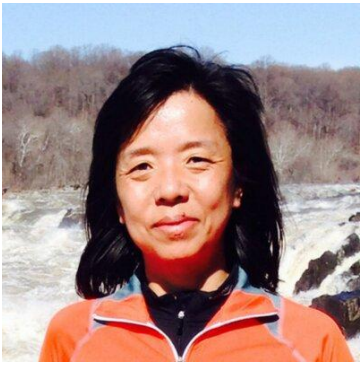
Panel Session 1
DIGITAL FINANCE

Short Biography of
Dr. Yongmei Zhou (Moderator)

Practice Manager, World Bank



Dr. Yongmei Zhou is Co-Director of the World Development Report on Governance and the Law. She received her Ph.D in Economics from the University of California at Berkeley (US) before joining the World Bank as a Young Professional in 1999. She has extensive operational experience with governance reform and institutional development in Africa, South Asia and the fragile and conflict-affected states. Her research has focused on the issues of corruption, legislature, decentralization, and service delivery. She also played leadership role as the Manager of the Fragility, Conflict and Violence Group, which advocated for a wide range of corporate reforms and provided technical assistance to country teams in fragile and conflict-affected states.

INTRODUCTION

Dr. Yongmei started the session by mentioning how important the agenda discussed in the seminar that day, as three days earlier, Bali Fintech Agenda was launched in the IMF Annual Meeting and was supported by President Jokowi. She was impressed as it showed how we should approach the issue of financial services digitalization. Further, for the benefit of all the audience in the seminar which might not have been there, Dr. Yongmei briefly mentioned the 12 policy elements included in the Bali Fintech Agenda, as follow:

1. ***Embrace the promise of fintech***. Dr. Yongmei mentioned that in one of the sessions of the seminar that day, there will be a presentation by the World Bank regarding The Global Findex Database, showing the rapid progress of financial inclusion in Indonesia. Dr. Yongmei also mentioned that the target of 75% financial inclusion set by President Jokowi, will not be achieved by this year unless we embrace the technology of digital financial services.
2. ***Enable new technologies to enhance financial service provision.*** **Dr. Yongmei mentioned that The** Minister of Communication and Information Technology, Mr. Rudiantara, who attended the seminar that day, will be providing the support.
3. ***Reinforce competition and commitment to open, free, and contestable markets.*** **Dr. Yongmei mentioned that this will apply to th**e incumbents and the new players, on how to deal with the transition issues, how to embrace the opportunities for an incumbent to be more efficient, how to provide better services to consumer, which also include more job in the economy.

4. ***Foster fintech to promote financial inclusion and develop financial markets***
5. ***Monitor developments closely to deepen understanding of evolving financial systems.*** Dr. Yongmei mentioned that this will require a constant dialogue between the regulators and the industry. Moreover, we must figure out how it was related to the ongoing monitoring system in this evolving system.
6. ***Adapt regulatory framework and supervisory practices for orderly development and stability of the financial system.*** Dr. Yongmei mentioned that this was the key objective of OJK and in collaboration with BI, as the stability should not be compromised
7. ***Safeguard the integrity of financial systems***
8. ***Modernize legal frameworks to provide an enabling legal landscape***
9. ***Ensure the stability of domestic monetary and financial systems***
10. ***Develop robust financial and data infrastructure to sustain fintech benefits***
11. ***Encourage international cooperation and information-sharing***
12. ***Enhance collective surveillance of the international monetary and financial system***

Dr. Yongmei mentioned that The Fintech Agenda in Bali three days earlier tried to combine all these frameworks. She also mentioned that the hard work will be performed on the national level, which was led by OJK in collaboration with the industries, the incumbents and the newcomers.

Finally, Dr. Yongmei hoped that the seminar will enrich the participants in understanding what is happening. She fully appreciated that OJK was putting an emphasis on research and inviting all participants here in this seminar. She would also like to welcome all the distinguished researchers, to share more about what works and what does not work, in what position we are right now, and so on.

First Presentation by
Dr. Bejoy Das Gupta

Short Biography of

Dr. Bejoy Das Gupta

eCurrency and Syracuse University

Dr. Bejoy Das Gupta has more than twenty years' experience in the analysis of macroeconomic policy, capital flows and financial sector; communicating research to bankers, asset managers and senior officials; providing policy advice, leading missions, and organizing/participating in conferences; and developing/maintaining high-level contacts with senior officials and the private sector. He is Chief Economist for Asia/Pacific at the Institute of International Finance (IIF), where he manages the economic analysis for the region. In addition to responsibilities at the IIF, Das Gupta serves as Adjunct Professor of the Maxwell School of Syracuse University's Washington Program.

He is also a Member of the Board of the Mandiri Institute, which was established in May 2014 by Bank Mandiri, Indonesia's largest bank, to promote research on financial inclusion, deepening and entrepreneurship to shape the public policy agenda. Prior to joining the IIF in 1993, Das Gupta served as Economist for the International Lead and Zinc Study Group in London, an

inter-governmental commodity organization, and in investment banking with Grindlays Bank. He holds a Ph.D in Economics from University of Oxford.

Digital Revolution for Financial Inclusion

By: Dr. Bejoy Das Gupta

Dr. Bejoy mentioned that innovation has driven the financial services breakthrough, which supports financial inclusion and sustainable growth. Those kinds of innovation encompass payment, clearing, settlement, saving, borrowing, insurance, and other financial products, which has changed how people live on a daily basis. For example, how people can now reach the lender or the borrower with faster and cheaper access.

Such financial services breakthrough was driven by several technology drivers, such as:

1. Mobile devices and the internet
2. Enhanced security through cryptography and biometrics which is very important to the integrity of the digital transaction
3. Artificial intelligence, machine learning, and big data, which affect the sheer volume and availability of data in real time
4. The more powerful and distributed computing and cloud computing.

Data also showed how the digital breakthrough has started with China leading in the mobile payment value and financial technology credit volume, which has also proved how Asia is at the forefront of the financial technology revolution as both the innovator and the user. However, the financial inclusion indicators showed that the reach of the formal banking system was still narrow. This is where we can see the promise of the

financial technology, where it can lift the lagging of such indicator.

GDP per capita has also grown over the past 30 years. Further, around 40% of global GDP and 60% of growth is happening in Asia, which showed how fast the emerging market has grown. Within that growth, the Information, Communication, and Technology (ICT) sector are growing even faster. Further, among the world's top 10 economies with the largest ICT to GDP ratio, seven are in Asia.

However, despite all the promise of financial technology, it carries a risk which should be addressed as well, such as the issue of financial stability and investor/consumer protection, data privacy, a concern raised by cryptocurrencies, increased market concentration and inequality, job and revenue losses, and disruption in global manufacturing value chains.

To address all those risks, we need an appropriate policy response. Financial sector regulators need to strike the right balance between not stifling innovation but still guide against a stability risk. We should supervise financial technology based on the type of activity rather than institution, by using regulatory sandboxes. We should also set rules and standard for data protection, as there are many data security breaches on the internet. For example, the one occurred within Facebook or Google. However, those companies have been late in reporting the breaches. Dr. Bejoy thought that it is unacceptable since the consumer is put at risk and it also will not make the companies learn from their mistakes.

There is also an issue in the payment system where the company starts to use private money. The central bank should come and start to issue their sovereign currency so it can become interoperable, which will take many risks, for example, the security risk and credit risk.

Finally, it is important to improve the digital infrastructure and access, and to keep the policy to boost competition, skill-development, and social safety nets.

eCurrency

Digital Revolution for Financial Inclusion

Dr. Bejoy Das Gupta
Professor, Maxwell School, Syracuse University
and Chief Economist, eCurrency

OJK International Research Seminar, Bali, October 14, 2018

1

Utilizing Digital Revolution to Bolster Financial Services is Important for Meeting UN Sustainable Development Goals

- Innovations spurred by digital breakthroughs are revolutionizing the availability of financial services to bolster inclusive and more sustainable growth
- Wave of innovation encompassing payments/clearing/settlement, saving, borrowing, insurance and other financial products, risk management and advisory services
- Financial inclusion and cheaper and faster financial services can fundamentally reshape the lives of people and bring economy-wide efficiency gains
- Governments also benefit from improved transparency, reduced leakages and expansion of the tax base for greater public investment

2

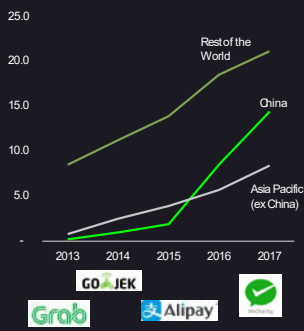
Technology Innovations Underpinning the Transformation of Financial Services

- Mobile devices and the internet
- Enhanced security through cryptography and biometrics
- AI/Machine Learning/Big Data harnessing economy-wide databases
- More powerful and distributed computing/cloud computing

3

Asia at the Forefront of the Fintech Revolution as Innovator and User

Mobile payment value (USD, trillion)



Source: iResearch (for China market), GSMA (for other markets ex China)

Fintech credit volumes (USD, million)

Country	2013	2016	CAGR 13-16 (%)	Volume per capita 2016 (USD)
China	5,547	240,905	252	174.2
Japan	79	380	69	3.0
Korea	1	368	617	7.0
Singapore	0	101	-	18.0
India	4	90	182	0.1
Asia Pac. (ex China)	98	1,757	162	1.0
World	10,555	283,529	199	50.5

Source: BIS Quarterly

4

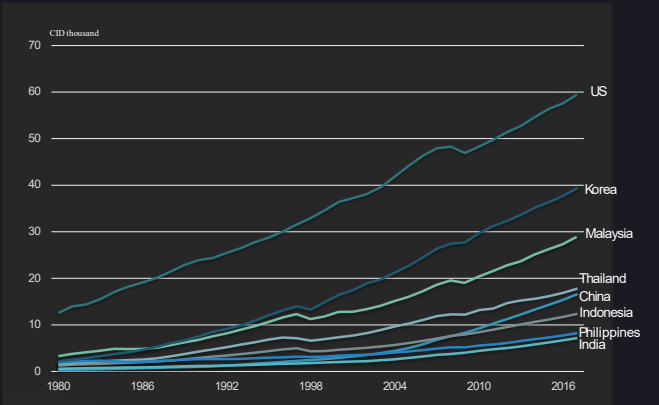
Beginning to Lift Financial Inclusion

Financial Inclusion Indicators

Percent of population	India	EAP[1]	World
Bank account penetration	(53)/80	(69)/71	(62)/69
Women	(43)/77	(67)/68	(58)/65
Uses debit card	(22)/33	(43)/47	(41)/48
Uses an account to receive wages	(4)/6	(18)/23	(18)/20
Uses an account to receive govt. transfers	na	(9)/10	(9)/9
Saved money (in the past year)	(38)/34	(71)/56	(56)/48
Saved money at a financial institution	(14)/20	(39)/34	(27)/27
Borrowed money (in the past year)	(46)/42	(47)/47	(50)/47
Borrowed money at a financial institution	(6)/7	(11)/11	(11)/11

Source: World Bank Global Findex (2014)/2017. [1]Developing East Asia & Pacific.

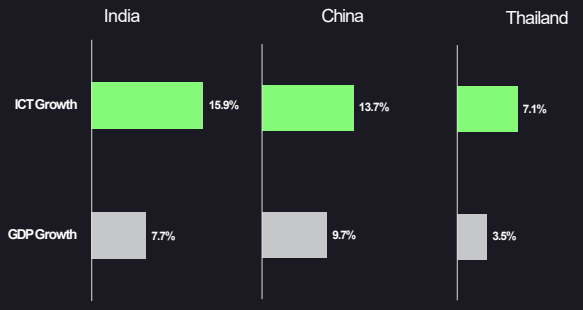
Support Catch Up in GDP per capita, PPP



Source: Haver

ICT Growing Faster in Asia

ICT Growth vs GDP Growth, 2005 – 15, %



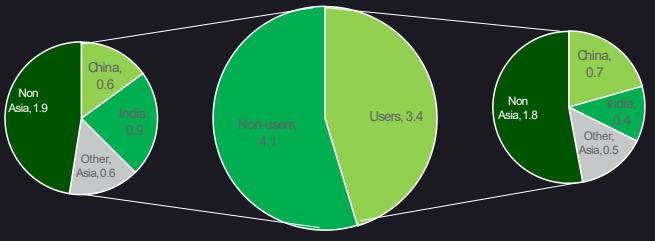
Among the world's top 10 economies with the largest ICT to GDP ratio, 7 are in Asia.

Source: IMF

7

Need to Tackle Digital Divide

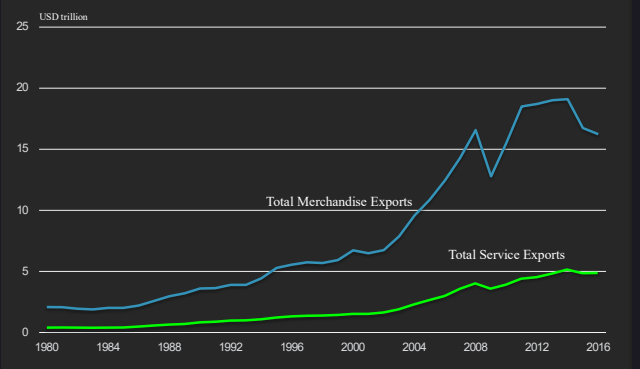
Number of people with and without internet access, billions



Source: World Bank and World Development Indicators

8

World Trade in Manufacturing Stagnating but Advanced Services Can Take-Off



Source: WTO

But Digital Revolution Carries Risks as Well

- Safety, soundness, financial stability and investor/consumer protection issues related to lightly regulated or unregulated fintech firms; Broader stability concerns as links with mainstream financial institutions grow
- Risks associated with data privacy, data security and AML/CFT compliance
- Cryptocurrencies raise concerns about lack of investor and consumer protection, illicit activities and mainstream financial system exposure
- Can contribute to increased market concentration and inequality
- Potential automation/e-commerce could lead to job and revenue losses
- Potential for disruption in global manufacturing value chains

10

Calling for Appropriate Policy Response

- Financial sector regulators needs to strike the right balance between not stifling innovation and guarding against stability risks
- Bring fintech under strengthened, effective and unified supervisory oversight, based on type of activity rather than institution; use regulatory sandboxes
- Set rules and standards for data protection, privacy and technology; strengthen cybersecurity defenses
- Issue digital fiat currencies for preserving trust, interoperability, openness and security of payments and settlements systems along with central bank control
- Policy efforts to improve digital infrastructure and access are important
- Policies to boost competition, skill-development and social safety nets

11

Second Presentation by
Dr. Sumit Agarwal

Short Biography of Dr. Sumit Agarwal

National University of Singapore

Dr. Sumit Agarwal is Low Tuck Kwong Distinguished Professor of Finance at the Business School and Professor of Economics and Real Estate at the National University of Singapore. In the past, he has held positions as Professor of Finance at the Business School, Georgetown University. Previously, he was senior financial economist in the research department at the Federal Reserve Bank of Chicago. Prior to joining the Chicago Fed, he was Senior Vice President and credit risk management executive in the Small Business Risk Solutions Group of Bank of America.

Sumit's research interests include issues relating to financial institutions, household finance, behavioral finance, international finance, real estate markets and capital markets. He has published over fifty research articles in journals such as: the American Economic Review, Quarterly Journal of Economics, Journal of Political Economy, Journal of Finance, Journal of Financial Economics, Review of Financial Studies,

Review of Economics and Statistics, Management Science, Journal of Financial Intermediation, Journal of Money, Credit, and Banking among others.

He has written a book titled “Kiasunomics” and also co-edited a collected volume on Household Credit Usage: Personal Debt and Mortgages. He writes regular op-ed’s in the Straits Times and is featured on various media outlets like the BBC, CNBC, and Fox on issues relating to finance, banking, and real estate markets. Sumit’s research is widely cited in leading newspapers and magazines like the Wall Street Journal, The New York Times, The Economist, and the U.S Presidents Report to Congress. Sumit holds a Ph.D in Economics from University of Wisconsin, Milwaukee (US).

Demonetization and Digitization

By: Dr. Sumit Agarwal

Dr. Sumit Agarwal provided an example regarding demonetization performed by the Indian government in 2016, which was performed by replacing money in the nominal of 500 and 1000 rupee with the new 500 and 2000 rupee. The demonetization was intended to reduce black money, tax evasion, counterfeiting, and terrorism. In his study, Dr. Sumit Agarwal analyzed the effect of demonetization on payment digitization.

The study is important since even though the innovation and payment technology have been developed in the emerging economies, India is still consistent with their cash basis economy. This is due to low internet penetration, financial illiteracy and limited access to internet banking, also data privacy, competition, demography, etc. Therefore, the Indian government tried to find a method to shift from non-digital payment to digital payment.

The government also tried to assess whether demonetization is an effective tool to achieve that purpose and whether the effect is temporary or permanent. Further, the study also tried to see the demography of people who have shifted from non-digital payment to digital payment.

The research was performed by combining four datasets as follow:

1. Supplier of digital payment modes

a. **Debit card transactions** obtained from the bank
b. **E-wallet transactions** obtained from the e-commerce company

2. Demanders of digital payment modes
   a. **Spending data** from an Indian online grocery store
   b. **Similar transaction data** from a supermarket chain (with both physical and online store)

The result showed that demonetization pushed **less frequent users of debit cards** to increase the use of this digital payment mode. **Existing high users** who had adopted debit cards before demonetization also increase their use during the cash crunch but do so only marginally. The study also found that demonetization leads to more low users adopting e-wallets. However, the same is not seen for high users.

The purpose of this study was not to decide whether demonetization is good or bad, but to assess consumer behavior. Moreover, for this case, there was a shift in consumer behavior when the Indian government tried to perform demonetization, which was an increase in the digital transaction.

DEMONETIZATION AND DIGITIZATION

Sumit Agarwal, NUS

Motivation

2

- The evolution of modes of payment and exchange

- **Ancient Times**: Commodity money, including grain, salt and livestock etc.
- **600 BC**: First coins in the ancient kingdom of Turkey
- **1000 AD**: Paper Money during the Tang Dynasty in China
- **1717**: Bank of England introduced the printed cheques

- Paper money and checks have been the dominant payment option for most of the twentieth century in the word.

Motivation

3

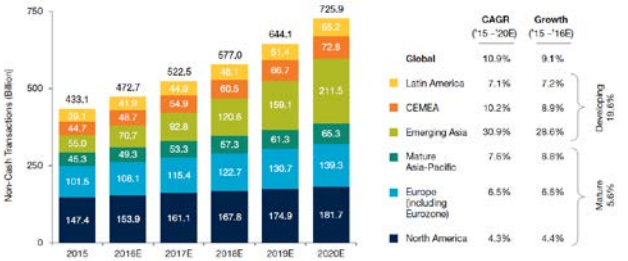
Movement towards payment digitization never stopped:

- **1950s** • The invention of credit card by Frank McNamara
- **1967** • Barclay introduced the world's first ATM
- **1978** • The first debt card issued by First National Bank of Seattle to its customers
- **1990s** • Online Payment
- **1998** • First trial of mobile payment by Paypal on Palm Pilots
  • Now Apple Pay, Alipay …

Motivation

4

- The overview of digital payment development globally



Source: World Payment Report 2017

Motivation

5

- However, while the digital payments might be all the rage, “good old cash” are seemingly far from being replaced.
- Example 1: ECB 2017 report “the use of cash by households in the euro area”
  - Nearly 75 percent of point-of-sale transactions in the EU today are paid using cash
  - The closest bond to cash by Germans
    - Packing the most cash in their wallets out of all the EU countries: an average of €103 ($121) each person
- Example 2: The Fed’s Diary of Consumer Payment Choice
  - Cash still has a "dominant role" when it comes to small-value transactions

The literature

6

- Academic Viewpoints
  - Money and payments have been central to the efficient functioning of markets throughout history (Rysman and Schuh, 2017)
  - The adoption of financial innovation1 has been an important part of household finance in the past forty years as new payment modes helps consumers manage their transaction balances more efficiently (i.e. Yang and Ching,2014).
- Substantial literatures on consumer payment choice
  - The tradeoff between cash vs card, debit vs credit (i.e. Rysman, 2007; Zinman, 2009)
  - Survey and diary data (i.e. Borzekowski, Kiser, and Ahmed, 2008; Arango, Huynh, and Sabetti, 2015); recently scanner data(Klee,2008; Cohen and Rysman, 2013)
  - What drives the consumer choice: transaction size(i.e. Klee,2008), reward program (i.e. Ching and Hayashi, 2010), surcharge (i.e. Bolt, Jonker, and Van Renselaar, 2010).

Our Paper

7

- In this paper, we focus on an unprecedented demonetization scheme in India, also called *notebankdi*, which was announced on November 8,2016
- The key motives of the government motives include
  - flushing out black money
  - combating tax evasion, counterfeiting and terrorism
- It results in a sudden stripping of legal tender status of existing notes and the prolong unavailability of new notes, for such a heavily cash-based economy.
- We conduct a comprehensive analysis of the impact of demonetization on payment digitization.

Questions

8

- Does the drying-up of cash lead to an increase in the level of payment digitization?
  - Both suppliers (bank and e-wallet) and recipients (online and offline shopping) of digital payment platform
  - Across traditional and non-traditional digital payment modes
- More importantly, is demonetization successfully in making inroads into consumer payment habit?
  - Does the usage pattern persist during the re-monetization period when cash makes a comeback in the economy?
- What are the economic and non-economic factors that can drive the heterogeneity in the response?

Payment Digitization in India

9

- While innovation in payment technology develop rapidly in emerging economies, India remains a cash-based economy
  - About 87% of all transactions were in cash (in term of value) in 2012
  - Currency in circulation account for 18% of GDP, one of the highest among emerging economies
  - Even among digital shopping transactions, cash was the most preferred payment mode – 57%.
- The staggered development can be attributed to:
  - Low Internet Penetration
  - Financial illiteracy and limited access to formal banking
  - Others, including date privacy, competition, demographics etc.

Data

10

- We combine four unique and proprietary datasets to explore the program impact from multiple views
- *Suppliers of digital payment modes*
  - Debit card transactions from the traditional provider – bank
  - E-wallet transactions from the non-traditional provider – the e-commerce company
- *Demanders of digital payment modes*
  - Spending data from an Indian online grocery store
  - Similar transaction data from a supermarket chain with both physical and online presence.

Data – Debit Card

11

- Obtained from one leading bank in India
  - Has about 370 million customers and 23 percent market share
  - One of the top 50 banks globally
- Debit card transactions of more than 107,000 customers
  - A random representative sample
  - covers 15-month period between 2016:01 and 2017:03
  - a rich set of demographics about each individual, including age, gender, martial status, location and branch affiliation.
  - includes the transaction amount, transaction date, information about the vendor
  - Classify vendors into three broad categories
    - Retailer, all point-of-sales at any physical vendor
    - E-commerce, such as online shopping
    - E-wallet, direct purchase or cash transfer

Data – E-wallet

12

- A novel transaction-level data from the largest mobile e-wallet company in India
  - Offers an e-commerce player but primarily an e-wallet firm
  - Connecting 200 million registered users to more than two million merchants
  - More than 25 percent market share in digital payment space
- More than 772,000 transactions for 10,000 customers
  - covers 15-month period between 2016:01 and 2017:03
  - includes the transaction amount, transaction date and vendor type
  - Classify all transactions into four broad categories
    - Adding money to e-wallet
    - Direct purchase
    - Peer-to-peer(P2P) transfer by paying retailers (using QR codes)
    - Peer-to-peer (P2P) transfer by paying individuals

Data – Online Market

13

- Transaction-level data from a purely online food and grocery store
  - Have presence across 26 India cities and offer more than 20,000 products
  - More than 5 million customers
- The sample covers a 12-month period from 2016:07 to 2017:06
  - 40 million orders received from 4 cities and across 20 products
  - For each order, customer chooses either digital payment or cash on delivery
  - At the disaggregated level, we observe the quantity, price charged, product for each order
  - We aggregate this data to 730 data points: 365 days* 2 transaction types(cash vs noncash)

Data – Omni-channel Market

14

- Obtained from a omni-channel supermarket chain with both physical and dedicated online store
  - Among top 5 supermarket chains in India
  - Around 350 stores and 525 million USD revenue as of 2014.
- Bill-level data for a random sample of 411,731 customers
  - 12.4 million transactions over 2016:01 and 2017:03
  - contain the bill value, transaction date and payment mode – cash, card and e-wallet.
  - Aggregate at customer-payment-mode-month level
  - Also create subsample based on bill value:
    high value (bill value>500) as notes of 500 and 1,000 were demonetized

Analysis – Supply-side

- Difference Test:

$$Usage_{j,t} = \alpha_0 + \alpha_1 \times I(Post)_{j,t} + \alpha_2 \times X_{j,t} + \varepsilon_{j,t}$$

  - $Usage_{j,t}$ is measured using two variables: number and value of transaction for consumer j at time t.
  - $I(Post)_{j,t}$ takes the value of 1 for the post-demonetization period(after 8th November 2016) and zero otherwise
  - $X_{j,t}$ contains individual demographics and time-varying region-level macro controls

- The usage response may also depend on the customer's status quo, so we further dividend the sample based on ex-ante usage
- Difference-in-difference specification:

$$Usage_{j,t} = \beta_0 + \beta_1 \times High_j \times I(Post)_{j,t} + \beta_2 \times High_j + \beta_3 \times I(Post)_{j,t} + \beta_4 \times X_{j,t} + \varepsilon_{j,t}$$

  - $High_j$ takes a value of 1 for high frequency users during the pre-de period, and 0 otherwise

Results – Debit Card

Panel A: Impact on the Overall Usage of Debit Card

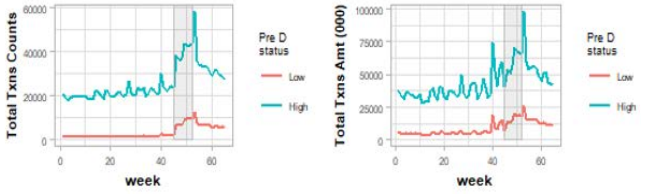
	(1)	(2)	(3)	(4)	(5)	(6)
	# Transactions			Transaction Value		
Intercept	1.65***	2.86***	0.24***	3209.13***	4,326.72***	969.68***
	(0.01)	(0.01)	(0.01)	(13.41)	(21.62)	(19.60)
Pre D Status: High		0.54***	2.57***		1,435.61***	4,054.50***
		(0.01)	(0.01)		(16.07)	(26.38)
D	1.38***		0.90***	1848.86***		1,397.78***
	(0.01)		(0.01)	(23.23)		(33.95)
D * Pre D Status: High			0.88***			816.69***
			(0.02)			(45.68)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	894,945	894,945	894,945	894,945	894,945	894,945
Adjusted R^2	0.03	0.13	0.16	0.01	0.04	0.05

This dummy captures pre-post change

While the rise is greater for frequent users in terms of levels, the percent change is more for non-frequent users, i.e. 4 and 1.5 times increase in number and value.

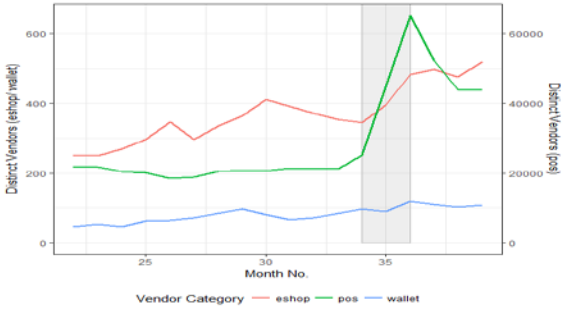
Results – Debit Card

- Weekly plot of transaction number and value by high/low users around the demonetization period (shaded areas)



Results – Debit Card

- Time series of number of vendors by type around the demonetization period (shaded areas)

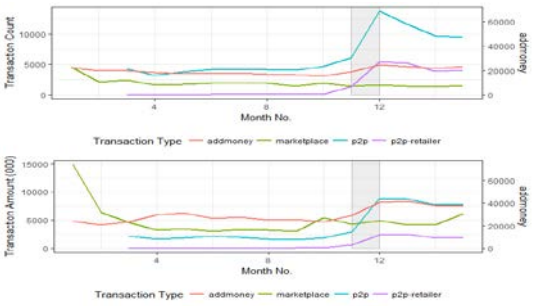


Results – Debit Card

Panel B Impact across Vendors				
	(1)	(2)	(3)	(4)
	# Transactions		Value of Transactions	
	e-wallet/e-com	Retail	e-wallet/e-com	Retail
Intercept	0.01***	0.17***	23.86***	802.85***
	(0.003)	(0.01)	(3.10)	(17.91)
Pre D Status: High	0.64***	1.44***	276.71***	3,130.16***
	(0.004)	(0.01)	(4.17)	(24.09)
D	0.08***	0.76***	53.78***	1,250.25***
	(0.01)	(0.01)	(5.37)	(31.01)
D * Pre D Status: High	-0.07***	0.93***	44.62***	693.19***
	(0.01)	(0.01)	(7.22)	(41.73)
Controls	Yes	Yes	Yes	Yes
Observations	894,945	894,945	894,945	894,945
Adjusted R2	0.04	0.14	0.01	0.04

Results – E-wallet

- Month plot of transaction number and value by transaction type: 1. adding money; 2. e-commerce; 3. peer-to-peer, individual; 4.peer-to-peer, retailer



Results – E-wallet

	Response of e-Wallet Usage							
	Adding Money		E-commerce		P2P - Individual		P2P - Retail	
	#	Amount	#	Amount	#	Amount	#	Amount
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	1.82***	2,580.10***	0.22***	505.92***	0.32***	149.83***	0.01*	2.64
	(0.01)	(91.55)	(0.003)	(14.40)	(0.02)	(5.18)	(0.003)	(1.73)
D	0.42***	1,168.15***	-0.07***	-29.07	0.69***	571.55***	0.39***	182.74***
	(0.02)	(158.56)	(0.01)	(24.94)	(0.03)	(8.98)	(0.01)	(3.00)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000
Adjusted R^2	0.002	0.0004	0.001	0.0000	0.003	0.03	0.04	0.02

1. We observe a significant increase in transactions of adding money, which requires more time and efforts
2. As for the usage, a higher rise for peer-to-peer transaction, i.e. paying retailers or smaller and unorganized vendors

Analysis – Demand Side

22

- While the debit card and e-wallet datasets help us understand the shift across different vendors, it allows analysis of non-cash transactions only.
- Increasing adoption of digital payment also depend on the retailers as the recipients.
- We obtain sales data, retailers, which enable us to observe both cash and non-cash transaction and study consumer's choice of payment method within the same recipient.

Analysis – Demand-side

- Test on the data of online market :

$$Sales_{j,t} = \alpha_0 + \alpha_1 \times I(Post)_{j,t} + \alpha_2 \times NonCash_{j,t} + \alpha_3 \times I(Post)_{j,t} \times NonCash_{j,t} + \varepsilon_{j,t}$$

  - $Sales_{j,t}$ is measured by its quantity and value for consumer/group j at time t.
  - $I(Post)_{j,t}$ takes the value of 1 for the post-demonetization period(after 8th November 2016) and zero otherwise
  - $NonCash_{j,t}$ takes the value 1 if a transaction is made using noncash payment.

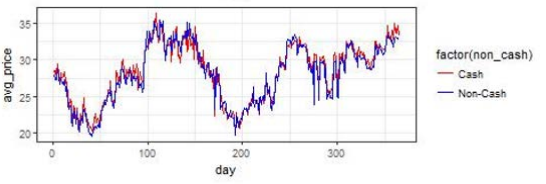
- In the data from omni-channel market, we can further observe the components of non-cash transactions: card or e-wallet.
- Difference-in-difference specification:

$$Sales_{j,t} = \beta_0 + \beta_1 \times I(Post)_{j,t} + \beta_2 \times Card_{j,t} + \beta_2 \times ewallet_{j,t} + \beta_3 \times I(Post)_{j,t} \times Card_{j,t} + \beta_3 \times I(Post)_{j,t} \times ewallet_{j,t} + \varepsilon_{j,t}$$

  - $Card_{jt}$ and $ewallet_{jt}$ takes a value of 1 for transactions made via card and e-wallet.

Results – Online Market

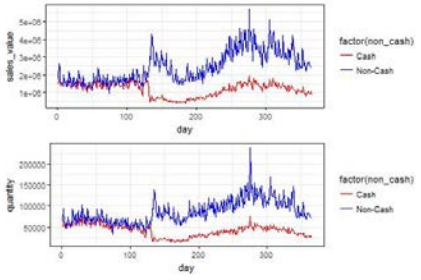
- We first confirms that there is no differential in sale price for transactions made by cash vs noncash.



- Daily plot of average price by transaction-type and demonetization happened on day 131 and ended on day 183.

Results – Online Market

- Daily plot of sales value and quantity by transaction-type and demonetization happened on day 131 and ended on day 183.



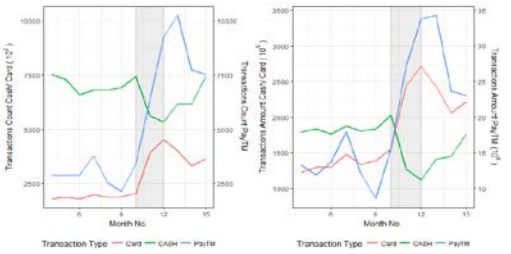
Results – Online Market

	Sales Amount (1)	Sales Quantity (2)	Average Price (3)
Intercept	1,432,411.00***	53,345.36***	27.33***
	(47,040.18)	(1,506.82)	(0.34)
Non-Cash	259,165.40***	10,650.33***	-0.43
	(66,524.85)	(2,130.96)	(0.48)
D	-421,778.80***	-18,423.15***	1.42***
	(58,749.94)	(1,881.91)	(0.43)
Non-Cash X D	1,582,175.00***	53,823.09***	0.28
	(83,084.96)	(2,661.42)	(0.60)
Observations	730	730	730
Adjusted R^2	0.67	0.70	0.03

Relative to cash spending, non-cash exhibits 93 percent and 84 percent increase in the sale value and quantity.

Results – Omni-channel Market

- Monthly plot of sales value and count by three payment modes: cash, card and e-wallet(PayTM)



Results – Omni-channel Market

Panel A: Across Payment Modes

	Payment Mode-Month		Customer-Payment Mode-Month	
	# Sales	Sales Amount	% # Sales	% Sales Amount
	(1)	(2)	(3)	(4)
Constant	857,542.70***	225,022,415.00***	0.382***	0.356***
	(16,903.78)	(6,248,779.00)	(0.0002)	(0.0002)
Card	-645,969.00***	-72,884,988.00***	-0.252***	-0.206***
	(23,905.55)	(8,837,108.00)	(0.0003)	(0.0003)
PayTM	-854,303.60***	-223,535,031.00***	-0.381***	-0.355***
	(23,905.55)	(8,837,108.00)	(0.0003)	(0.0003)
D	-99,510.91***	-52,398,485.00***	-0.069***	-0.077***
	(26,187.22)	(9,680,567.00)	(0.0003)	(0.0003)
Card X D	324,158.40***	166,264,892.00***	0.177***	0.193***
	(37,034.32)	(13,690,389.00)	(0.0004)	(0.0004)
PayTM X D	105,303.20***	54,092,771.00***	0.072***	0.080***
	(37,034.32)	(13,690,389.00)	(0.0004)	(0.0004)
Observations	36	36	14,822,316	14,822,316
R^2	0.99	0.98	0.175	0.146
Adjusted R^2	0.98	0.97	0.175	0.146

Results – Omni-channel Market

- Further include a dummy to indicates high/low bill value at the payment-mode-month level

Panel B: By Payment Mode and Bill Value - Payment Mode-Month		
	# Sales	Sales Amount
	(1)	(2)
Bill>500 * Card * Post D	-139,005.00***	55,880,246.00***
	(32,729.26)	(10,711,921.00)
Bill>500 * PayTM * Post D	-47,085.91	13,549,146.00
	(32,729.26)	(10,711,921.00)
Observations	72	72
Adjusted R^2	0.99	0.98

Analysis – Heterogeneity

30

Next we examine the heterogeneity of demonetization effect across three India megacities – Bengaluru, Chennai and Kolkata and focus on the following factors that may influence the adoption:

- 1. Lower adoption among areas that are under-developed economically
  - GDP, unemployment…
- 2. Levels of financial inclusion and technology infrastructure development
- 3. The influence of demographics
  - Lower adoption for more conservative population, i.e. aged, married, female and under-educated (Roger, 2010).

Analysis – Heterogeneity

31

Panel A State-level Statistics			
	Karnataka	Tamil Nadu	West Bengal
Overall Economic Development			
State NDP at FC	46012	62361	36293
Unemployment Rate	1.8	3.6	5.2
Financial Inclusion and Technology Infrastructure			
Number of Kisan Card	4127443	2514067	3494516
Kisan Card Amount (in millions)	398920	168870	101390
Kisan Card Average Amount (in '000s)	96.65	67.17	29.01
Internet Subscribers	20.1	24.14	11.19
Mobile Towers	381	327	163
Non-telephone Villages	0	113	487
Demographics			
PPF/ Internet Banking	0.09	0.14	0.68
% Population in Urban	38.6	48	31.9
Education	0.661	0.683	0.527
Education Rank	5	3	31
Age	35.4	36.6	39.7
Married	0.36	0.45	0.52

Analysis – Heterogeneity

32

Panel B City-level Statistics			
	Bangalore	Chennai	Kolkata
PPF/ Internet Banking	0.07	0.31	0.59
Total Population	8495492	4646732	4496694
Population Rank	5	6	7
Literacy (%)	88.71	90.18	86.31
Sex Ratio	922	989	908
Urban Household Head's Age (%)	85.55	81	72.33
Age	35.0	37.3	41.9
Married	0.33	0.50	0.56
Months on Book	25.33	27.89	31.05

- Both state and city-level statistics suggest a weaker response in Kolkata due to the underdevelopment and more conservative population.

Analysis – Heterogeneity

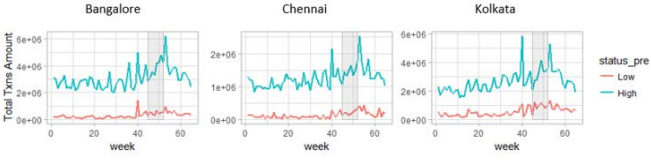
33

Panel B City-level Statistics			
	Bangalore	Chennai	Kolkata
PPF/ Internet Banking	0.07	0.31	0.59
Total Population	8495492	4646732	4496694
Population Rank	5	6	7
Literacy (%)	88.71	90.18	86.31
Sex Ratio	922	989	908
Urban Household Head's Age (%)	85.55	81	72.33
Age	35.0	37.3	41.9
Married	0.33	0.50	0.56
Months on Book	25.33	27.89	31.05

- Both state and city-level statistics suggest a weaker response in Kolkata due to the underdevelopment and more conservative population.

Analysis – Heterogeneity

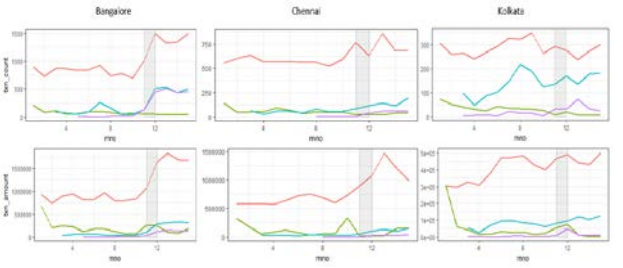
34



- Weekly plot of debit card transaction value by high/low users across cities

Analysis – Heterogeneity

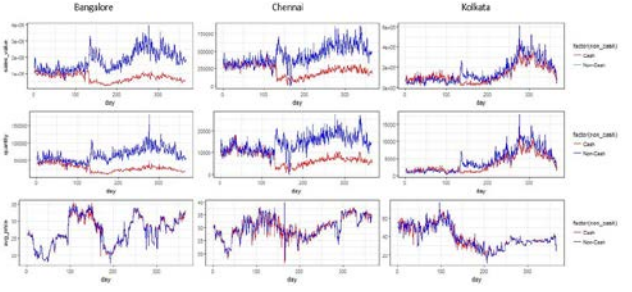
35



- Month plot of e-wallet transaction number and value by transaction type:
  - 1. adding money(red); 2. e-commerce(green); 3. peer-to-peer, individual(blue); 4.peer-to-peer, retailer(purple)

Analysis – Heterogeneity

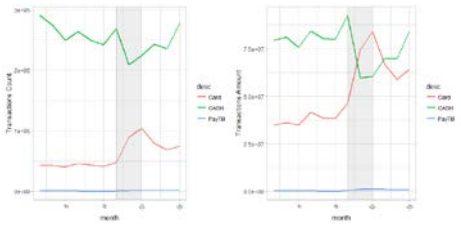
36



- Daily plot of sales value and quantity, average price by transaction-type across cities

Analysis – Heterogeneity

37



- Monthly plot of sales value and count by three payment modes for the omni-channel supermarket china : cash, card and e-wallet(PayTM) in Kolkata

Robustness Check Further Results

38

- Further exclude the impact of price and product demand
  - We find that 10-15 percent decline in the purchase of luxury products that are likely to be paid via non-cash mode.
- Market expectation
  - The cumulative abnormal return around the announcement is significantly positive for banking stocks but not for non-banking stocks
  - Consistent with the market expectation of increased consumer's adoption of digital payment modes, like card and e-wallet.

Conclusion

39

- We combine four large and proprietary datasets from both suppliers and facilitators of digital payment and estimate the impact of cash unavailability induced by demonetization on the magnitude and persistence of digital payment use.

- Find a significant increase in the level of payment digitization
  - The rise applies to both traditional and non-traditional digital payment modes
  - The usage pattern persists after the demonetization, indicating the success of demonetization in enabling digitalization to make inroads into consumer payment habits
  - Regions that are underdeveloped economically, lag in financial inclusion and technology infrastructure and have a more conservative population experience a weaker response

Third Presentation by
Dr. Dorothe Singer

Short Biography of Dr. Dorothe Singer

World Bank

Dorothe Singer is an Economist in the Finance and Private Sector Research Team of the Development Research Group at the World Bank. Her research focuses on access to finance, measuring financial inclusion (Global Findex), and the role of institutions in international finance. She joined the World Bank in 2009 and holds a Ph.D in economics from Tilburg University, The Netherlands.

The Global Findex Database: Measuring Financial Inclusion and the Fintech Revolution 2017

By: Dr. Dorothe Singer

Dr. Dorothe mentioned that The Global Findex Database was launched in 2011 by the World Bank and is a comprehensive database on how adult around the world are saving, making payment and managing risk. The database consisted of 150 national representatives from 140 countries around the world.

This third edition of The Global Findex Database showed that today around 69% of an adult around the world has an account. It also showed that around 1.2 billion adults have gotten an account since 2011, including 515 million since 2014. In the past years, there is an increase from 51% (2011) to 62% (2014) and finally 69% (2017). While in the developing economies, that number has increased from 41% (2011) to 55% (2014) and 63% (2017).

However, one of the most interesting questions in this area is that if people actually use the account they have? Using The Global Findex Database, we could analyze it based on the deposit and withdrawn the people make in the past years. It found that about a quarter of accounts in the developing countries were inactive compared to one-fifth of accounts globally. And further analysis showed that those number is mostly driven by one country, India. While when India was excluded, only 10% of account were active around the world. Based on

the analysis, we could see that there were some opportunities to not only bring people to the financial system but also to increase the usage of accounts.

Based on some of the demographic it collected, Global Findex Database found that account ownership in some economies is 80% or more, for example in Malaysia, China and Mongolia. It also found that there only two economies with a significant increase in account ownership between 2014 and 2017, which were Indonesia and Malaysia.

Dr. Dorothe mentioned that Global Findex Database also collected the demand-side data of financial inclusion, where one of the advantages was to know the financial services user. When it was classified based on the gender, it was evident that in the developing economies, the woman were less likely than men to have an account. Since 2011, the gap between the two gender remains unchanged at 9%. However, most high-income economies today do not have a gender gap. Further, in some economies, women are more likely than a man to have an account. For example, in Lao, men are 6% less likely to have an account and 7% are less likely to have active account ownership. While in Malaysia, the reverse is true.

The Global Findex Database also collected data based on age, education, and income. Based on those demographics, it was evident that the account ownership was nowhere among younger adults, those with less educations, women and poorer adults within economies. In East Asia and Pacific, some economies had a non-existing gender gap. Some were also true for

age, but for education, there was certainly a gap. Based on such analysis, we may conclude that economies cannot reach universal financial access without inclusiveness.

Another advantage of The Global Findex Database was that to not only look for those using financial services, but also for those not using financial services, or unbanked people. The database found that nearly half of today 1.7 billion unbanked adults lived in just seven economies around the world, such as 13% in China, 11% in India and so on. We could also see that globally, out of the 1.7 billion unbanked adults, 56% are women, 50% live in the poorest 40% of households within economies, 62% have primary education or less, and 47% are out of the labor force.

The database also analyzed the reason people do not have an account. “Lack of enough money” usually was the most reason for not having an account. Other reasons were “do not need an account,” “accounts too expensive,” “family member already has an account,” “financial institutions are too far away,” “lack of necessary documentation,” “lack of trust” and “religious reason.” We may also note that even though “do not need an account” was listed as a reason, only 3% reported it as the only reason. Which implied that if we could remove other reason like “accounts too expensive” etc., people probably did want to have an account.

The database did not only see how technology was changing people’s life but how the present technology has brought people to the formal financial sector. In the developing economies, we could see that the use of

digital payments was increasing, and it was not just in India but also across the world. Globally, 52% of adults or 76% of account owners, reported having made or received at least one digital payment using their account in the past year. It included 44% of adults in developing economies.

What it meant by making and receiving digital payment could take any form of digital payment. For example, swiping a debit or credit card at some point of time, using the mobile phone or internet to make a transaction, receiving a wage payment into an account, a government transfer, etc.

More people who have an account were using it for digital payment, for example in the developing economies; there was an increase of 12% over the last three years. This share even grew by a larger percentage in Thailand (34%). In Malaysia, 83% of account owners (70% of adults) used digital payments, which was like China. While in Lao PDR and Myanmar digital payments usage was still quite low.

Another mode of digital payment was online shopping, which can also be analyzed in The Global Findex Database. In the high-income economies, 59% of adults used the internet to shop online. However, only 7% of adults in developing economies, excluding China, did so. In China, 45% of adults did so – by far the largest share among developing economies – followed by Malaysia with 34%.

The advances in financial technology hold the key to expand access to financial services. We could see that

2/3 of unbanked adults have a mobile phone. It implied that 1.1 billion unbanked adults had a technology in their pocket which could be considered as an easy way to access financial services. Therefore, increasing financial inclusion through digital payment worked. As can be seen globally, 13% of account owners or 9% of adults opened their first account to receive digital payments.

Further, about 100 million unbanked adults received government payment in cash (most of them have a mobile phone), around 230 million unbanked adults in the private sector were paid in cash today (most of them have a mobile phone), about 235 million unbanked adults received agricultural payments in cash (nearly 60% of them have a mobile phone) and a billion adults who have an account today still paid utility bills in cash (910 million of them have a mobile phone). Those were the evidence of so many opportunities that the digital payment has, in bringing people to the financial system.

Dr. Dorothe mentioned that The Global Findex Database also provided data on saving and borrowing. However, she did not discuss it further on the seminar that day. Instead, she concluded some of the main messages coming out of the data, which were:

1. Financial inclusion is on the rise globally.
2. Digital technology and especially widespread access to mobile phones and the internet is driving access to and use of financial services.
3. Advances in digital financial services, starting with digital payments and including savings, credit and

insurance products delivered through digital platforms, are key to achieving financial inclusion.

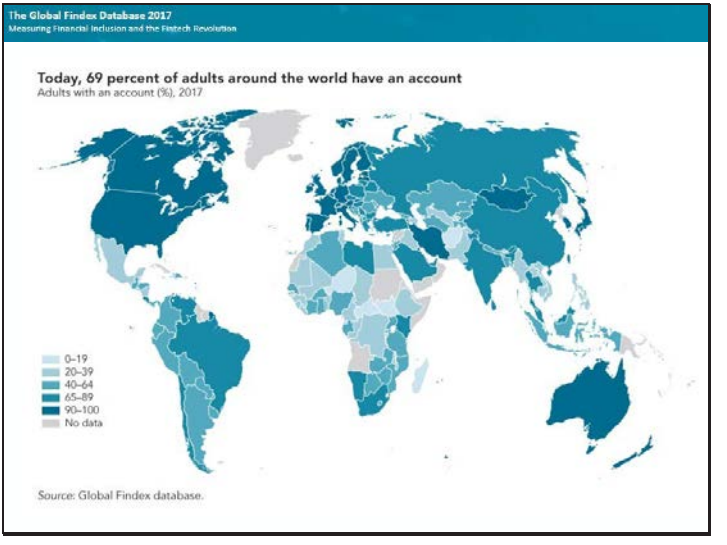
The Global Findex Database

Measuring Financial Inclusion and the Fintech Revolution

2017

Asli Demirgüç-Kunt
Leora Klapper
Dorothe Singer
Saniya Ansar
Jake Hess

International Research Seminar Financial Sector Development and the Future of Finance Bali, October 14, 2018

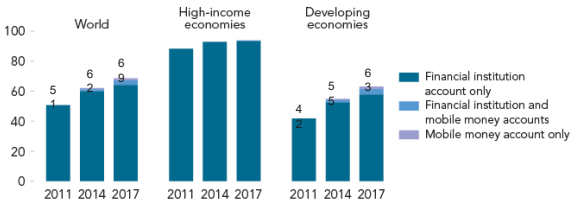


The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

Financial inclusion is on the rise globally

- The third edition of the Global Findex database shows that 1.2 billion adults have gotten an account since 2011, including 515 million since 2014.

Financial institution accounts have fueled the growth in account ownership since 2011
Adults with an account (%)



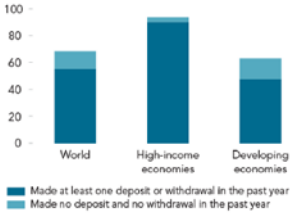
Source: Global Findex database.
Note: No data are available for the share of adults with a mobile money account for 2011.

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

A quarter of accounts in developing countries are inactive — excluding India, only 16 percent of accounts are inactive

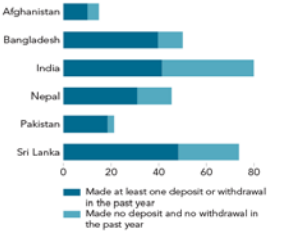
- In India 48% of account owners have an inactive account – twice the developing world average of 25%.

Globally, one in five account owners has an account that was inactive in the past year
Adults with an account (%), 2017

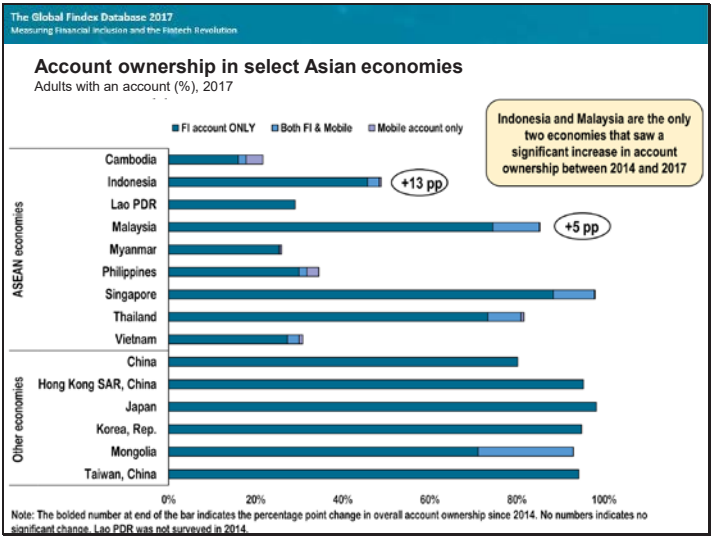


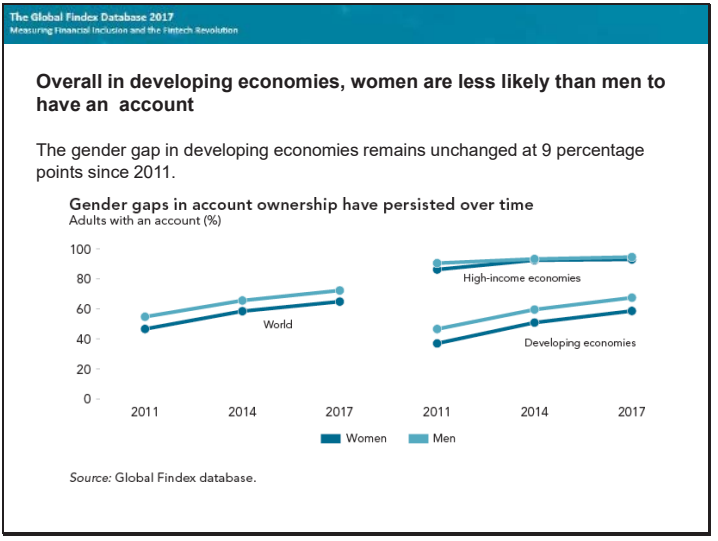
Source: Global Findex database.

In India almost half of account owners have an account that remained inactive in the past year
Adults with an account (%), 2017



Source: Global Findex database.

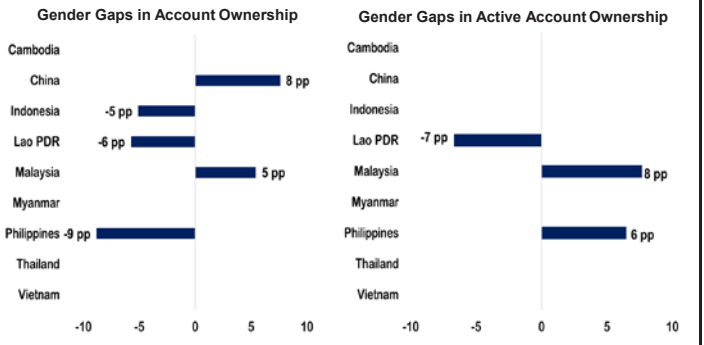

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution
Account ownership in select Asian economies
Adults with an account (%), 2017
FI account ONLY
Both FI & Mobile
Mobile account only
Indonesia and Malaysia are the only two economies that saw a significant increase in account ownership between 2014 and 2017
+13 pp
+5 pp
ASEAN economies
Cambodia
Indonesia
Lao PDR
Malaysia
Myanmar
Philippines
Singapore
Thailand
Vietnam
Other economies
China
Hong Kong SAR, China
Japan
Korea, Rep.
Mongolia
Taiwan, China
0%
20%
40%
60%
80%
100%
Note: The bolded number at end of the bar indicates the percentage point change in overall account ownership since 2014. No numbers indicates no significant change. Lao PDR was not surveyed in 2014.


The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution
Overall in developing economies, women are less likely than men to have an account
The gender gap in developing economies remains unchanged at 9 percentage points since 2011.
Gender gaps in account ownership have persisted over time
Adults with an account (%)
100
80
60
40
20
0
World
High-income economies
Developing economies
2011
2014
2017
2011
2014
2017
Women
Men
Source: Global Findex database.

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

However, most ASEAN economies have no gender gap and in some economies women are more likely than men to have an account

Account ownership of men minus account ownership of women in percentage points



Note: The length of the bar is the gap in account ownership between men and women, in percentage points.

Note: The length of the bar is the gap in active account ownership among men and women account owners, in percentage points.

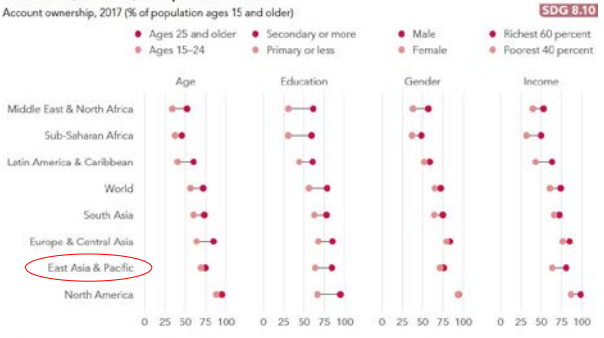
The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

Economies cannot reach universal financial access without inclusive growth

Financial account ownership is lower among younger adults, those with less education, women, and poorer adults.

Account ownership, 2017 (% of population ages 15 and older)

SDG 8.10



Note: Data refer to the richest 60 percent and poorest 40 percent within individual economies rather than the region as a whole.

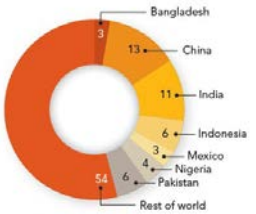
Source: Global Findex Database, World Development Indicators (FX.OWN.TOTL.MA.ZS; FX.OWN.TOTL.FE.ZS; FX.OWN.TOTL.YG.ZS; FX.OWN.TOTL.OL.ZS; FX.OWN.TOTL.PL.ZS; FX.OWN.TOTL.SO.ZS; FX.OWN.TOTL.40.ZS; FX.OWN.TOTL.60.ZS).

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

Who are the unbanked?

Nearly half of all unbanked adults live in just sever economies

Adults without an account by economy (%), 2017



Source: Global Findex database.

Globally, of the 1.7 billion unbanked adults

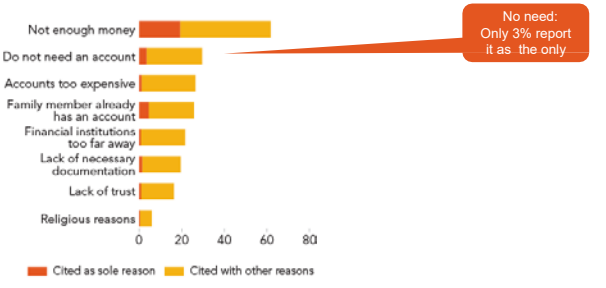
- 56 percent are women
- 50 percent live in the poorest 40 percent of households within economies
- 62 percent have a primary education or less
- 47 percent are out of the labor force

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

Why do people not have financial institution accounts?

Lack of enough money is the most commonly cited barrier to account ownership

Adults without a financial institution account reporting barrier as a reason for not having one (%), 2017



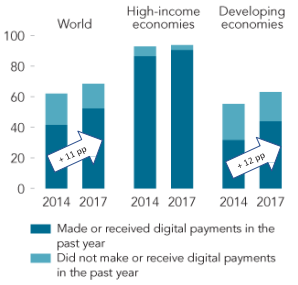
Source: Global Findex database.
Note: Respondents could choose more than one reason.

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

Use of digital payments is increasing in developing economies

- Globally, 52% of adults or 76% of account owners, reported having made or received at least one digital payment using their account in the past year.
- In developing economies, 44% of adults used digital payments
  - In Thailand, this share grew by 34 pp between 2014 and 2017, the largest increase in ASEAN, and among the largest increase globally, to 76% of account owners (62% of adults)
  - In Malaysia, 83% of account owners (70% of adults) use digital payments – similar to China
  - In Lao PDR and Myanmar digital payments use is still quite low: less than 50% of account owners (10% of adults) use them.

More people who have an account are using it for digital payments
Adults with an account (%)



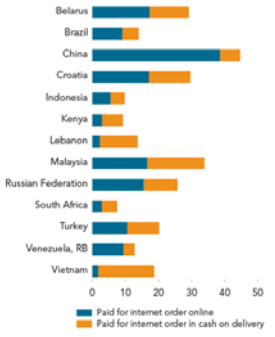
Source: Global Findex database.

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

In developing countries, most online shoppers pay in cash

- In high-income economies, 59% of adults used the internet to shop online. But only 7% of adults in developing economies, excluding China, did so.
- In China, 45% of adults did so – by far the largest share among developing economies – followed by Malaysia with 34%.
  - In China, almost all buyers paid online, but in Malaysia only half of buyers did so.
- In Thailand and Vietnam, 1-in-5 adults buy online, but Thai buyers are much more likely more likely to pay online (50% of buyers) than Vietnamese buyers (10% of buyers).
- In Cambodia and Myanmar, nearly no adults buy online.

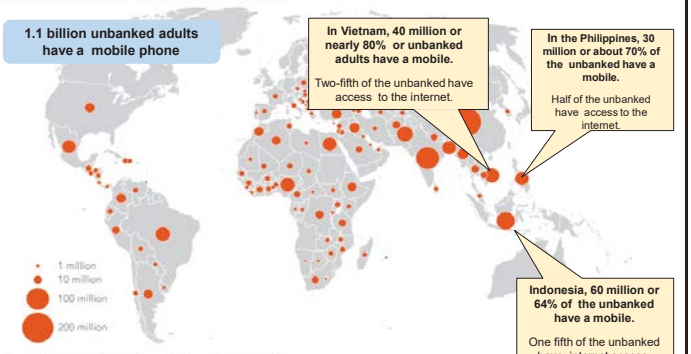
Online shoppers tend to pay online in China—but in cash on delivery in most other developing economies
Adults using the internet to buy something online in the past year (%), 2017



The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

Advances in fintech hold the key to expanding access to financial services

Two-thirds of unbanked adults have a mobile phone
Adults without an account owning a mobile phone, 2017



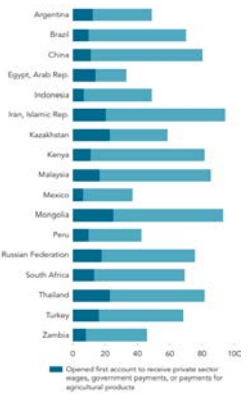
Sources: Global Findex database; Gallup World Poll 2017.
Note: Data are not displayed for economies where the share of adults without an account is 5 percent or less.

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

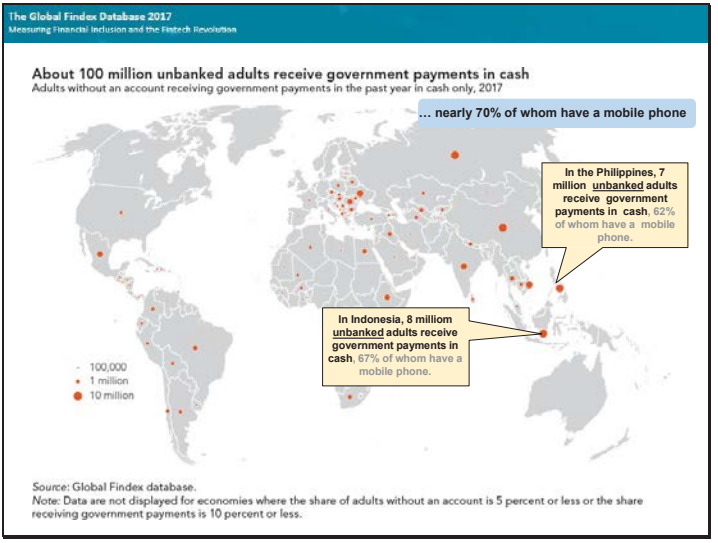
Increasing financial inclusion through digital payments works

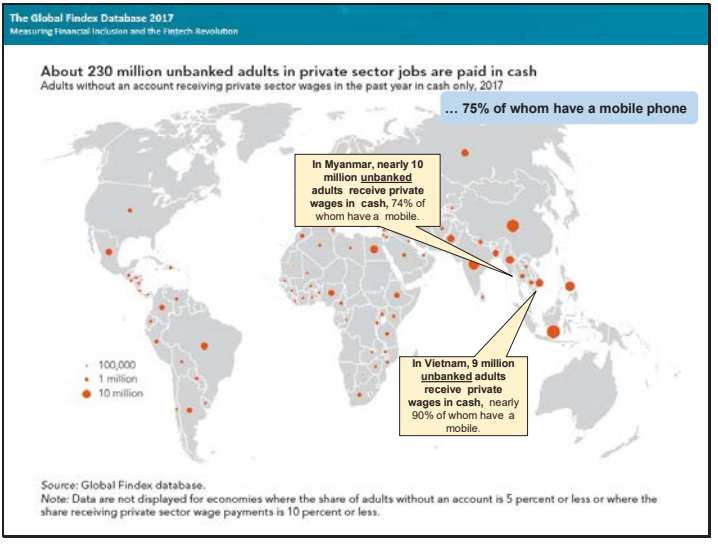
- Globally, 13% of account owners or 9% of adults opened their first account to receive digital payments
    - In Thailand, among adults who have an account, 14 percent opened their first account to received government transfers

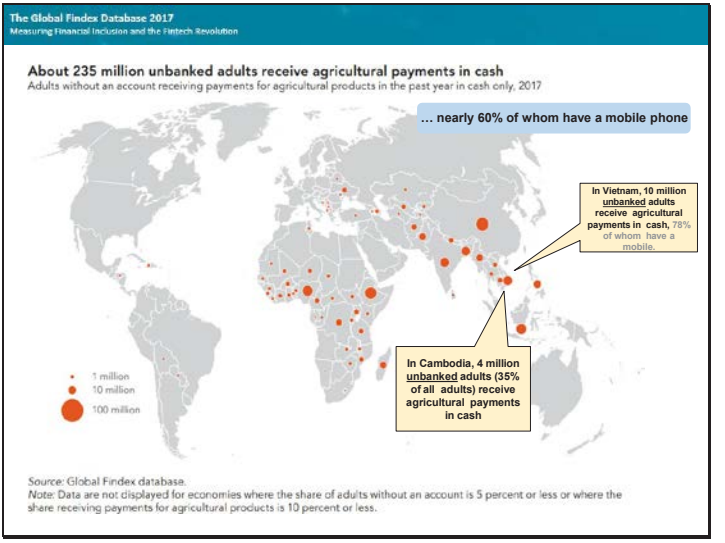
Millions of adults opened their first account to receive digital payments
Adults with an account (%), 2017

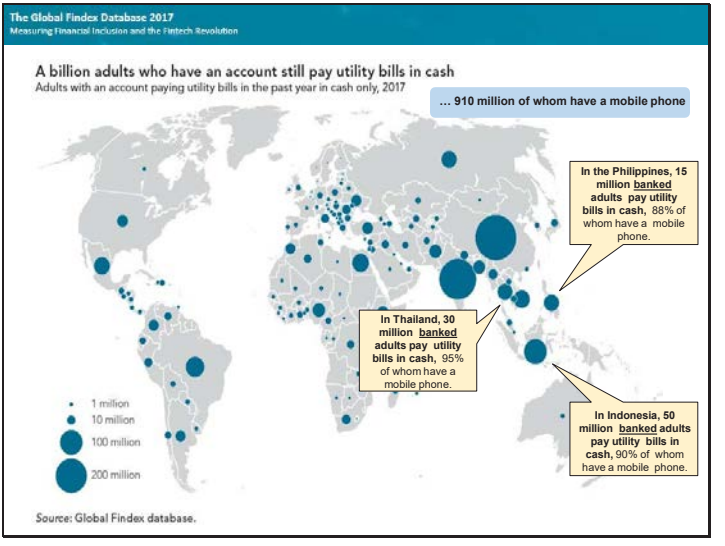


Source: Global Findex database.


The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution
About 100 million unbanked adults receive government payments in cash
Adults without an account receiving government payments in the past year in cash only, 2017
... nearly 70% of whom have a mobile phone
In the Philippines, 7 million unbanked adults receive government payments in cash, 62% of whom have a mobile phone.
In Indonesia, 8 milliom unbanked adults receive government payments in cash, 67% of whom have a mobile phone.
100,000
1 million
10 million
Source: Global Findex database.
Note: Data are not displayed for economies where the share of adults without an account is 5 percent or less or the share receiving government payments is 10 percent or less.


The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution
About 230 million unbanked adults in private sector jobs are paid in cash
Adults without an account receiving private sector wages in the past year in cash only, 2017
... 75% of whom have a mobile phone
In Myanmar, nearly 10 million unbanked adults receive private wages in cash, 74% of whom have a mobile.
In Vietnam, 9 million unbanked adults receive private wages in cash, nearly 90% of whom have a mobile.
100,000
1 million
10 million
Source: Global Findex database.
Note: Data are not displayed for economies where the share of adults without an account is 5 percent or less or where the share receiving private sector wage payments is 10 percent or less.


The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution
About 235 million unbanked adults receive agricultural payments in cash
Adults without an account receiving payments for agricultural products in the past year in cash only, 2017
... nearly 60% of whom have a mobile phone
In Vietnam, 10 million unbanked adults receive agricultural payments in cash, 78% of whom have a mobile.
In Cambodia, 4 million unbanked adults (35% of all adults) receive agricultural payments in cash
1 million
10 million
100 million
Source: Global Findex database.
Note: Data are not displayed for economies where the share of adults without an account is 5 percent or less or where the share receiving payments for agricultural products is 10 percent or less.

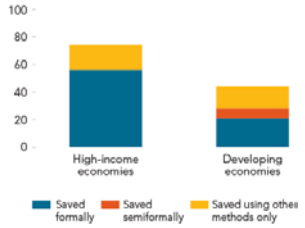

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution
A billion adults who have an account still pay utility bills in cash
Adults with an account paying utility bills in the past year in cash only, 2017
... 910 million of whom have a mobile phone
In the Philippines, 15 million banked adults pay utility bills in cash, 88% of whom have a mobile phone.
In Thailand, 30 million banked adults pay utility bills in cash, 95% of whom have a mobile phone.
In Indonesia, 50 million banked adults pay utility bills in cash, 90% of whom have a mobile phone.
1 million
10 million
100 million
200 million
Source: Global Findex database.

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

Saving

Globally, more than half of adults who save choose to do so at a financial institution

Adults saving any money in the past year (%), 2017



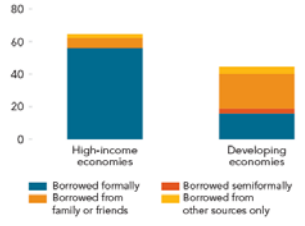
Source: Global Findex database.
Note: People may save in multiple ways, but categories are constructed to be mutually exclusive. *Saved formally* includes all adults who saved any money formally. *Saved semiformally* includes all adults who saved any money semiformally but not formally. Data on semiformal saving are not collected in most high-income economies.

The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution

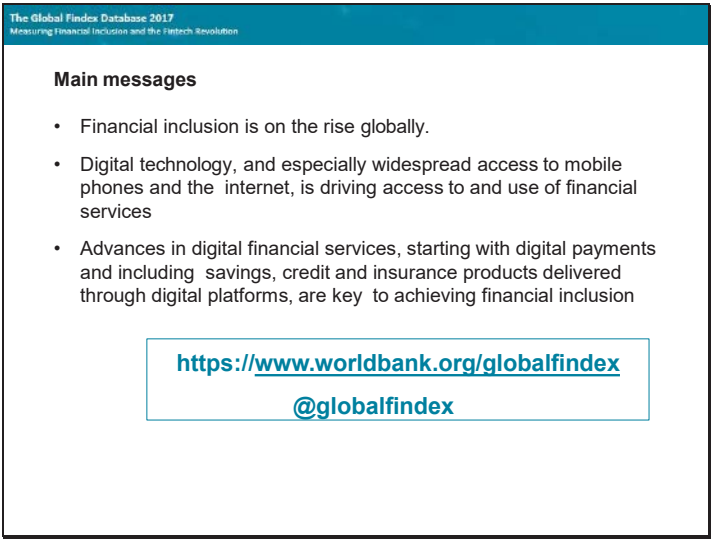
Borrowing

The most common source of credit in high-income economies is formal borrowing—in developing economies, family or friends

Adults borrowing any money in the past year (%), 2017



Source: Global Findex database.
Note: People may borrow from multiple sources, but categories are constructed to be mutually exclusive. *Borrowed formally* includes all adults who borrowed any money from a financial institution or through the use of a credit card. *Borrowed semiformally* includes all adults who borrowed any money semiformally (from a savings club) but not formally. *Borrowed from family or friends* excludes adults who borrowed formally or semiformally:


The Global Findex Database 2017
Measuring Financial Inclusion and the Fintech Revolution
Main messages
• Financial inclusion is on the rise globally.
• Digital technology, and especially widespread access to mobile phones and the internet, is driving access to and use of financial services
• Advances in digital financial services, starting with digital payments and including savings, credit and insurance products delivered through digital platforms, are key to achieving financial inclusion
https://www.worldbank.org/globalfindex
@globalfindex

Session Review by Dr. Miguel Soriano

The research seminar also covered a review session where Dr. Miguel Soriano from World Bank explained his insight and feedback related to the presentation shown by the speakers.

He mentioned that McKinsey research in 2016 has quantified the effect of digital financial inclusion, by showing that if all emerging economies adopt digital technology, by 2025, there will be an increase of GDP by 2.5 billion dollars, which will include 1.1 billion people. Further, there will be a tremendous rise in financial inclusion, as shown in The Global Findex Database presented by Dr. Dorothe Singer.

However, the challenge is on how to achieve the objectives, consumer protection, financial stability, financial integrity and financial inclusion at the same time, but without stifling the innovation. As innovation is coming at a very rapid speed, it is hard for the regulator to adjust their policy. Especially as what we already knew, regulation and innovation sometimes do not go together. However, different studies about this will offer a different approach with different key lesson.

For example, China used the test and learn approach. They tested different platform and then collaborated in a very small-scale environment called regulatory sandboxes and analyzed how powerful and effective it is and when to use it. However, it was a labor-intensive method, as it needed many resources from the regulator. By studying from this kind of research, we could take

some lessons and decided when to apply which approach.

Next, presentation by Dr. Dorothe about The Global Findex Database could be considered as the most used and the most authoritative database one could find regarding recent global financial inclusion. It showed how technology helped financial inclusion, as out of 1.7 billion unbanked people that day, around 2/3 of them have a mobile phone, which provided access to the people.

Financial inclusion is important because it includes people to the formal financial system will boost the economy and productivity. Financial inclusion could be defined by the three A's, which are affordability, access, and active usage. Moreover, in order to give people affordable access, with active usage, digital payment played an important role, which was a crucial point learned from Dr. Sumit Agarwal presentation. His study explained how people in India were actively using the financial account. It was also interesting that Dr. Sumit Agarwal did highlight not only the supply side but also the demand side of the equation. Moreover, the most crucial point was that the people who were using the digital payment less frequently were the one who experiences the most significant increase.

Questions and Answers Session

Questions:

1. Mr. Ronald Kasim from Trusting Social and one other participant who did not mention his name
   a. What will happen with the dramatic fall of P2P lending China? What can we learn from that? What can we do to prevent that from happening to a country like Indonesia?
   b. There are many benefits using IT in finance. However, there is still not much discussion on how we can mitigate the risk.

2. Dr. Yongmei Zhou
   Demonetization is an unusual experiment which could be performed to test the customer response. However, how can we understand the customer response, when this kind of opportunity is not available?

Answers:

Regarding the second question, Dr. Sumit Agarwal explained that the study was performed to show how people will respond when we force them not to have cash. In fact, there was indeed a gradual shift around the world toward digitalization. However, the reason is still not apparent, whether it is because of the decrease in cash, the change in preference, or other reason. Therefore, policymaker does not know how to force people to use digital payment. The study showed one example of taking away cash to see how the people will respond.

The study did not advise all country to do demonetization to force digitization. However, it offered one method which tries to understand how people will response when we force people not to have cash. And the result showed that people will adopt. When we do not perform the demonetization, digitization will still happen for sure. However, we are not informed about the reason, which is perfectly fine. However, by using demonetization (in the case of India), the government may gain knowledge regarding several interesting facts, such as what drives the digitization and which channel is used the most for that purpose (credit, debit or e-wallet).

Next, Dr. Bejoy Das Gupta also added his thought about the demonetization in India. He said it is a fascinating experiment, but at the high cost to the economy. In his opinion, it is a terrible experiment and did not work. However, it gives some fascinating insight, for example about e-wallet, where it is the channel which is used the most as a form of digital payment, after the demonetization.

And regarding P2P in China, he said that if you have unregulated shadow banking sector, where a central bank or PBOC or the regulator were not watching what is going on, it is very dangerous to the economy. Therefore, it is the job of the regulator to set clear rules for the game.


OTORITAS JASA KEUANGAN
PANEL SESSION 1 : DIGITAL FINANCE
Speaker 1 :
Dr. Sumit Agarwal, NUS
"Demonetization as a Identification Strategy: Case of India"
Speaker 2 :
Dr. Bejoy Das Gupta, Syracuse and eCurrency
"Digital Revolution for Financial Inclusion"
Dr. Dorothy Singer, WB
Special Presentation on Measuring Inclusion and the Fintech Revolution


Utilizing Digital Revolution to Bolster Financial Services is Important for Meeting UN Sustainable Development Goals
Innovations spurred by digital breakthroughs are revolutionizing the availability of financial services to bolster inclusive and more sustainable growth
Wave of innovation encompassing payments/clearing/settlement, saving, borrowing, insurance and other financial products, risk management and advisory services
Financial inclusion and cheaper and faster financial services can fundamentally reshape the lives of people and bring economy-wide efficiency gains
Governments also benefit from improved transparency, reduced leakages and expansion of the tax base for greater public investment


Intercept
com
Retail
0.01***
0.17**
(0.003)
Pre D Status: High
0.64***
(0.004)
0.08***
0.76*
(0.01)
D Status: High
-0.07***
0.93
Yes
Y
,945
894
0.04
0


SECTOR DEVELOPMENT
FUTURE OF FINANCE
BALI, 14 OCTOBER 2018
IFC