The Effect of Bank Consolidation on Agricultural Loan Availability

Chang Xu and Ani L. Katchova
The Ohio State University
Corresponding author: katchova.1@osu.edu

Selected Poster prepared for presentation at the 2018 Agricultural & Applied Economics Association Annual Meeting, Washington, D.C., August 5-August 7

Copyright 2018 by Xu and Katchova. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
The Effect of Bank Consolidation on Agricultural Loan Availability
Chang Xu and Ani L. Katchova, The Ohio State University
Selected Poster for the Agricultural and Applied Economics Association Meeting, Washington DC, August 5-7, 2018

ABSTRACT
- This study empirically estimates the effect of bank consolidation on agricultural loan availability in the U.S. During the last few decades, U.S. banks have undergone a trend of consolidation, resulting in larger but fewer banks. Whether this consolidation trend affects farmers’ access to credit positively or negatively is the objective of this study. We approximate agricultural loan volume in a county by summing up approximated branch-level loan data. The results show that when there is a local bank or branch consolidation, the agricultural loan volume in that county is significantly increased. However, the effect is not significant at the state level.

INTRODUCTION
- The 1997 Riegle-Neal Act lifted restrictions on interstate branch banking in the U.S., promoting consolidation in the banking industry since then.
- As shown in Figure 1, the number of banks in the U.S. decreased from 11,246 in 1994 to 5,011 in 2017 (56% decrease). However, the number of bank branches in the U.S. increased from 81,297 in 1994 to 89,857 in 2017 (10% increase).
- Previous research has looked into the effect of bank consolidation on bankruptcy risks and costs (Singhal & Zhu, 2013), individual and systemic risks (Nicolo et al., 2004), local branching pattern (Avery et al., 1999), income inequality (U.S. (Bhak et al., 2010), and small-business entrepreneurship (Samolyk & Avery, 2009). Only a few studies have looked at the bank consolidation effect in the agricultural sector.

OBJECTIVE
- To empirically test the effect of bank consolidation in an area on agricultural loan volume associated with that area.
- Differentiate the effect at county level and state level.

LITERATURE REVIEW
- Adams (2012) finds that a bank merger does not affect concentration at the local level. The effect is more likely to be for the state-level concentration.
- Wheelock (2011) finds even though mergers and acquisitions have occurred frequently in the past decade, the bank concentration at the MSA level has not increased.
- The Department of Justice assumes the market is at the local level and thus prevents mergers that would increase the local-level concentration. As a result, banks usually acquire other banks who operate in a different market than their own market, leading to an increase in the state-level concentration.
- Smith (1987) finds that lending to the agricultural sector may increase the rate of closure for banks.

DATA
- Agricultural loans data: Federal Deposit Insurance Corporation (FDIC) Call Report (CCPR) data
- Geographical location of bank branches: FDIC Summary of Deposit (SOD) data
- Mergers, acquisitions, and consolidation data: Federal Reserve Bank of Chicago
- County-level agricultural characteristics data: United States Agriculture Data, 1840 - 2012 (ICPSR 35286)

MODEL
- Regression model

RESULTS
- Panel model for farmland real estate loans:

<table>
<thead>
<tr>
<th>Variables</th>
<th>County-level</th>
<th>State-level</th>
<th>County-level</th>
<th>State-level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 4</td>
<td>0.070**</td>
<td>-0.417***</td>
<td>0.068**</td>
<td>-0.661**</td>
</tr>
<tr>
<td>Model 5</td>
<td>0.070**</td>
<td>-0.417***</td>
<td>0.068**</td>
<td>-0.661**</td>
</tr>
<tr>
<td>Model 6</td>
<td>0.070**</td>
<td>-0.417***</td>
<td>0.068**</td>
<td>-0.661**</td>
</tr>
</tbody>
</table>

- Panel model for farm operating loans:

<table>
<thead>
<tr>
<th>Variables</th>
<th>County-level</th>
<th>State-level</th>
<th>County-level</th>
<th>State-level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 4</td>
<td>0.070**</td>
<td>-0.417***</td>
<td>0.068**</td>
<td>-0.661**</td>
</tr>
<tr>
<td>Model 5</td>
<td>0.070**</td>
<td>-0.417***</td>
<td>0.068**</td>
<td>-0.661**</td>
</tr>
<tr>
<td>Model 6</td>
<td>0.070**</td>
<td>-0.417***</td>
<td>0.068**</td>
<td>-0.661**</td>
</tr>
</tbody>
</table>

- Variables: No observables, No observations, 8,788, 199, 6,172
- Adjusted R-sq: 0.758, 0.740

CONCLUSIONS AND IMPLICATIONS
- At the county level, consolidation significantly increases local agricultural loan volume for both operating loan and real estate loan categories.
- At the state level, consolidation has no significant effects on local agricultural loan volumes.
- If there was a bank merger/consolidation in a county/state, then farm operating loans increase by 23.3% at the county level and is insignificant at the state level.
- If there was a bank merger in a county/state, then farmland real estate loans increase by 23.3% at the county level and is insignificant at the state level.
- Bank consolidation seems to increase agricultural loan volume at the county level, therefore, consolidation is beneficial for farms by providing higher loan volume.
- It is possible that consolidation leads to increased efficiency in bank operations.
- Banks may be choosing agricultural loans as diversification strategy therefore increasing agricultural loan volume.

BIBLIOGRAPHY

Contact Information
Chang Xu, Ph.D. Candidate, xu.1348@osu.edu
Ani Katchova, Associate Professor and Farm Income Enhancement Chair, katchova.1@osu.edu
https://aede.osu.edu/programs/farm-income-enhancement-program