The Economics of ID Systems: How to Frame the Business Case?

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Many Countries are Strengthening ID Systems

Main Drivers:

- Security especially post 9/11: KYC, SIMs, travel
- New technology, including biometrics
- Need to improve administration of major programs and shift to e-government and services

Two Questions:

1. Socioeconomic Assessment:

Will the new systems support development, inclusion and the realization of social and economic rights?

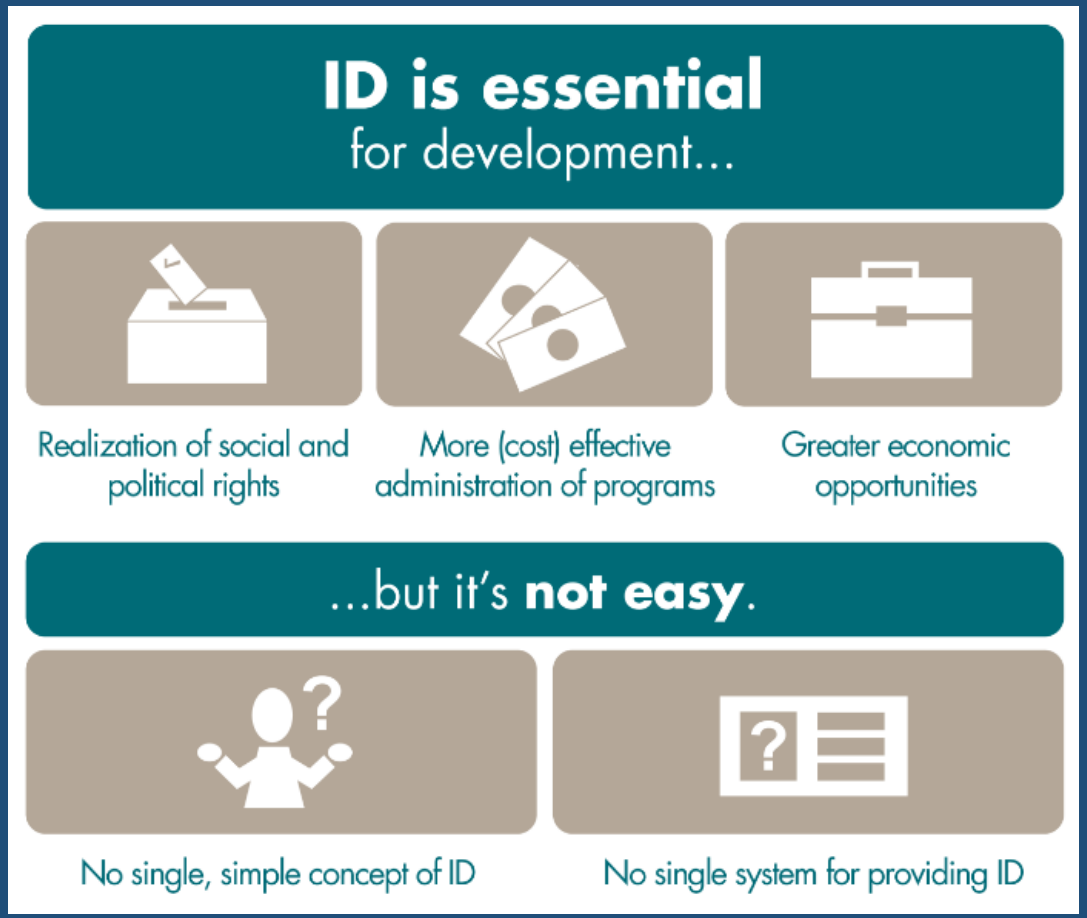
2. Financial Assessment:

How to provide for sustainable financing?

Issues

- Identity management: public good or private good?
- Modelling the costs of an ID system
  - Up-front investment and steady-state
- Three financing models
  i. Budget funding
  ii. Mixed funding (budget/commercial)
  iii. Commercial funding
- Two examples: RENIEC and NADRA
- Estimating benefits: social, economic, financial
- Towards sustainable financing

Socio-Economic Assessment



Developmental Goals and Risks

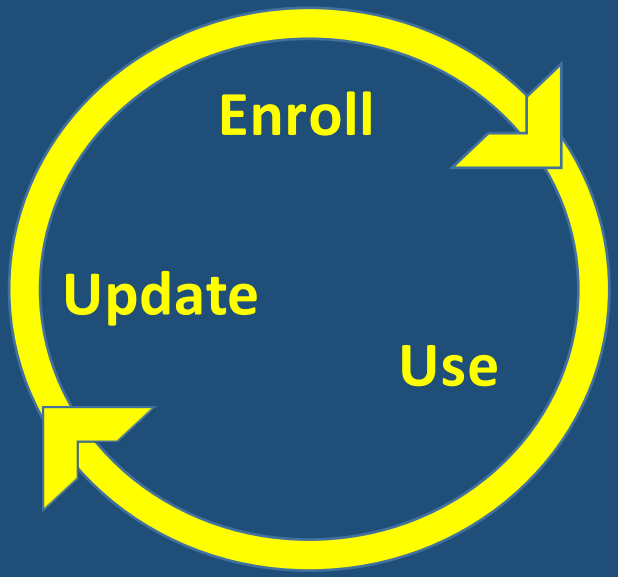
Is ID a Public Good or a Private Good?

- **Pure public good**: finance through budget; provide free to maximize use
  - NPV of social and economic benefits must exceed costs
  - Benefits include time and cost savings to private individuals and business
  - Also to government departments using ID and providing services
  - Must account for externalities – value of inclusion and opening dynamic opportunities, especially for the poor

- **Pure private good**: provide ID through fee-for-service
  - Not clear that provision has to be by government or all through one single ID system. Banks, etc. may operate own systems
  - But still need to ensure a single unique core identity
  - And multiple competing IDs raises risk of costly and inefficient disconnected systems
  - If ID provider is a monopoly need price regulator.

The Reality: Partly Public Partly Private

- High coverage and wide use are essential
  - Economic and social inclusion
  - Economies of scale and scope
  - Network externalities
  - Continuous updating through **use cycle**
- Many services provide private goods
  - Pricing reduces risk of unnecessary use
  - Also helps to ensure that services are valuable



Modelling Costs

Costs depend on many factors:

- Scale, terrain, population density
- Technology and features
- Aadhaar is lowest-cost system to date
  - Scale economies
  - Standards-based procurement
  - No cards

Component	Description	Cost Per Person
Enrollment: (Investment)	**Capturing biometric and biographic identifiers**	**$3 - $6** ***(Aadhaar low-cost $1.16)***
Register Maintenance	**Database management: cleaning, updating, checking**	**+15% - 25% per year**
Authentication: (Investment)	**Issuing smartcards (if used) or other credentials**	**$1 - $5 per card +$0.50 for digital certificates**
Authentication: Maintenance	**Maintenance**	**+$0.05-$0.10 per year**

Investment and Steady-State Costs

Assume typical costs within the ranges

- LIC, income per head $670, population 40 million
- Full registration of people over 18; 50% of population under 18
- Investment (setup) costs: $7 per person or $140 million or **0.5% of GDP**
- Steady state with 5% annual enrollment: $1.42 per person registered or $29 million = **0.11% of GDP**

These are orders of magnitude rather than precise estimates

- The dollar costs will be higher in MICs and HICs because of the higher cost of labor but cost may be lower relative to GDP because of the lower relative cost of technology
- Costs do not include POS devices which are assumed to be covered by users

Three Financing Models

- Model 1. Covered by budget allocations
  - Most common model. ID usually provided by government department: MOI or MOJ.
  - May include charges for services (passports, driver's license, etc.)
- Model 2. Mixed: commercial finance with subsidy to cover enrollment of low-income groups and basic services
- Model 3. Commercial: cross-subsidy to cover service to low-income groups

Models 2 and 3 may or may not include charges to other government agencies for ID-related services

Model 2: RENIEC, Peru

- Population 30 million, GDP/head $6,600
- ID coverage at 98.8% -- 99.2% for adults, 97.8% for children
- RENIEC budget $130 million, or $4 per head or 0.065% of GDP
  - 15% provided by state to cover service to poor
  - 85% covered by charges to businesses and individuals
    - $40 million from banks for authentications (30 cents)
    - implies spread of some 0.06% for KYC
  - No charges to other government entities for service
  - Over 1 billion queries, 284 million from private sector
    - Some involve direct biometric authentication but relatively few
  - No formal cross-subsidy but in practice charges also sustain overhead costs

RENIEC: Variable Enrolment Costs by Geographic Region

At registry office:	**$10**
Using mobile registration:	
Coastal region	**$22**
Highlands	**$42**
Jungle	**$80**

NOTE GDP/head $6,600

Model 3: NADRA, Pakistan

- Population 180 million, GDP/head $1,130
- 106 million adults; ID coverage almost full (100 million)
- NADRA budget $120 million or $1.2 per person registered or 0.06% of GDP
  - Charges to businesses (bank ID verifications average 25 cents)
  - Charges to individuals for expedited service (passports, cards)
  - Foreign contracts (Kenya, Sudan, etc)
  - Charges to other government departments for ID services
    - Projects include BISP program, disaster and flood relief, border security, voter roll
  - No budgetary allocation. Services to poor funded by cross-subsidy
- Direct biometric verification in only a small minority of cases

Price Regulation

- Both RENIEC and NADRA hold monopolies on ID data so that service prices must be regulated
- RENIEC: service prices regulated by same agency that regulates prices for public services in general. Price largely based on cost
- NADRA: four levels of pricing decision:
  - Management Committee makes a proposal to NADRA Authority Board
  - Board approves and sends proposal to Ministry of the Interior.
    - Board of 7-9 people includes Chairman of NADRA, representative of the Ministry and independent members appointed by the PM and representing using sectors
  - Ministry notifies Committee on the Interior and Narcotics of the National Assembly
  - Committee can request review of charges
- Both of these cases suggest advantages from having a dedicated autonomous agency to provide identity management services

Modelling Benefits of Unique ID

Relatively little hard data on benefits but indications that they can be substantial

- **Budget savings**: typical public spending on salaries, pensions, transfers and subsidies around 10-15% of GDP in poor countries
  - If accurate ID saves only about 1% in fraud and leakage will cover steady-case costs of ID program
  - Most estimates of saving or potential savings are larger than this
    - India Aadhaar: PAHAL and large prospective savings in other PDS programs
    - Nigeria payroll and pension management
- **Budget revenue**: Strengthen tax administration through linking asset, travel, occupational registers
    - Argentina link 13 registers at cost of $10 million: savings $104 million
    - Pakistan: identification of 3.5 potential million taxpayers versus only some 800,0000 actual taxpayers

Benefits contd.

- **Time savings:**
  - Unique ID enables "pull" payments mechanisms through mobile money
  - Informal estimate: Estonia eID could save representative adult 40 hours/week through e-services and e-government
    - Valuing workforce saving at the average wage: 0.64% of GDP
- **Other indications of value of unique foundational ID**
  - When state fails to provide strong ID businesses provide own costly schemes
    - Nigeria: BVN; Tanzania: Synthetic IDs for SIM registration
  - Avoiding costly one-off biometric voter registrations: often $5 -$10 and more.
    - Kenya 2012: equipment $ 97 million or $7 per registered voter.
  - These costs are sufficient to set up a permanent ID system.

Benefits versus Costs

- Estimates suggest that a robust ID system should be a very good investment
  - Decker-Gelb: payback period for typical transfer program 1-3 years
- Yet in some countries the ID system(s) are unduly costly because too fragmented or do not provide sufficient services to warrant their costs
  - Nigeria: $2 billion spent so far on various systems?
- Governance of identity management critical to help ensure that supply is responsive to demand
  - RENIEC: oversight by Users Committee
  - NADRA: NADRA Authority Board includes representatives of using sectors
  - Several countries: Social Council or similar body
- Need adequate user feedback and grievance process
- Far more analysis needed on implementation of programs that use ID to hold systems accountable
  - Process monitoring as well as impact monitoring

Business Models for ID Systems

- **Financing can involve a mix of budgetary funding and charges for service**
- **Minimize costs**
  - Lessons from Aadhaar model even for card-based systems
    - Technology, organization, standards-based procurement
  - Some costs must be funded upfront
    - Data center, enrollment kits, training….
- **Roll out foundational system by function**, to generate savings and revenue
  - Payroll and pension management, bank and mobile KYC, tax administration
  - Can include fee-for-service to other government agencies
- **Engage with donors to help reach poor and excluded groups** (especially countries with donor-financed transfer programs)
  - Pay-per-enrollment – performance-based support (Dominican Republic)
- **Range of options for authentication**
  - Cards, mobiles, direct biometrics, all should be enabled
  - Constant use helps to ensure that the data is updated
  - **The more business the ID generates the more financially secure it will be**

THANK YOU