# Financial Access and FinTech

## Lecture 8 - special

EE461 2/2564

Chayanee Chawanote

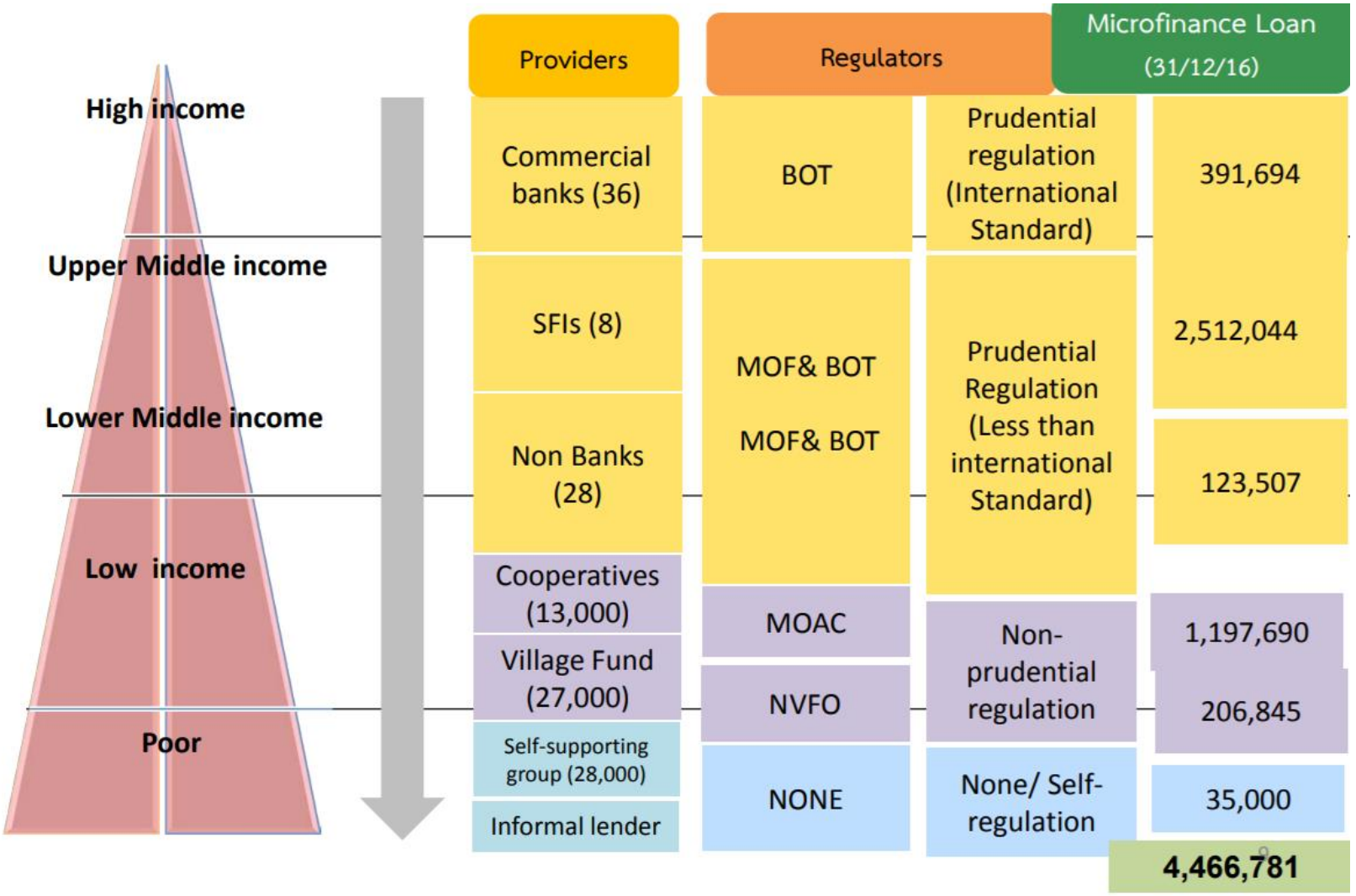
# Overview

- Financial inclusion
- Financial access in Thailand
- Fin Tech & Agri Tech in helping the poor
- Guest speakers (BE Alumni)
  - Supisara Hongkou (Deemoney)
  - Nattasorn Tanpichai (Pamathegardener)

**'FinTech'**: update trends, how fintech helps solving market failure in financial market (for the poor)?

**'AgriTech'**: update trends in Thailand – why not widespread used? Problems on financial access or something else?

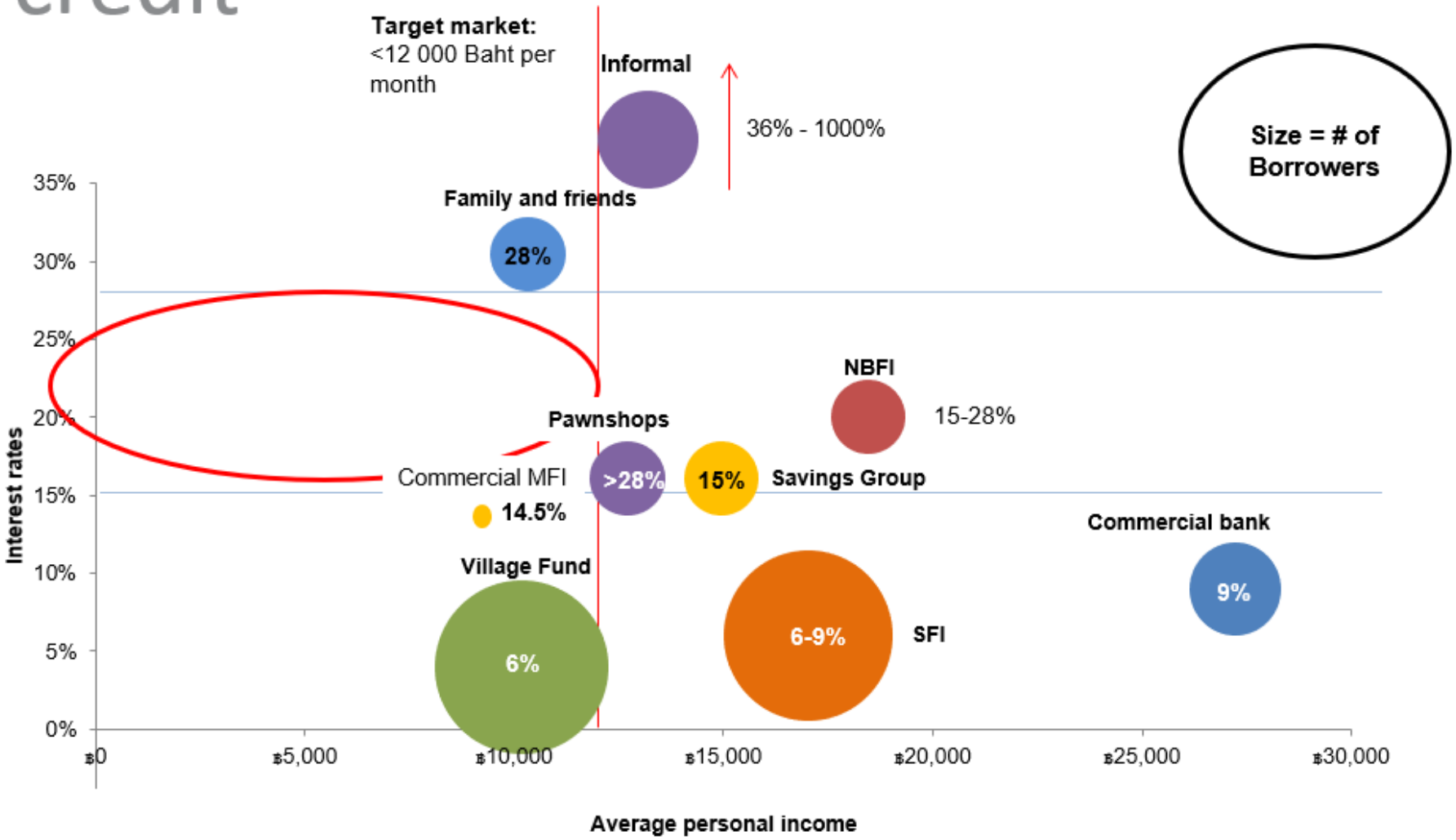
# Landscape of financial service providers in Thailand




*Source: Fiscal Policy Office, 2016*

# Market for credit: cost of credit

Village funds and SFI provide credit in the low-end of the market and commercial banks in the upper end. **No market for commercial bank MFIs in the same space as Village Funds and SFIs.**

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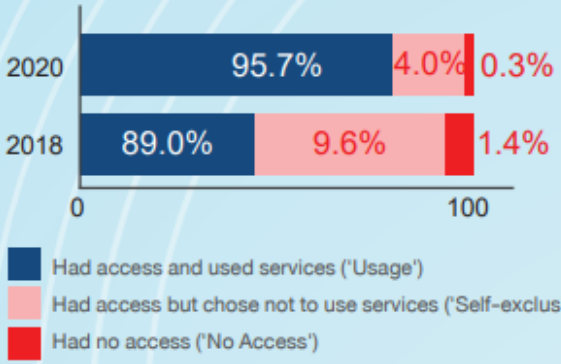
*Source: FinScope 2013*

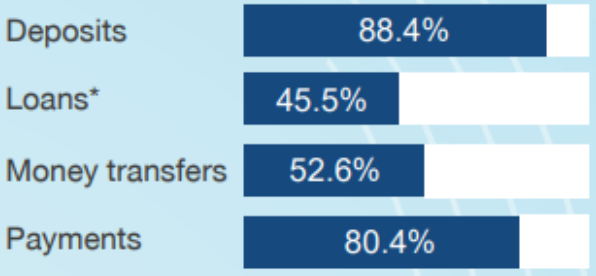
# Survey findings

## 2020 FINANCIAL ACCESS of Thai Households

### Access levels and usage of basic financial services




Over 99% of Thai households had access to basic financial services. No-access households were those with insufficient income and those who were unfamiliar with financial products.

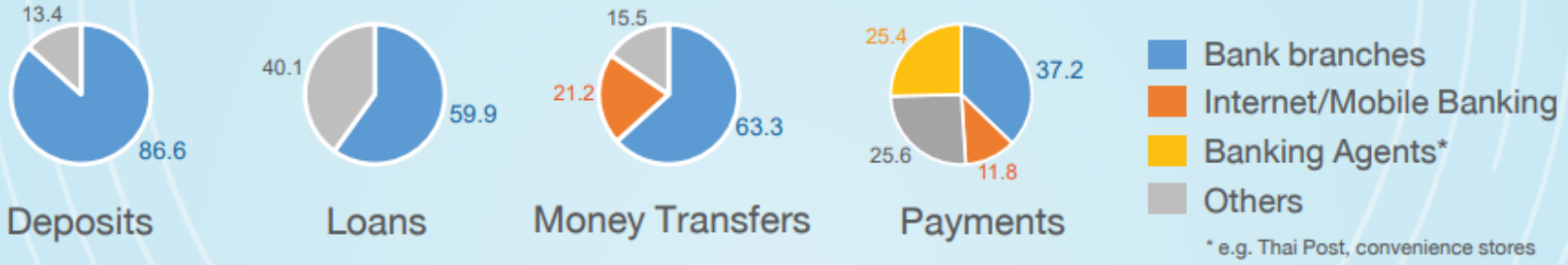



* excluding credit cards

*Note: 11,889 households were surveyed in Q4 2020.*

*The survey is conducted biennially by the BOT and NSO.*

### Service channels




https://www.bot.or.th/English/FinancialInstitutions/Highlights/Pages/FinancialAccessSurveyOfThaiHouseholds_2020.aspx

## Figure 1: Overview of financial access (11 financial services)

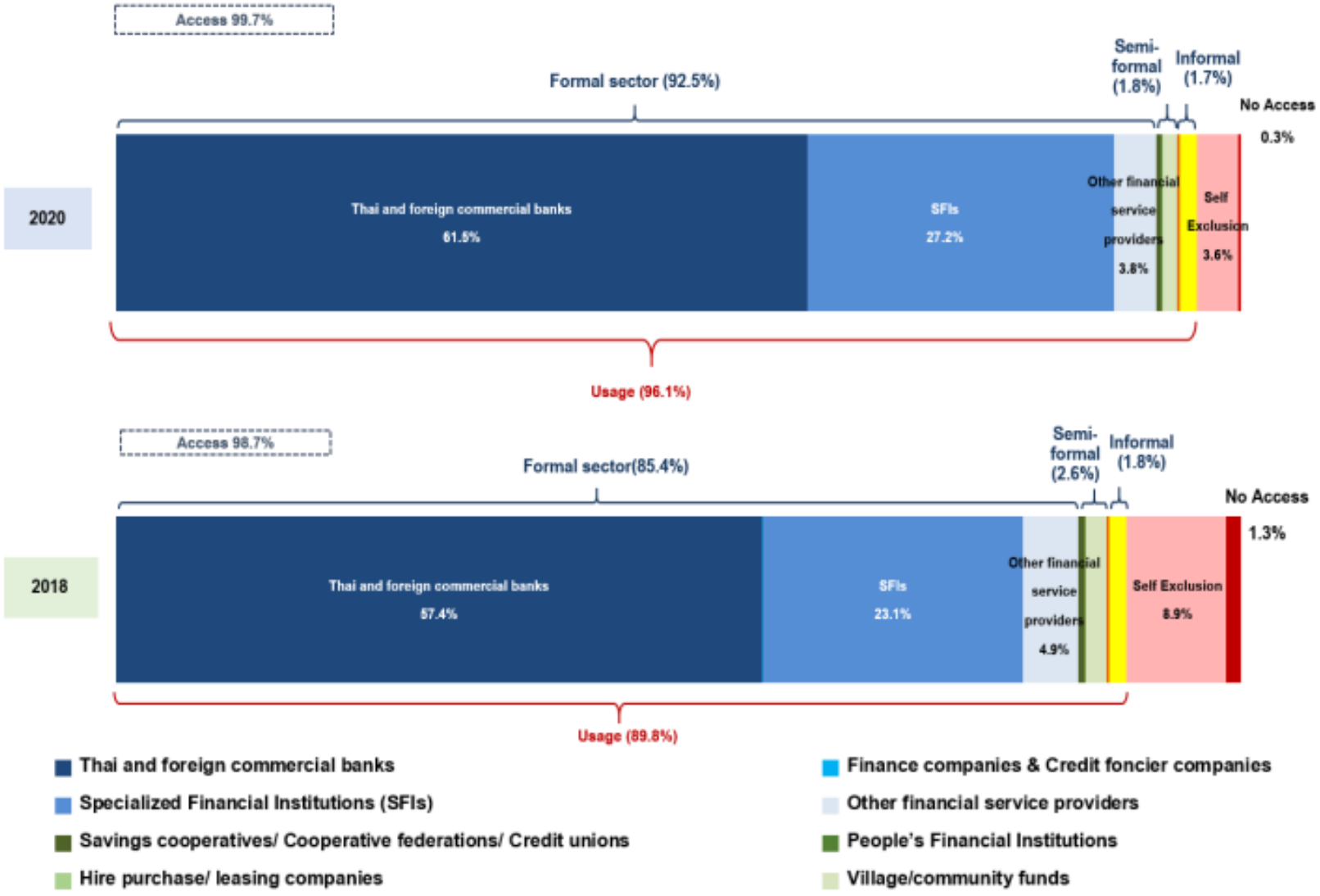
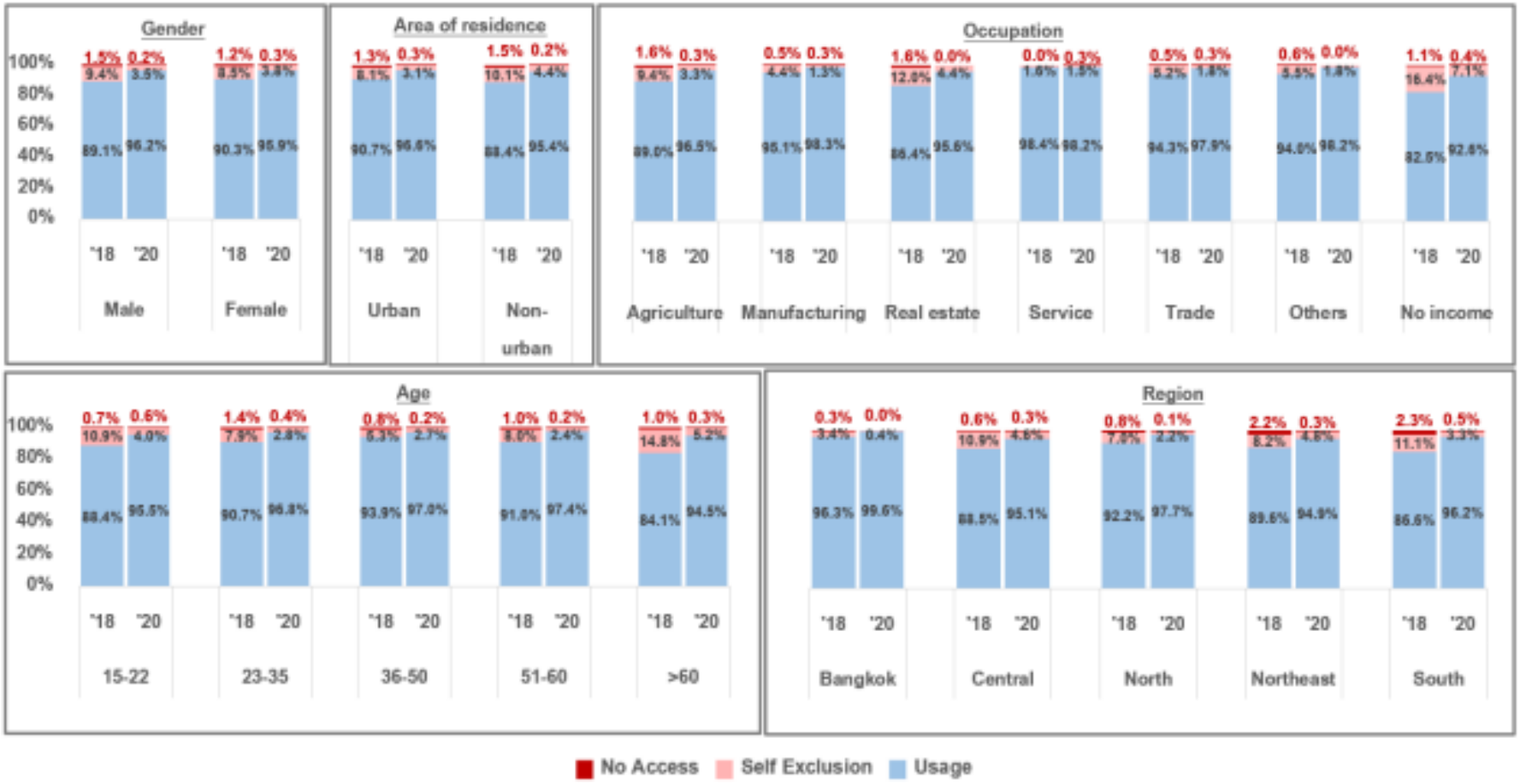
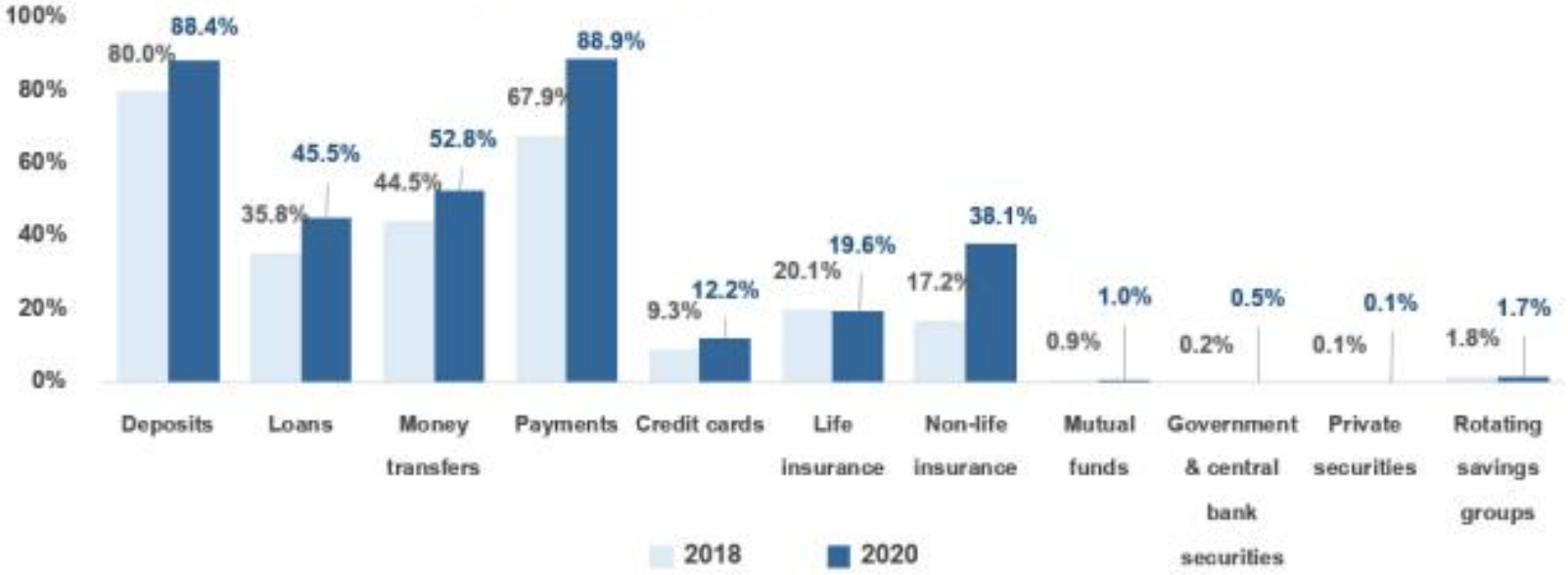


Figure 2: Access to 11 financial services, by gender, area of residence, occupation, age, and region



The 4 financial services most used by households were (1) payments (88.9%), (2) deposits/savings (88.4%), (3) money transfers (52.8%), and (4) loans (excluding credit cards) (45.5%). Most other services saw a rise in usage rates, particularly non-life insurance and credit cards. (Figure 3)

Figure 3: Usage of financial service, in percentage share



# Household debt & Informal debt

## Household debt

Age group with high household debt

36-60

Occupations with high household debt

Agriculture | Civil servants

### Financial vulnerabilities

Given a 20% income drop, 60.8% of households would face an income shortfall.


## Informal debt

Age group with high informal debt

over 36

Occupations with high informal debt

Service | Trade | Civil servants

Acquired informal debt for consumption and business operations, owing to its quick processes and lack of collateral requirements

### Behaviors of households with informal debt

- 12.0% of households with informal debt did not save before spending.
- 3.0% of households with insufficient income attempted to overcome their income shortfall using informal debt.

# Which product attributes are most liked and disliked and why (1)

- Loans are the most contentious of financial products
- “Low payment amount” is most important; will pay high informal rates if required
- The poor require greater flexibility on loan repayment schedules to fit income flows
- The poor require alternative forms of collateral
- Proximity to financial service is a concern for the remote rural
- Group guarantees “good” and “bad”. Good in that it provides alternative to collateral; bad in that it excludes people who suffer from discrimination and cannot find group

# Which product attributes are most liked and disliked and why (2)

- The poor require greater responsiveness by financial institutions to urgent needs
- Need easy-to-understand loan conditions
- Generally, people are satisfied with loan sizes from formal financial institutions
- Government banks provide slow service
- Consumer loans, both from formal and informal sources, are increasingly popular
- People know savings is important but think they do not have ability to save or the amount of their saving is insignificant

# Financial literacy: respondents' views

- People feel financially "stressed" when managing their money
- People put little emphasis on long-term saving
- "Fear of debt" and lack of understanding hamper responsible borrowing
- Lack of awareness of how to safeguard consumer rights and grievance channels
- Confusion and mind-set barriers to using new products and services

# Some takeaways

- Opportunities for new and better-tailored products
  - To encourage long-term savings, e.g. integrate National Pension Fund with existing village fund and saving groups networks
  - To help better cope with risks, e.g. insurance against crop failures
- Key to debt management is to prevent runaway debt
- Disclosure standards should be improved and rules for responsible marketing designed and enforced
- Stand-alone financial education tools are not enough; need proper incentives and integrate education into product delivery to create financial capabilities

# Some potentials for innovation

- Expand 'proof of income' to expensive assets e.g. motorcycle queue jackets
- Expand services to accommodate non-Thai citizens e.g. hill tribe people, and people who are barred because of social stigma e.g. sex workers
- More extensive mobile banking
- Easier-to-understand disclosure of interest rates and fees

www.salforest.com/banking

# FinTech diversity and scope

# AgriTech

| Technology Innovation | Description | Potential Benefits to Farmers |
|---|---|---|
|  Biotechnology | Wide range of tools, including traditional breeding techniques that alter living organisms, or parts of organisms, to make or modify products; improve plants or animals; or develop microorganisms for specific agriculture uses. Some examples include pest resistant crops, genetics, nutrient supplements, antibiotics, vaccines | Improved crop yields, reduced vulnerability to environmental issues, increased nutritional qualities of food crops and reduced dependence on fertilizers |
|  Mobile Phones | Designed to allow people to communicate wirelessly almost everywhere at all times and are transforming how individuals conduct business and interact socially. Mobile phones serve as a key distribution channel for information and financial services | Allow farmers to gain access to vital information about prices of crops and instant weather information to properly manage crops. They also serve as the main distribution channel for financial products such as loans, insurance, savings and a means to make payments |
|  Internet / Connectivity | Refers to the different ways to connect to the Internet – mobile phones, tablets, Internet of Things (IoT) or computers. Also includes the latest connectivity standards such as 5G. | Brings new information resources and can open new communication channels for rural communities. Other benefits include increased efficiency, less duplication of activities, and global access to information |
|  Data Analytics & AI / ML | Refers to the analysis of exponential amount of structured and unstructured data by using different techniques / methods such as AI and ML. AI refers to the analysis of data to model some aspect of the world by using computers and models that learn from the data in order to respond intelligently to new data and adapt their outputs accordingly | Enables farmers to manage key resources including seed and fertilizers, while increasing productivity. The tremendous amount of data generated can also be used with AI / ML techniques to make informed decisions and predictions. |
|  IoT Software & Hardware | Refers to the global network of billions of Internet-enabled devices and machines that are connected to the Internet, collecting, generating and sharing data. IoT sensors are used to monitor different characteristics in the field such as soil moisture, rainfall, and other aspects of the production cycle | Introduces efficiency, precision and automation at various stages of the agriculture production cycle. IoT also enables the creation of real-time monitoring systems, which allows farmers to quickly respond to any significant changes in weather, light, humidity, as well as the health of each crop or soil in the field. IoT sensors and devices generate data that can help farmers make well-informed decisions related to the crops' growth |
|  Robotics & Automation | Refers to the use of drones, satellite imaging, robots and other machines that help automate and improve the farming process such as weed control, harvesting and picking, sensing, imaging and monitoring of fields and sorting and packing | Robots automate slow, repetitive tasks for farmers, allowing them to focus more on improving overall production yields |
|  Blockchain / DLT | Blockchain, a form of distributed ledger technology (DLT), is a decentralized, distributed digital ledger that records ownership and transactions across a network of computers and relies on consensus algorithms and cryptographic methods to add transactions to the ledger in sequential, time-stamped immutable blocks. | Can be used to improve the traceability of crops across the agriculture supply chain, thereby providing transparency throughout the process and potentially reducing transaction costs. Blockchain / DLT promises increased efficiencies through enhanced data management, lower transaction costs, optimized logistics, and enhanced food safety protocols |

Source: Lesly Goh

# AgriTech Business Models

| Business Model | Key Technologies Used | Description | Key Challenges / Problems Addressed | Examples (Case Studies) |
|---|---|---|---|---|
| Farmer Advisory | | Provide advice and information to farmers such as agricultural best practices, market prices, weather forecast through mobile phones / internet. By using mobile phones as a productivity tool, smallholder farmers can enhance their knowledge and skills, improve yields and income | Lack access to information | Twiga Foods (Kenya)<br>Pinduoduo (China) |
| Peer-to-Peer Lending | | Peer-to-peer (P2P) lending platforms serve as intermediaries bringing farmers which need capital to finance inputs and working capital with investors/lenders which want to invest. Loans are mainly done through mobile devices using alternative data such as mobile phone call data records and others to evaluate the credit risk of farmers | Lack access to financial services | TaniHub Group (Indonesia) |
| Traceability | | First mile data collection using IoT sensors and blockchain / DLT to enable traceability of food across the supply chain. Traceability is important since it allows non-compliant (unsafe or off-specification) shipments to be traced back to their source, which can provide incentives throughout the chain to supply improved quality farm produce | Lack of information<br>Lack access to markets<br>Lack access to quality inputs | Twiga Foods (Kenya)<br>Pinduoduo (China)<br>Microsoft FarmBeats (USA) |
| Digital Marketplaces | | Builds direct connections between farmers and consumers through online marketplaces. The result is significantly lower transaction costs as middlemen are removed from the value chain. In addition to efficiency gains, digital marketplaces have allowed smallholder farmers to enter a range of previously inaccessible markets, thus improving competition | Lack access to markets<br>Lack access to quality inputs<br>High search and transaction costs | Twiga Foods (Kenya)<br>Pinduoduo (China) |
| Mechanization | | A range of equipment is available to replace labor on farms and provide important information, from tractors to drones and satellite imagery and IoT sensors. Mechanization platforms have emerged which allow equipment owners to offer the temporary use of agricultural machinery on a digital portal, matching them with farmer customers. Using digital portals improves efficiency as it avoids the ad hoc placement of multiple phone calls and allows more effective scheduling around demand clusters | Lack access to machines and labor<br>Inefficiencies in production | Pinduoduo (China)<br>Microsoft FarmBeats (USA) |

Mobile Phones | Internet Connectivity | Data Analytics & AI / ML | IoT Software & Hardware | Blockchain / DLT | Robotics & Automation

*Source:* Grow Asia, Author.

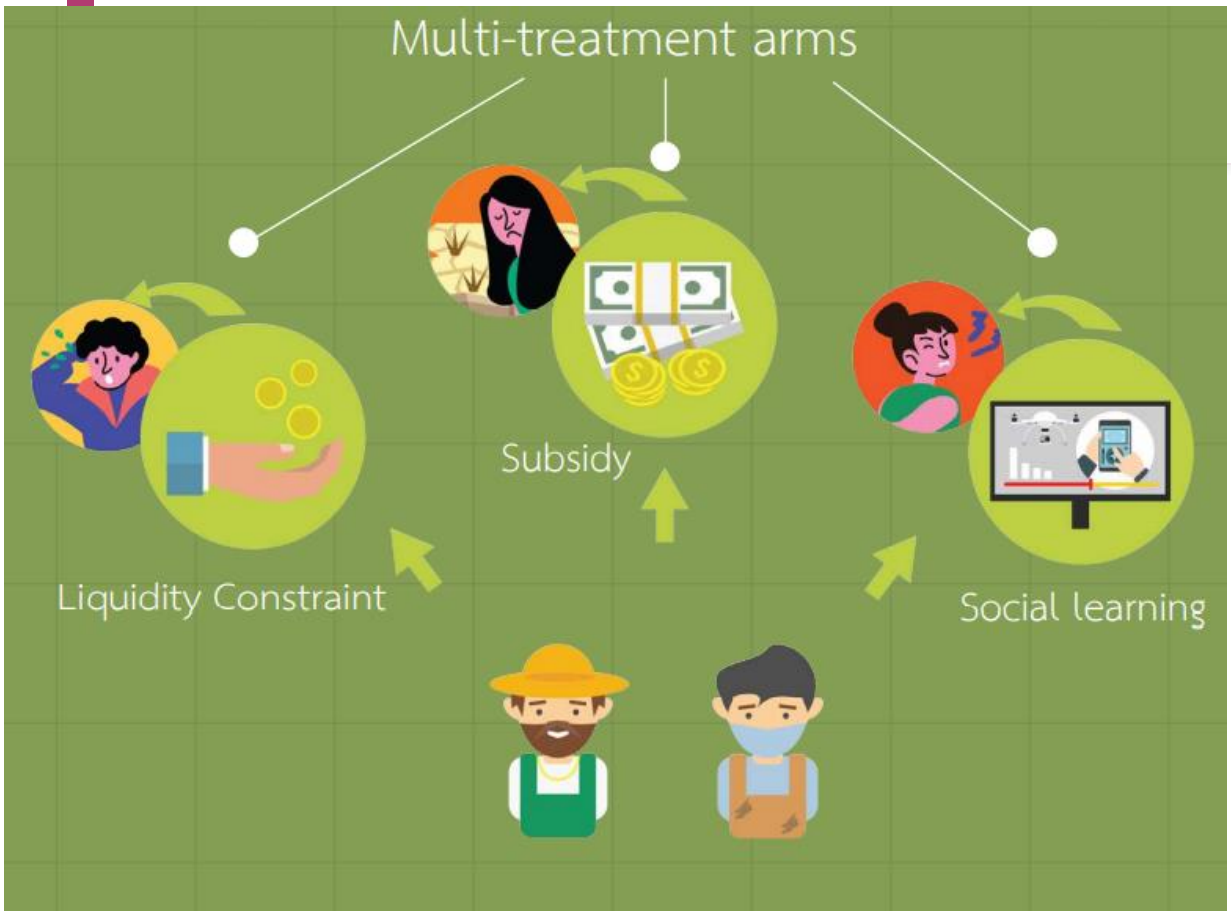
# The AgriTech Startup Landscape in Southeast Asia: Selected Companies by Business Model

| | SEA countries with large smallholder population | | | | |
|---|---|---|---|---|---|
| **Business Models** | Indonesia | Philippines | Vietnam | Thailand | Myanmar |
| Farmer Advisory | eFishery, KARSA, NEURAFARM | TechAguru, Tagani | Mimosatek, AgriHub | LISTENFIELD, algaeba | Impact Terra |
| Peer to Peer Lending | CROWDE, iGrow, Tanijoy | CROPITAL, FarmOn 3.0 | | | |
| Traceability | HARA, KOLTIVA | | agri check, WOWTRACE | VERIFIK3 | |
| Digital Marketplaces | TaniHub, chilibeli, kedaisayur | AGRABAH, Mayani | THUOCTHUYSAN.NET | ricult, 100rai, FARMSTORY | HonesTrades |
| Mechanization Platforms | Sentragro, AGRO DRONE | NEW HOPE CORPORATION | | TALAD APP, GetzTrac | TUNGLOT |

*Source:* Grow Asia.

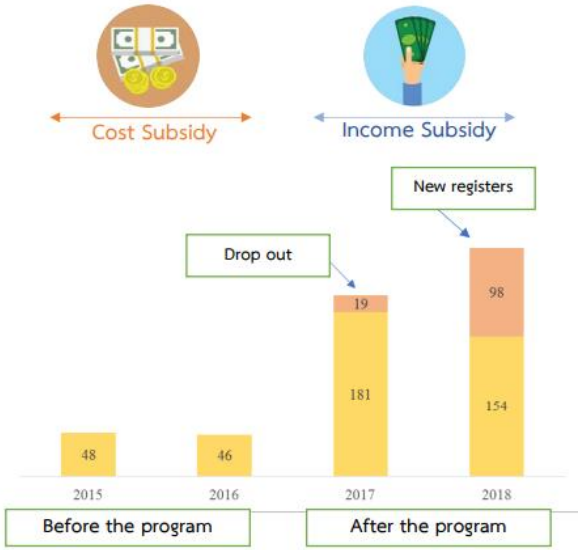
# Behavioral insights in enhancing farmer's use of technology

https://www.pier.or.th/conferences/2019/symposium/
Farms, Farmers and Farming: a Perspective through Data and Behavioral Insights




- Do liquidity constraints prevent technology adoption?
- Could technology adoption be enhanced through social learning by involving farmers closer to the target population as technology promoter?

- Could the risk transfer mechanism through provision of subsidies help alleviate the problem of loss aversion, which hinders the adoption of new agricultural technology?




After implementing the risk transfer mechanism, the number of farmers joining the program significantly increased