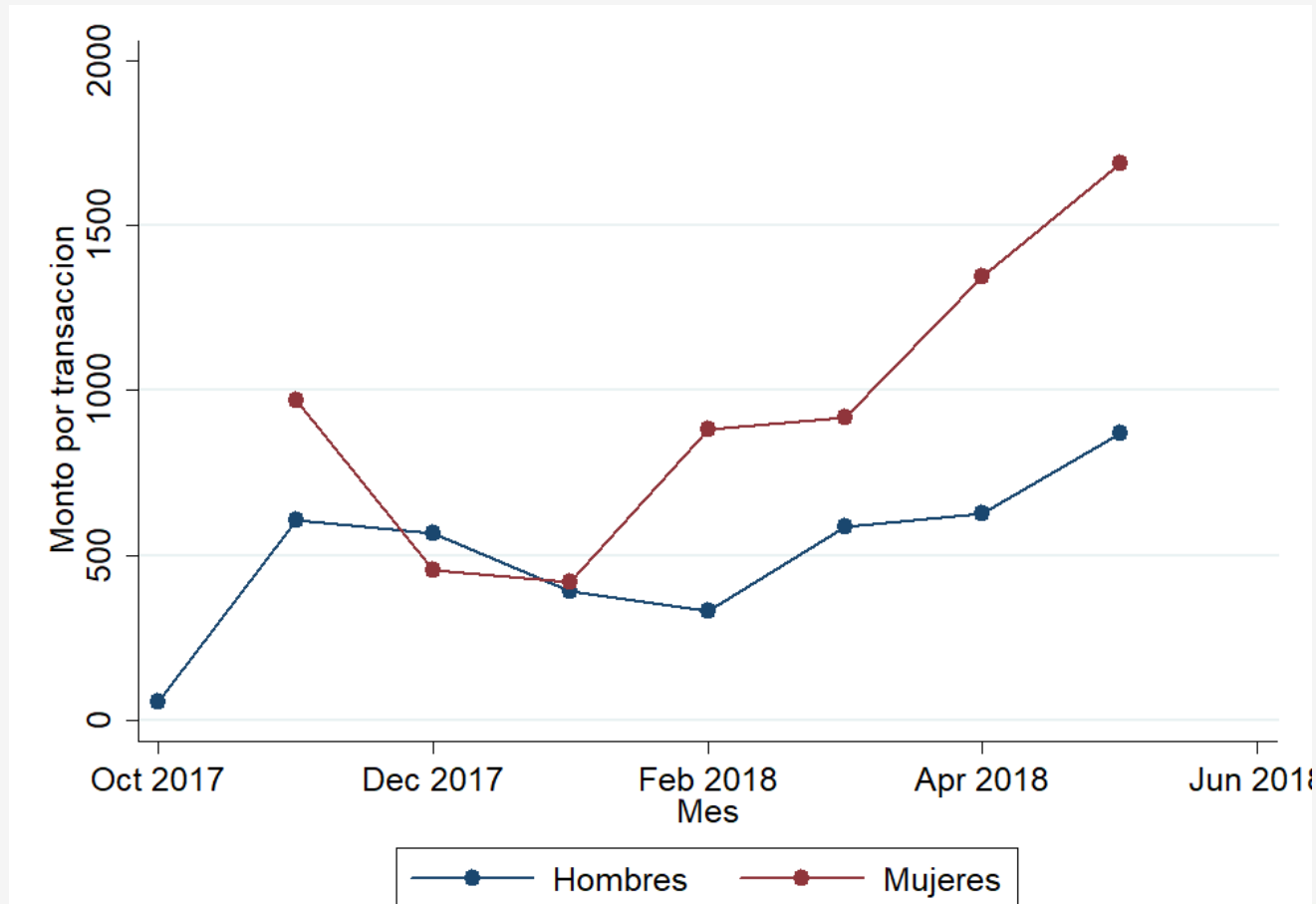
# Size of transactions

Computed for all transactions bigger than 10\$



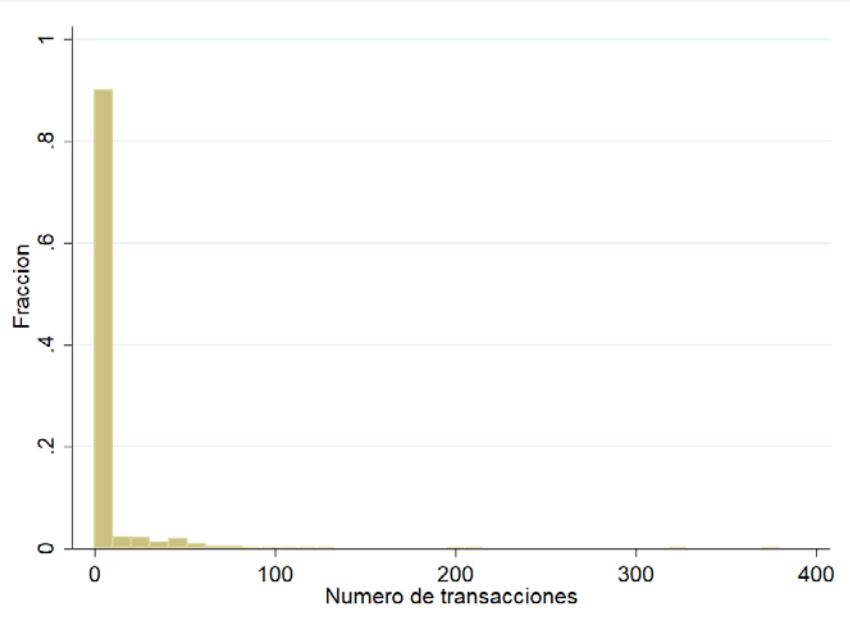
# Gender and transaction size

Computed for all transactions bigger than 10\$

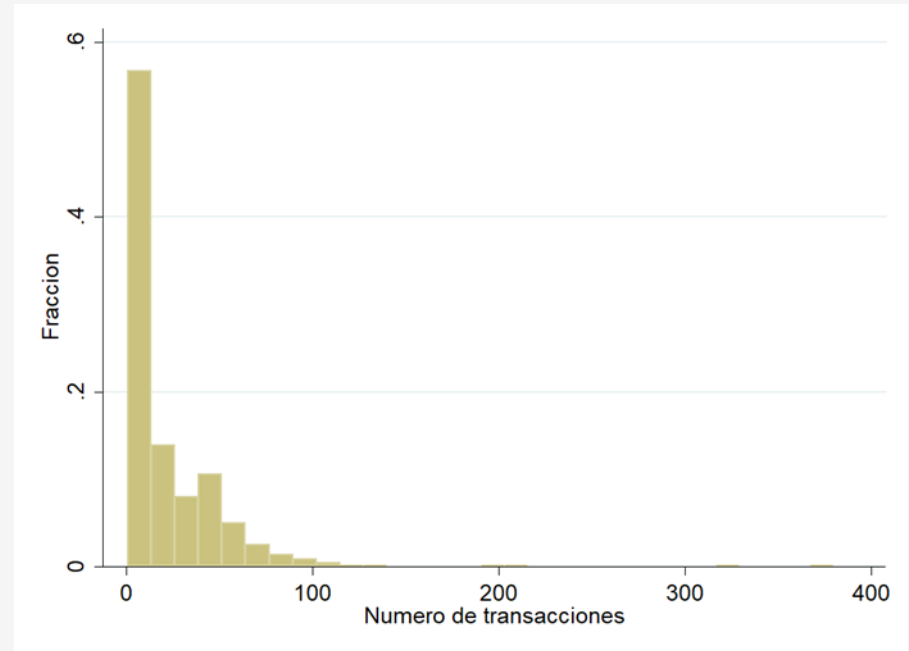


# Frequency of wallet uses

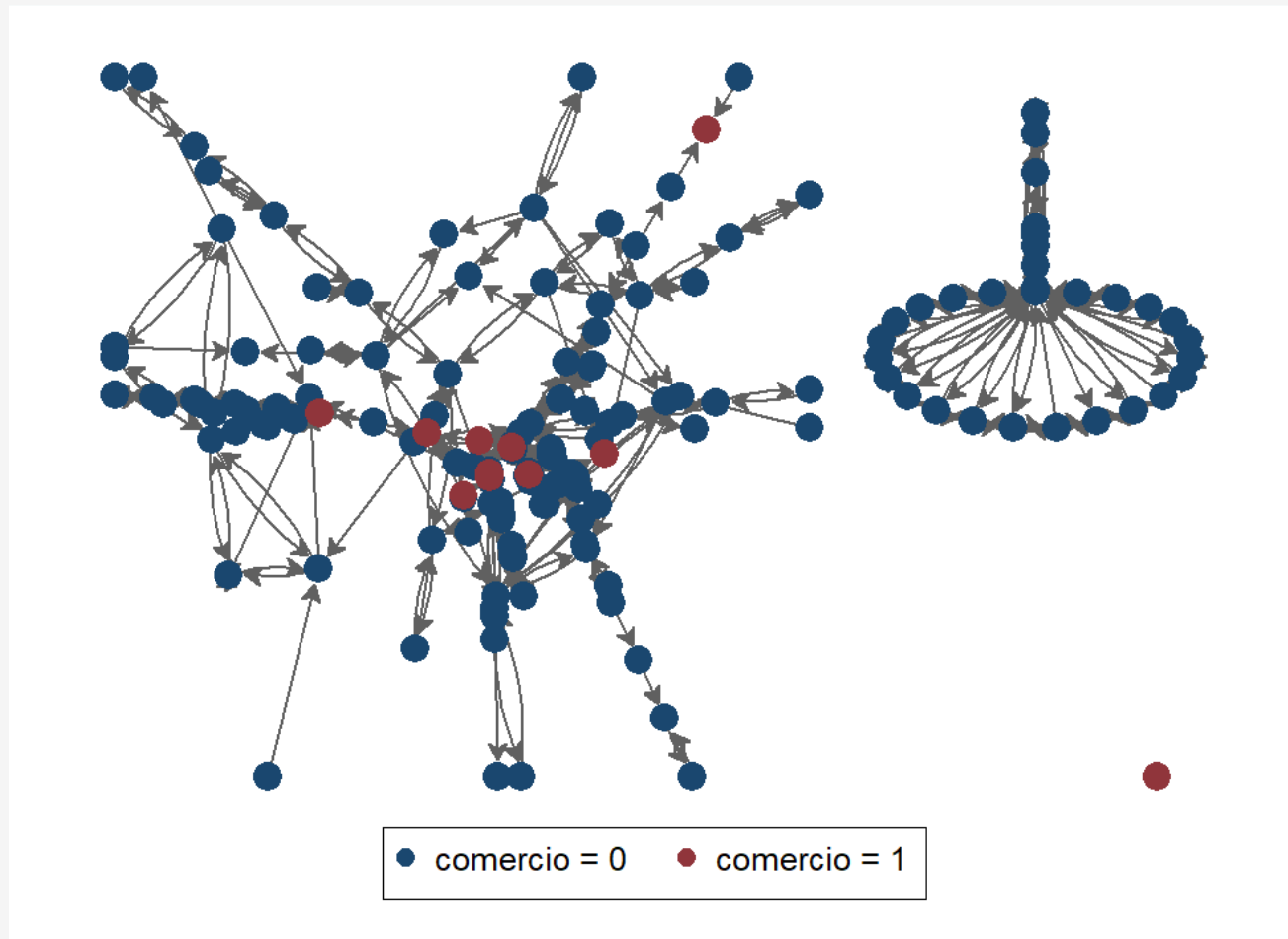
All



Excluding 0

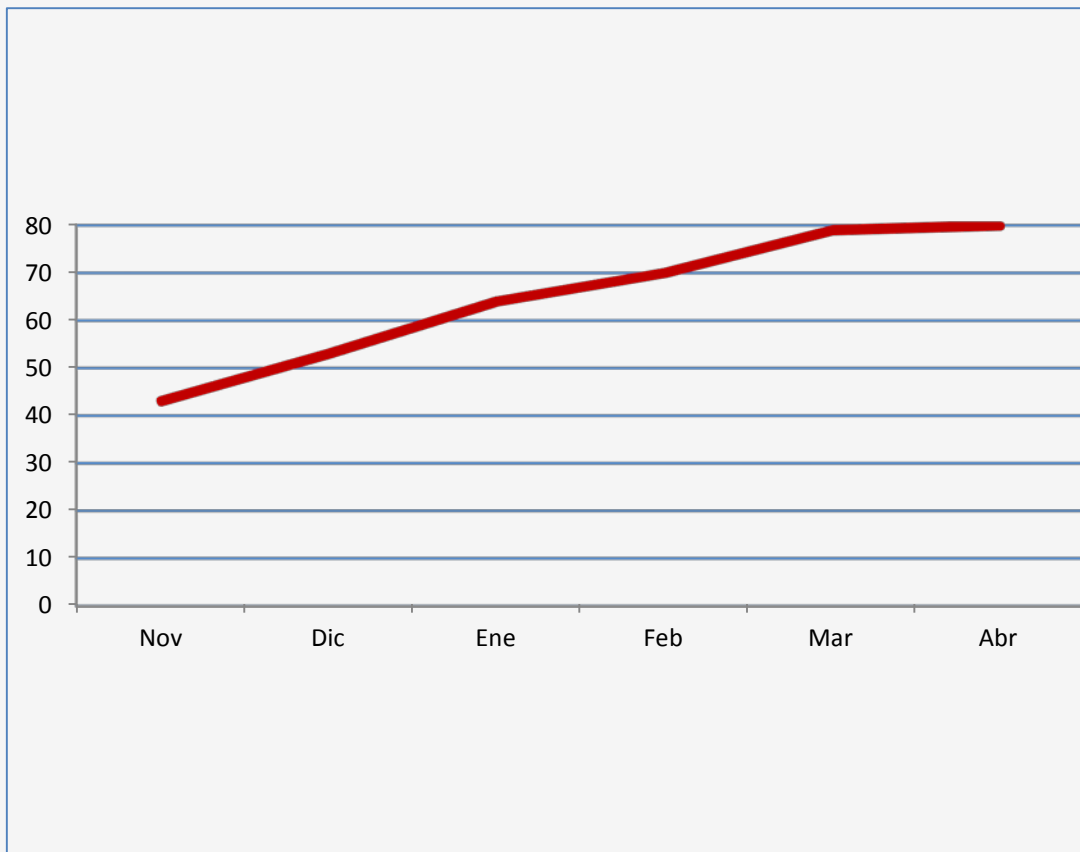


# December 2017





# Number and sectors of participating firms

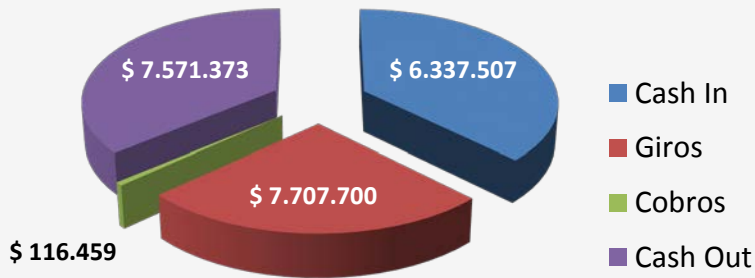


## sectors:

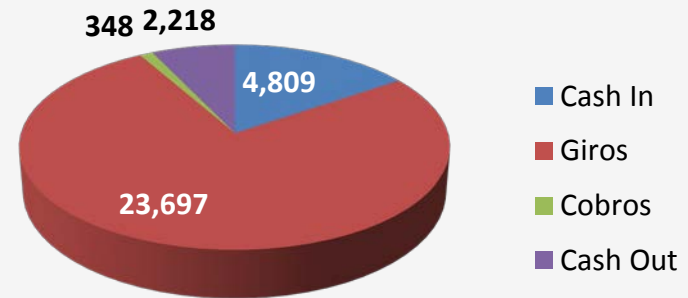
- Gas Stations
- Professionals
- Transport
- Importers and Distributors
- Alimentación; Autoservices
- Fitness
- Medical Services
- Others

# Number and type of transactions

## Importe transacciones



## Cantidad transacciones



# Data suggests...

- Users have a profile compatible with the already financially “included”
- There is evidence that e-peso might have reached the non included deep Uruguay
- Non trivial transactions mostly related to platform arbitrage.
- Sectors interested are those most concerned with the cost of existing platforms

# Questions in the balance

- General CBDC issues
  - Legal tender
  - What anonymity? The time inconsistency of the anonymity promise
  - Interest bearing? Substitutability with cash.
  - What would be the cost and who will bear it?
  - What parts of the system should be administered by CBs?
- Some questions to discuss in Uruguay and other SOEs
  - How e-Peso would affect existing business?
  - Does this have implications for tax evasion?
  - E-peso and financial innovation