

Is 'Fintech' Good for Small Business Borrowers? Impacts on Firm Growth and Customer Satisfaction

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Disclaimer...

- The views they express here are theirs and not necessarily those of the Federal Reserve Bank of Cleveland, the Board of Governors of the Federal Reserve System, or Federal Reserve Board staff.

The idea of this paper

- Use recent survey evidence to assess the impacts of bank and fintech provided credit on small business
 - Federal Reserve's 2015 Small Business Credit Survey covers financing sources including "Fintech"
 - Small businesses vary in size, profitability, tenure; and systematically in the amount and sources of credit that they receive
 - Treatment effects estimators are used to gauge average impacts after highly-flexible, semi-parametric controls for the firm characteristics are applied

2015 Small Business Survey

- The Federal Reserve Banks of Atlanta, Boston, Cleveland, New York, Philadelphia, Richmond, and St. Louis partnered with over 100 organizations to survey their members and partners
- Survey fielded online between September 28 and November 27
- Responses were collected for 3,459 employer firms.
- Of these, around 1,200 sought credit and had measured outcomes

Small Business Vary. . .

	SBCS sample	Census Data (2013 Business Dynamic Statistics & County Business Patterns)
<i>Age</i>		
0-2 years	9.42	20.85
3-5 years	10.21	13.96
6-10 years	14.95	20.05
11+ years	65.42	45.14
<i>Employee size</i>		
1-9	53.14	73.53
10-49	36.14	21.36
50-500	10.73	5.11

Broad industry composition also matched to Census data in weighted data.

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Outcomes vary by age of firm

	Denied financing %	Online financing %	Bank financing %
<i>Age</i>			
0-2 years	28.0	29.9	18.2
3-5 years	22.0	21.1	13.7
6-10 years	23.2	23.6	17.4
11+ years	26.9	25.3	50.7

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Outcomes vary by revenues

	Denied financing %	Online financing %	Bank financing %
<i>Revenue</i>			
<\$100K	28.5	15.9	10.7
100K-1M	58.8	66.8	44.6
1M-10M	12.0	15.3	35.0
\$10M+	0.8	2.0	9.7

We want to know the effects of financing, given characteristics

- Average Treatment Effect Estimation is a flexible approach to getting an appropriate answer when characteristics are correlated with outcomes
- We use inverse probability weighting in two forms:
 - $\hat{\mu}(W) = N^{-1} \sum_{i=1}^N \frac{I(w_i=W)Y_i}{\hat{p}(w,x_i)}$
 - $\hat{\mu}(W) = \min_{\alpha_1, \beta_1} \sum_{i=1}^N \frac{(I(w_i=W)(Y_i - \alpha_1 - \beta_1 x_{i1}))^2}{\hat{p}(w,x_i)}$
- Needs
 - unconfoundedness after controls
 - overlap of the treatments at the relevant points

Many conditioning variables are important

Average marginal effects of key variables on **denial of financing**

Profit

Baseline 0.258***

Break even -0.028

Profitable -0.084**

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Revenue size

Baseline 0.282***

100K-1M -0.049

1M-10M -0.151**

10M+ -0.227***

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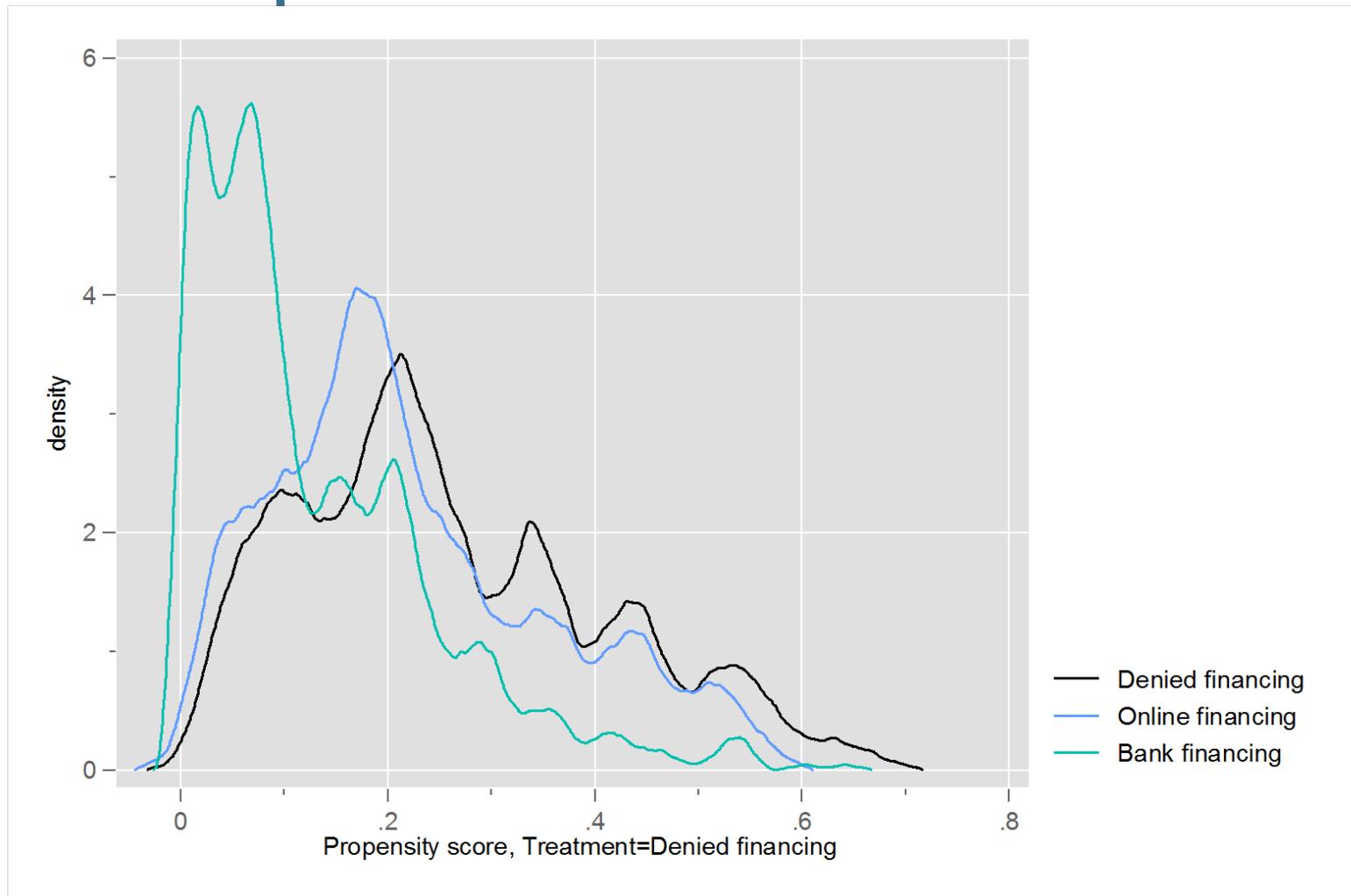
10M+ -0.227***

Minority status

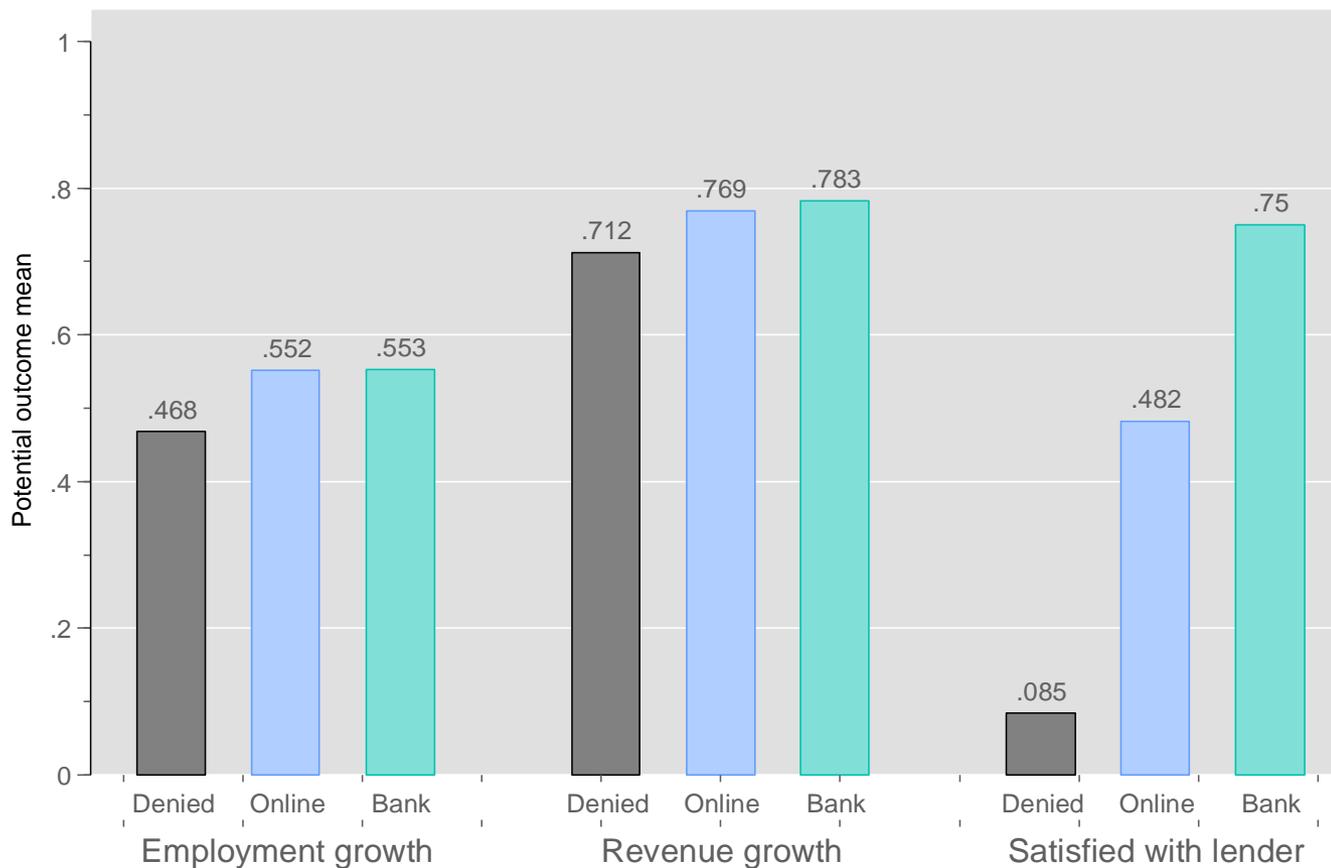
Baseline 0.184***

Minority firm +0.162***

Overlap of treatments: Denial of financing



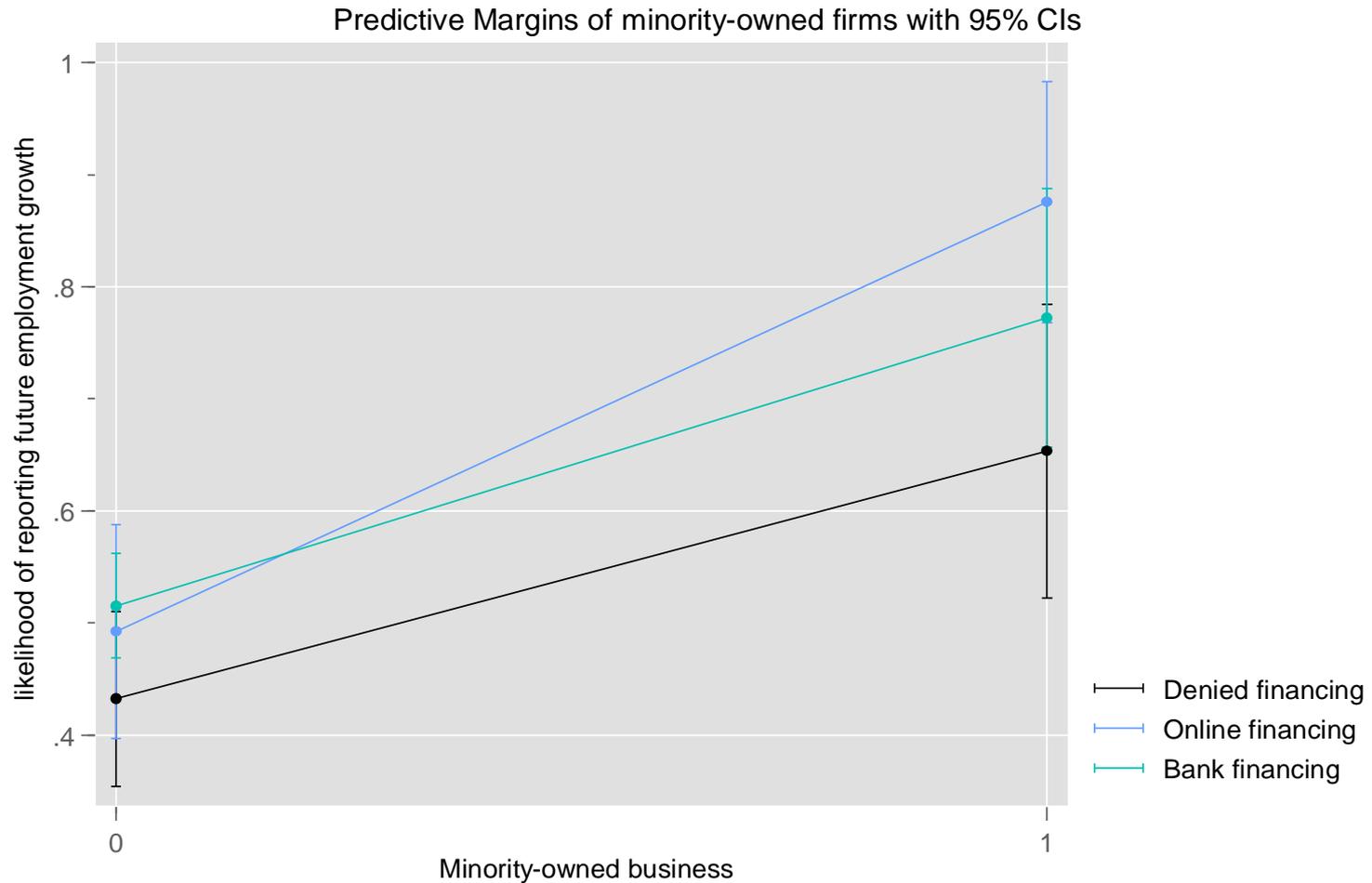
Results (IPWRA)



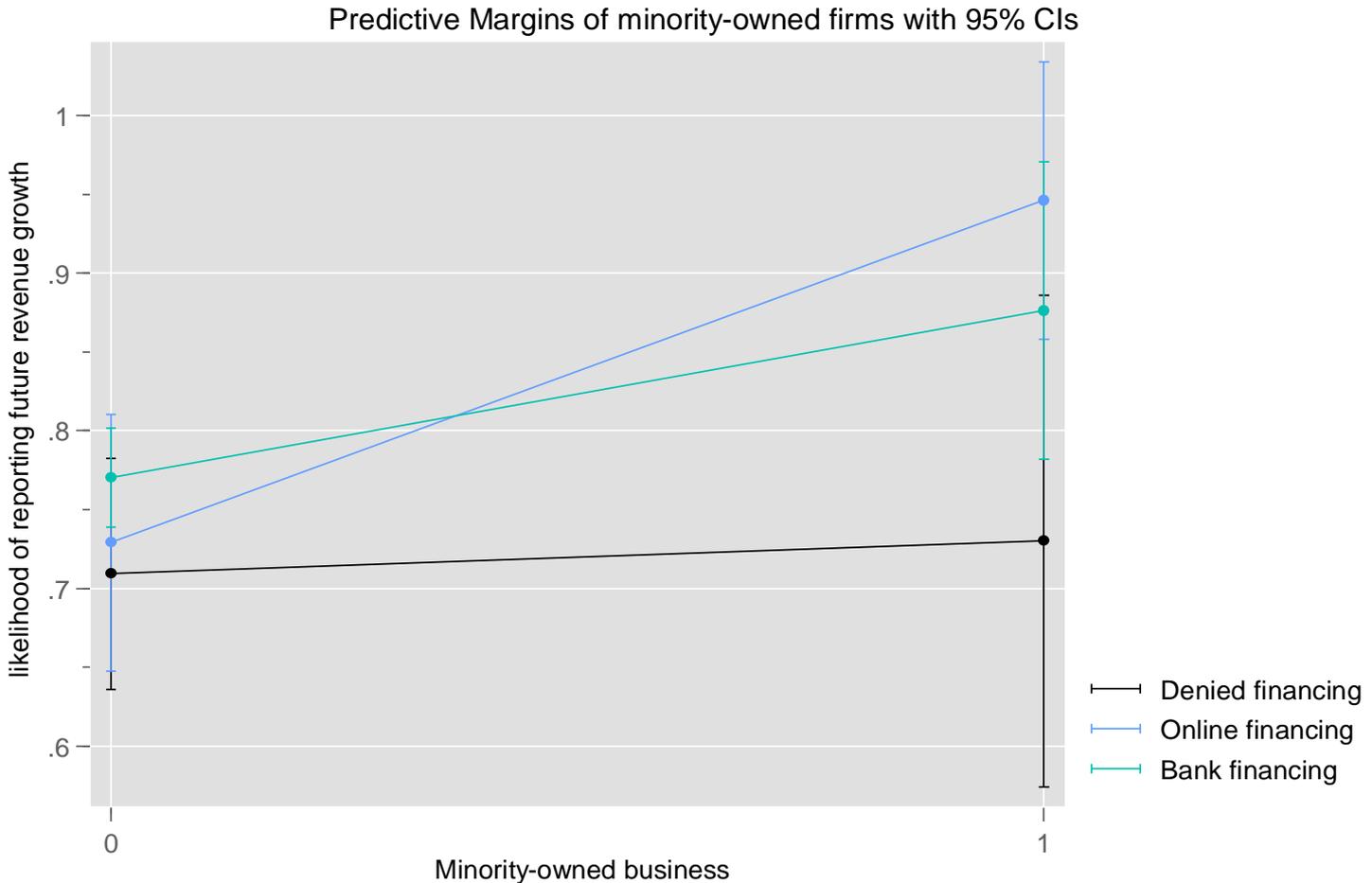
Difference of means

Denied=Online	0.123	0.255	0.000***
Online=Bank	0.990	0.690	0.000***
Bank=Denied	0.037**	0.054*	0.000***

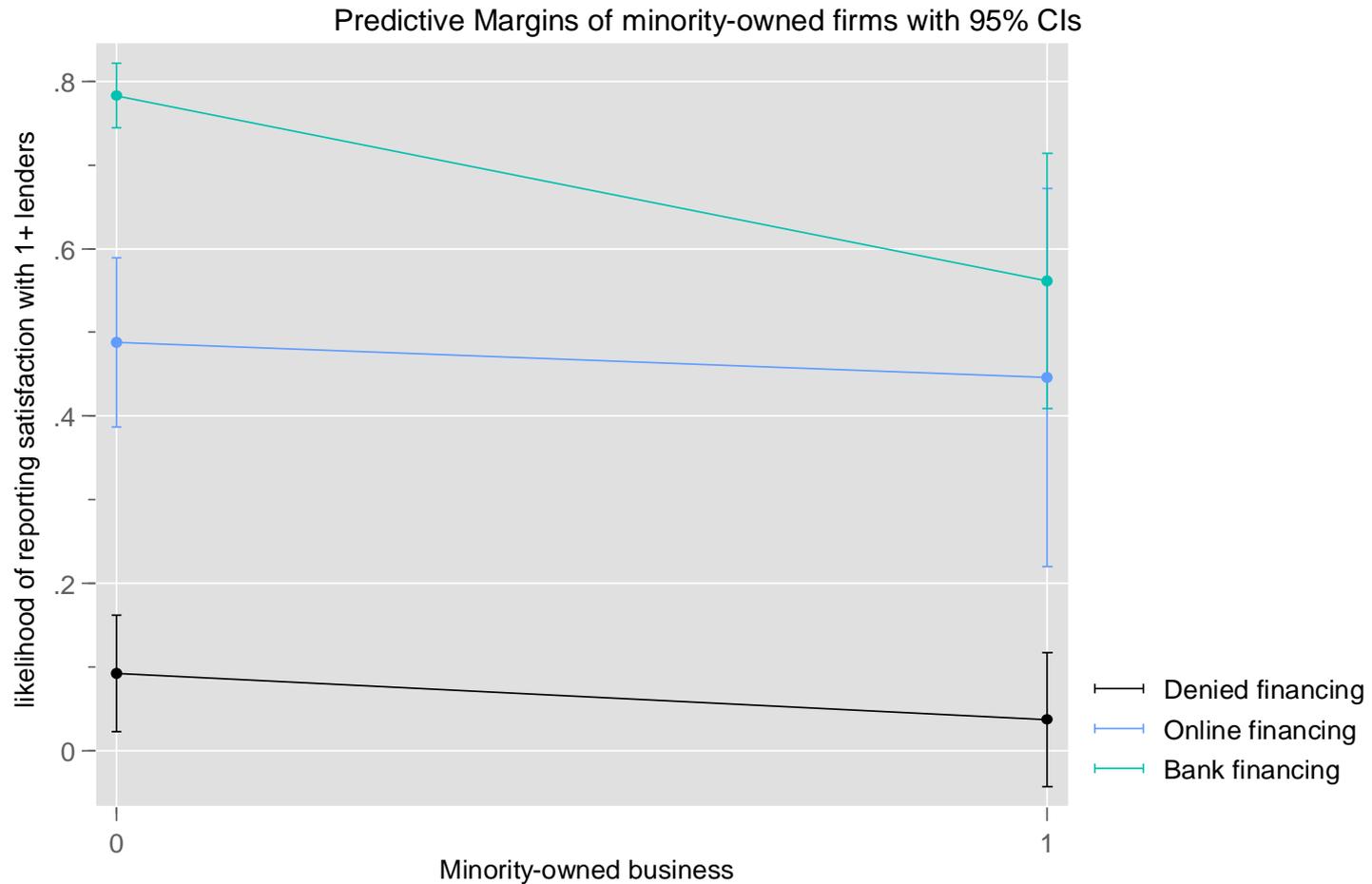
Potential-outcome means for minority firms – Employment growth



Potential-outcome means for minority firms - Revenue growth



Potential-outcome means for minority firms - Satisfaction with lender



Conclusions

- Online borrowers have characteristics that make them very much like the businesses who were denied credit.
- The point estimates of the growth effects of online lending are positive, but the standard errors of the estimates are too large to be confident in the results.
- The ordering of customer satisfaction is clear: bank borrowers are more satisfied than online borrowers who are more satisfied than businesses who were denied credit.
- There are some potential differences in outcomes for minority borrowers.