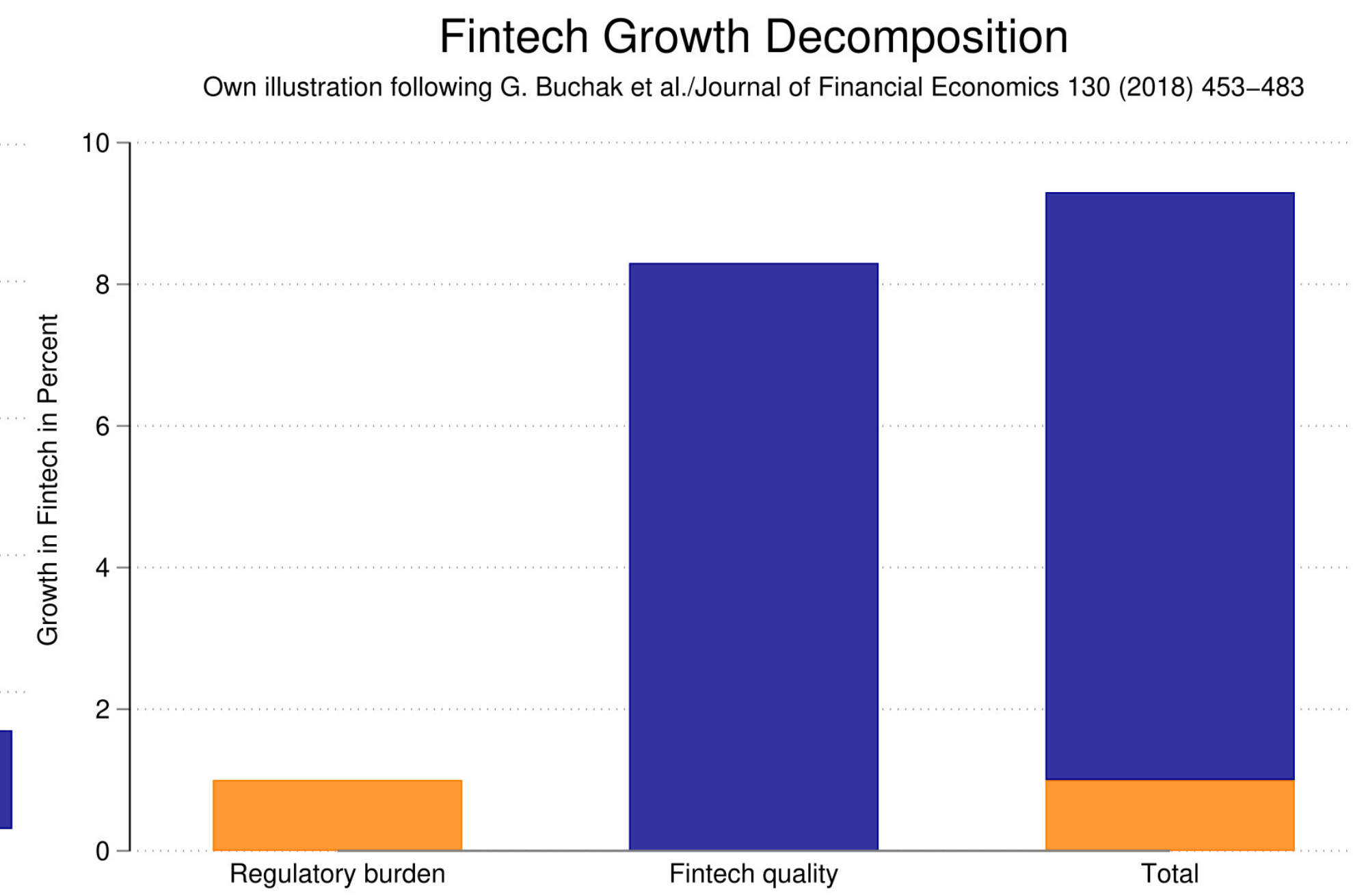
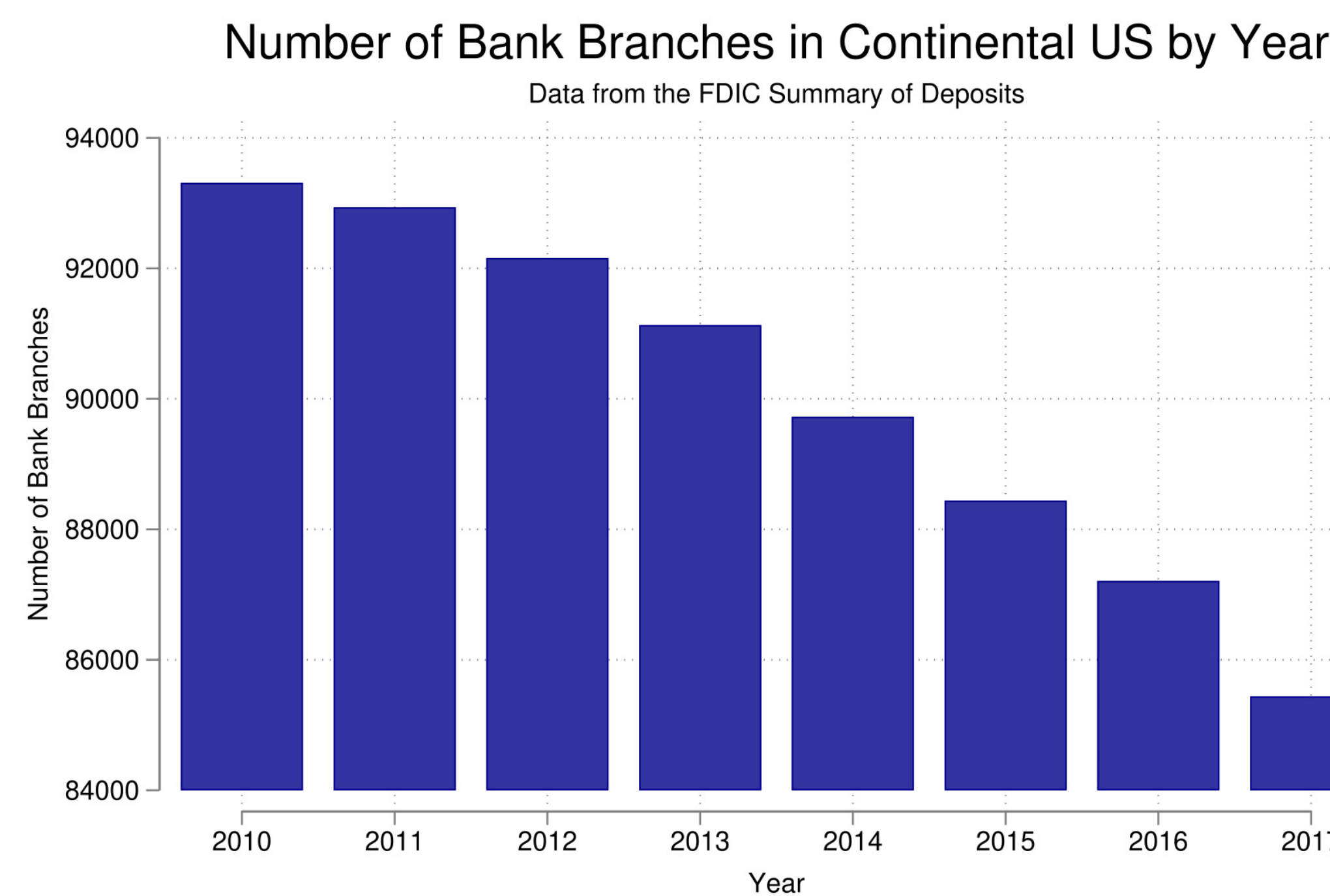
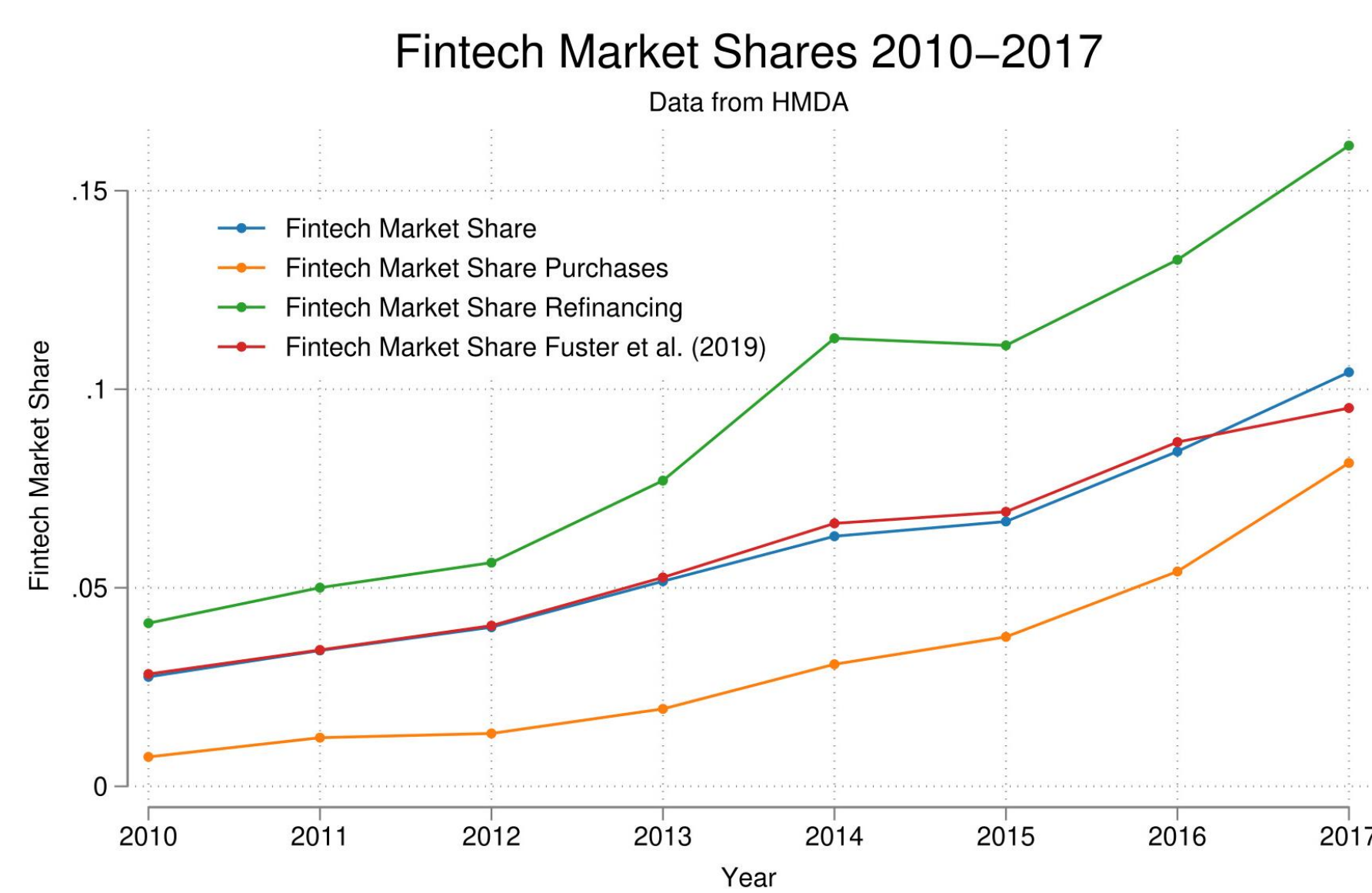


# Close by or Closed By?

## Bank Branches and the Rise of Fintech Mortgages

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### Motivation



- Rising fintech market shares in the residential mortgage market
- Fintech Quicken Loans is the largest US home mortgage lender
- Fuster et al. (2019) use similar data, plotted for comparison
- 8.4% decrease in number of US bank branches (2010-2017)
- Increasing number of banking deserts with no bank branch
- $\frac{2}{3}$  of banks' business: deposits & real estate (Jordà et al. 2016)
- Model in Buchak et al. (2018) decomposes fintech growth
- Counterfactuals attribute 90% of fintech growth to technology
- Result suggests, there might be a crowding-out of bank branches

**RQ: How does the fintech market share in the residential mortgage market influence the number of bank branches?**

### Methodology

#### Data

- Home Mortgage Disclosure Act (HMDA): US mortgages including lender information
- FDIC Summary of Deposit: Geolocated bank branches of all FDIC-insured banks in the US
- Definition of fintech lenders: Buchak et al. (2018), Fuster et al. (2019), Jaktiani et al. (2021)

#### Baseline

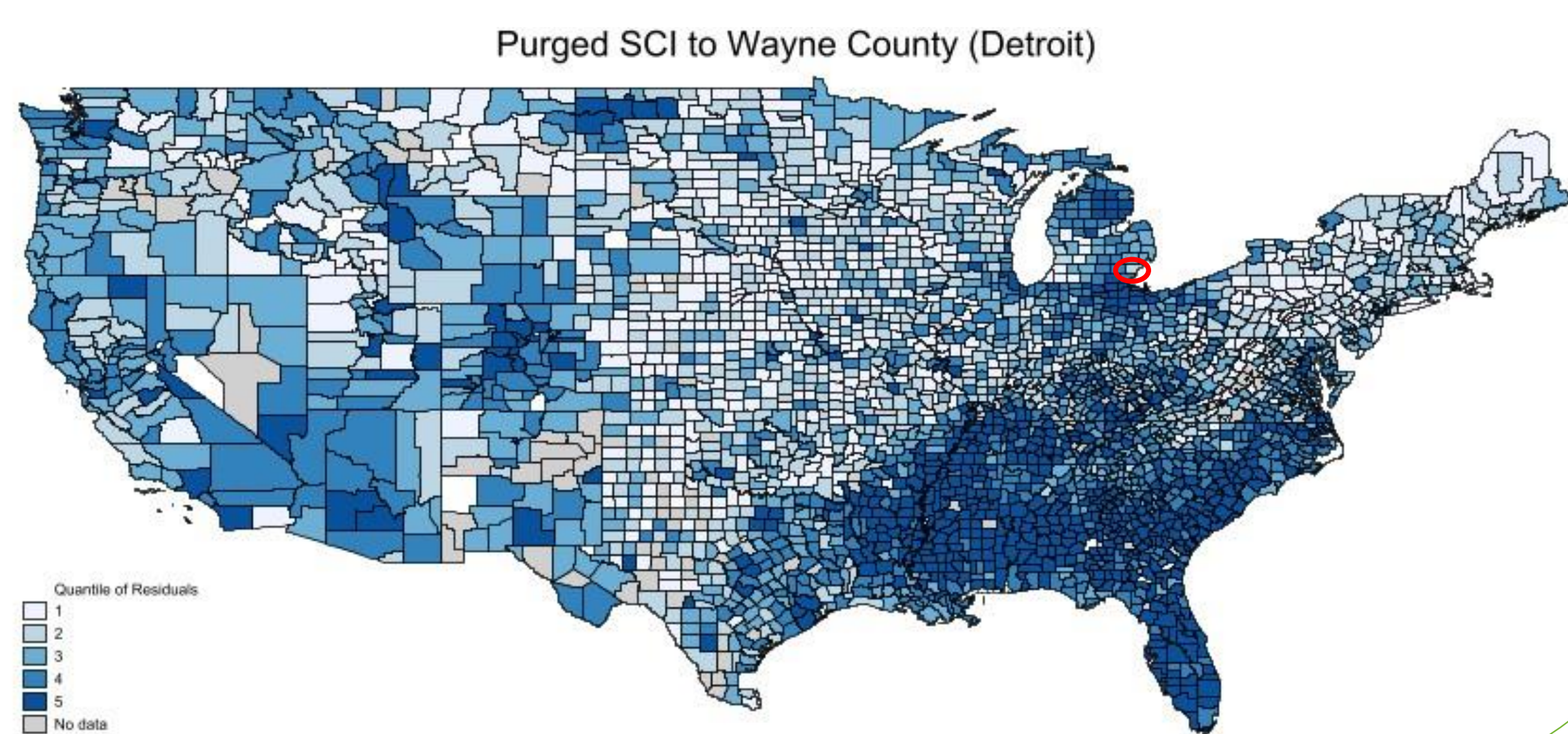
$$\Delta \log(\text{Bank Branches})_i = \beta_1 * \Delta \text{Fintech Share}_i + \beta_2 * \Delta \text{Controls}_i + \epsilon_i$$

- Dependent variable: Change in Log Number of Bank Branches in county  $i$  (2010-2017)
- Main independent variable: Change in Fintech Share of county  $i$  (2010-2017)
- Controls: Change in demographic & housing market characteristics in county  $i$  (2010-2017)

#### Identification

$$SCI_i = \beta_1 * \log(\text{Dist})_i + \beta_2 * \text{State}_i + \beta_3 * \text{Border}_i + \beta_4 * \text{Metro}_i + \beta_5 * \text{CZ}_i + \epsilon_i$$

- IV for Fintech Share: **Purged Social Connectedness Index (SCI)** of county  $i$  to Wayne County (Detroit), headquarter location of Quicken Loans, the biggest fintech lender in the market
- Idea: Larger connectedness causes **higher fintech** lending shares but **no branch closures**
- SCI purged by geographic factors (distance, same state, common border, same commuting zone, metro-dummy) to isolate **pure social connectedness**,  $\text{Residuals}_i$  as IV in 2SLS



### Results

Dependent variable	$\Delta \log(\text{Bank Branches})$ (2010-2017)		$\Delta \log(\text{Bank Branches})$ (2010-2017)	
	Baseline OLS	2SLS 1 <sup>st</sup> Stage	2SLS 2 <sup>nd</sup> Stage	
	(1)	(2)	(3)	(4)
$\Delta$ Fintech Market Share (2010-2017)	-0.133* (0.070)			-0.946*** (0.342)
$\Delta$ Fintech Market Share (Fuster et al. 2019)		-0.151** (0.075)		
Residuals			0.015*** (0.002)	
Demographic Controls	✓	✓		✓
Housing Market Controls	✓	✓	✓	
F-value (1st stage)				75.622
Observations	2,907	2,693	2,906	2,906

Standard errors are clustered on metro level. Significance levels: \* $(p < 0.10)$ , \*\* $(p < 0.05)$ , \*\*\* $(p < 0.01)$ .

#### Baseline

- At the mean, the fintech share rises by 7.7%, associated with a loss of 1% of bank branches
- Reverse causality: IV supports **crowding-out of branches** instead of stepping-in of fintechs

#### Further Results

- Significantly lower deposits and less branches from small banks (<10bn USD assets)
- Share of alternative to traditional financial service providers increases
- Counties lack access to basic financial services, people migrate to harmful alternative services

#### Robustness

- Panel data estimation (OLS/PPML) with a lag of 2 years, allowing banks to adjust their network
- Spatial Durbin Model on census tract-level, allowing for endogenous spatial spillovers
- IV results robust to alternative explanations (e.g. effect of big cities, SCI proxy for social capital)

#### Conclusion

- Negative relationship between increase of fintech shares and the change in bank branches
- Shift to fintech contributes to **the drop in local access to finance by crowding out** bank branches

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