Customer Data Access and Fintech Entry: Early Evidence from Open Banking

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Customer data are key inputs in financial services

Bank-customer interaction generates large volume of customer data:

- Transaction/repayment/income histories (personal accounts)
- Business sales (payment processing)

Customer data are fundamental to relationship banking and bank economies of scope:

- Understanding customer riskiness (e.g., determining marginal costs)
- Understanding customer financial needs (e.g., need for financial advice)

Potential concern: Banks control useful customer data:

- Information monopolies are at the core of relationship banking
- Potential entrants compete with better-informed incumbents
- Thus, bank control of data $\rightarrow$ limit financial innovation/competition

Question: What are the economic consequences of breaking banks' data monopolies?

Economic consequences of breaking banks' data monopolies

Setting: **Open Banking** policies empower consumers to share their financial transactions data from their bank with fintechs and other banks

- E.g., UK Open Banking Initiative (2017)
- E.g., Brazil Joint Resolution CMN-BCB No. 1/20 (2020)
- E.g., US finalized its regulation in October 2024

What do Open Banking policies do?

- Empower consumers to decide who has access to their financial transactions data
- Mandate banks to allow their customers to share their data (via APIs)
- Lower consumers' marginal costs of data sharing close to zero
- Allow fintechs access to verifiable banks' customer data in real time

Regulatory objectives: Innovation, competition, financial inclusion

Main use cases: Financial advice, credit, identity verification, payments

Contributions

Part I. New Data. Open banking (OB) policies around the world
- Database covering 168 countries: OB policies in 80 countries
- Significant heterogeneity in policy choices

Part II. New Findings. Economic effects of open banking policies
- Open banking policies $\rightarrow$ more fintech VC investment (financial advice, credit)
- UK consumers use OB for financial advice and credit; have better financial outcomes
- UK SMEs affected by OB are more likely to get new loans from fintechs

Part III. Model. Aggregate welfare & distributional effects of Open Banking depend on:
- How customer data are used:
  - Financial advice OB: Welfare increases due to improved products:
    - All customers benefit
  - Credit OB: Welfare increases due to reduced adverse selection:
    - Risky customers can be harmed
- Privacy preferences for sharing data (have nonmonotonic effects)

Related literature

Data and data ownership:

e.g., Farboodi, Veldkamp 2019; Jones, Tonetti 2020; Mihet, Philippon 2019; Farboodi, Mihet, Philippon, Veldkamp 2019; Babina, He, Fedyk, Hodson 2023

Our paper: Impact of consumer data availability on financial innovation, consumers, SMEs

Banking & bank regulation:

Open banking: Parlour, Rajan, Zhu 2022; He, Huang, Zhou 2023; Goldstein et al. 2023

Bank regulation: e.g., Claessens, Laeven 2004; Laeven, Levine 2009; Ongena et al. 2013

Credit registries: e.g., Djankov, McLiesh, Shleifer 2007; Hertzberg, Liberti, Paravisini 2011

Our paper: Role of consumer data in banking and bank regulation

IO/Competition/fintech:

Bank/non-bank competition: e.g., Fuster, Plosser, Schnabl, Vickery 2019; Vives 2019; Di Maggio, Kermani, Korgaonkar 2019; Berg, Burg, Gombovic, Puri 2020; Di Maggio, Yao 2021; Gopal, Schnabl 2022; Buchak et al. 2020; Ghosh, Vallee, Zeng 2022

Our paper: Role of consumer data in financial services market structure

Policy, innovation and entrepreneurship:

Can government spur innovation? e.g., Acs et al. 2016; Babina et al. 2023

Answers in literature: Unclear. Our paper: Yes

I. Institutional background—Open Banking policies data collection

Definition of Open Banking policies:

Regulator instituted polices to promote bank customers to share their financial transactions data from their bank accounts with fintechs and other banks

Approach:

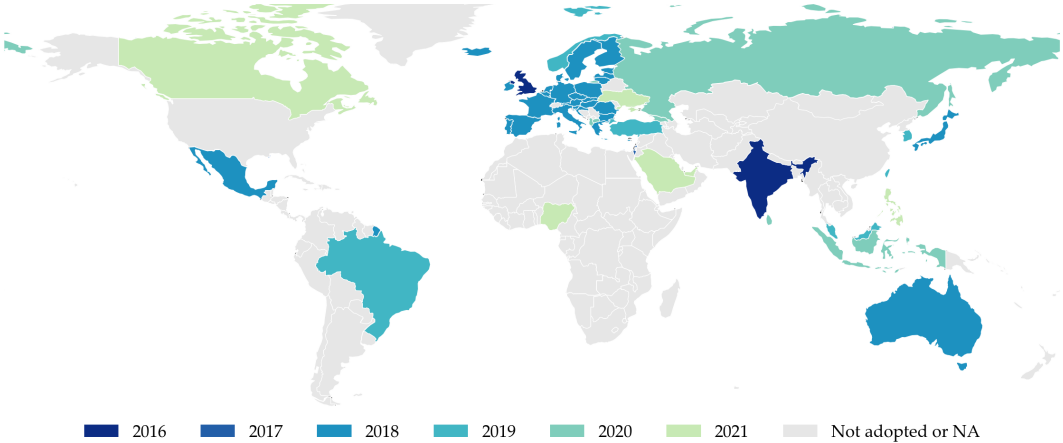
Hand-collect regulatory details for 168 countries (99% of GDP)
Official documents > law firm documents > news/industry reports
Cross-check versus mechanized Google search & third-party database

Collect and standardize information on:

Regulator type; OB mandate (innovation; competition; financial inclusion)
Implementation dates / current status
Requirements (e.g., who must share data; API standardization)
Scope (e.g., covered products; includes payment initiation)

80 counties either already adopted Open Banking policies or are considering them

I. Institutional background—Open Banking global adoption over time



Year of major Open Banking policy passage (as of October 2021)

II. Does open banking increase financial innovation?

Panel event study:

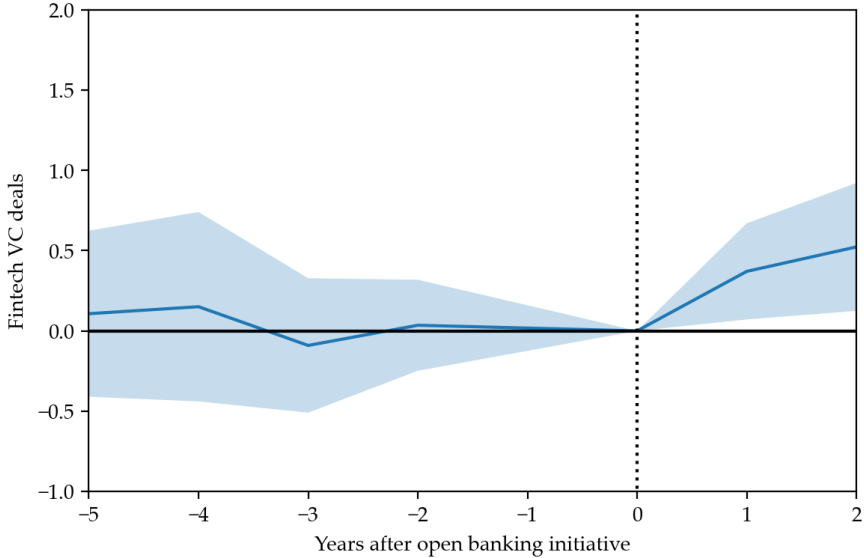
$$FintechVC_{it} = \sum_{k \neq 0} \beta_k \times OBLag(k)_{ikt} + Country_i + Region_{rt} + \epsilon_{it}$$

Panel regression:

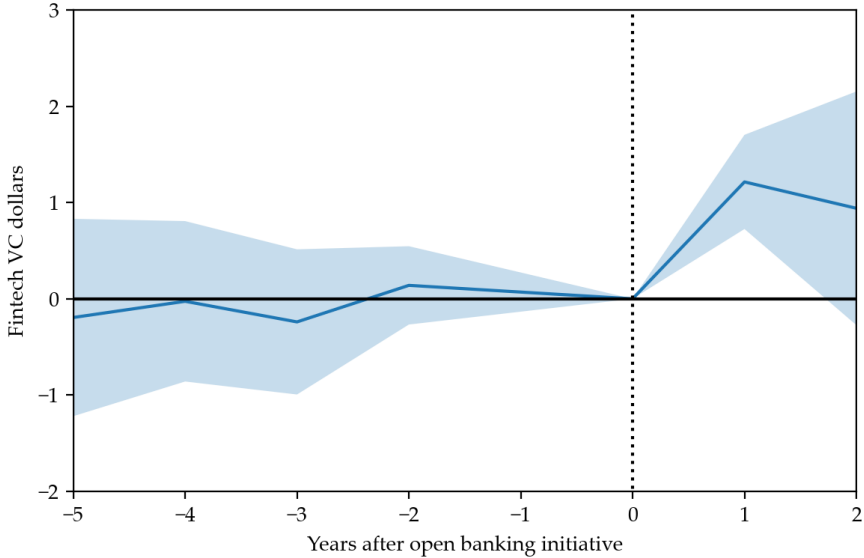
$$FintechVC_{it} = \beta \times OB_{it} + Country_i + Region_{rt} + \epsilon_{it}$$

- Dependent variables: Venture capital investments in fintechs: Deals count & amount
- $FintechVC_{it}$: Log fintech VC + 1; overall and in a subcategory (e.g., loans)
- $OBLag(k)_{ikt}$: OB implemented k years ago; OB_{it}: OB implemented by t
- $Country_i$: Country fixed effects; $Region_{rt}$: Region-by-time fixed effects
- Include countries with ≥ 5 fintech deals prior to the sample ($\leq$2010)
- Cluster-robust standard errors at country-level, EU treated as single country

II. Open banking policies increases fintech VC investment—deals



II. Open banking policies increases fintech VC investment—dollars



II. Open banking policies increases fintech VC investment for all types of fintechs (Columns 1–6), except digital assets (placebo test) (Column 7)

	Alternative lending	Consumer finance	Financial IT	Payments	Regtech	Wealth management	Digital assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
After OB initiative	0.722**	0.551**	0.683***	0.503	0.609***	0.552*	-0.035
	(0.311)	(0.230)	(0.186)	(0.351)	(0.151)	(0.297)	(0.278)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	231	231	231	231	231	231	231
Adjusted R^2	0.870	0.831	0.878	0.865	0.875	0.879	0.828

II. Does open banking impact consumers?

Financial Lives Survey (FLS) data by the US's Financial Conduct Authority

- Representative 2020 survey of UK consumers
- Asks about both OB usage and consumer financial outcomes among 4,300 consumers

The survey splits OB usage questions into two broad data use cases

- **Advice OB** used by 9%: Financial advice, savings, budgeting
- **Credit OB** used by 6%: Lending, credit scoring, interest rate comparison
- Little crossover: Only 13% of advice OB users share data through credit OB
- In total, about 15% of UK consumers use OB-reliant products in 2020

Consumers more likely to use OB: **Less privacy conscious**, employed, late on bills

- Less predictive: Gender, age, risk aversion, white, married, education

II. Open banking use by consumers and their improved financial outcomes

	Financial knowledge (1)	Credit card (2)	Personal loan (3)	Student loan (4)	Pawnbroking loan (5)
Advice OB	0.370***	0.039	0.020	-0.030	0.006
	(0.143)	(0.034)	(0.026)	(0.026)	(0.004)
Credit OB	0.019	0.126***	0.108***	0.002	0.001
	(0.197)	(0.040)	(0.035)	(0.034)	(0.005)
Respondent controls	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes
Observations	3,098	3,104	3,104	3,104	3,104
Adjusted R^2	0.158	0.167	0.089	0.325	0.025

Sharing data via **advice OB** is associated with greater financial knowledge (column 1)

Sharing data via **credit OB** is associated with using credit card (2) & personal loan (3)

- Placebo: Student loan (4) and pawnbroking (5) as less reliant on borrower quality

II. Does open banking impact small and medium enterprises (SMEs)?

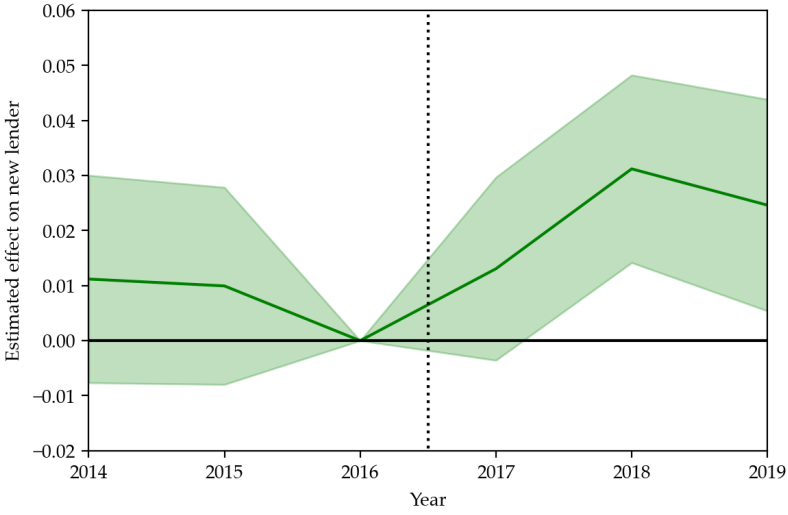
Commercial Credit Data Sharing Policy (CCDS): UK data sharing policy for SMEs

- Nine largest UK banks mandated to share transaction account data for SME clients
- Applied to SMEs with sales below £25 million (Treated) after 2016 (Post)

$$NewLender_{i,t} = \beta Treated_i \times Post_t + \eta X_{i,t} + \alpha_i + \gamma_{s,t} + \eta_{g,t} + \nu_{r,t} + \varepsilon_{i,t}$$

- $NewLender_{i,t}$: A loan from a lender firm has not borrowed from in past three years
- Restrict analysis to firms with 2016 sales between £10 million and £40 million
- $X_{i,t}$: Lagged firm controls (log assets, credit risk, cash to assets, and leverage)
- Fixed effects: Firm (α), sector-year (γ), region-year (η), relationship length-year (ν)

II. SMEs affected by OB are more likely to form new lending relationship



II. SMEs affected by OB are more likely to form new lending relationship

	Any new lender			
	(1)	(2)	(3)	(4)
Treated SME × Post	0.0136***	0.0156***	0.0153***	0.0003
	(0.005)	(0.005)	(0.005)	(0.004)
Treated SME	-0.0021			
	(0.004)			
Treated SME × Post × Prior CCDS relationship				0.0228***
				(0.009)
Treated SME × Post × Prior non-CCDS relationship				0.0064
				(0.013)
Firm controls			Yes	Yes
Year FE	Yes	Yes		
Firm FE		Yes	Yes	Yes
Other FE			Yes	Yes
Observations	39,089	39,089	39,089	39,089
Adjusted R^2	0.00	0.058	0.063	0.064

Column 3: 1.53 pp increase for treated firms is 29% from the mean rate of 5.3%

II. SMEs affected by OB are more likely to form new lending relationship: mostly with non-bank lenders (i.e., fintechs) (Columns 5–8)

	New bank	New non-bank	New bank	New non-bank	Any new lender
	(5)	(6)	(7)	(8)	(9)
Treated SME × Post	0.0061	0.0093***	0.0008	0.0005	0.0003
	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)
Treated SME × Post × Prior CCDS relationship			0.0067	0.0146***	
			(0.007)	(0.006)	
Treated SME × Post × Prior non-CCDS relationship			0.0046	0.0017	
			(0.010)	(0.009)	
Treated SME × Post × Single relationship					0.0129*
					(0.008)
Treated SME × Post × Multiple relationships					0.0279**
					(0.012)
Firm controls	Yes	Yes	Yes	Yes	Yes
All FE	Yes	Yes	Yes	Yes	Yes
Observations	39,089	39,089	39,089	39,089	39,089
Adjusted R^2	0.020	0.076	0.021	0.076	0.071

II. SMEs affected by OB are more likely to form new lending relationship: effects driven by SMEs *with* prior loans (Column 9)

	New bank	New non-bank	New bank	New non-bank	Any new lender
	(5)	(6)	(7)	(8)	(9)
Treated SME × Post	0.0061	0.0093***	0.0008	0.0005	0.0003
	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)
Treated SME × Post × Prior CCDS relationship			0.0067	0.0146***	
			(0.007)	(0.006)	
Treated SME × Post × Prior non-CCDS relationship			0.0046	0.0017	
			(0.010)	(0.009)	
Treated SME × Post × Single relationship					0.0129*
					(0.008)
Treated SME × Post × Multiple relationships					0.0279**
					(0.012)
Firm controls	Yes	Yes	Yes	Yes	Yes
All FE	Yes	Yes	Yes	Yes	Yes
Observations	39,089	39,089	39,089	39,089	39,089
Adjusted R^2	0.020	0.076	0.021	0.076	0.071

III. Model. Quantify effect of OB across 2 use cases

Model captures four key aspects of OB:

- Endogenous firm entry
- Heterogeneous consumers ← this is what data are informative about
- Customers choose whether to share their data
  - Depends on customer's **type** (strategic) and **privacy preferences** (hedonic)
- Different firms have different access to consumers' data (banks vs. fintechs)
  - **Relationship banking**: Single bank observes customer-level data
  - **Open banking**: All banks/fintechs could observe customer-level data

Setup. IO/BLP with rich consumer heterogeneity, designed for quantification:

- Two calibrations disciplined by our empirical findings + estimates in literature
  1. **Credit OB**: Marginal cost variation (Mortgages; Buchak et al. 2022)
  2. **Advice OB**: Product customization (Financial planning; Di Maggio et al. 2021)

III. Model. Takeaways: Effects of Open Banking depend on

1. **How customer data are used**:

   Advice OB: Data used to improve products → better products

   → Entry + competition: Good for all consumers

   Credit OB: Data used for pricing → less adverse selection against fintechs

   → Entry + competition: Good for all consumers

   → Prices more reflective of risk: Good for low-risk customers; bad for high-risk

   On net:

   - Low-risk customers: Unambiguously better off
   - High-risk: Theoretically ambiguous (depend on competition/entry (+) vs pricing (−))
   - In our base calibration: **All consumers are better off!**

2. **Privacy preferences for sharing data**:

   - Privacy preferences allow high-risk types to pool with privacy-conscious low-risk types
   - Double edged sword of lower preferences for privacy
     - More data sharing leads to more entry and competition (good for all consumers)
     - Harder for high-risk customer types to hide (more extreme distributional consequences)

Conclusion

Open banking: On the way to adoption in 80+ countries

- Empower consumers to share their banking data with fintechs and competing banks
- Alters relationship between consumer, bank, and bank's competitors

Impact: Improves financial innovation, consumer and SME outcomes

- Opening financial transaction data $\rightarrow$ fintech entry
- Customers who share with advice OB apps $\rightarrow$ better financial knowledge
- Consumer who share with credit OB apps $\rightarrow$ more credit
- SME's financial transaction data opened $\rightarrow$ more loans with fintechs

Model of OB: Quantitative assessment of OB in credit and advice applications

- Overall welfare and distributional effects depend on use cases and privacy preferences
- Both cases in our calibration: Increased competition and innovation
- Entry/competition effect strong in our calibration: Everyone benefits in 2 cases