RESEARCH MEMO

NCRC
OPENING DOORS TO ECONOMIC OPPORTUNITY

Subject:
Bank Branch Closures from 2008-2016: Unequal Impact in America's Heartland

SUMMARY FINDINGS

The decrease in bank branch locations in the wake of the 2007-2008 financial crisis and Great Recession has diminished access to financial services for people in both rural and urban areas. Loss of access to financial services has disproportionately increased the reliance on expensive alternative financial services by low-income working families and minorities. Additionally, the loss of branch banking access impedes small business lending, hampering capital availability to the primary engine of U.S. economic growth. This study finds that:

- **6,008 of 95,018 branches were lost between 2008 and 2016.** This represents over 6% of branches nationally. Of the losses, 4,941 (82%) were in urban zip codes and 1,067 (18%) were in rural areas.
- **Several metro areas lost 15%-25% of their branches.** Losses were especially acute in Baltimore, Chicago, Philadelphia, Las Vegas, and Detroit.
- **86 new banking deserts were created in rural areas during the period.** These are service gaps in which there were no banks within 10 miles of populated areas. Because of their already diminished market access, rural areas are especially vulnerable to banking deserts.
- **Banking deserts disproportionately impacted minorities, with 25% of all rural closures in majority-minority census tracts.** The Hispanic population of rural banking deserts is 100% higher than in non-desert tracts; the Native American population is 55% higher.

INTRODUCTION

The financial crisis of 2007-2008, and the subsequent Great Recession, was a tumultuous period for the banking industry, large and small businesses, and the public. Banking institutions, in particular, were affected by large-scale bankruptcies, consolidations and mergers during the period. In response many financial institutions closed bank branches. A recent paper published by the New York Federal Reserve has reported that 4,821 bank branches were closed between 2009 and 2014.[I] Figure 1 shows the decrease in branches over the period from 2008-2016. Some reports on trends in banking technology estimate that between 2014 and 2020, up to 20% of branches will have closed nationally.[1] This represents a substantial realignment of the industry and loss of service locations.

1 PricewaterhouseCoopers (2014) https://www.pwc.com/gx/en/banking-capital-markets/banking-2020/assets/pwc-retail-banking-2020-evolution-or-revolution.pdf

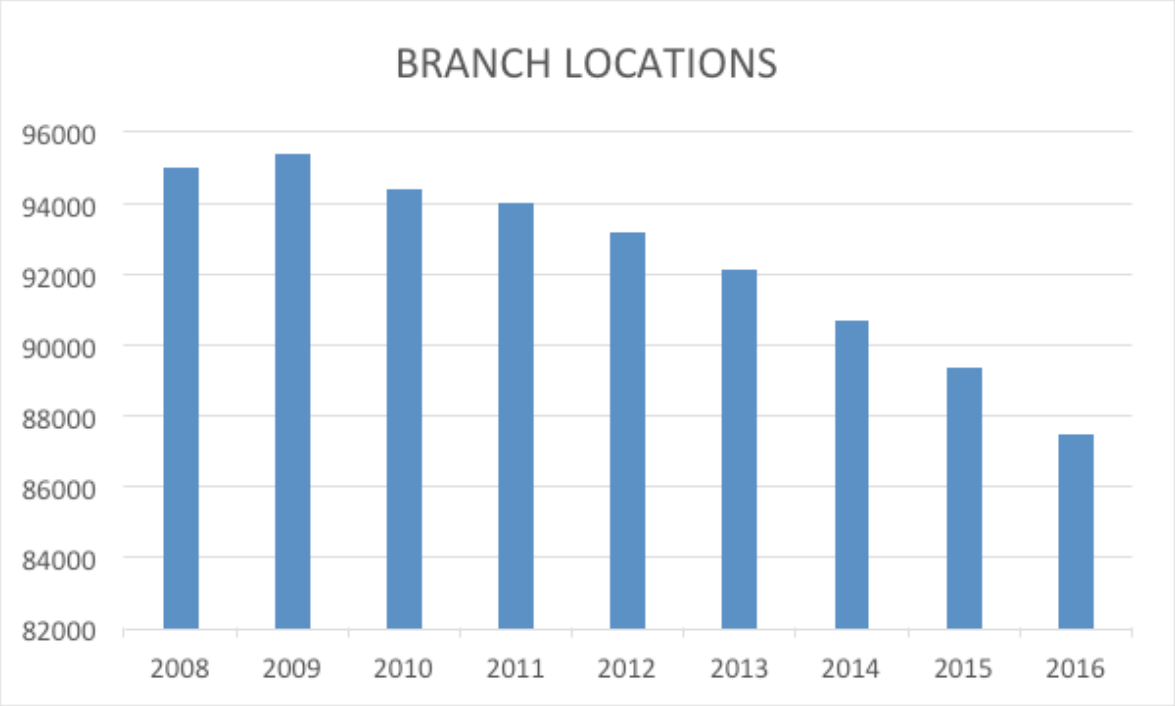


Figure 1: Decrease in all full-service bank branch locations nationally, 2008-2016 (Source: FDIC data and author's calculations)

In order to examine the issue of branch loss, NCRC research studied closures in urban and rural areas between 2008 and 2016 using FDIC data on bank branch locations. This allowed us to assess which rural and urban areas were impacted by bank closures during and after the financial crisis. Since rural communities are distant from alternative branch access they are especially vulnerable to bank branch closure. To address the issue of rural access we assessed the increase in rural banking deserts.

METHODS

A list of all brick and mortar bank branches (service types 11 and 12) in the continental U.S., produced by the FDIC for 2008 and 2016, was used to perform the branch analysis. There is no single unique identifier for branches in this dataset which could be used to track a location over several years. Additionally, examining the locational data in these files showed that many records were incomplete, missing georeferencing data for locations. The 2008 file has missing latitudes and longitudes on over 15,000 bank branches, and the 2016 data over 650 bank branches.[2] Many of the branch addresses were erroneous, incomplete, or inconsistent in their formatting. Due to the high error rate of the address and geolocation information, we relied on the branch location's postal ZIP code and county as the basis of our initial counts. Rural

2 The branch address data is self-reported by the institution, and the FDIC does not verify or correct this data, per conversations between NCRC and the FDIC. Estimates of branch closures vary between sources based on the difficulty in determining if a branch actually closed or if its address was corrected.

areas were defined as all counties outside the boundaries of 2014 metropolitan statistical areas (MSAs) in the lower 48 U.S. states and Washington, D.C. Zip codes enclosed within, or overlapping the boundaries of non-MSA counties were defined as rural for the purpose of this analysis.

After the initial analysis of urban and rural location loss, a detailed spatial analysis was completed using only rural branch locations. Because the dataset of rural branches was smaller, we were able to correct the data for and geolocate 1,752 rural branches in the continental U.S. Branches identified as closed in the 2008 dataset were compared with existing branches in the 2016 dataset to determine where distance gaps greater than 10 miles between bank branch locations appeared. This follows the conventional USDA distance measure for rural areas, which was replicated in the 2016 Federal Reserve study.[II] After these areas were noted as possible banking deserts, they were individually checked for current status and distance from alternative branches. This Euclidean distance-based analysis offers advantages in precision; however Kashian et al.'s (2015)[III] density-based methodology allowed them to measure banking deserts in both urban and rural area with the imprecise FDIC dataset. In the case of our study, we were able to precisely locate rural areas of high vulnerability.

RESULTS

According to our estimates there was a loss of 6,008 bank locations in the lower 48 U.S. states and the District of Columbia between 2008 and 2016. In 2008 there was a total of 92,809 branches; in 2016 there was a total of 86,801 branches, a decline of 6.5% (Table 1)[3]. The rural and urban distribution is roughly 19% and 81%, respectively. Branch decline was slightly higher in urban areas, where 4,941, or 6.6% of branches, were lost, compared to rural areas where the decline was 1,067, or 6.0%.

Table 1: Number of bank branches nationally, 2008 and 2016. (Source: FDIC data and author's calculation)

AREA	2008 BRANCHES	2008 PERCENT	2016 BRANCHES	2016 PERCENT	CHANGE
URBAN	74,964	80.8%	70,023	80.7%	-6.6%
RURAL	17,845	19.2%	16,778	19.3%	-6.0%
TOTAL	92,809		86,801		-6.5%

Viewed nationally at the state level, twelve states lost over 200 bank branches between 2008 and 2016 (Table 2). Pennsylvania, Illinois, and Michigan all had high bank branch losses statewide and in their largest urban area. Proportionally though, Nevada had the largest decrease, losing 105 branches, or nearly 18% of its locations, followed by Georgia, Maryland, Michigan and Pennsylvania.

3 Branches with service type codes 11 and 12, in the continental U.S.

Table 2: States losing over 200 branches 2008-2016 with percent loss (Source:FDIC data and author's calculation)

STATE	NUMBER LOST	PCT
Pennsylvania	560	12.1%
Illinois	476	10.1%
Florida	432	7.7%
Georgia	417	15.0%
Michigan	380	12.7%
California	363	5.0%
New Jersey	331	10.0%
North Carolina	282	10.5%
Ohio	260	6.6%
Indiana	250	10.9%
Maryland	246	13.8%
Wisconsin	241	10.8%

At a county level, the counties which lost branch locations are widely distributed; however, when we examine losses within specific geographic areas the unevenness of the loss is remarkable (Figure 2). Fifteen metropolitan areas lost more than 50 branches, the highest being Cook County, Illinois, where 204, or 12% of branch locations were shuttered.

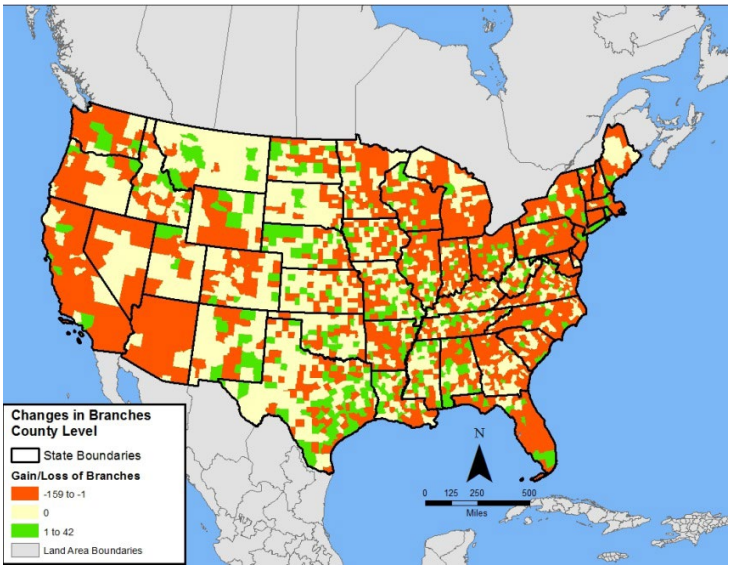


Figure 2: Changes in number of branches by county 2008-2016 (Source: FDIC and author's calculations)

Table 3 displays the greatest losses in metro areas, and the percentages of branch decline. Baltimore County lost the largest proportion, at 25.2% of branch locations. Additionally, Clark County, NV (Las Vegas), Wayne County, MI (Detroit), Montgomery County and Philadelphia County, PA (Philadelphia) all lost significant numbers and large proportions of their branches–over 15% of locations.

Table 3: Urban counties with greatest branch losses, 2008-2016

COUNTY (MSA)	BRANCHES LOST	PCT 2008-2016
Cook, IL (Chicago)	204	-12.7%
Baltimore, MD (Baltimore City)	73	-25.2%
Clark, NV (Las Vegas)	72	-17.4%
Montgomery, PA (Philadelphia)	67	-18.2%
Harris, TX (Houston)	66	-6.4%
Philadelphia, PA (Philadelphia)	65	-18.7%
Wayne, MI (Detroit)	64	-15.8%
Maricopa, AZ (Phoenix)	63	-7.2%
DuPage (Chicago)	59	-15.6%
Bergen, NJ (NYC, Newark)	58	-11.4%
Oakland, CA (San Francisco)	57	-13.6%
Marion, IN (Indianapolis)	56	-21.1%
Fairfield, CT (Bridgeport)	53	-13.2%
Dallas, TX (Dallas)	52	-8.0%
Orange, CA (Los Angeles)	50	-7.0%

While a higher percentage of urban branches were lost, rural branches comprised a lower proportion of branches nationally, and their loss may present greater access challenges for the public. The geographic distribution of rural branch gain and loss is provided in Figure 3.

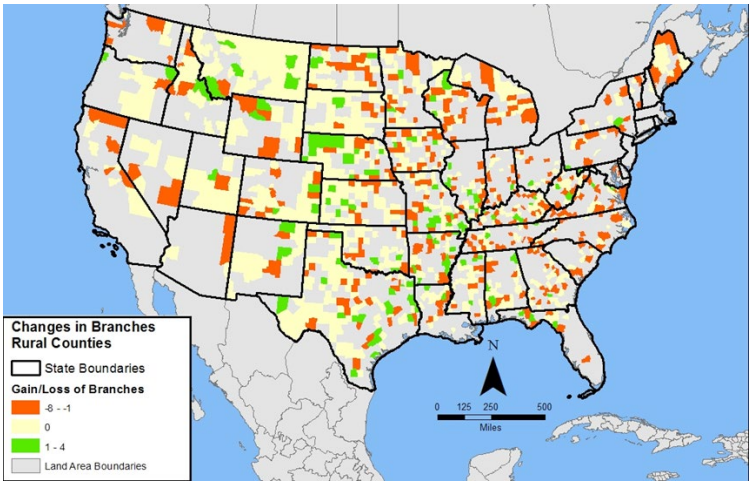


Figure 3: Rural branch changes by county 2008-2016

Due to the patchy distribution of rural bank branch loss, and lack of visual evidence for regional clustering of effects, an analysis of new gaps in service was conducted. The concept of locational deserts (Beaumont et al., 1995) was first applied to urban and rural areas in which access to fresh and nutritional food was inadequate. The concept has since been applied to healthcare (Gaskin, D et al., 2012) and banking services (Kashian et al., 2016). Kashian et al.'s unpublished study utilized a density-based method to identify 650 rural banking deserts across the U.S. in 2015. Our study applies a Euclidean distance-based method, relying upon the established definition of a locational desert as a populated rural area where there is a gap greater than 10 miles between service locations.[IV] This analysis revealed the appearance of 86 new banking deserts in rural areas from 2008-2016. While these are widely distributed, they are especially evident across the Midwestern portion of the country. The regions east of the Mississippi River and west of the Rocky Mountains saw 14 and 23 banking deserts develop, respectively, while 49 developed in the region between the Mississippi River and Rocky Mountains. This indicates that perhaps rural banking deserts have developed in response to broader regional economic and social conditions.

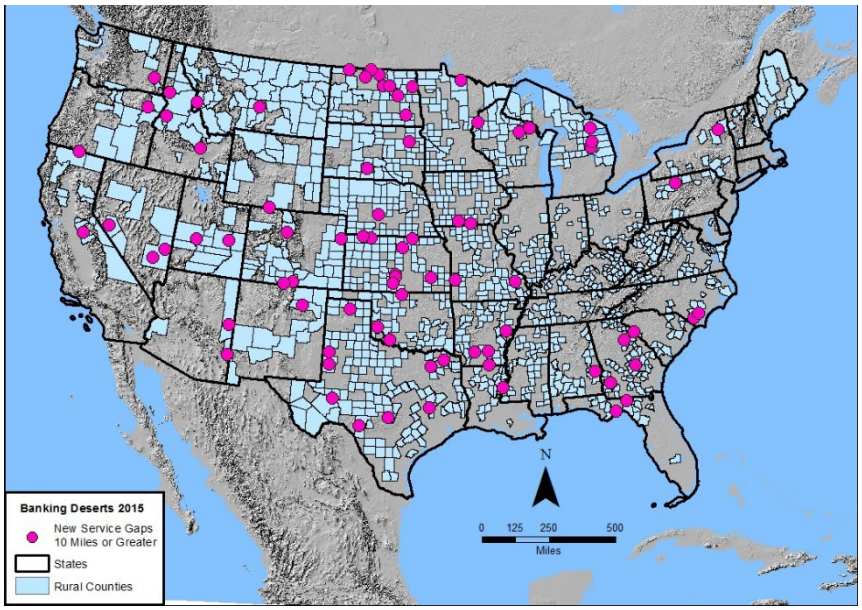


Figure 4: Development of rural financial services access deserts, 2008-2016

We next conducted a demographic and economic comparison of urban and rural desert areas at the census tract level using 2015 FFIEC data. Unsurprisingly, there are profound differences in urban and rural levels of population, demographic composition, and economic status (Table 3). Urban housing values are double, and vacancy rates half, those of rural tracts. Additionally, while minorities comprise 41% of the urban tracts, they are only 15% of the population in rural tracts. As stark as these differences are, they are even more profound for the tracts in which rural banking deserts developed. Population and income were lowest in the rural desert areas, which also have higher rates of poverty. Housing vacancy rates are also highest in rural desert tracts, where more than a quarter of properties are vacant. The demographic composition of rural desert tracts included a higher percentage of minorities than other rural tracts, but not urban tracts. The percentage of Hispanic people was much higher, and larger percentages of Native American people lived in tracts with rural deserts than in rural or urban areas. Finally, housing values in rural banking deserts are the lowest of the three groups, 57% below of the

value in urban areas, and 19% lower than rural areas as a whole. These aggregate values may mask variability; however, they provide a basis for comparison of social and economic conditions between areas.

Table 4: Average values in urban, rural, and rural financial access desert census tracts nationally (Source:2015 FFIEC data)

VARIABLE	URBAN ALL *N*= 57,162	RURAL ALL *N*=7,785	RURAL DESERT *N*=86
Population	4,323	3,429	3,319
Median Family Income	$70,483	$59,019	$56,292
Poverty	13.3%	14.3%	16.0%
Minority	41.3%	15.4%	22.8%
Hispanic	18.7%	4.9%	9.8%
African American	14.4%	6.2%	7.1%
Native American	0.5%	2.5%	3.9%
Housing Vacancy	10.5%	20.6%	27.6%
Housing Value	$265,569	$133,147	$107,611

Of course, the formation of rural banking deserts could be a result of more general trends like urbanization and consequent rural abandonment. To further assess conditions within the rural banking desert areas we examined the demographics of counties containing these areas. The population in 2010 of counties containing banking deserts ranged from 1,012 to 71,676, with an average of 12, 111. Ten of the 140 rural desert counties had population levels below 3,000 persons, possibly indicating abandonment. Next we examined population changes, both long term from 1980 to 2010, and short-term trends from 2000 to 2010. Counties with population losses during both periods were marked as undergoing long-term decline, while those gaining were marked as growing. Counties which lost population in one period and gained in another were marked as stable. Using this criteria, half of the counties lost population, while the other half were stable or actually gained. Abandonment does not fully explain why half of rural bank deserts form. Next we looked at overall market density and bank branch presence in rural banking desert counties. Eleven of the counties have only one branch. The average number of persons per branch in these counties was 3,391 (Table 4). This is higher than the average for rural counties, which, considering that 46.2 million people live in rural counties with 17,206 branches in 2016, would be an average of 2,685 persons per branch.[v] Consequently, while some of the counties with sustained population losses may be in the process of abandonment, over half the counties had sustained long-term population gains since 1980.

Table 5: Counties with banking deserts and bank market density

Number of Branches	Number of Counties	Persons per Branch
1	11	3,391
2	19	3,780
3-5	50	2,589
6-10	45	1,773
11-24	13	2,264

DISCUSSION AND CONCLUSION

While bank branch losses after 2008 were distributed equally in rural and urban areas, equal loss of branches does not mean equivalent impact. The impact of closures on vulnerable low- and moderate-income and minority communities, especially in rural areas, is alarming because of the disparity of its effects.[VI] While prior research, like the 2016 Federal Reserve study cited above, found that residents of low-income census tracts are 80% more likely to live in a banking desert than are residents of higher-income tracts, there was no examination of the data for disparity of effects in rural and urban areas. Kashian et al. (2015) addressed this issue in their study, finding that Hispanics were disproportionately impacted by rural bank branch closures. Our study confirms this finding, and further indicates that minorities in general are effected: higher proportions of Hispanic, African American and Native American people reside in the rural banking desert tracts than average. Clearly, wealth is lower in the rural banking desert areas, with lower median family income, profoundly lower housing values, and high rates of vacancy. This could indicate that areas containing rural banking desert are suffering from conditions of abandonment; however, when we checked demographic shifts in the population, we found that over half of the counties were stable or had an expanding population. Additionally, counties containing rural banking deserts had a higher than average proportion of persons to bank branches, indicating lower market density for branches.

We also found that several cities suffered very high levels of bank branch loss. Baltimore County lost 25% of its branches, while Chicago, Philadelphia, Las Vegas, and Detroit all lost large proportions of their bank branch locations. The loss of locations at these high levels is concerning because of the effect on financial services availability. In 2015, Hoai-Luu Q. Nguyen at the Haas School of Business, University of California, Berkeley, found that the impact on local businesses of branch closure was significant and highly local.[VII] Studies on relationship banking and small business lending have found significant associations between local bank branch access and the availability of credit for small business lending (Ergungor, 2015). In both rural and urban areas, branch level relationships between small business borrowers and bank staff have been shown to enhance the availability of credit by mitigating the risk of lending.[VIII]

Since bank branch closures occurred disproportionately in lower-income areas, especially in the new rural bank branch desert areas, low- and moderate-income working families may have been impacted

more by a loss of access to financial services. There appears to be a direct relationship between the lack of a nearby bank and the rate of unbanked families. The FDIC has found that while the rise of electronic banking methods has decreased transactions with tellers, the public still sees a nearby branch as a critical link to their bank.[IX] This is especially true for rural, low-income, less-educated and older households which are all more reliant upon teller access to conduct financial transactions. The FDIC National Survey of Unbanked and Underbanked Households consistently finds that families that lack access to local banks will be more likely to utilize more expensive alternatives, such as check cashers and payday lenders.[X]

In summary, this study indicates that there is deep disparity both in the geographic distribution and economic impact of bank branch closures since 2008. Several urban areas suffered disproportionately high levels of closure, while rural banking deserts grew at an alarming rate. We are especially concerned with the impact on areas with higher proportions of low- and moderate income families and minorities, groups which have been shown to have limited mobility and lower rates of computer access. While the overall decrease in branches was similar in urban and rural areas, the lower density of financial institutions in rural areas, and the greater reliance on bank branch services is likely to have greater impact on service availability. Equal loss of branches in rural and urban areas does not necessarily mean equal impact.

(Endnotes)

I http://libertystreeteconomics.newyorkfed.org/2016/03/banking-deserts-branch-closings-and-soft-information.html

II http://www.ers.usda.gov/data-products/food-access-research-atlas/about-the-atlas/

III Kashian, Russell D., Ran Tao, and Claudia Perez-Valdez. "Banking the Unbanked: Bank Deserts in the United States." (2015)

IV http://www.ers.usda.gov/webdocs/publications/ap036/12716_ap036_1_.pdf

V http://www.ers.usda.gov/topics/rural-economy-population/population-migration/

VI Ergungor, Ozgur Emre. "Bank Branch Presence and Access to Credit in Low-to Moderate-Income Neighborhoods." Journal of Money, Credit and Banking 42, no. 7 (2010): 1321-1349.

VII Nguyen, Hoai-Luu Q. *Do bank branches still matter? The effect of closings on local economic outcomes.* Working paper, 2015.

VIII Brevoort, K. and Hannan, T. *Commercial Lending and Distance: Evidence from Community Reinvestment Act Data.* Journal of Money, Credit, and Banking. (2006) vol:38 (8) pp: 1991-2012

IX Breitenstein E McGee J *Brick-and-Mortar Banking Remains Prevalent in an Increasingly Virtual World,* FDIC Quarterly 2015 vol: 9 (1) pp: 37-51 https://www.fdic.gov/bank/analytical/quarterly/2015_vol9_1/FDIC_4Q2014_v9n1_BrickAndMortar.pdf

X Federal Deposit Insurance Corporation. 2015 FDIC National Survey of Unbanked and Underbanked Households, Washington, D.C., (2016). https://www.fdic.gov/householdsurvey/2015/2015execsumm.pdf