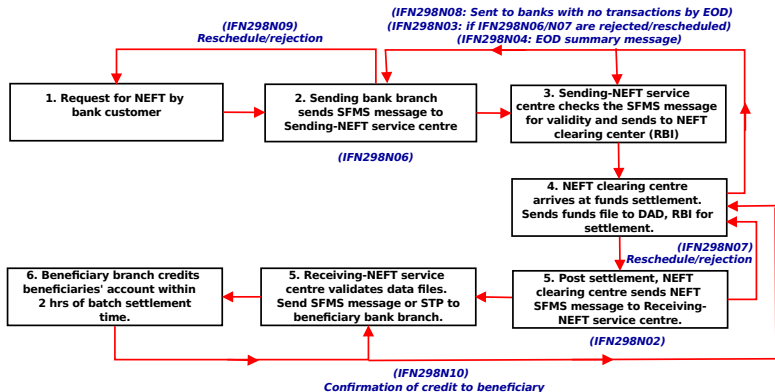


Adoption of FinTech: Evidence from Demonetization in India

September 13, 2017

Process flow: Digital transactions

NEFT process flow



Data details

Introduction

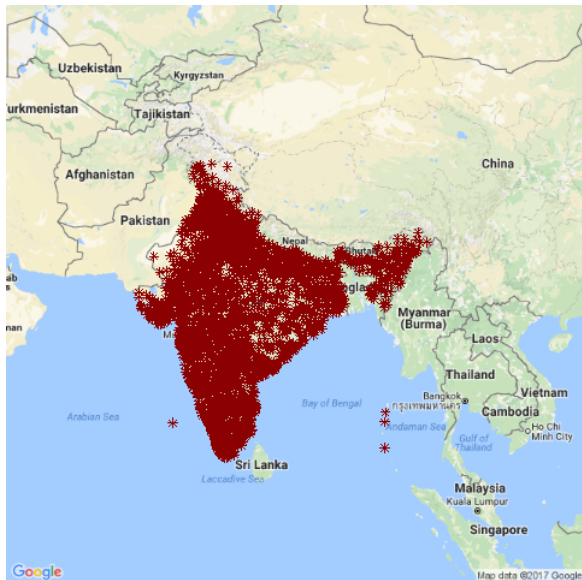
Three major data sets:

- ▶ **Location of RBI's currency chests**
- ▶ **Data on digital transactions**
- ▶ **Other data**

Location of RBI's currency chests

- ▶ Total no. of RBI's currency chests: 4,040
- ▶ Total no. of unique pincode locations for currency chests: 2,915
- ▶ Out of 2,915 unique pincode locations:
 - ▶ 2,840 pincodes: clean observations
 - ▶ 75 pincodes: junk, typo errors in pincodes (collected-manually)
- ▶ **The final data base for currency chests includes pincodes for all 4,040 chests. These are exclusive of the chests in Panaji.**

Location of RBI's currency chests (4,040 chests)



Location of RBI's currency chests (Data snapshot)

```
load('../SRC/DATA/complete_data_cc.rda', verbose = TRUE)
```

```
## Loading objects:
```

```
##   cc_with_latlon
```

```
head(cc_with_latlon, 9)
```

| ## | cc_branch | district | state | pin_code | lat | lon |
|------|-------------------|--------------------|--------|----------|----------|-----|
| ## 1 | Parliament Street | DELHI NCT OF DELHI | 110001 | 28.63274 | 77.21960 | |
| ## 2 | Parliament Street | DELHI NCT OF DELHI | 110001 | 28.63274 | 77.21960 | |
| ## 3 | Parliament Street | DELHI NCT OF DELHI | 110001 | 28.63274 | 77.21960 | |
| ## 4 | Parliament Street | DELHI NCT OF DELHI | 110001 | 28.63274 | 77.21960 | |
| ## 5 | Parliament Street | DELHI NCT OF DELHI | 110001 | 28.63274 | 77.21960 | |
| ## 6 | Shastri Bhawan | DELHI NCT OF DELHI | 110001 | 28.63274 | 77.21960 | |
| ## 7 | Parliament Street | DELHI NCT OF DELHI | 110001 | 28.63274 | 77.21960 | |
| ## 8 | Lawrence Road | DELHI NCT OF DELHI | 110035 | 28.67383 | 77.16426 | |
| ## 9 | Inderlok | DELHI NCT OF DELHI | 110035 | 28.67383 | 77.16426 | |

Data on digital transactions

Databases:

1. RuPay credit card (POS and e-commerce transactions) (NPCI)
2. NEFT (RBI)
3. RTGS (RBI)
4. Mobile transactions (RBI)

Geo-coding of transactions data will be done using either:

1. Direct mapping for pincodes or
2. Indirect mapping for pincodes using IFSC codes

Data on digital transactions: Direct mapping for pincodes

India's complete pincodes directory

- ▶ Total no. of unique locations: 154,797
- ▶ Total no. of unique pincodes: 19,100
- ▶ Out of 19,100 unique pincodes:
 1. 18,867 pincodes: clean observations (153,250 locations)
 2. 233 pincodes: junk, typo errors or pincode does not exist anymore

Data on digital transactions: Direct mapping for pincodes (18,867 pincodes)



Data on digital transactions: Direct mapping for pincodes (Data snapshot)

```
load('../SRC/DATA/complete_data_pin_dir.rda', verbose = TRUE)
```

```
## Loading objects:
```

```
##   pin_dir_with_latlon
```

```
head(pin_dir_with_latlon, 9)
```

| ## | pincode | talukname | districtname | statename | lat | lon |
|------|---------|-----------|--------------|-----------|----------|----------|
| ## 1 | 504273 | Asifabad | Adilabad | TELANGANA | 19.22441 | 79.60529 |
| ## 2 | 504273 | Asifabad | Adilabad | TELANGANA | 19.22441 | 79.60529 |
| ## 3 | 504273 | Asifabad | Adilabad | TELANGANA | 19.22441 | 79.60529 |
| ## 4 | 504273 | Asifabad | Adilabad | TELANGANA | 19.22441 | 79.60529 |
| ## 5 | 504273 | Asifabad | Adilabad | TELANGANA | 19.22441 | 79.60529 |
| ## 6 | 504273 | Asifabad | Adilabad | TELANGANA | 19.22441 | 79.60529 |
| ## 7 | 504273 | Asifabad | Adilabad | TELANGANA | 19.22441 | 79.60529 |
| ## 8 | 504273 | Asifabad | Adilabad | TELANGANA | 19.22441 | 79.60529 |
| ## 9 | 504273 | Asifabad | Adilabad | TELANGANA | 19.22441 | 79.60529 |

Data on digital transactions: Indirect mapping of pincodes using IFSC

Quality of IFSC database available on web is poor.

- ▶ Total no. of banks: **196** (List of branches available for **195**)
- ▶ Total no. of bank branches: **151,921**
 1. Valid 11-digit IFSC codes available for **138,376**.
 2. Valid pincodes available for **96,134**.
 - ▶ Junk values due to typographical errors are possible.
 - ▶ No. of unique pincodes in IFSC database are 19,120 while in India's directory it is 19,100 (?)

Other data

1. Location of mobile towers across the country
2. Quality of mobile calls
3. Availability of 3G networks in an area
4. Number of subscribers
5. Mobile coverage
6. Mobile penetration data
7. Credit card data (CMIE consumer pyramids)
8. Bank account penetration data (CMIE consumer pyramids)
9. 2011 census data (city demographics, average education, percentage of salaried vs self-employed)
10. 2013 NSSO data (Formal vs informal employment)

Thank you.