

Fintech, Financial Inclusion and the Future of Finance

Emily Williams – Harvard Business School

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FINTECH DEMOCRATIZES ACCESS TO FINANCIAL SERVICES

FINTECH LEVELS THE FINANCIAL PLAYING FIELD

FINTECH UNLOCKS NEW PATHWAYS TO FINANCIAL INCLUSION

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FINTECH UNLOCKS NEW PATHWAYS TO FINANCIAL INCLUSION

Today's talk

- How do we define financial inclusion?
- How do we measure it?
- Who are the financially excluded in the United States?
- Why are certain segments of the population financially excluded?
- How can fintech fill the gap?
- Does fintech fill the gap? Some simple empirical analysis
- What are some emerging technologies and what benefits and risks do they bring?

What do we mean by financial inclusion?

- Financial inclusion aims to ensure that all individuals and businesses, regardless of income or location, have access to affordable, useful financial products and services that help them manage their financial needs

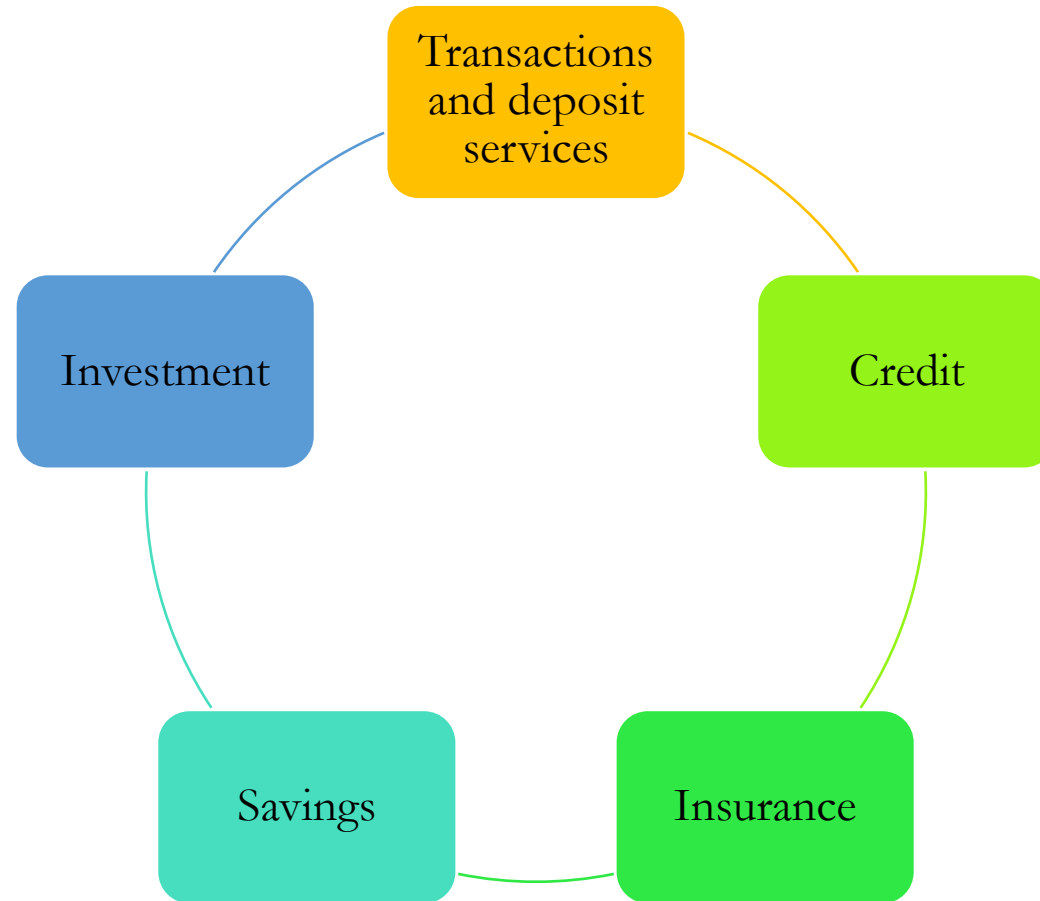
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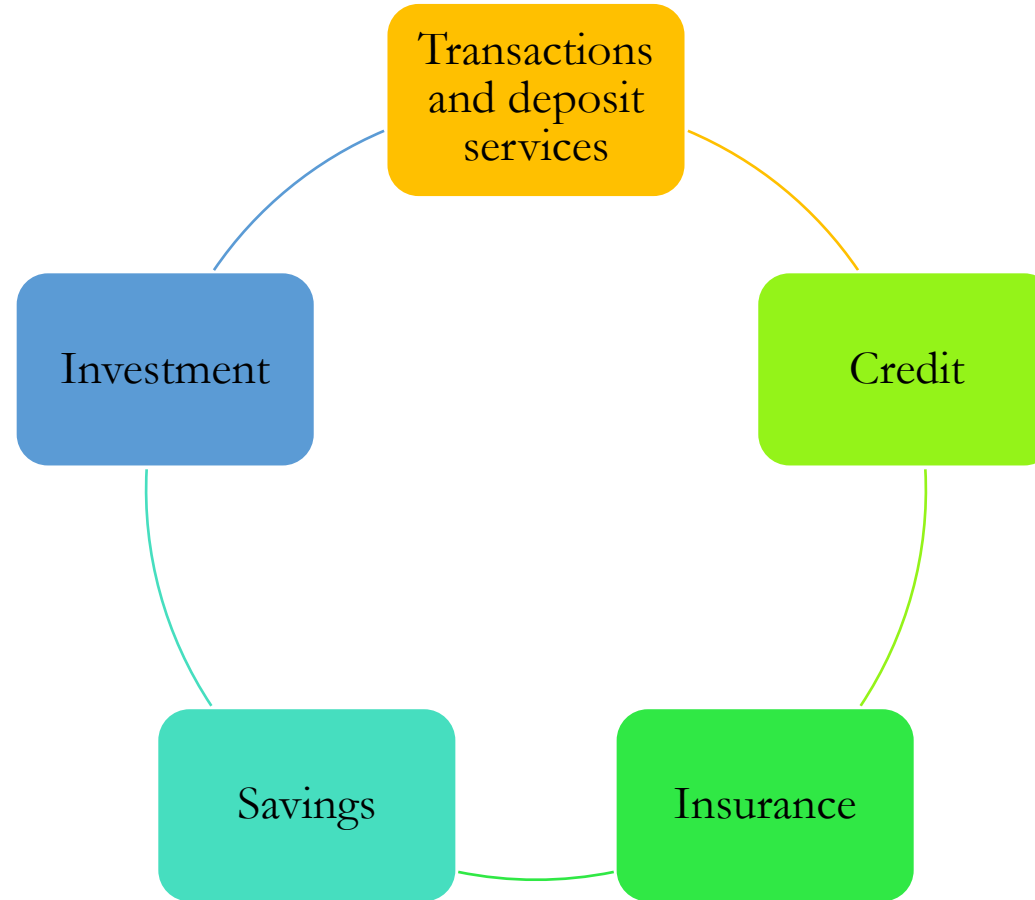
- **Access:** physical access and/or digital access?
- **Affordable:** low cost in absolute terms or cost that is proportionate to income? Immediate cost and/or long term supporting ongoing use?
- **Useful:** help individuals manage their daily needs (such as payments and transactions and credit) and plan for the future (such as savings, investments, and insurance).

A suite of useful financial products

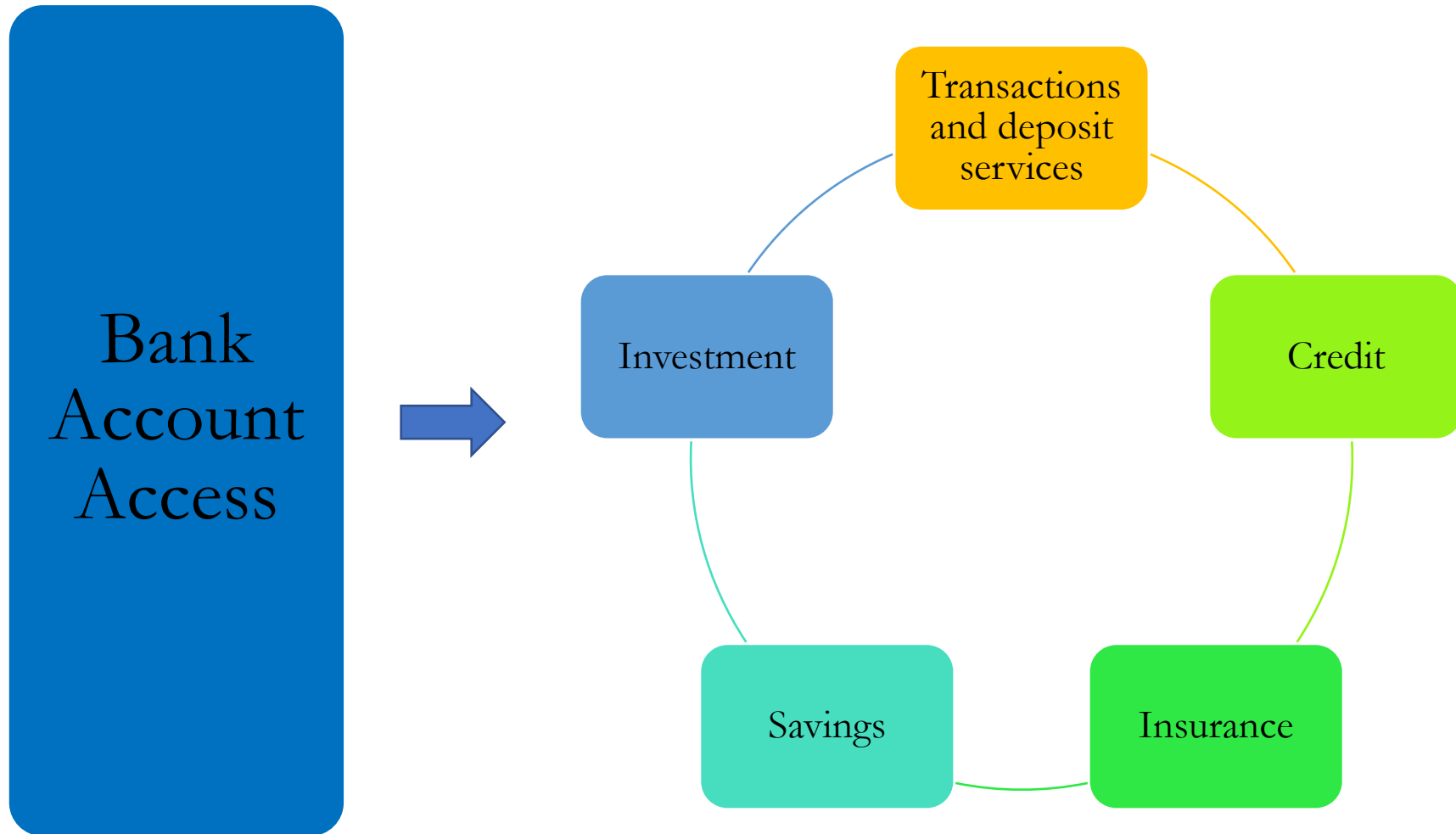


A suite of useful financial products

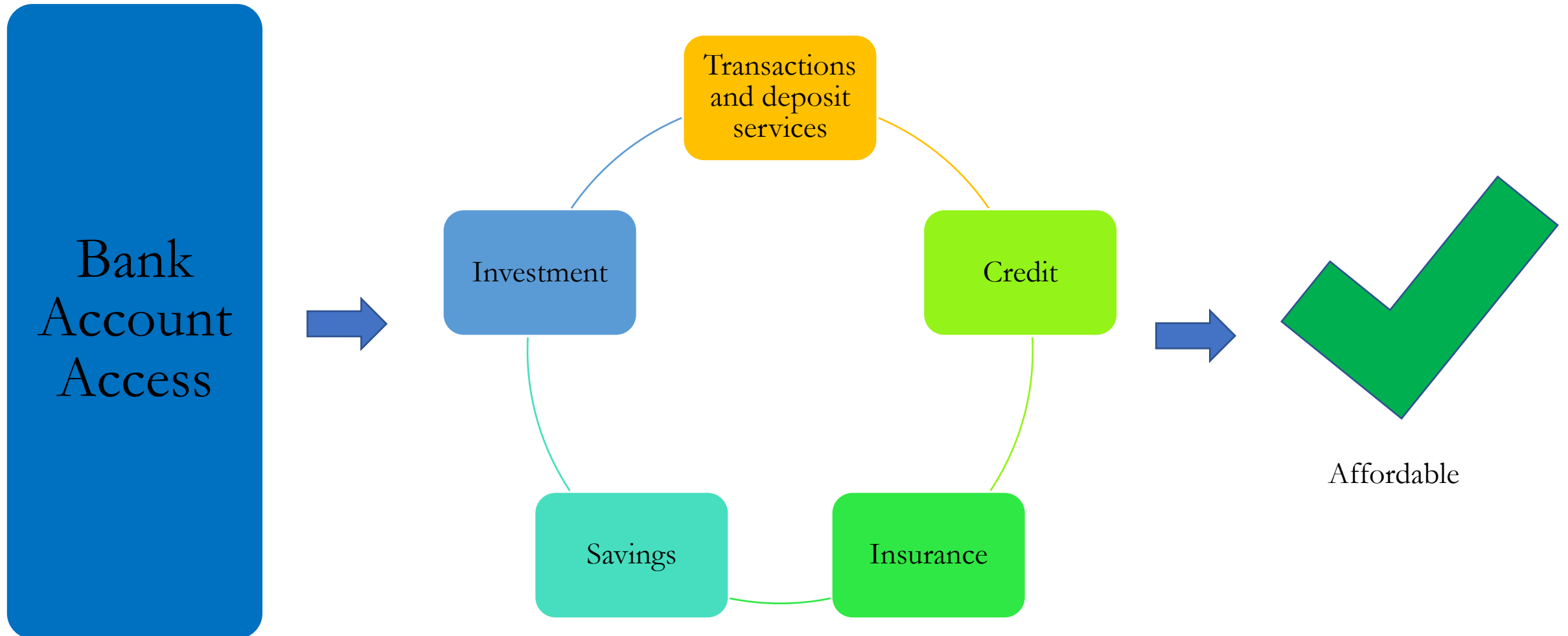
Bank
Account
Access



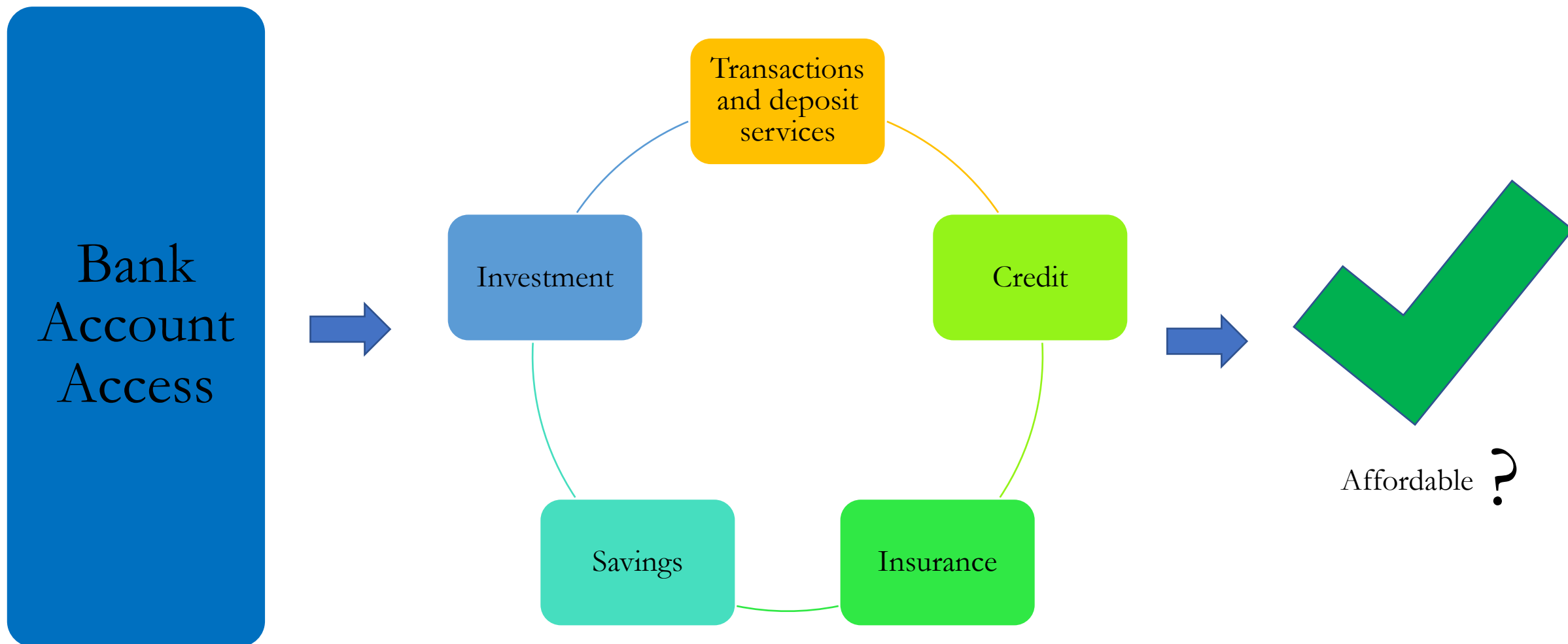
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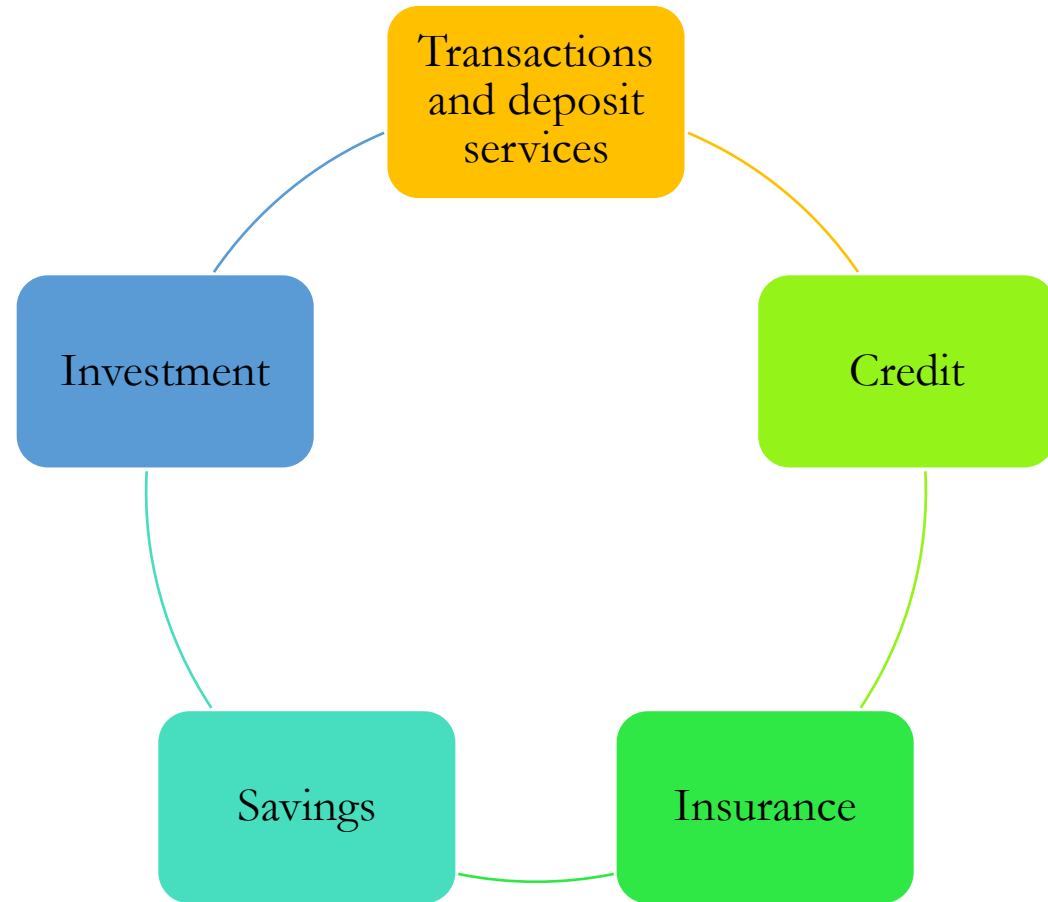
How can we measure financial inclusion?

- How many people in the United States do not have a bank account?
 - Unbanked – 5.9 million households
 - Underbanked – 18.7 million households

Is bank account access the best way to measure financial inclusion?

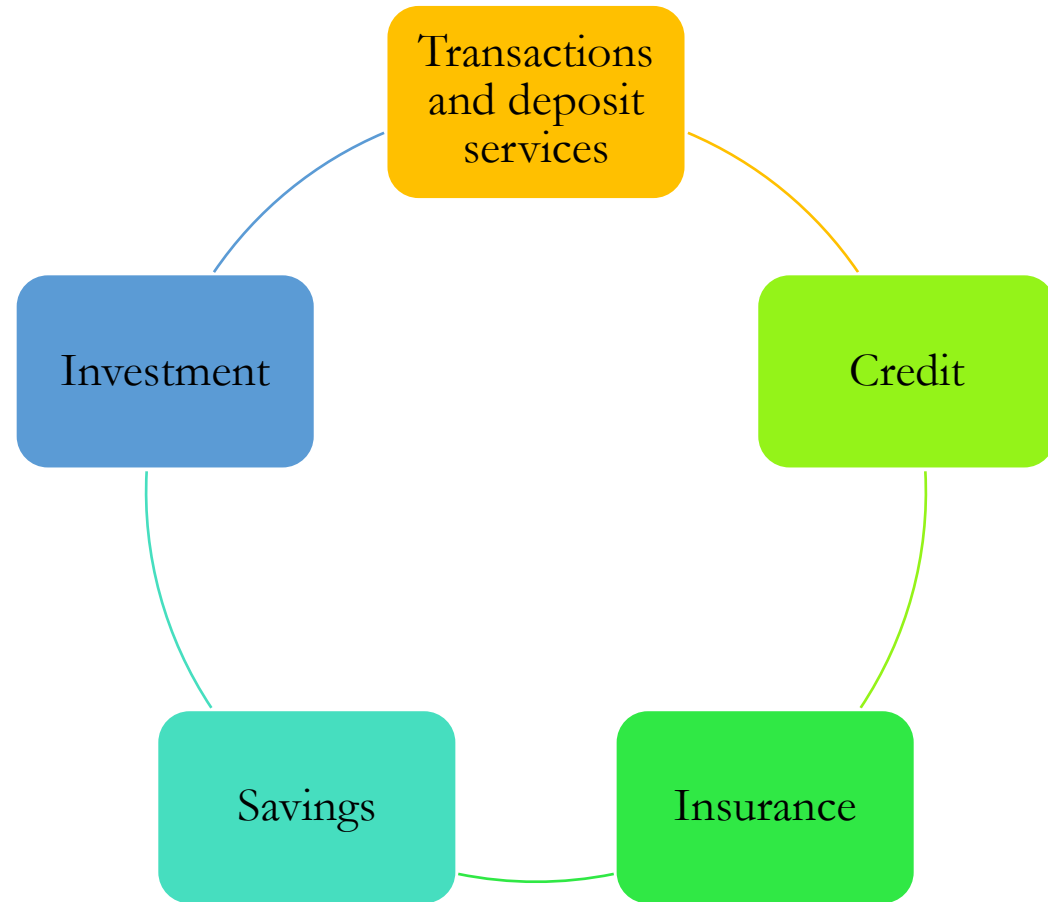
- Underlying assumption is that products offered by banks are affordable
- Is this the case?
- FDIC survey of the unbanked and underbanked, most commonly cited reason for NOT having a bank account:
 - Unable to meet minimum balance requirements (hence incur fees)
 - There are unexpected fees associated with bank account access

How else can we measure financial inclusion?



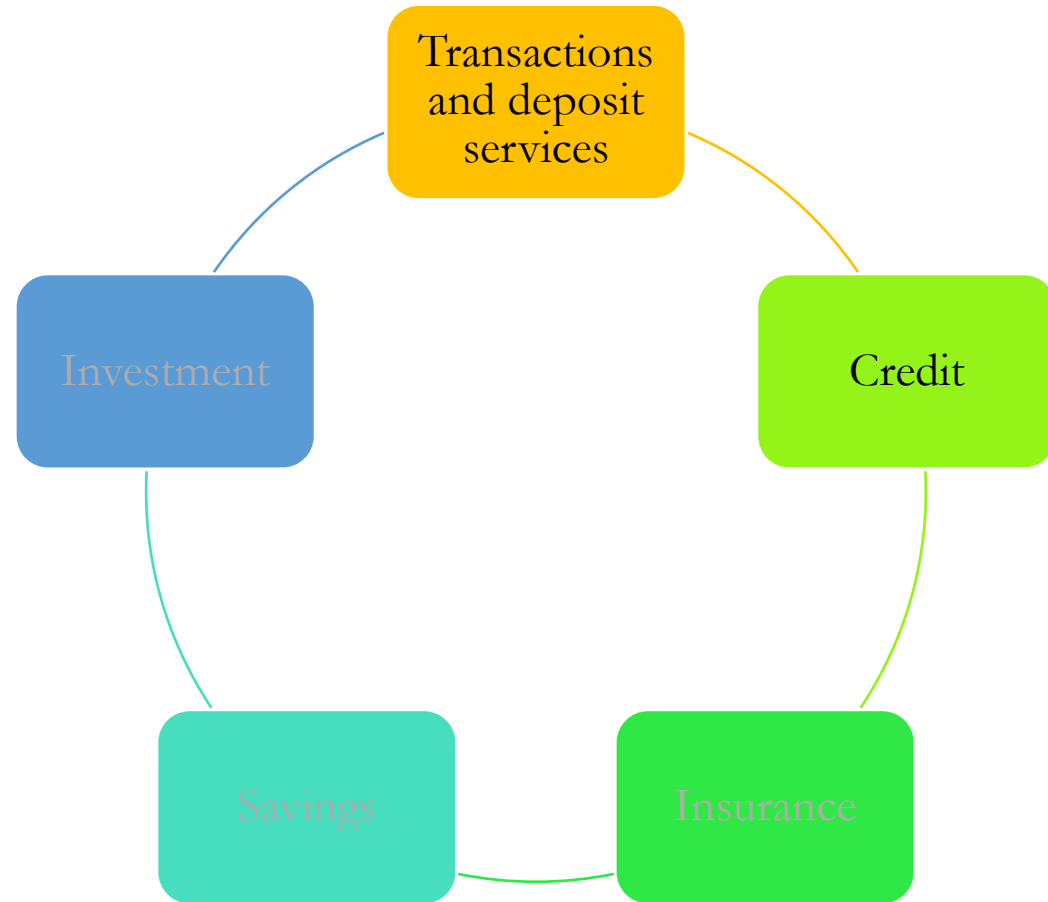
Pre-agreed upon set
of “useful” financial
services

How else can we measure financial inclusion?



Measure **affordability** of a pre-agreed upon set of “useful” financial services

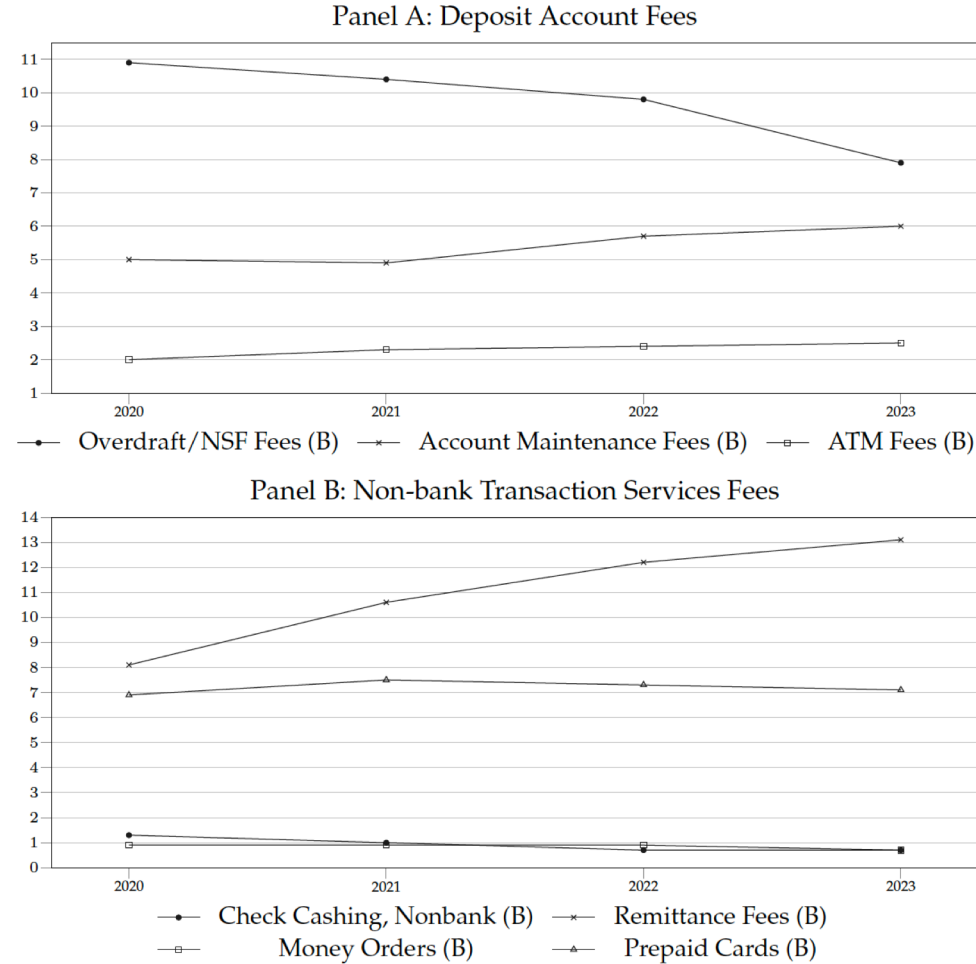
How else can we measure financial inclusion? The Financial Health Network



Measure
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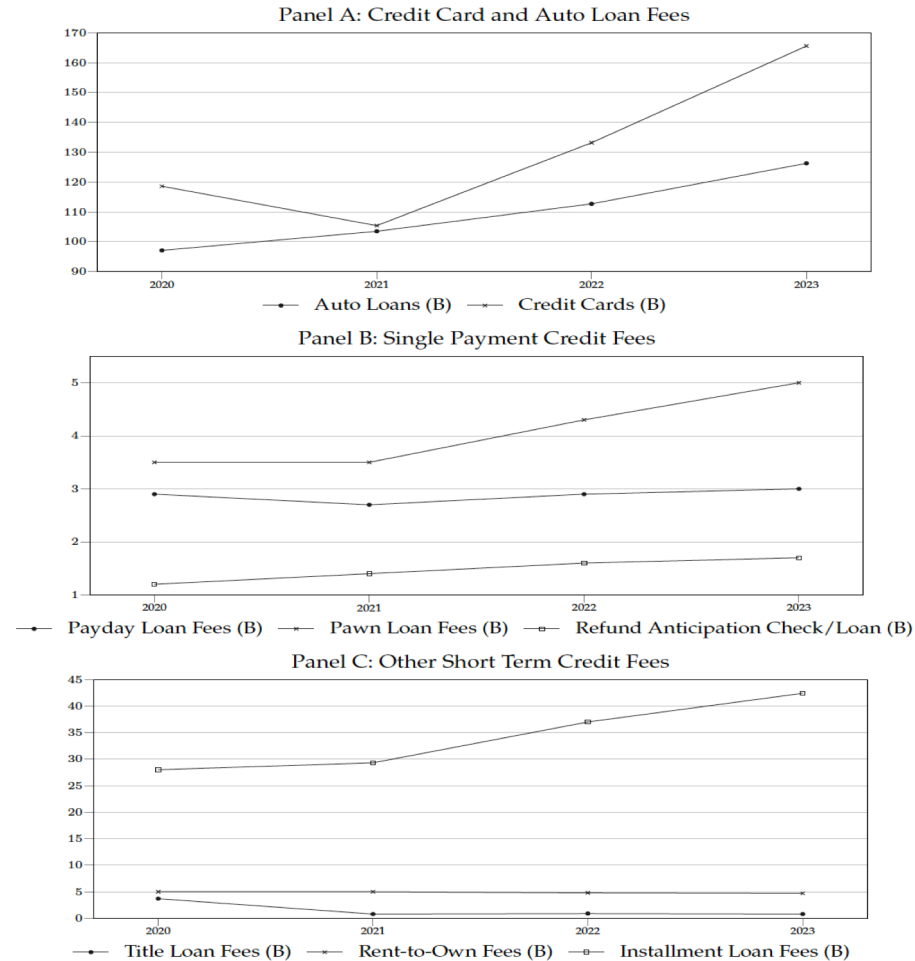
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Transaction
and
Deposit
services



How else can we measure financial inclusion? The Financial Health Network

Credit
Services



How else can we measure financial inclusion? The Financial Health Network

- These are aggregate numbers – how to work out affordability on a per user basis?
- Survey:

Panel A: Percentage of Income Spent on Fees by Financial Health

Year	Healthy Households	Coping Households	Vulnerable Households
2020	1%	5%	13%
2021	1%	5%	14%
2022	1%	5%	14%
2023	1%	6%	16%

Panel B: Percentage of Income Spent on Fees by Race

Year	Black Households	Latinx Households	White Households
2020	6%	5%	3%
2021	7%	5%	3%
2022	7%	5%	3%
2023	8%	6%	4%

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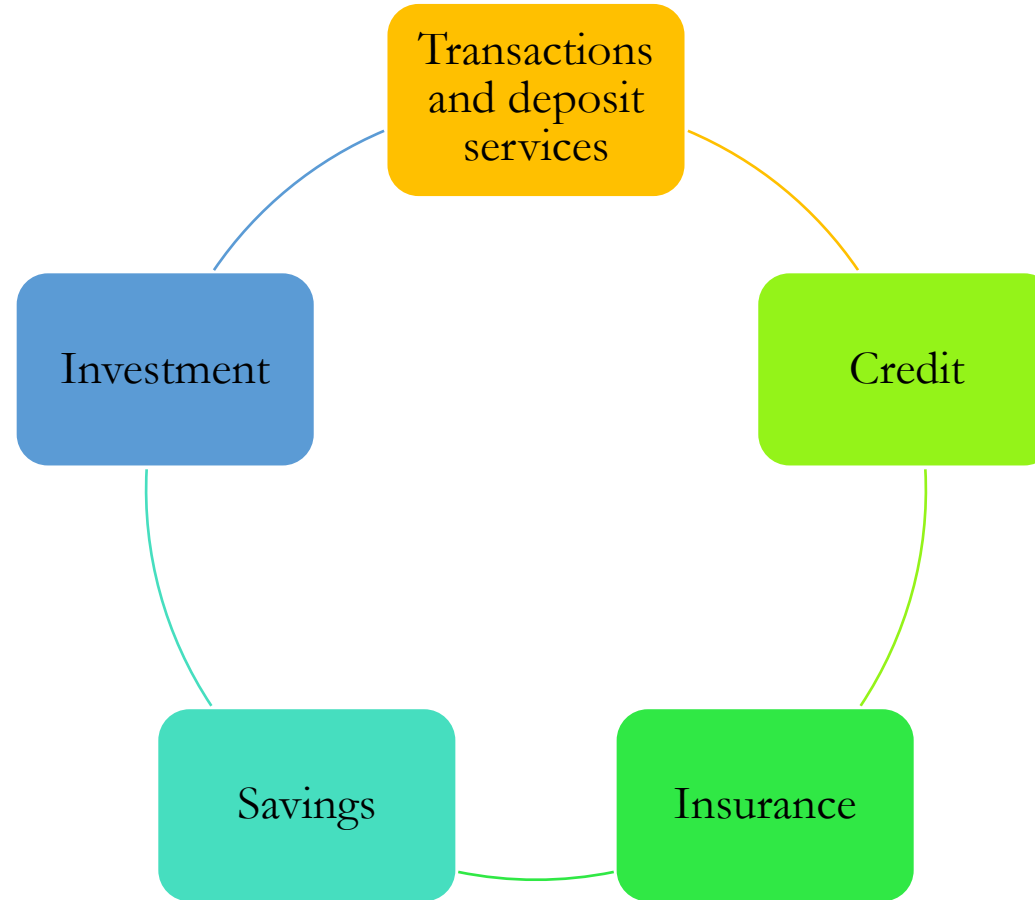
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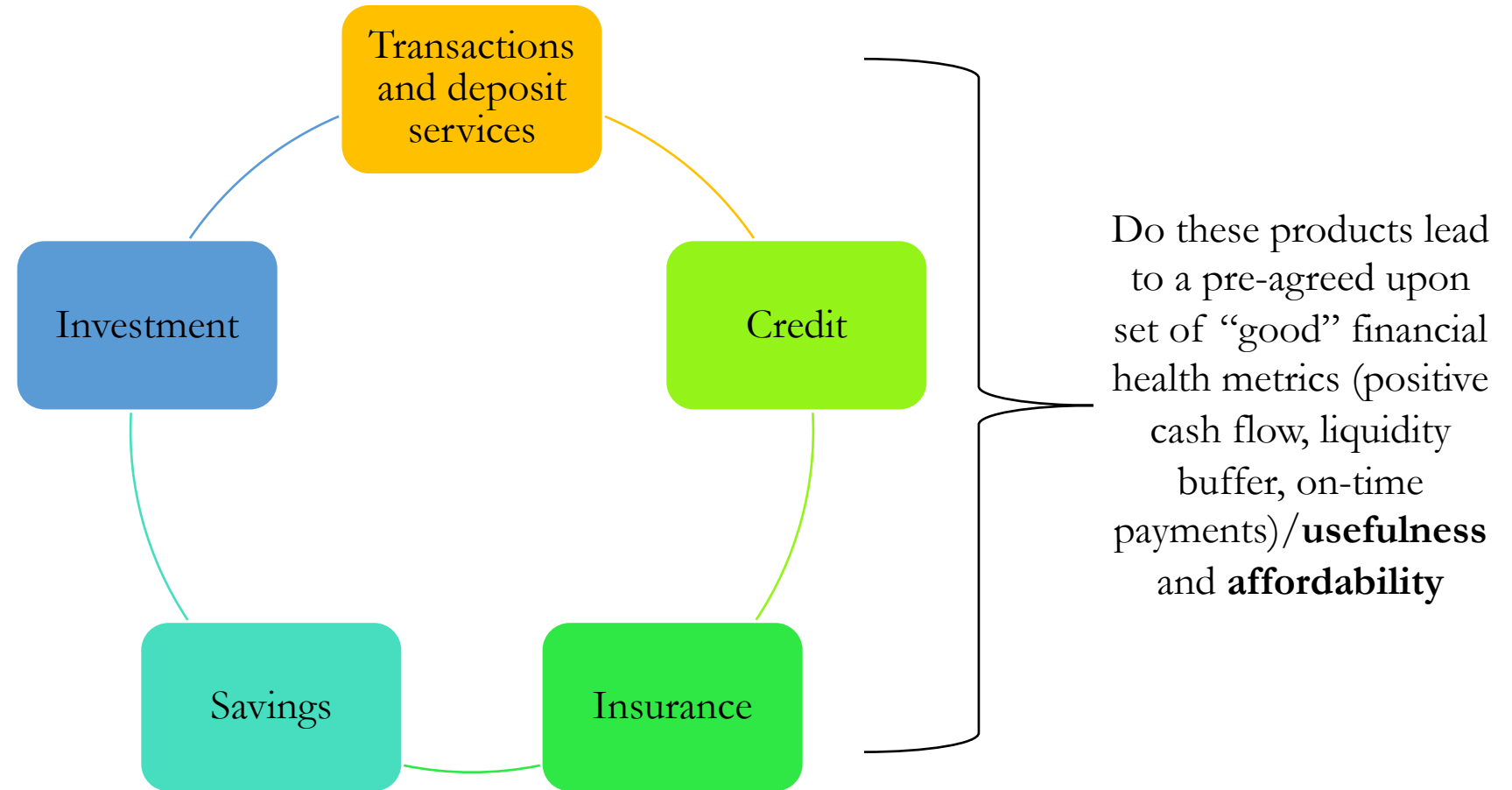
Technically everyone has “some” access to some form of financial service – however the cost of these services varies widely by demographic

How else can we measure financial inclusion? The OCC Vital Signs



A pre-agreed upon set of “good” financial health metrics (positive cash flow, liquidity buffer, on-time payments) representing combined **usefulness** and **affordability**

How else can we measure financial inclusion? The OCC Vital Signs



Key takeaways so far

- Measuring financial inclusion is hard.
- Bank account access/use is one way.
- Affordability i.e. actual direct cost of accessing a suite of useful – pre agreed upon essential financial services – can offer additional insight.

Why are certain segments of the population financially excluded?

- Banks have high fixed operating costs?
- It is challenging to measure and monitor risk for these individuals?
- Some people have no access due to poor physical infrastructure (like physical bank branches, or the internet).
- Some people distrust financial institutions

How can/does fintech solve these problems?

- What do we mean by fintech?
- Fintech – the use of (advanced) technologies to enhance and automate financial services and processes.
 - Artificial intelligence (AI), machine learning, data analytics, blockchain, and mobile technology.
 - Can exist within traditional financial institutions like banks, as well as outside in standalone fintech type firms.

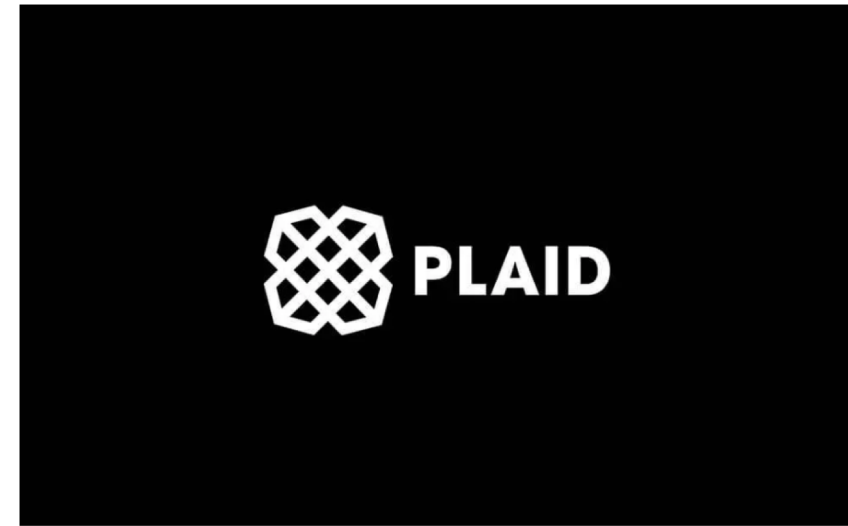
How can/does fintech solve these problems?

- Institutions overcoming high fixed operating costs

The logo for Chime, featuring the word "chime" in a green, lowercase, sans-serif font, followed by a registered trademark symbol (®).The logo for Varo, featuring the word "Varo" in a bold, purple, sans-serif font.

How can/does fintech solve these problems?

- Institutions overcoming risk measurement challenges



How can/does fintech solve these problems?

- Institutions overcoming connectivity challenges



How can/does fintech solve these problems?

- Institutions building trust among excluded populations



What challenges arise with fintech advancement?

- Fintechs are not regulated entities like banks: patchwork of regulation, regulation needs to keep pace.
- Fair lending standards: Alternative data could inadvertently introduce biases.
- Consumer data privacy: always a concern – Open banking regulation (CFPB 1033) certainly helps.

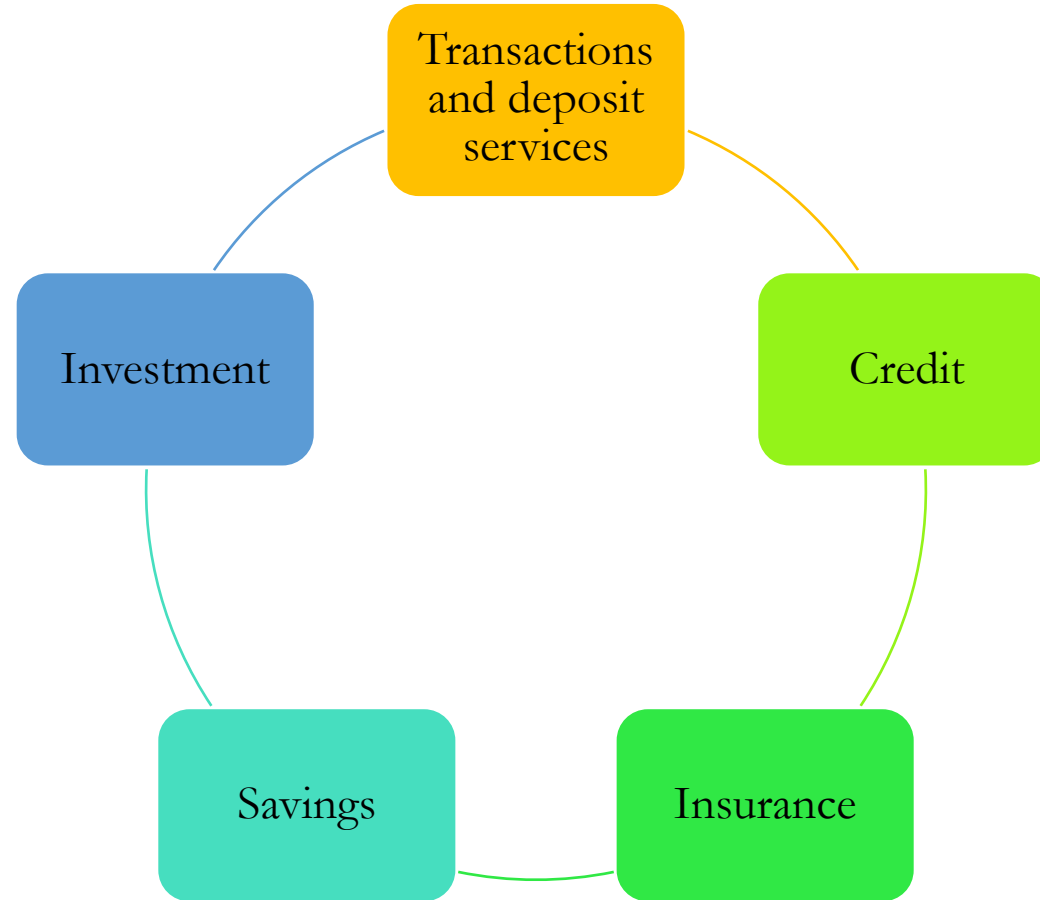
Do we have any evidence that fintech improves financial inclusion more broadly?

- Does fintech access reduce costs of using useful basic financial services?
- Let's try to measure it!

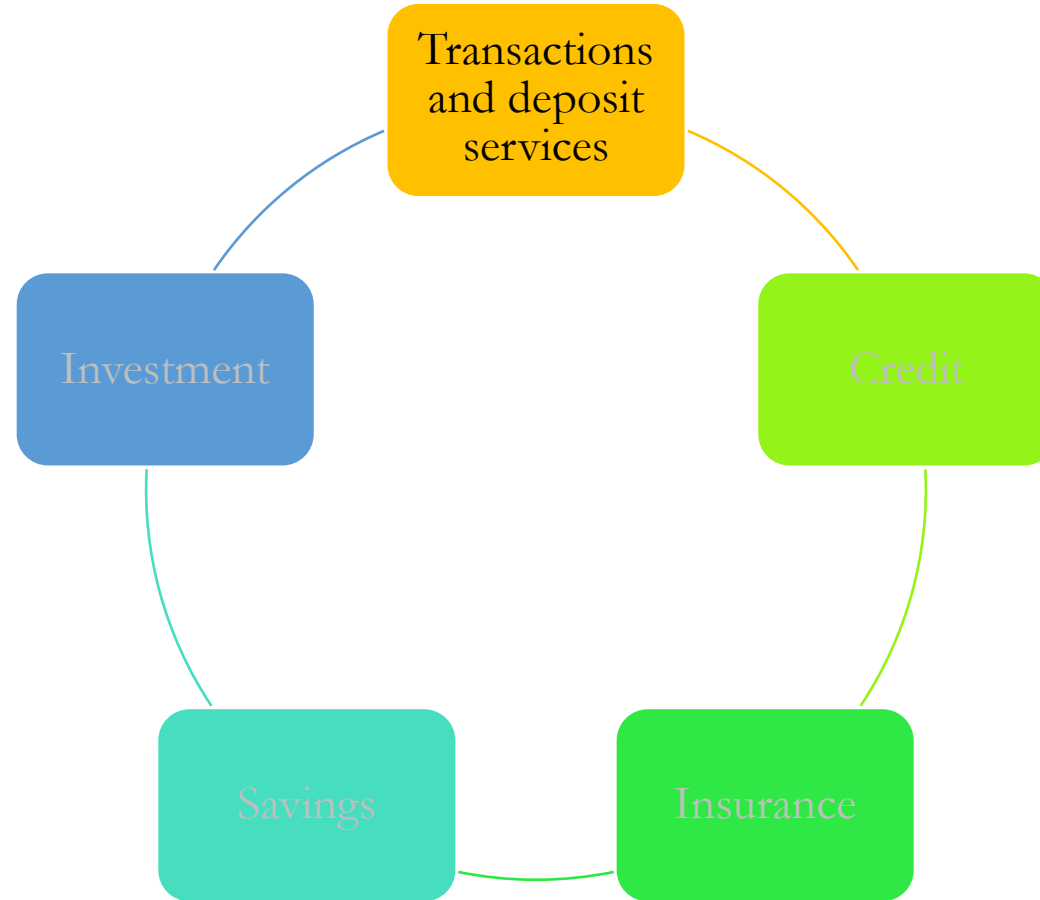
Do we have any evidence that fintech improves financial inclusion more broadly?

- First lets measure cost of accessing some basic financial services.
- Make use of bank account and credit card data I have access to for millions of people in the United States (59m people/90+billion transactions!).

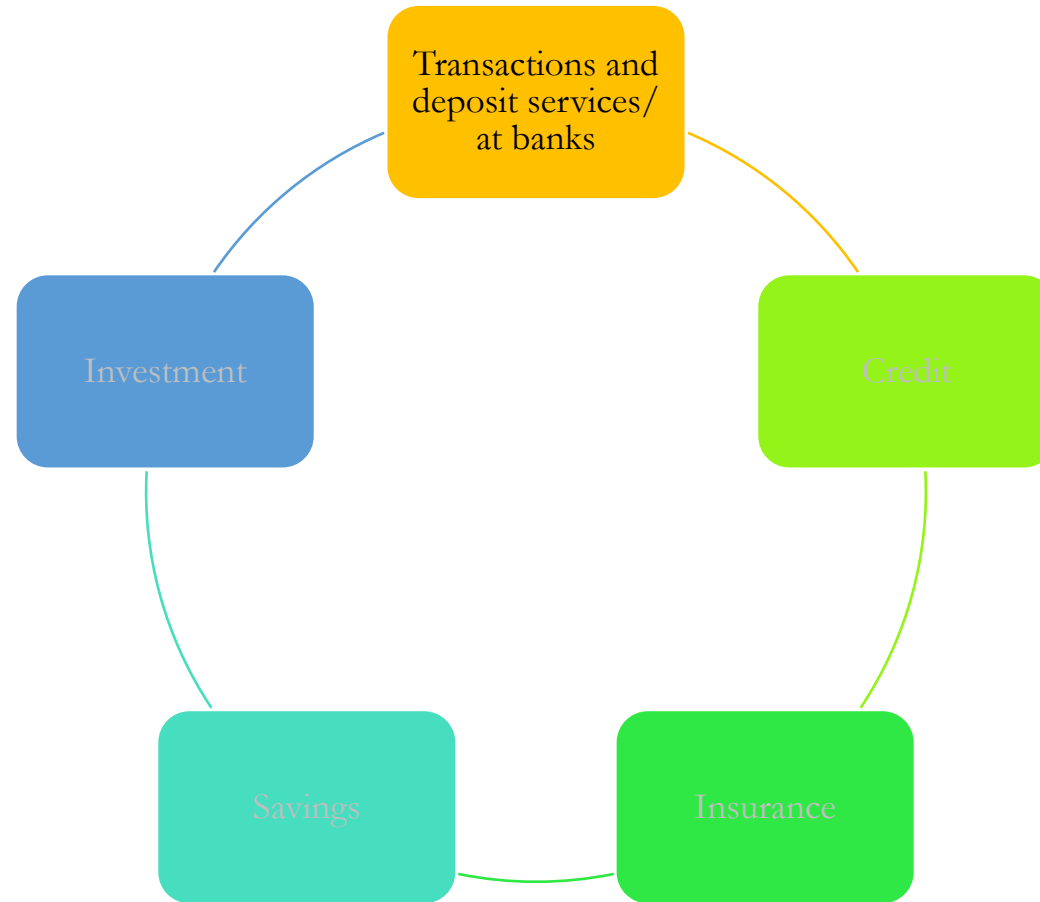
Measuring costs of accessing services



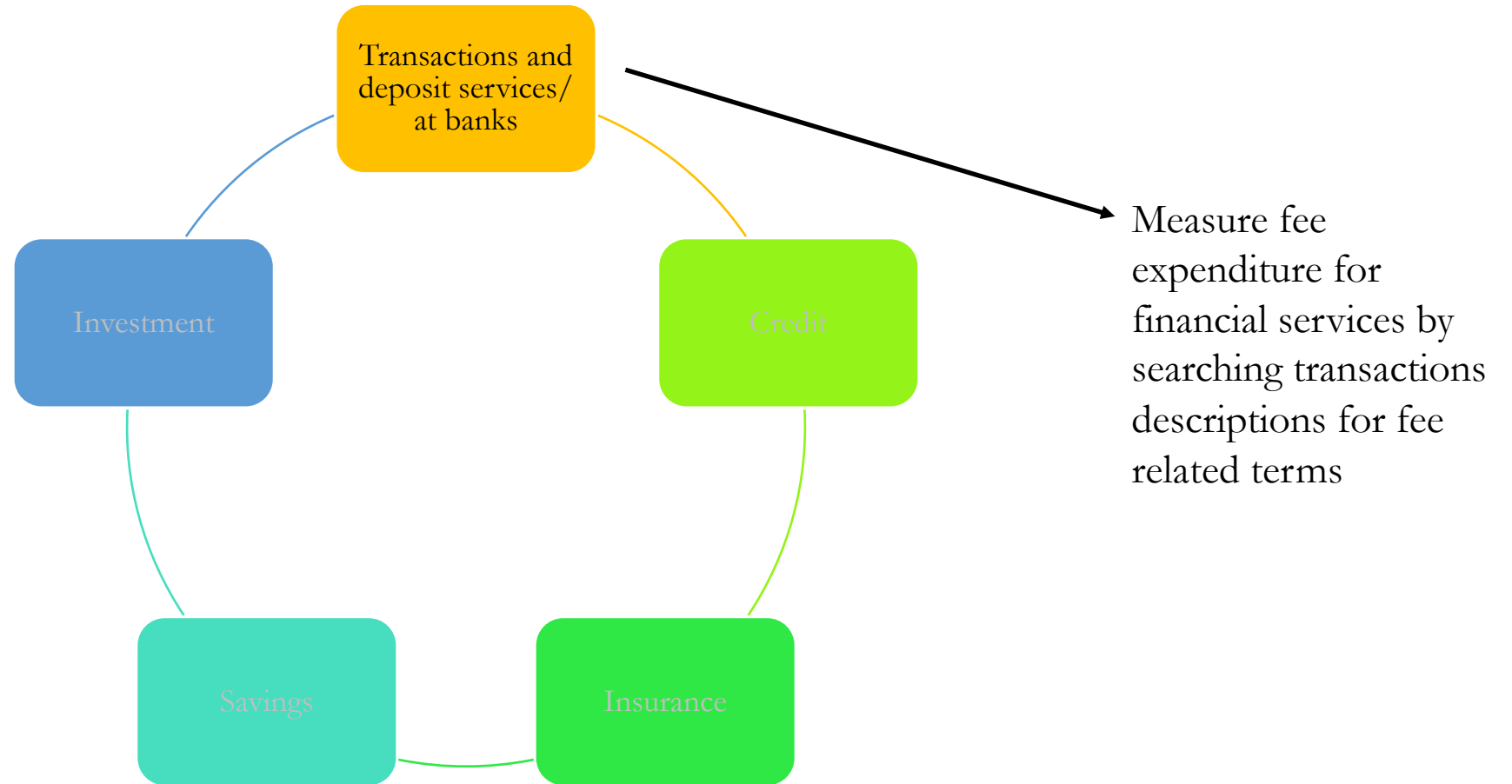
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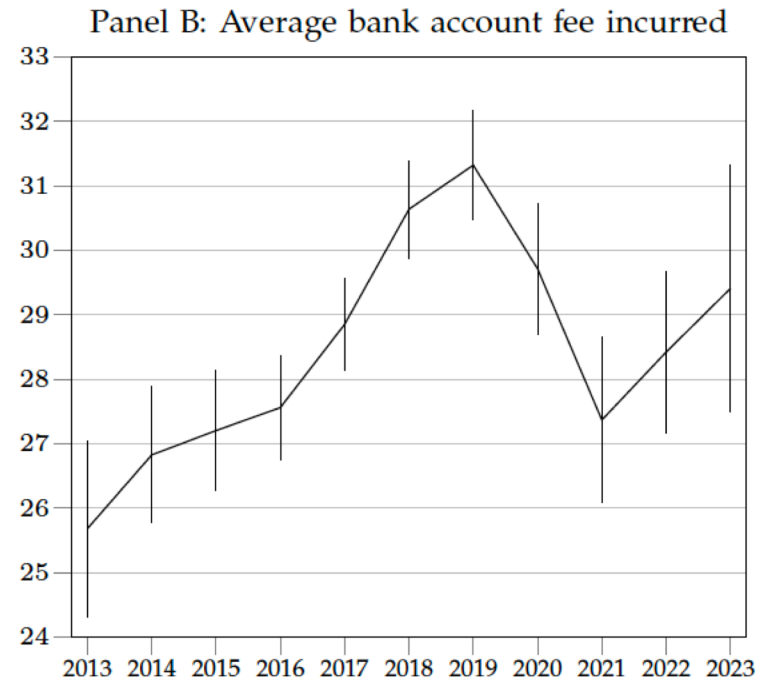
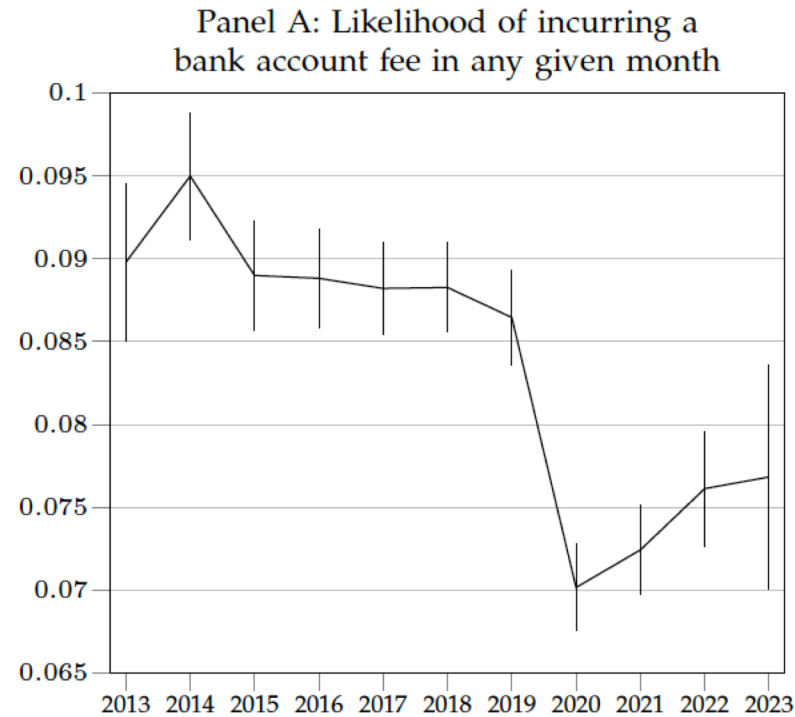
Measuring costs of accessing services

Transaction
and
Deposit
services/at
banks

Fee Type	Definition
ATM	Bank debit transactions where: <ul style="list-style-type: none">• No merchant is specified• Transaction falls into categories: 'ATM/Cash Withdrawals', 'Expense Reimbursement', 'Refunds/Adjustments', or 'Service Charges/Fees'• Description contains both 'FEE' and 'ATM' (case insensitive)
Maintenance	Bank debit transactions where: <ul style="list-style-type: none">• No merchant is specified• Transaction category is 'Service Charges/Fees'• Description contains 'FEE' AND either 'MAINTENANCE FEE' or 'ACCOUNT FEES' (case insensitive)
NSF	Bank debit transactions where description contains any of these combinations (case insensitive): <ul style="list-style-type: none">• 'NSF', 'NS' and 'FEE', 'NON' and 'SUFFICIENT', 'RETURNED' and 'FEE', 'RETURNED' and 'CHECK', 'RETURNED' and 'ITEM', 'NON-SUFFICIENT', 'INSUFFICIENT'
Overdraft	Bank debit transactions where description contains any of these combinations (case insensitive): <ul style="list-style-type: none">• 'OVERDRAFT' and 'FEE', 'OVERDRAFT' and 'CHARGE', 'OVERDRAFT' and 'INTEREST', 'OD FEE', 'OD ITM FEE', 'OD ITEM FEE'

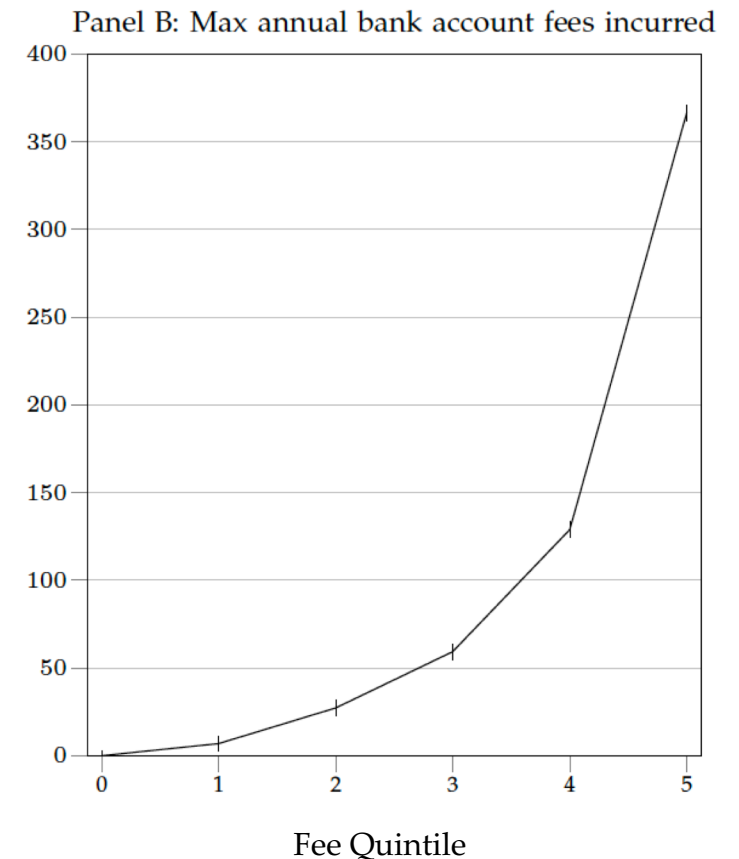
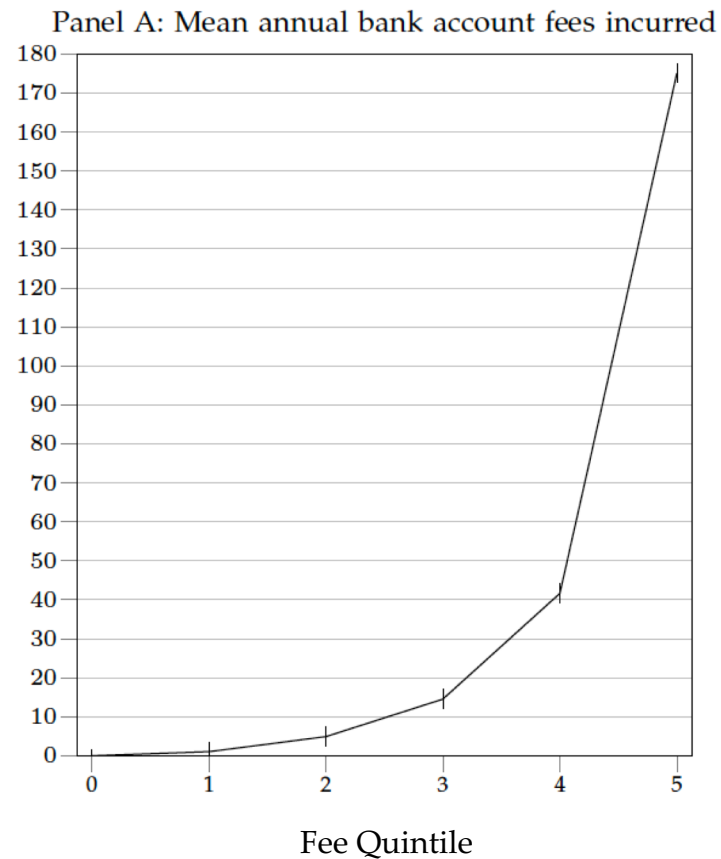
Measuring costs of accessing services

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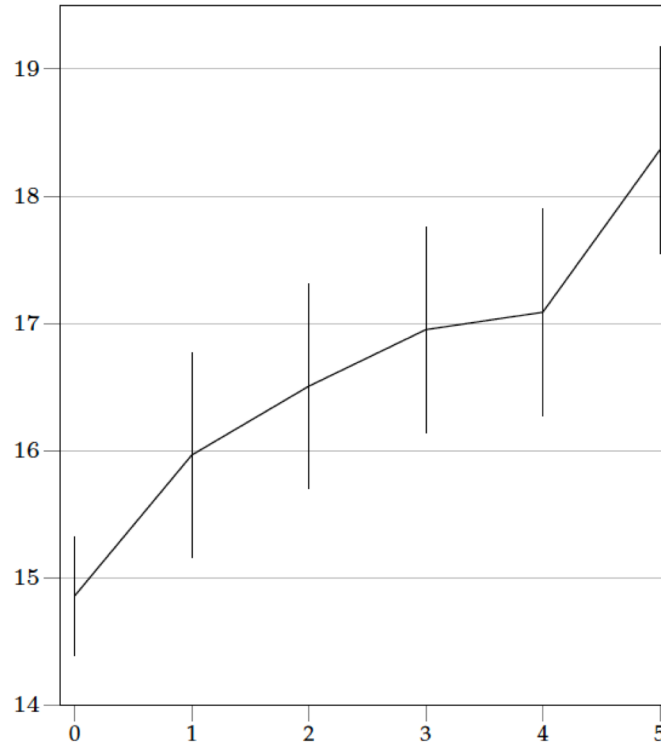
Transaction
and
Deposit
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Measuring costs of accessing services

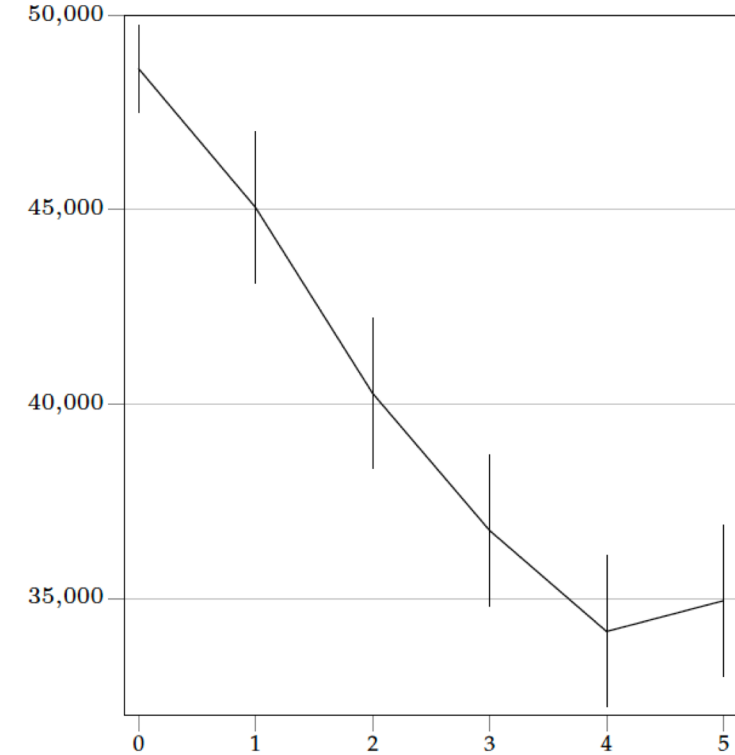
Transaction
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banks

Panel C: Average percent county population Black



Fee Quintile

Panel D: Median Annual Total Income



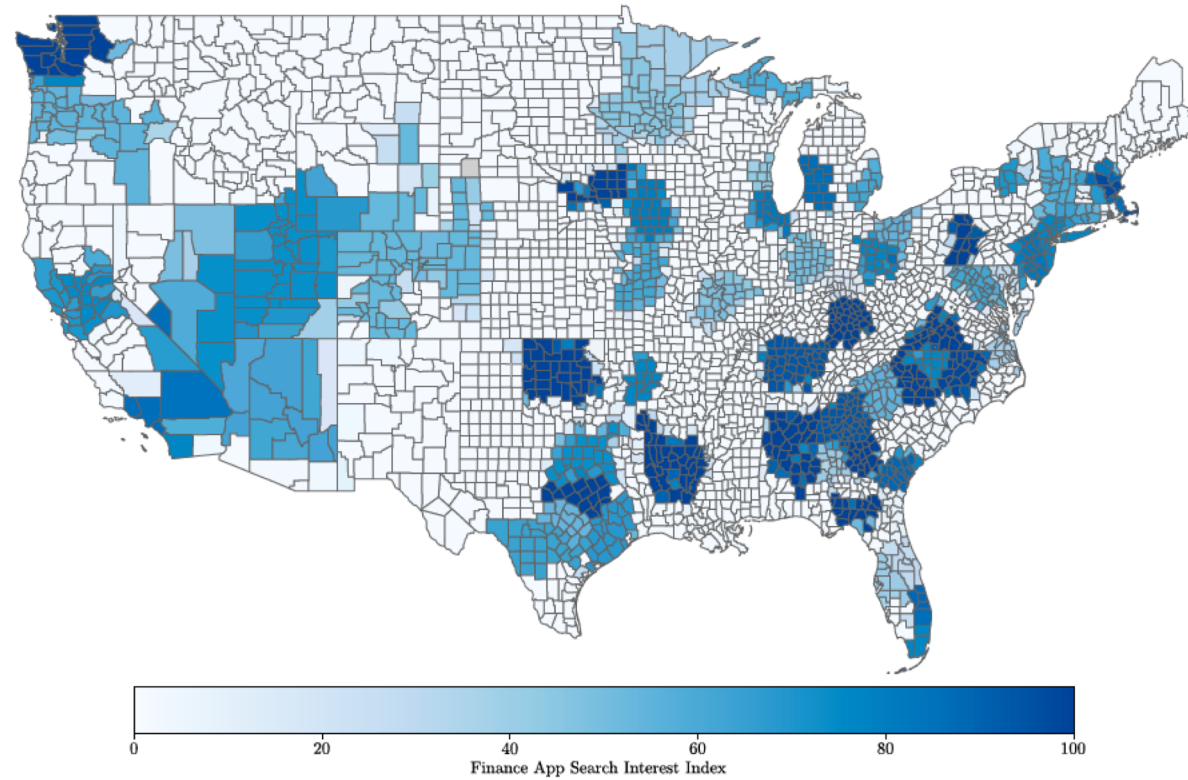
Fee Quintile

Do we have any evidence that fintech improves financial inclusion more broadly?

- Second – how do we measure fintech integration/access/awareness?
- Make use of Google search interest for key terms related to financial technology as a proxy for real fintech integration over time and by geography.

Measuring fintech integration with web search

Panel C: 2023



Maximum search interest index value for each county/year for the term **"fintech app"**

Using fintech web search as an instrument for fintech usage

- Measure “**fintech usage**” in bank account data by searching transactions descriptions for transactions app usage
 - CashApp
 - Zelle
 - Venmo
 - Google Pay
 - Apple Pay
 - PayPal

Using fintech web search as an instrument for fintech usage

Table III. The Impact of Fintech Awareness on Incidence of Bank Account Fees

Dependent Variable	First Stage # fintech transactions	Reduced Form Bank Account Fees/Income	2SLS Bank Account Fees/Income
Web Search Interest (0/1)	4.077*** (0.568)	−0.000125** (4.88e-05)	
# fintech transactions			−3.53** (1.46e-05)
State by Year Fixed Effects	Y	Y	Y
Person Fixed Effects	Y	Y	Y
Observations	60,247	58,560	58,560
CD Wald F-Stat	51.58		
Adjusted R-squared	0.531	0.429	−0.111

High fintech search activity predicts an increase of 4 fintech type debit transactions from the bank account and a decline in bank account fees relative to income of roughly 10% relative to the mean.

Using fintech web search as an instrument for fintech usage

Table IV. The Impact of Fintech Awareness on Incidence of Bank Account Fees: Heterogeneity by Internet Access

	Bank Account Fees/Income		
	Total	Low Income	High Income
Search Interest (0/1)	−3.54e-05 (5.94e-05)	−1.01e-05 (0.000117)	−5.31e-05 (4.23e-05)
Search Interest x High % Internet Access	−0.000187** (9.05e-05)	−0.000317* (0.000165)	−1.66e-05 (5.58e-05)
State by Year Fixed Effects	Y	Y	Y
Person Fixed Effects	Y	Y	Y
Observations	58,560	31,800	26,723
Adjusted R-squared	0.429	0.404	0.384

High fintech search activity predicts a decline in bank account fees relative to income only in areas with good internet connectivity, and for lower income individuals in these areas.

Is this evidence that fintech improves financial inclusion?

- Very preliminary evidence:
 - Does not account for substitution to other products and the costs of these products.
 - Does not measure how fintech expands the pie.
- But does show (if we believe the instrument is valid), for a very specific set of people – already banked – fintech awareness induced use leads to less spending on bank account fees.

Key takeaways so far

- Measurement is important.
- How do we measure financial inclusion?
 - Bank accounts are a decent proxy for access to a suite of **useful** and **affordable** financial products (**FDIC measures of un/under-banked**)
 - Given a pre-agreed upon set of **useful** financial products, how **affordable** are they? (**Financial Health Network Spend Report**)
 - Given a set of financial products and pre-agreed upon measures of good financial health (**affordable and useful**), do these products help people achieve good financial health? (**The OCC's Financial Health Vital Signs**)
- Using metrics for financial inclusion, we can assess how fintech products impact these metrics.