

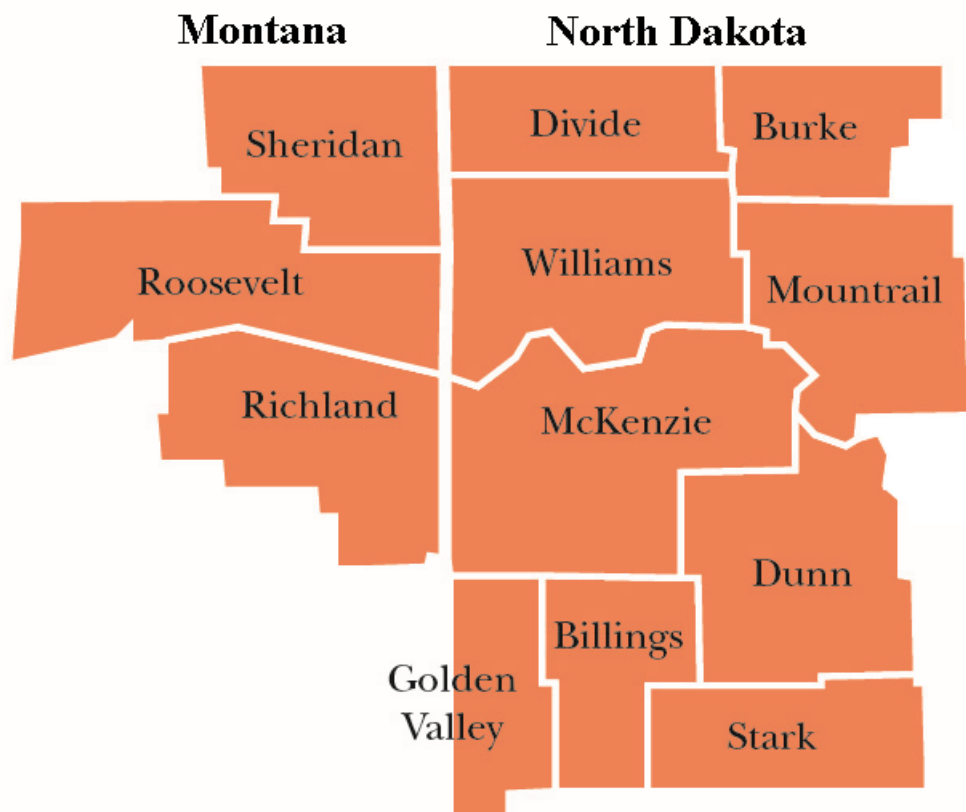


This memo reviews a range of demographic, economic and financial data for the Bakken. We compare the Bakken with the rest of Montana and the rest of North Dakota, as of June 20, 2012.

Executive Summary

The Bakken refers to 12 counties in Montana and North Dakota most affected by oilfield activity and closely related economic expansion.¹

Defining the Bakken



Our main conclusions are:

Oil Production

- The Bakken oil boom dwarfs previous oil production expansions in Montana and North Dakota; drilling is expected to continue at strong levels for at least the next 10 to 20 years. [pp. 4, 6]

¹ Defining the Bakken area is a subjective process. The definition may change over time.



- Over the next 10 to 20 years, the North Dakota Department of Mineral Resources expects over 20,000 new wells to be drilled in the North Dakota Bakken area. [6]

Labor Markets, Business Establishments and Construction

- Economic performance in the Bakken since 2009 has been much stronger than in the rest of Montana and North Dakota.
 - Employment levels are up about 50 percent in the Bakken; these levels are mostly flat in the rest of Montana and North Dakota. [8]
 - The unemployment rate in the Bakken is about 2 percent; the rate in the rest of Montana and North Dakota is just under 7 percent and 4 percent, respectively. [9]
 - Average weekly wages are up around 25 percent in the Bakken since 2009; wage growth is up 1.9% from 3Q2009 to 3Q2011 in the rest of MT and 4.9% in the rest of ND. [10]
 - New business establishments have grown by nearly a third in the Bakken, while decreasing slightly in the rest of Montana and North Dakota. [11]
 - Construction activity—including commercial and residential—grew substantially since 2010 as indicated by permits issued in Williston and the Dickinson area. [12-13]

Population Distribution

- The male-to-female ratio is noticeably higher now in the Bakken; unlike a decade ago. [15]
- The increase in the male-to-female ratio, coupled with a high rate of population growth, supports the anecdotal evidence of significant in-migration, especially of working-age males. [15-16]

Income and Poverty

- Aggregate household income per person in the Bakken has risen above that in the rest of Montana and North Dakota. [18]
- Bakken income gains stem mainly from rising wages and salaries. [19]
- The poverty rate in the Bakken is dropping rapidly relative to the rest of Montana and North Dakota for both males and females. [20]

Housing

- Although housing values and rents were still lower in the Bakken than in the rest of Montana and North Dakota as of 2006-2010, they were rising faster. [22-23]
- In 2010, rental vacancy rates were clearly lower in the Bakken (5 percent vs. 7 percent). [24]
- With income rising along with housing costs, the percent of households experiencing burdensome housing costs (greater than 30 percent of income) was generally low and stable in the Bakken. However, burdens were rising rapidly for rental households with income in the \$20,000-\$35,000 range. [25]



Banking

- Total deposits have increased substantially within the Bakken since 2010 compared with the rest of Montana and North Dakota. [27, 33]
- Construction and land development loans in the Bakken increased substantially recently while decreasing in the rest of North Dakota. [28]
- Residential real estate loans began increasing more rapidly in 2010 in the Bakken compared with the rest of Montana and North Dakota. [28]
- Despite increases in some lending, the percent of loans to assets at the Bakken banks has decreased more than in the rest of Montana and North Dakota since 2004; the share of assets of Bakken banks held as interest-bearing balances—such as those held at the Federal Reserve—has increased more than that of banks in the rest of Montana and North Dakota. [29]
- Bank performance within the Bakken has remained stable and generally similar to bank performance in the rest of Montana and North Dakota, although profitability for Bakken banks has picked up recently relative to non-Bakken banks. The incidence of serious mortgage problems has fallen relatively fast in the Bakken since 2010. [31-32]



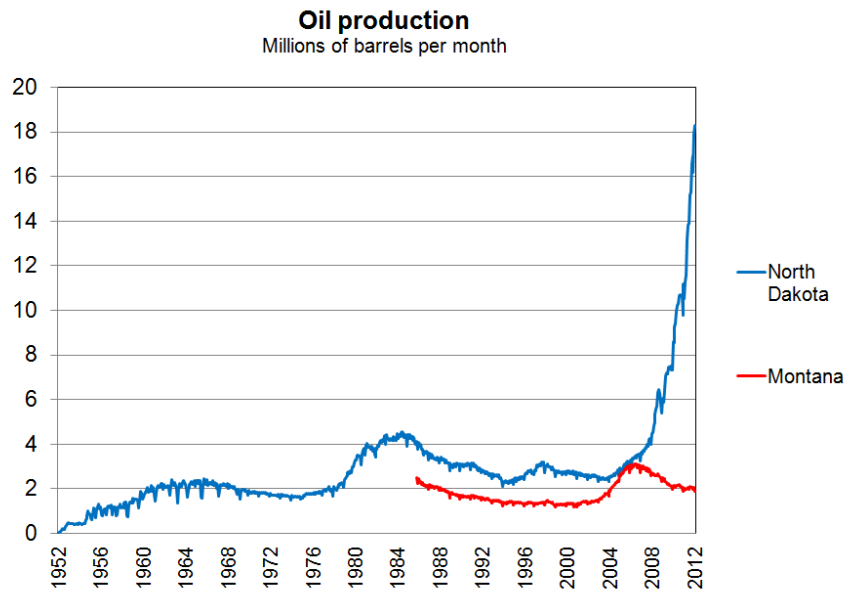
Section 1. Oil Production, Labor Markets, Business Establishments and Construction

This section reviews data on oil production, labor markets, business establishments and construction using a wide range of data sources. We find the following:

- The Bakken oil boom dwarfs previous production expansions in Montana and North Dakota; drilling is expected to continue at strong levels for at least the next 10 to 20 years.
- Over the next 10 to 20 years, the North Dakota Department of Mineral Resources expects over 20,000 new wells to be drilled in the North Dakota Bakken area.
- Economic performance in the Bakken since 2009 has been much stronger than in the rest of Montana and North Dakota.
 - Employment levels are up about 50 percent in the Bakken; these levels are mostly flat in the rest of Montana and North Dakota.
 - The unemployment rate in the Bakken is about 2 percent; the rate in the rest of Montana and North Dakota is just under 7 percent and 4 percent, respectively.
 - Average weekly wages are up around 25 percent in the Bakken since 2009; wage growth is up 1.9% from 3Q2009 to 3Q2011 in the rest of MT and 4.9% in the rest of ND.
 - New business establishments have grown by nearly a third in the Bakken, while decreasing slightly in the rest of Montana and North Dakota.
 - Construction activity—commercial and residential—grew substantially over the past two years as indicated by permits issued in Williston and the Dickinson area.

A. Oil Production²

- The Bakken oil boom is four times larger than oil boom in the 1980s.

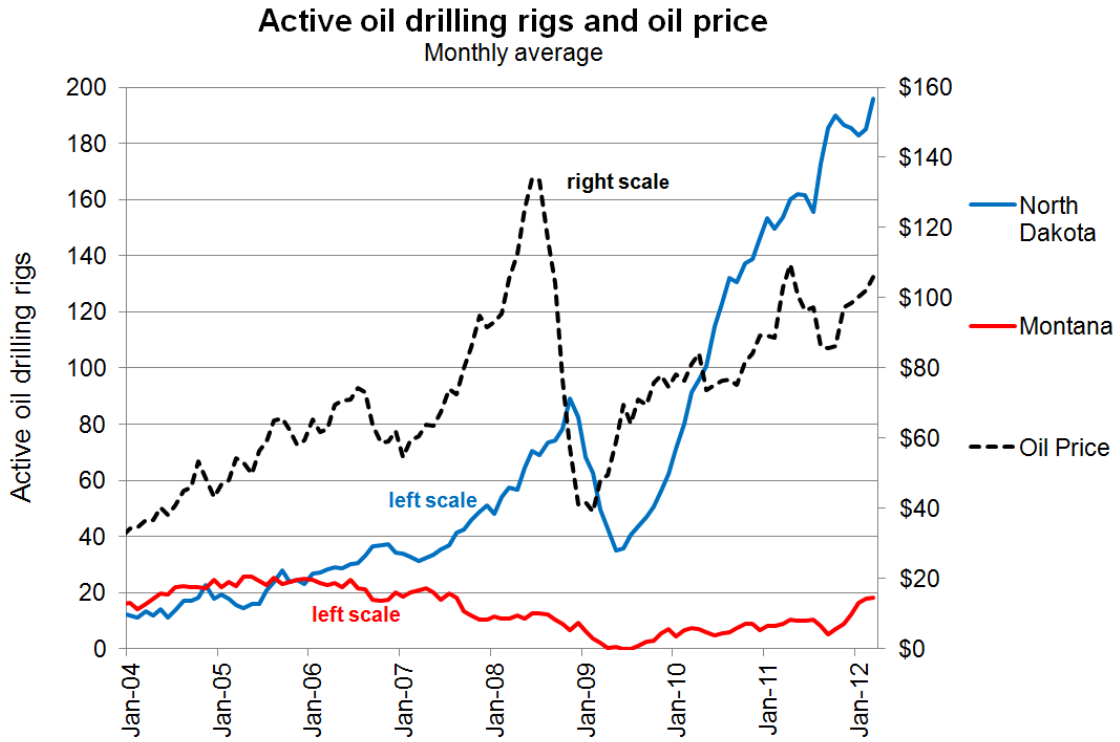


Sources: North Dakota Department of Mineral Resources and Montana Board of Oil & Gas Conservation

² Bakken oil production data include a few counties beyond the 12 used in all other parts of this memo.



- Oil drilling in Montana and North Dakota picked up beginning in 2004 until prices dropped below \$60 per barrel in 2008, considered the break-even price for shale drilling and oil production at the time. Drilling accelerated again once oil prices recovered.

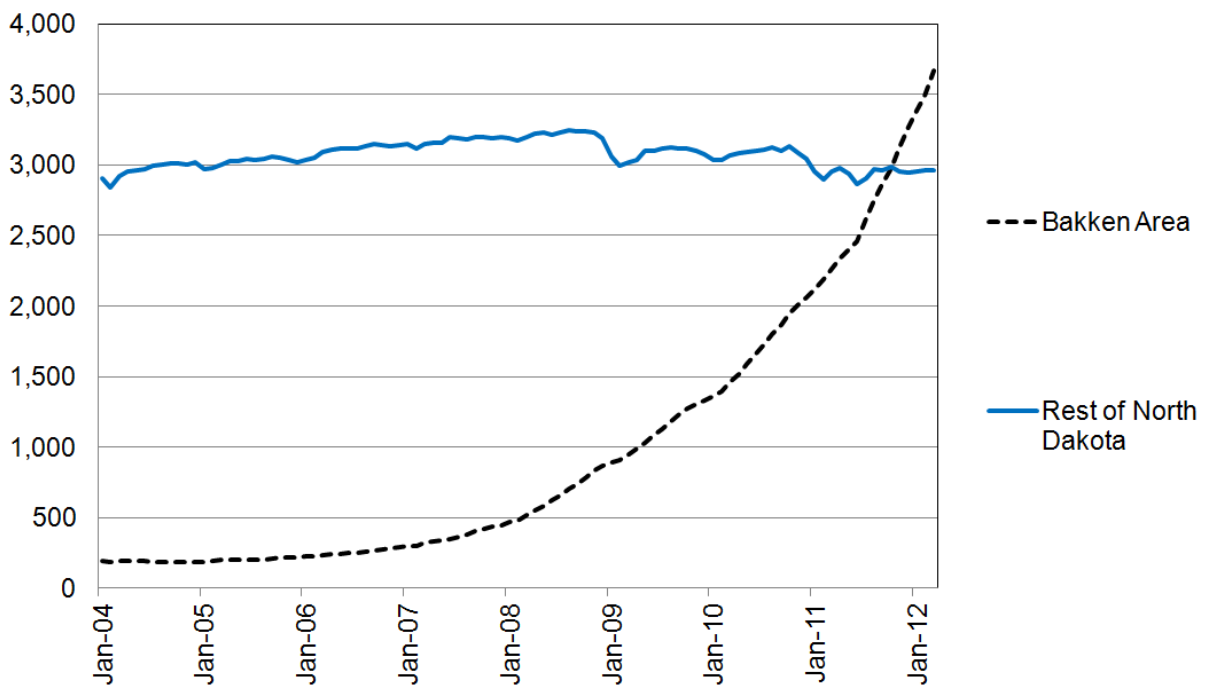


Source: Baker Hughes Investor Relations and Energy Information Administration



- In March, there were 3,672 producing wells in the North Dakota Bakken area.
- Over the next 10 to 20 years, the North Dakota Department of Mineral Resources expects over 20,000 new wells to be drilled in the North Dakota Bakken area. Each active rig involves about 120 workers; at least for the next 10 years, over 24,000 workers could be working on oil rig operations annually.
- Over an even longer time horizon, about 3,000 to 3,500 additional jobs will be required to service the producing wells.

North Dakota oil producing wells

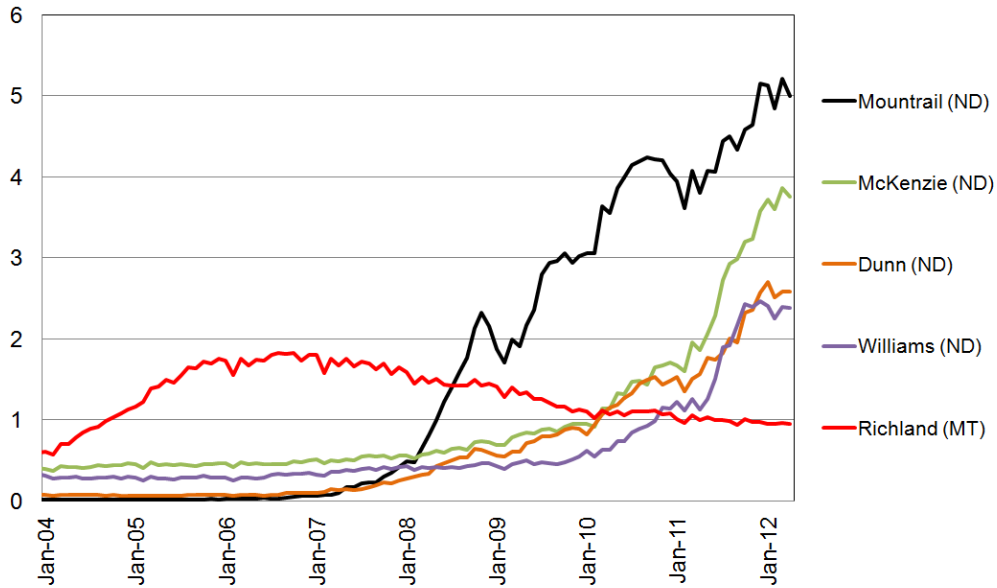


Source: North Dakota Department of Mineral Resources



- Richland County led Bakken oil production until 2008, when production in Mountrail accelerated.
- Over the past two years, McKenzie, Dunn and Williams counties have posted strong gains.

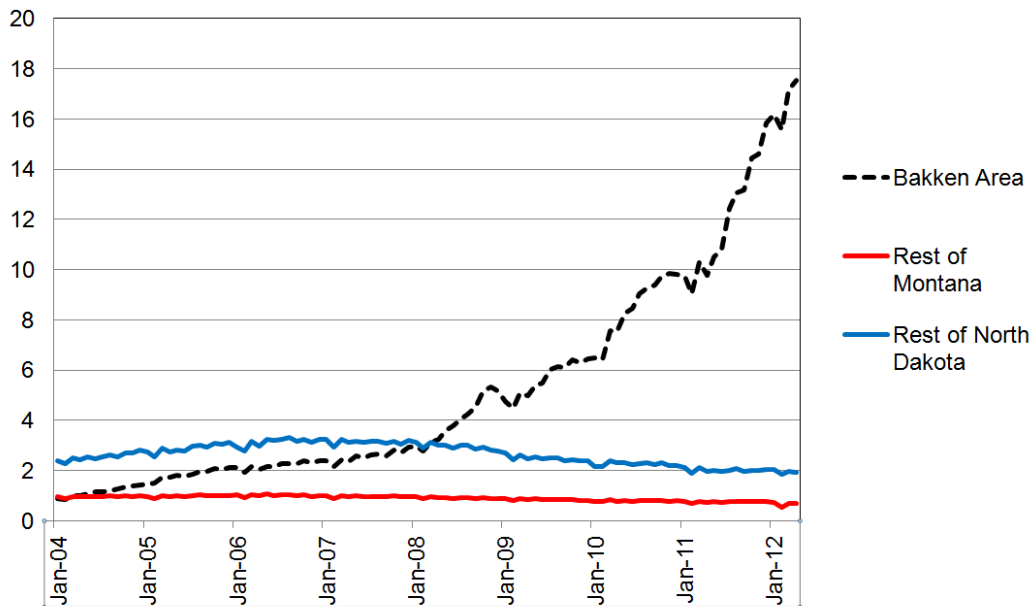
Oil production, major counties
Millions of barrels per month



Source: North Dakota Department of Mineral Resources and Montana Board of Oil & Gas Conservation

- The Bakken area represents most of oil production in Montana and North Dakota.

Oil production
Millions of barrels per month

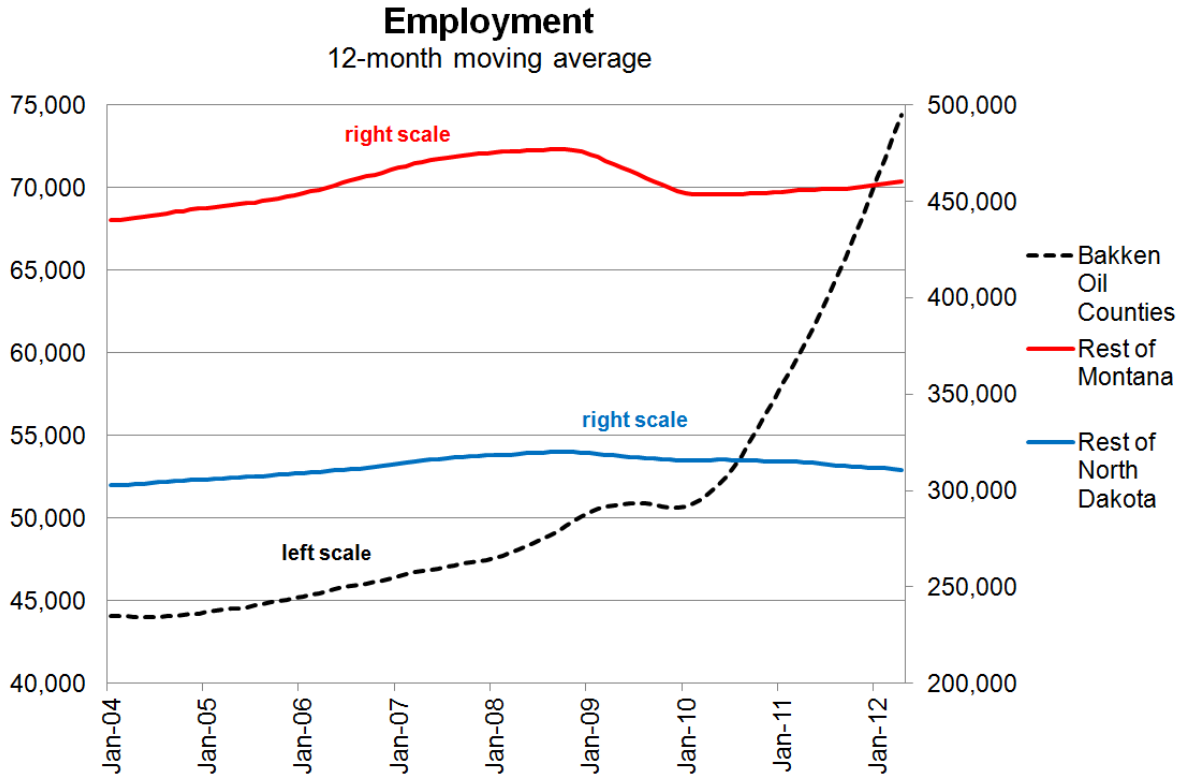


Source: North Dakota Department of Mineral Resources and Montana Board of Oil & Gas Conservation



B. Employment, Wages and Firm/Housing Establishment

- Employment levels have increased about 50 percent in the Bakken area since 2009.
- During this time, employment in the rest of North Dakota was relatively flat, while employment in Montana dipped during the recession.³

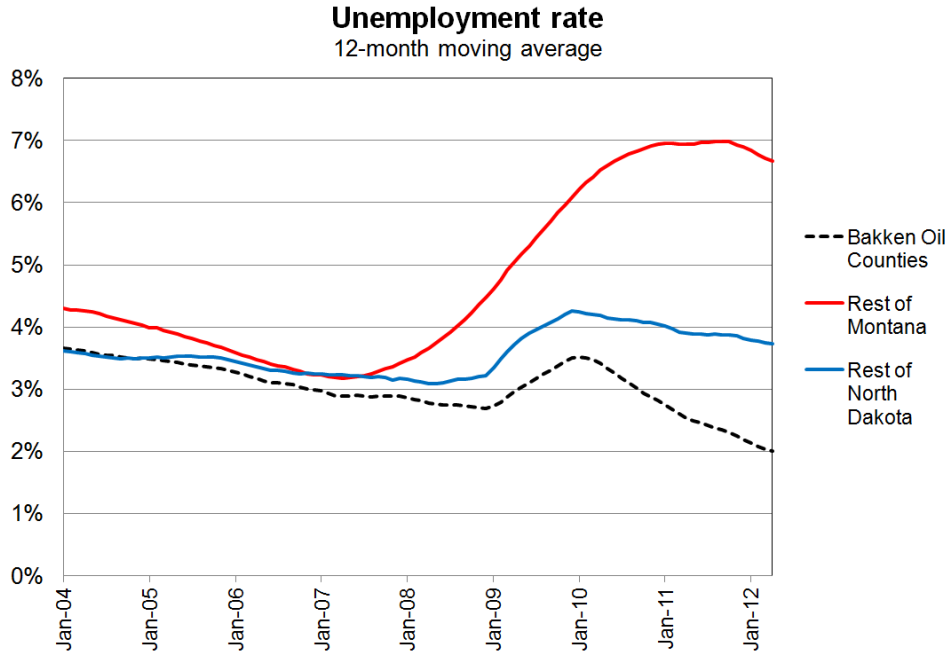


Source: Bureau of Labor Statistics, Local Area Unemployment Statistics

³ Employment data are based on estimates from the Bureau of Labor Statistics, Local Area Unemployment Statistics. Monthly estimates are based on data from the Current Population Survey, a monthly national survey of households. Employment growth in North Dakota as measured by employer payroll data is much stronger than employment growth measured by the household survey. For instance, employment measured with payroll data in North Dakota increased twice as much from March 2004 to March 2012 (79,100) than employment measured by the household survey (38,400). In Montana, employment growth was relatively similar for both measures—payroll increased 21,600 and household increased 22,700 during this period. Current payroll employment data are not available by county.

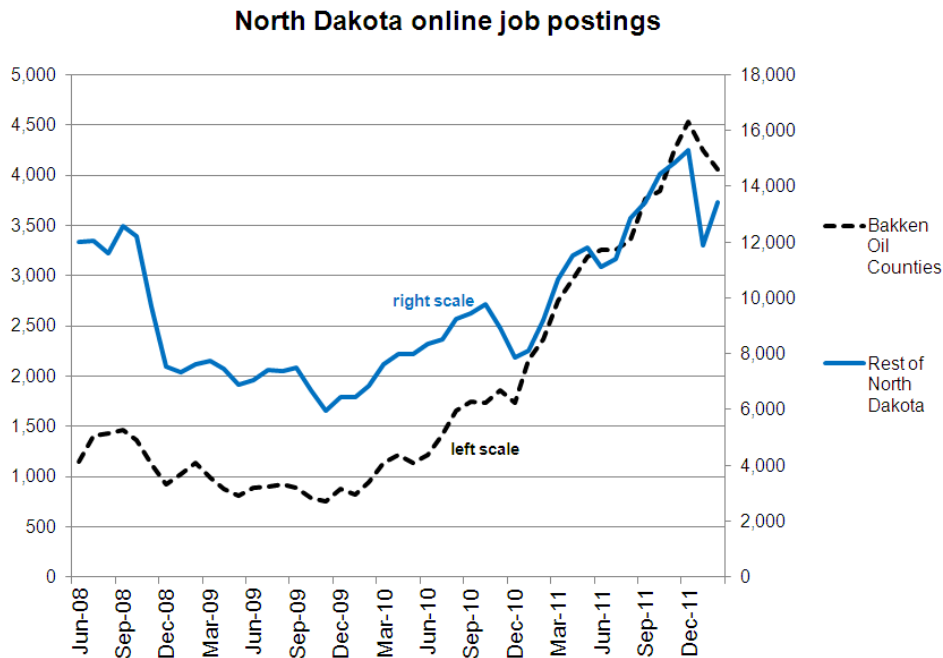


- Unemployment rates in North Dakota within and outside the Bakken remained low during the recession and the oil boom.
- The decrease in unemployment in the Bakken since 2009 has been much sharper than in the rest of North Dakota; the unemployment rate in the Bakken is now close to 2 percent.



Source: Bureau of Labor Statistics, Local Area Unemployment Statistics

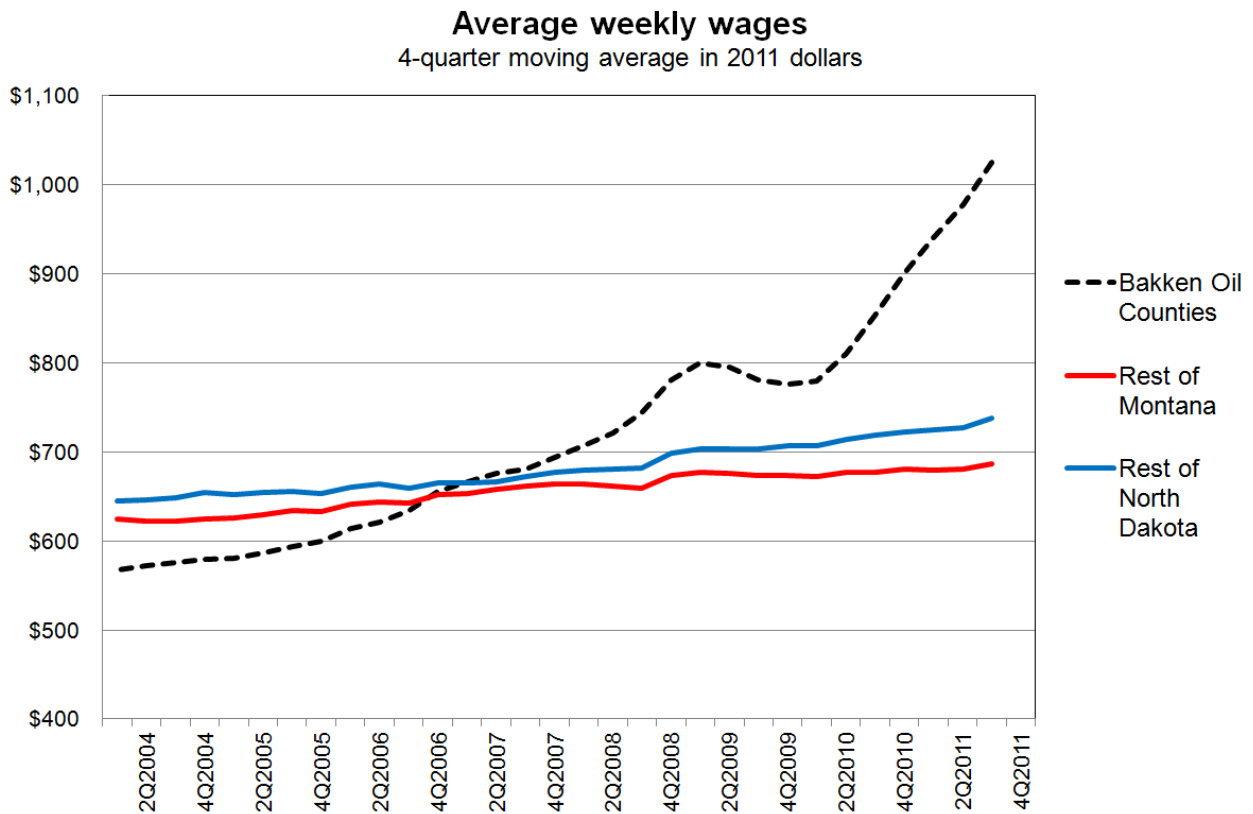
- Bakken job postings increased almost four-fold since 2009 and increased faster than in the rest of North Dakota on a percentage basis.



Source: Job Service North Dakota



- Demand for workers has pushed average weekly wages higher in the Bakken as highly paid oilfield-related occupations gained a larger share of employment, and wages across all sectors increased due to the strong demand for labor.
- Average weekly wages are up around 25 percent in the Bakken since 2009; wage growth is up 1.9% from 3Q2009 to 3Q2011 in the rest of MT and 4.9% in the rest of ND.
- Average wages in the Bakken have risen both due to increases in wages themselves and shifts in the types of jobs held in the Bakken. Wage increases account for close to three quarters of the average wage increase during the oil boom, while the shift in employment to oil-related activity accounts for about one quarter of the average wage increase.

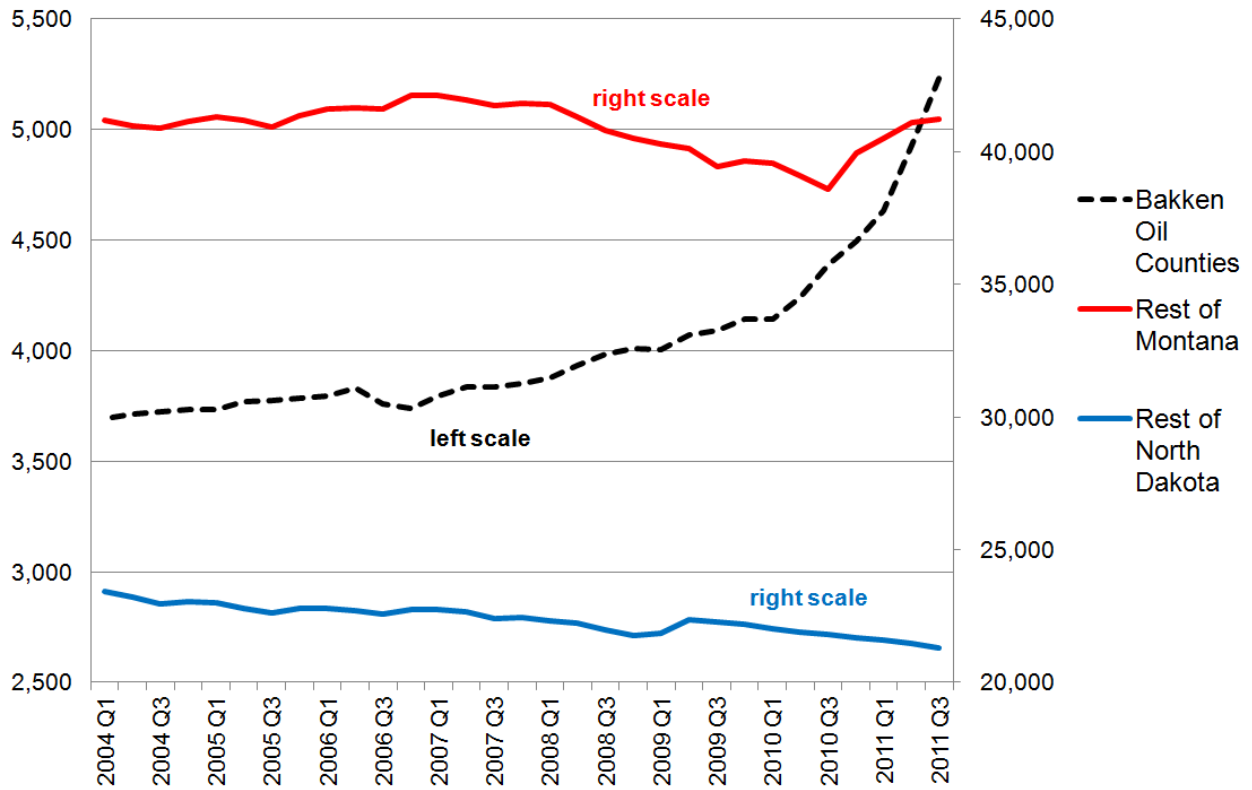


Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages



- New business establishments have grown by about a third in the Bakken, while decreasing slightly in the rest of Montana and North Dakota.

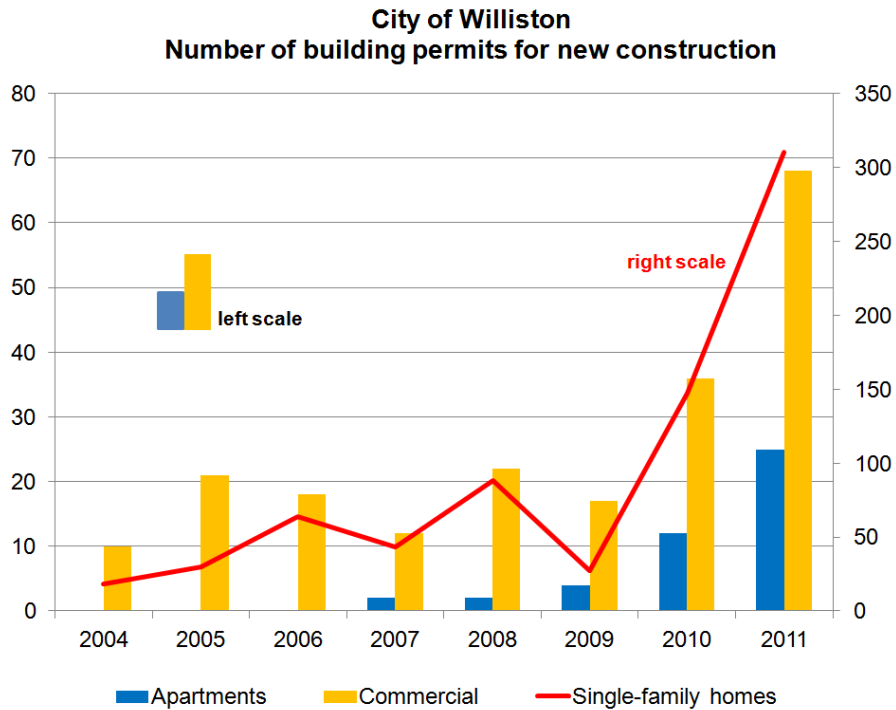
Total business establishments



Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages

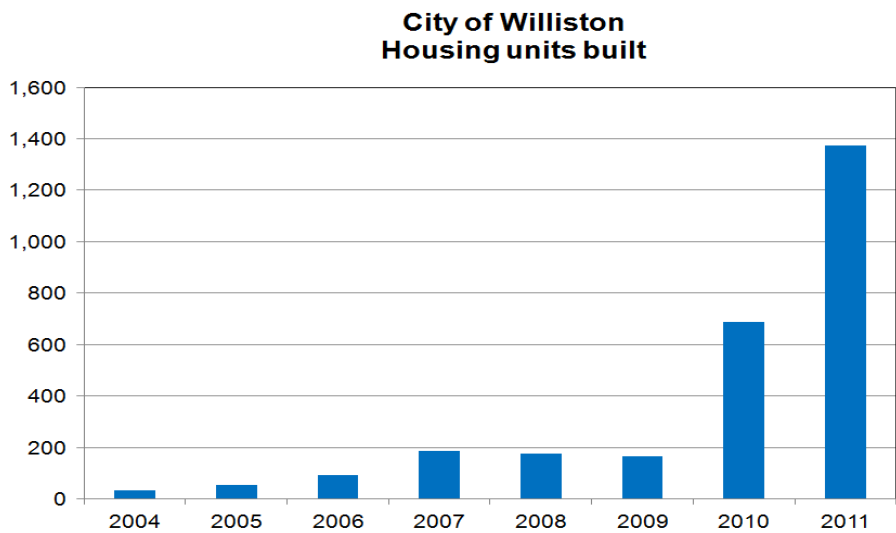


- Construction activity for commercial buildings and residential units has risen sharply for the city of Williston and Stark County (building permit data are not readily available across the Bakken).



Source: City of Williston

- The number of housing units built in Williston and within one mile of the city, including single-family homes, duplexes, twin homes, apartments and manufactured homes, showed strong growth beginning in 2010.
- According to the 2010 census, 13,852 people lived in Williston; the city's population in 2012 is well over 20,000, according to city government officials.

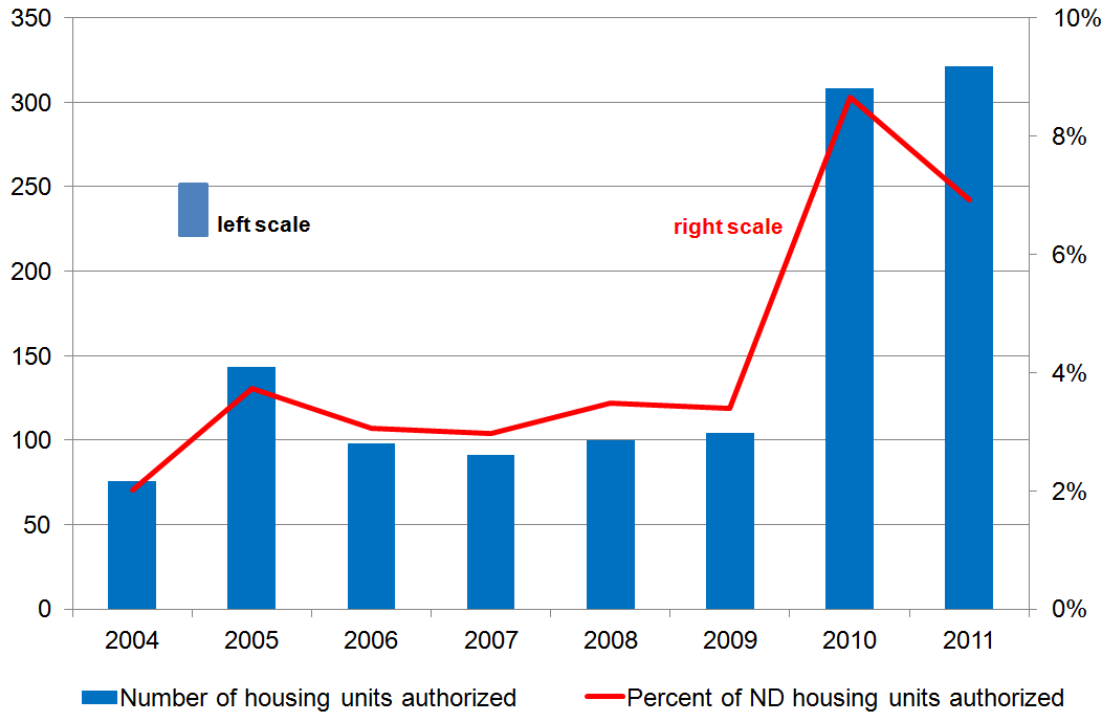


Source: City of Williston



- Stark County, which includes the city of Dickinson, posted strong gains in housing units authorized in 2010 and 2011.
- Stark County housing units authorized made up 9 percent and 7 percent of all North Dakota units authorized in 2010 and 2011, respectively. Stark County had a population of 24,199 in 2010 (3.5 percent of the state population); almost 18,000 people lived in Dickinson.

Stark County Housing units authorized





Section 2. Demographics and Housing

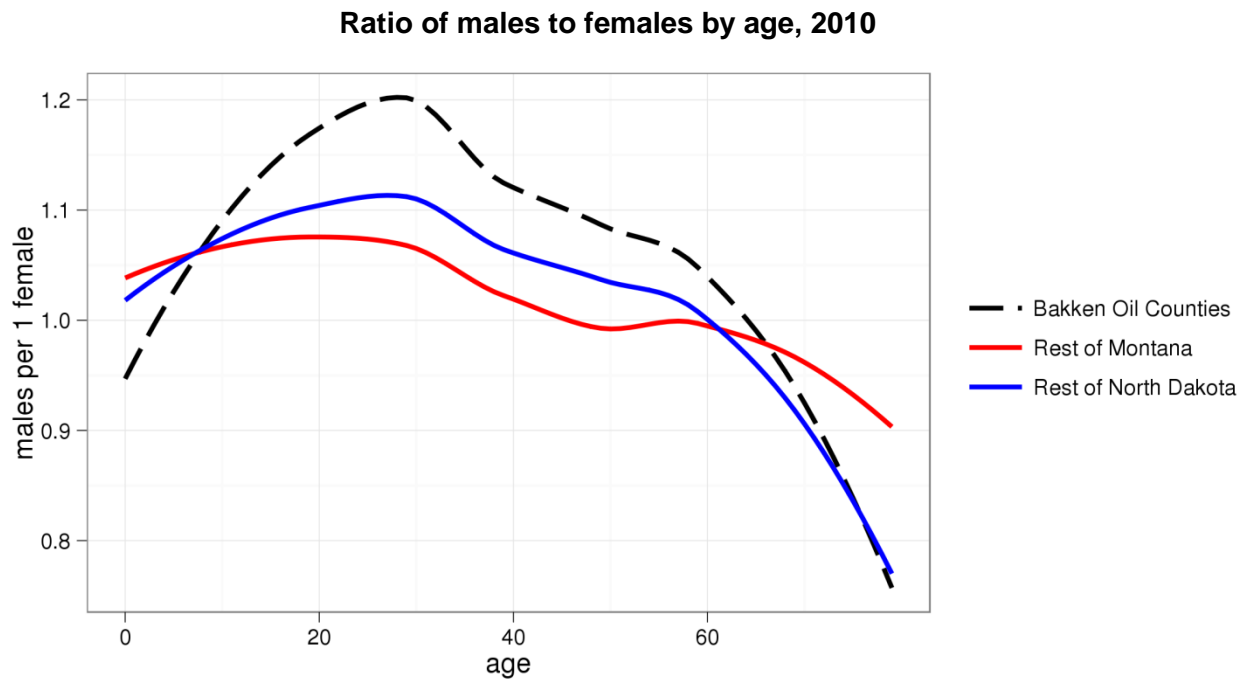
This section primarily uses Census Bureau data, captured through the American Community Survey (ACS), to summarize key demographic and housing data for the Bakken and the rest of Montana and North Dakota. The ACS data have an important limitation: They provide data on the Bakken counties only as five-year averages ending in 2010. We do not have data for 2011. Therefore, we often compare 2005-2009 averages with 2006-2010 averages. This tends to understate differences linked to the oil boom, which has accelerated significantly since 2008.

- The male-to-female ratio is noticeably higher now in the Bakken; this was not true a decade ago.
- The increase in the male-to-female ratio, coupled with a high rate of population growth, supports the anecdotal evidence of significant in-migration, especially of working-age males.
- Aggregate household income per person in the Bakken has risen above that in the rest of Montana and North Dakota.
- Bakken income gains stem mainly from rising wages and salaries.
- The poverty rate in the Bakken is dropping rapidly relative to the rest of Montana and North Dakota for both males and females.
- Although housing values and rents were still lower in the Bakken than in the rest of Montana and North Dakota as of 2006-2010, they were rising faster.
- In 2010, rental vacancy rates were clearly lower in the Bakken (5 percent vs. 7 percent).
- With income rising along with housing costs, the percent of households experiencing burdensome housing costs (greater than 30 percent of income) was generally low and stable in the Bakken. However, burdens were rising rapidly for rental households with income in the \$20,000-\$35,000 range.



A. Population (by Age and Gender)

- The ratio of males to females peaks between ages 20 and 30 for all regions, but is much higher in the Bakken.



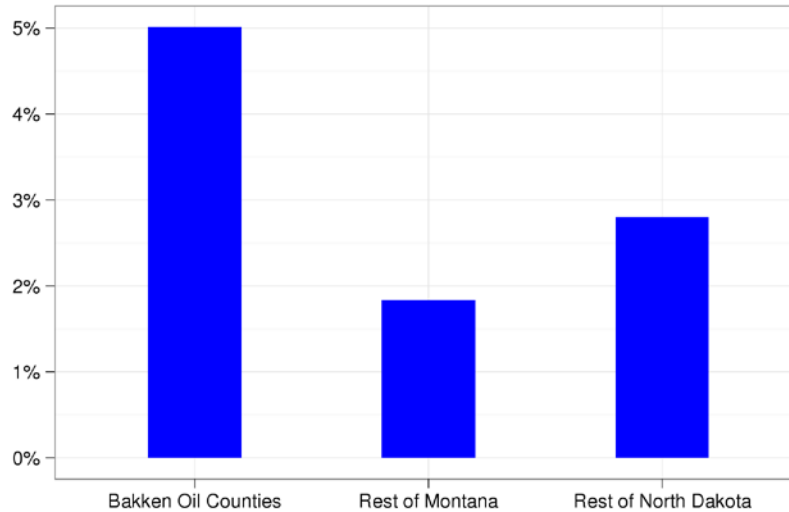
Source: 2010 Census

Note: Lines generated using loess smoothing of data for each age (in years).



- The rate of population change is much higher in the Bakken.

Percent change in population 2005-2009 to 2006-2010

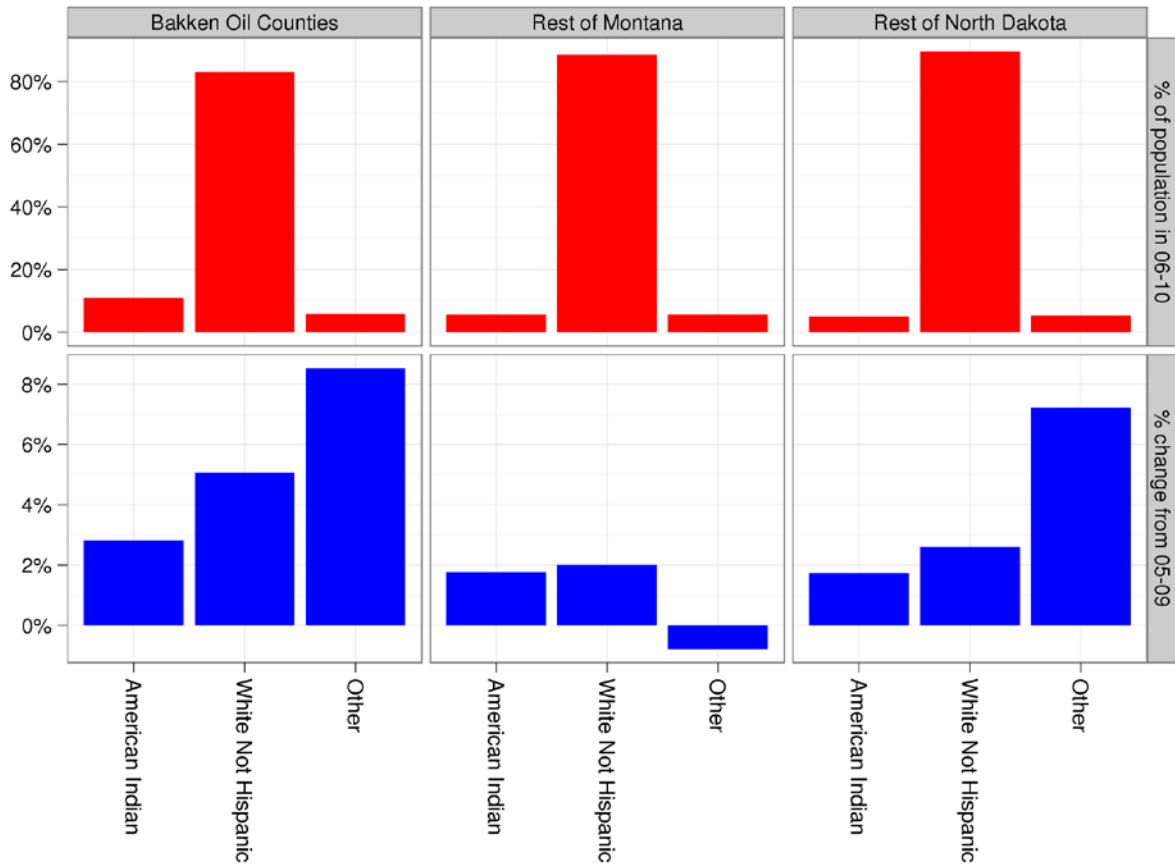


Source: 2005-2009 and 2006-2010 Averages, American Community Survey

- The distribution of race/ethnicity in the Bakken is similar to that in the rest of Montana and North Dakota.
 - The American Indian population is a larger percentage of the population in the Bakken.
- While their overall proportion of the population is small, growth rates in the “Other” category far outpace those of American Indians and white non-Hispanics in the Bakken. (“Other” includes individuals who report neither a single race of American Indian nor non-Hispanic ethnicity combined with a single race of white.)
 - Hispanics made up about 2 percent of the population in the Bakken, while non-Hispanic blacks and Asians each represented less than 1 percent in 2006-2010.
 - Three groups experienced double digit increases in population growth, including 18 percent for non-Hispanic Asians, 21 percent for Hispanics and 32 percent for non-Hispanic blacks.



**Population distribution by race/ethnicity, 2006-2010,
and percent change from 2005-2009**



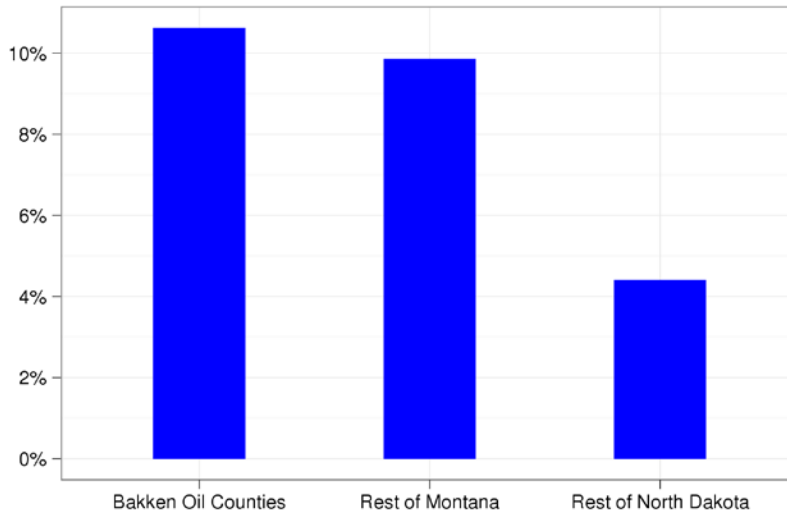
Source: 2005-2009 and 2006-2010 Averages, American Community Survey



B. Income and Poverty

- Aggregate household income rose fastest in the Bakken.

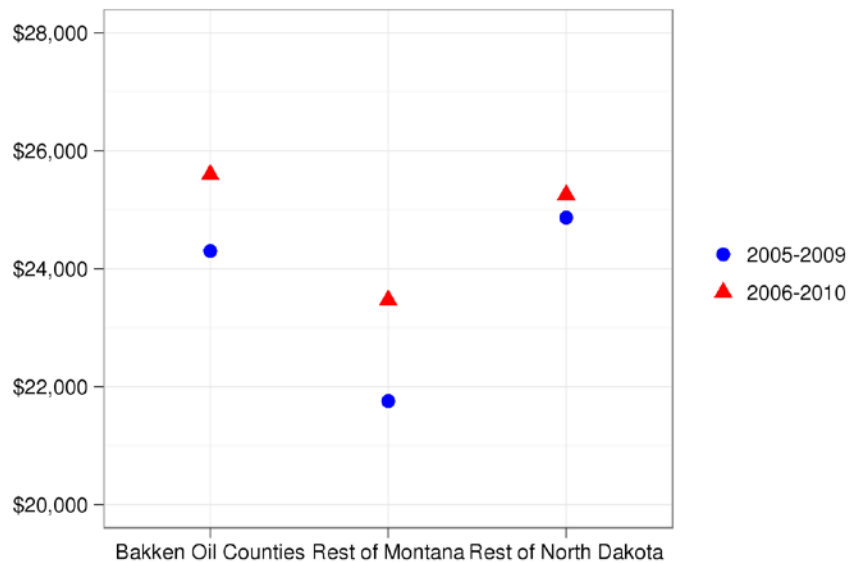
**Percent change in aggregate household income
2005-2009 to 2006-2010**



Source: 2005-2009 and 2006-2010 Averages, American Community Survey

- Aggregate household income per person in the Bakken rose from \$24,299 to \$25,597, surpassing the rest of North Dakota in 2006-2010 (\$25,253).

Per capita household income



Source: 2005-2009 and 2006-2010 Averages, American Community Survey



- The Bakken had a higher level of self-employment income in 2010 (\$3,568 per capita) than the rest of Montana (\$2,083) and North Dakota (\$2,475).
- Wage/salary income in the Bakken increased more rapidly than in the rest of North Dakota, although not as rapidly as in the rest of Montana.
- Self-employment income in the Bakken is higher and rising faster than in the rest of Montana and North Dakota. This may be due to royalty income from mineral rights.

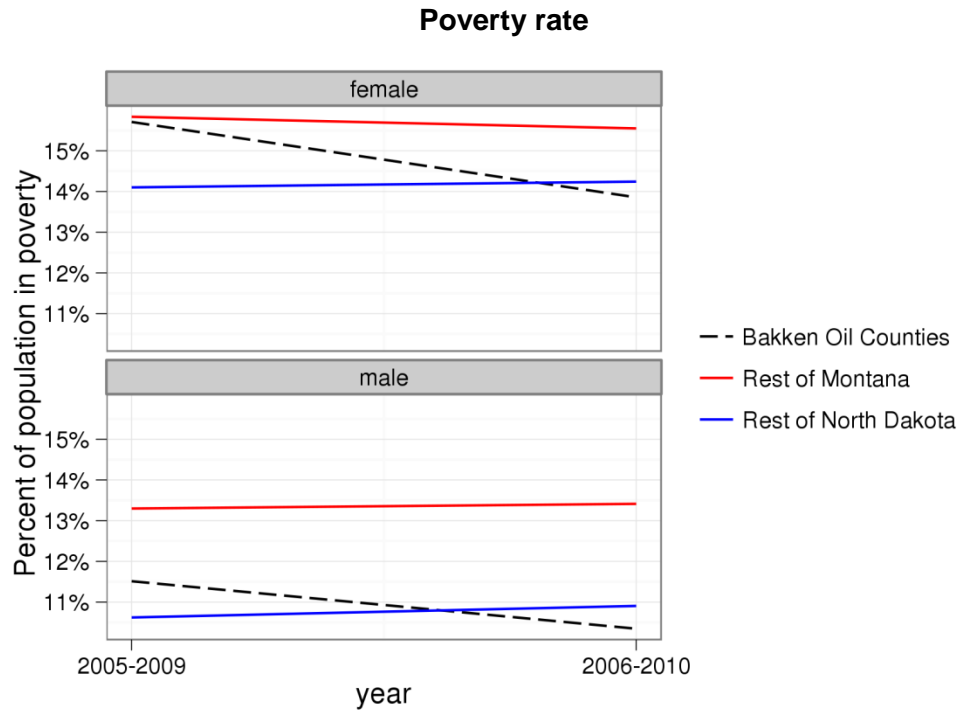
Per capita household income by source



Source: 2005-2009 and 2006-2010 Averages, American Community Survey. "Other" category includes social security, supplemental security, public assistance, retirement, or miscellaneous other income.



- The poverty rate in the Bakken is dropping rapidly relative to the rest of Montana and North Dakota for both males and females.



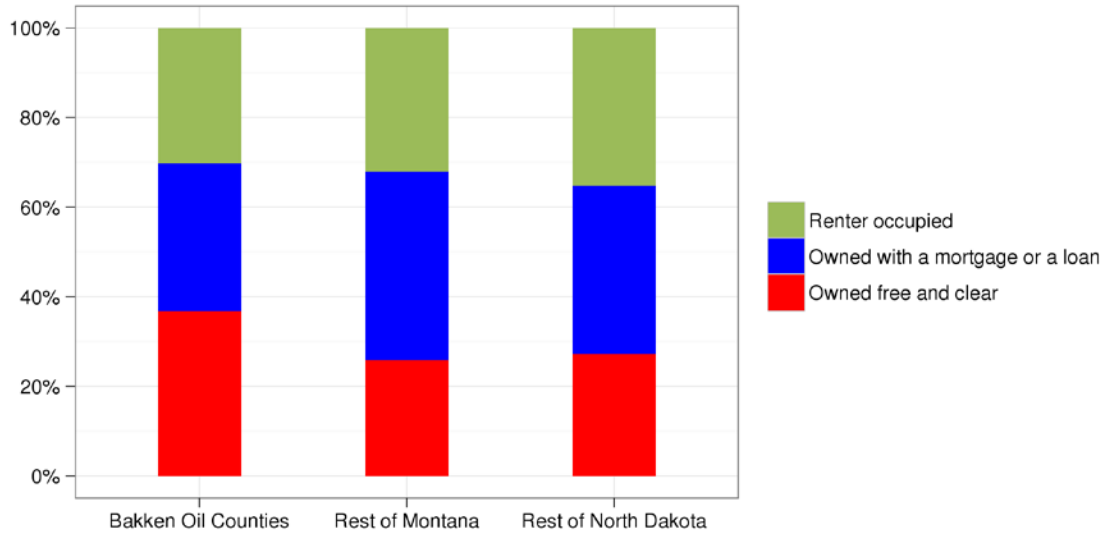
In 2011, a family of four (two children) was considered to be living in poverty if its income was \$22,811 or less.
Source: 2005-2009 and 2006-2010 Averages, American Community Survey



C. Housing

- The home ownership rate in the Bakken is a bit higher than in the rest of Montana and North Dakota.
- In the Bakken, a higher percentage of owners have no mortgage.

Home ownership status of occupied housing, 2010

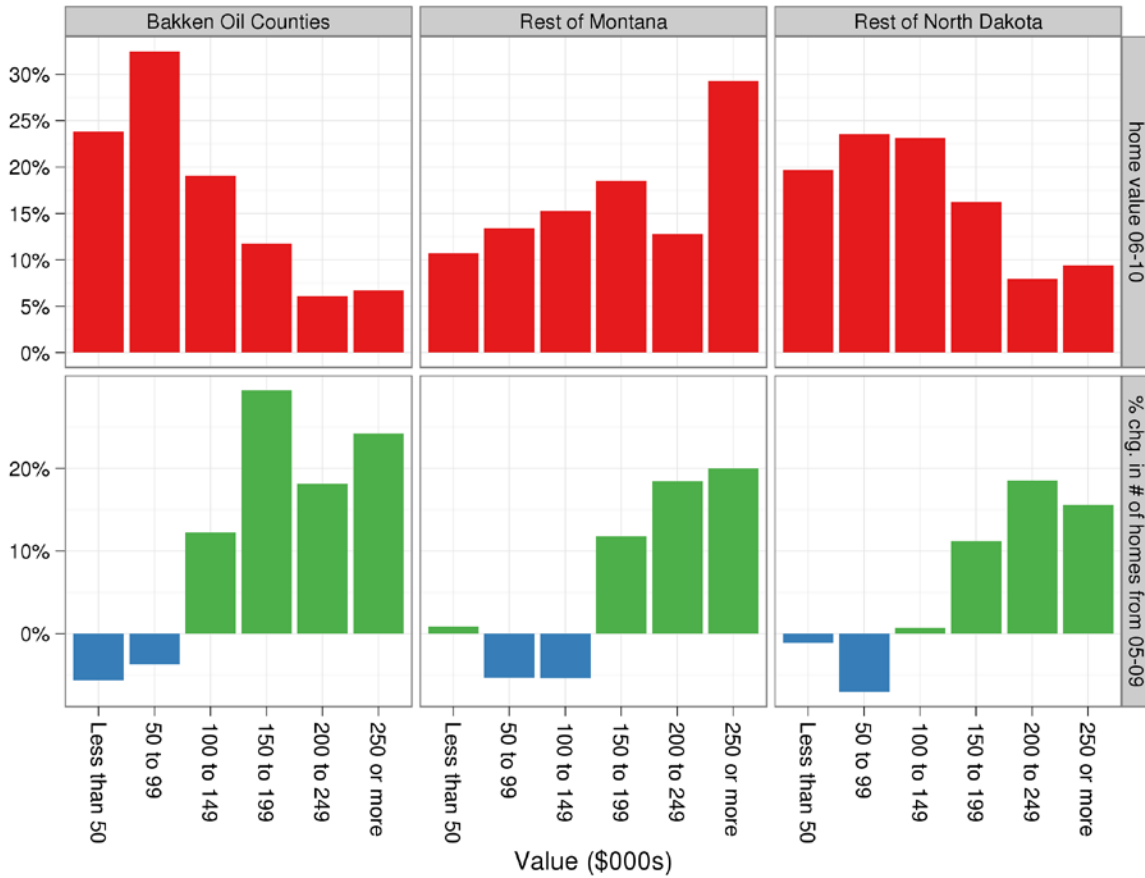


Source: 2010 Census



- Home values remain lower in the Bakken than in the rest of Montana and North Dakota as of 2006-2010.
- However, the number of expensive homes is growing faster in the Bakken, suggesting that values are rising at a faster rate in the Bakken than elsewhere.

**Home value distribution, 2006-2010,
and percent change from 2005-2009**

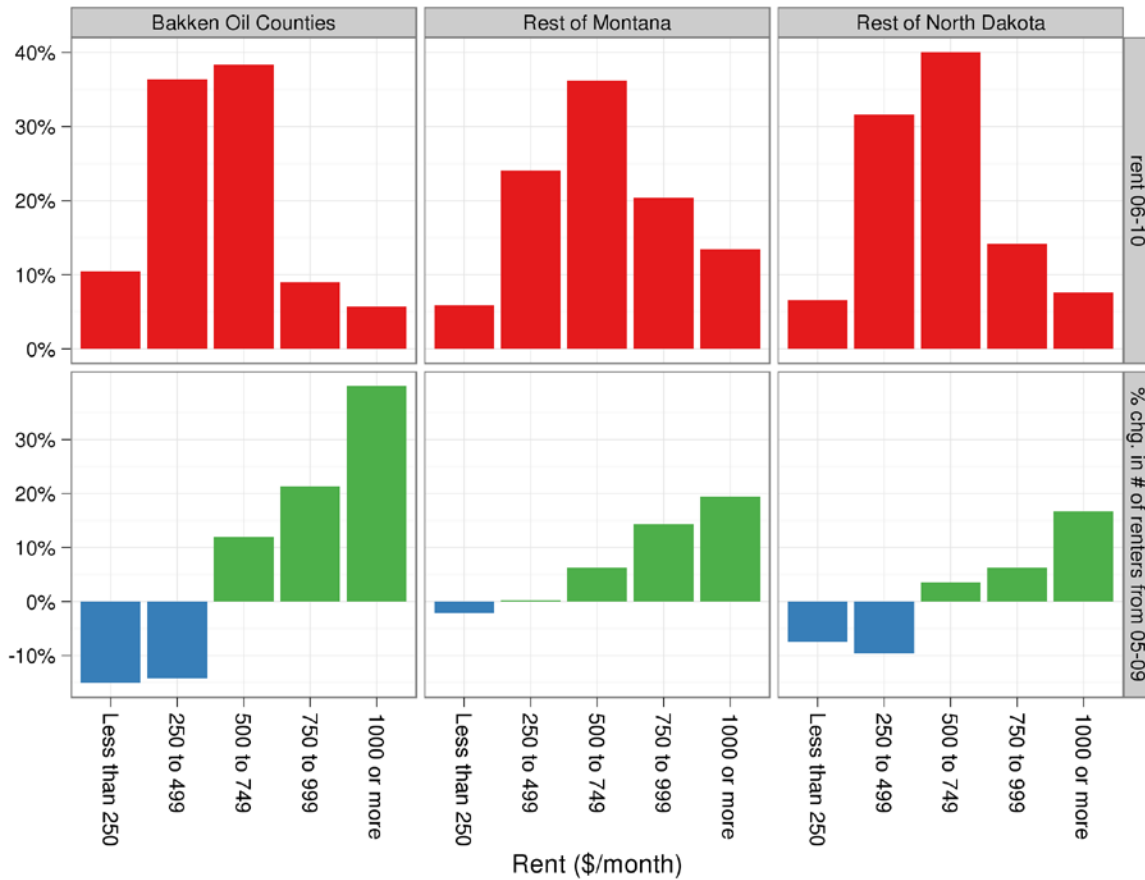


Source: 2005-2009 and 2006-2010 Averages, American Community Survey



- Typical rents are still lower in the Bakken than in the rest of Montana and North Dakota as of 2010.
- However, the percentage change in the number of renters in each price group from 2005-2009 to 2006-2010 is consistent with rents rising at a much faster rate in the Bakken than elsewhere.

Rent distribution, 2006-2010, and percent change from 2005-2009

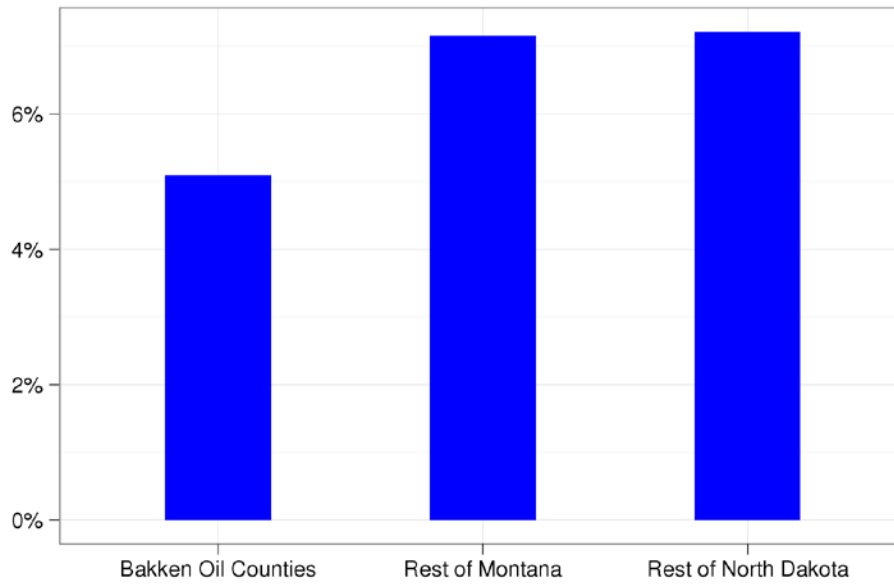


Source: 2005-2009 and 2006-2010 Averages, American Community Survey



- In 2010, rental vacancy rates were clearly lower in the Bakken (5 percent vs. 7 percent).

Rental vacancy rates, 2010

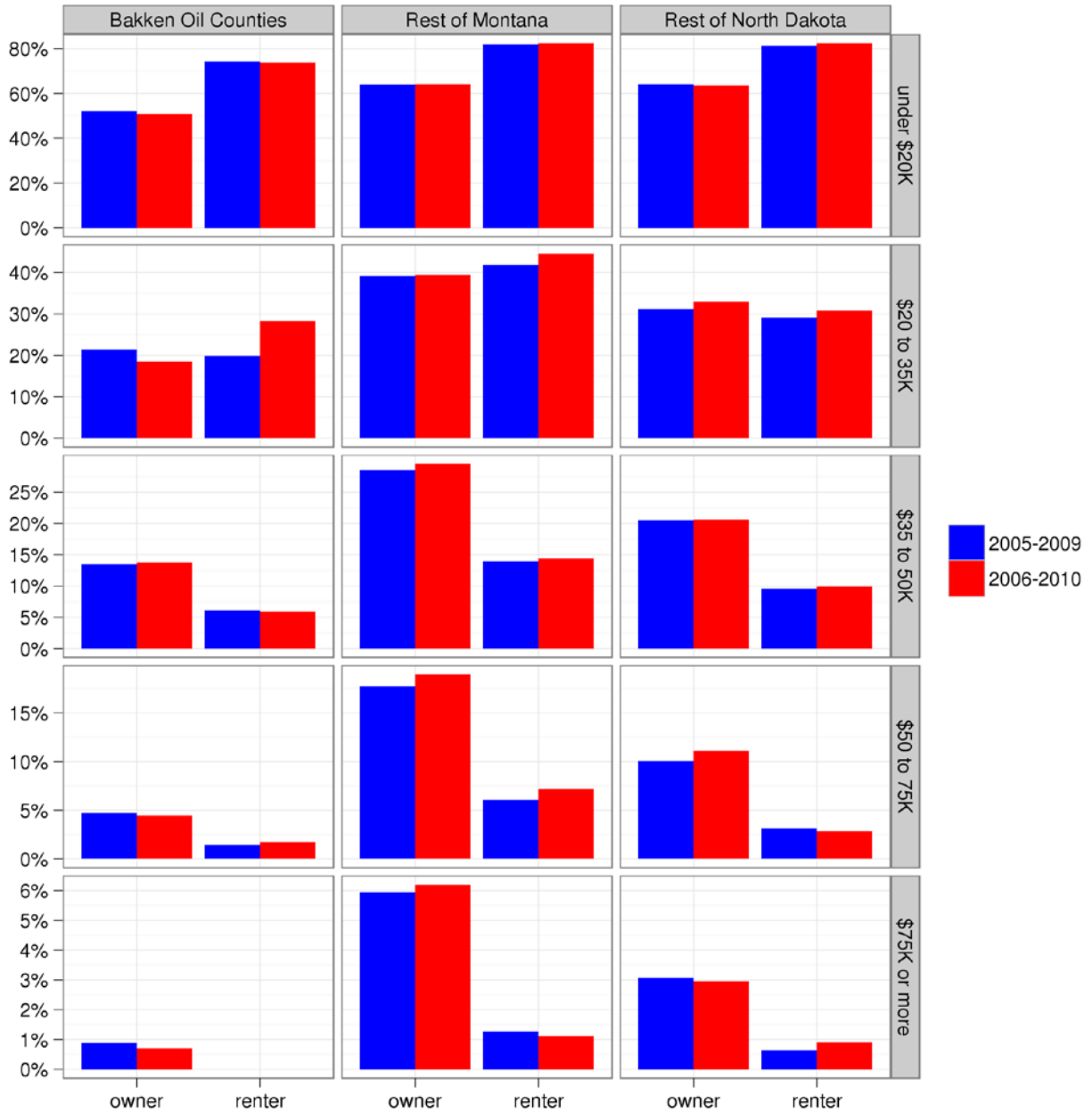


Source: 2010 Census



- Fewer households in the Bakken experience burdensome housing costs across income brackets (with “burdensome” defined by the conventional standard of housing costs exceeding 30 percent of income).
- Renters’ burdens for households with incomes between \$20,000 and \$35,000 rose rapidly; 8 percent of the income bracket saw their rental burden increase from less than 30 percent to greater than 30 percent of their income between 2005-2009 and 2006-2010.

Percent of households with burdensome housing costs, by income category



Source: 2005-2009 and 2006-2010 Averages, American Community Survey



Section 3. Banking

We review several sources of banking data and find the following:

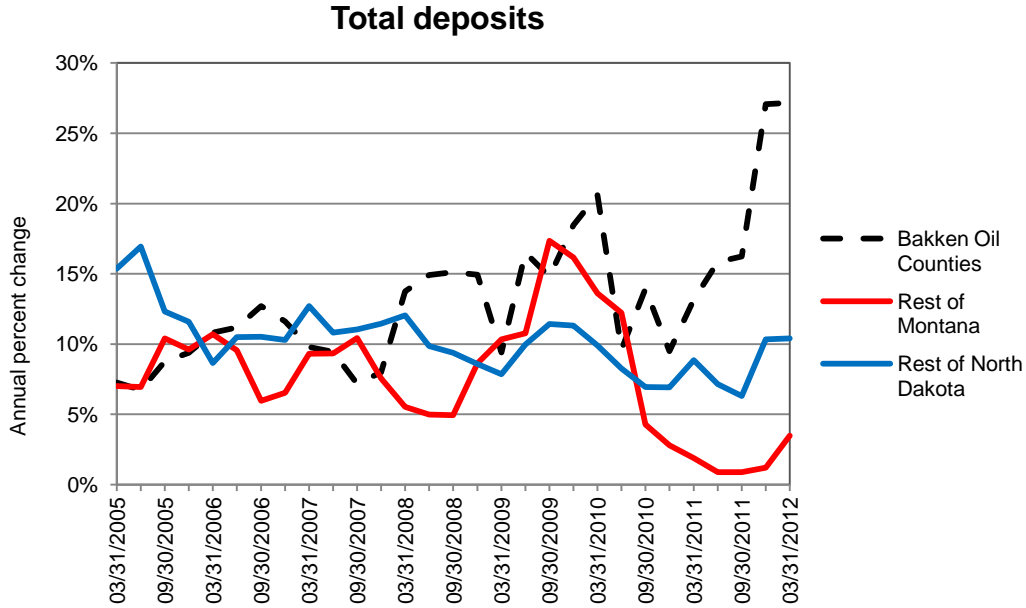
- Total deposits have increased substantially within the Bakken since 2010 compared with the rest of Montana and North Dakota.
- Construction and land development loans in the Bakken increased substantially recently while decreasing in the rest of North Dakota.
- Residential real estate loans began increasing more rapidly in 2010 in the Bakken compared with the rest of Montana and North Dakota.
- Despite increases in some lending, the percent of loans to assets at the Bakken banks has decreased more than in the rest of Montana and North Dakota since 2004; the share of assets of Bakken banks held as interest-bearing balances—such as those held at the Federal Reserve—has increased more than that of banks in the rest of Montana and North Dakota.
- Bank performance within the Bakken has remained stable and generally similar to bank performance in the rest of Montana and North Dakota, although profitability for Bakken banks has picked up recently relative to non-Bakken banks. Serious delinquency rates on mortgages have fallen relatively fast in the Bakken since 2010.

A. Balance Sheet and Performance Metrics for Bakken Headquartered Banks

This section reviews asset and liability growth and standard measures of performance using regulatory reports for banks headquartered in the Bakken, the rest of Montana and North Dakota. We also conduct analysis comparing the operations and performance of specific Bakken banks with specific similar banks outside the Bakken area. The findings from this matched pair analysis—reported in Appendix B—are similar to those reported in this section.

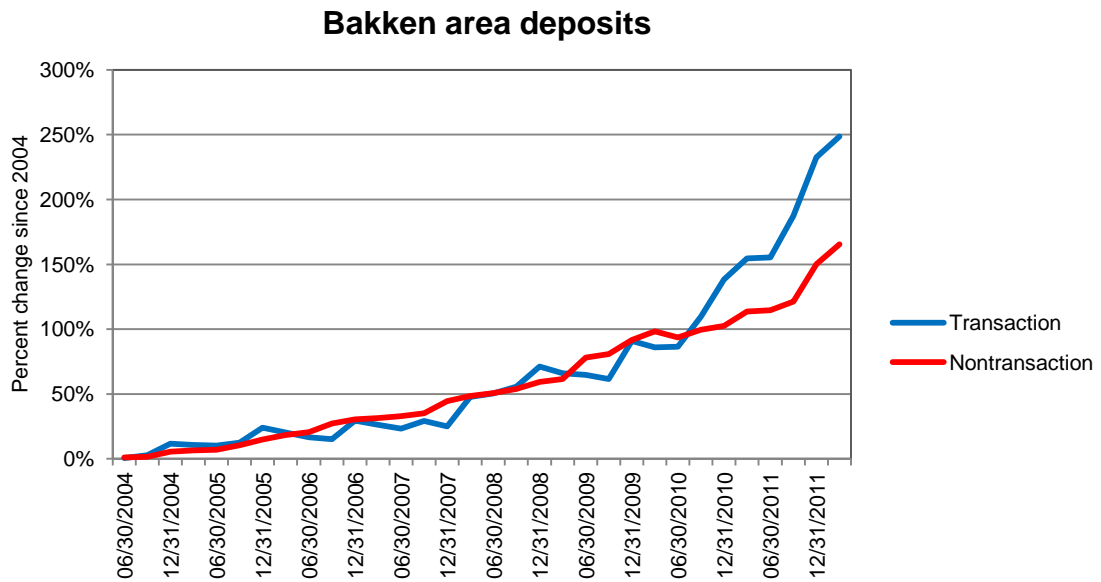


- Total deposits for Bakken area banks began increasing more rapidly than those for other banks in Montana and North Dakota around mid-year 2010.
 - From 3/31/2008 to 3/31/2012, deposits in the Bakken area almost doubled, increasing 90 percent, while deposits in North Dakota as a whole increased 42 percent.



Source: Call Report

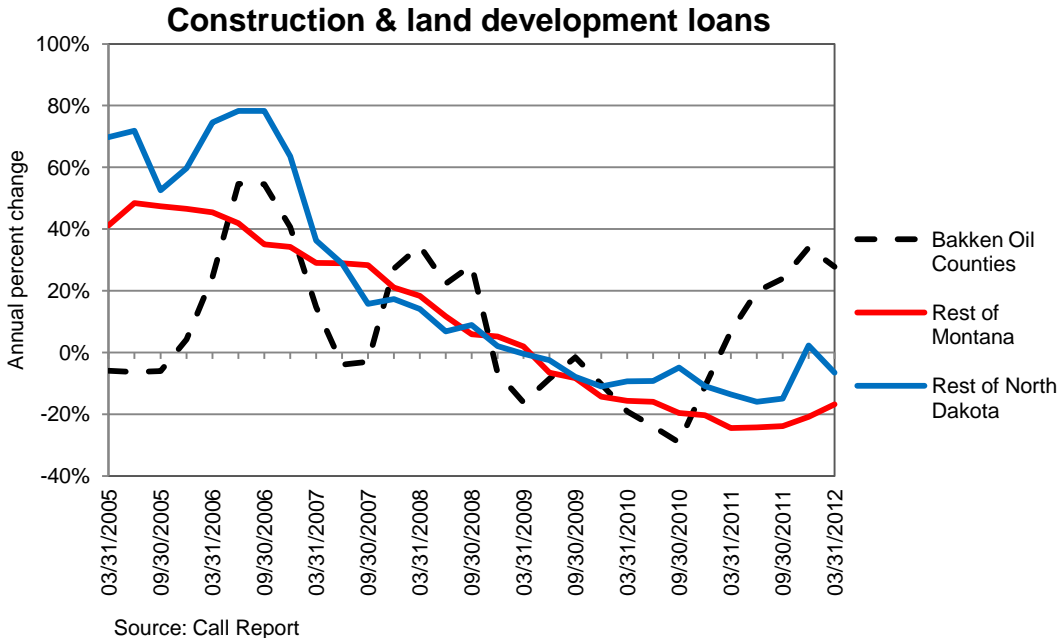
- Transaction accounts (demand and NOW accounts, including checking accounts) for Bakken banks increased faster than nontransaction accounts (savings and time accounts), making up a slightly larger percentage of total deposits than in the past.



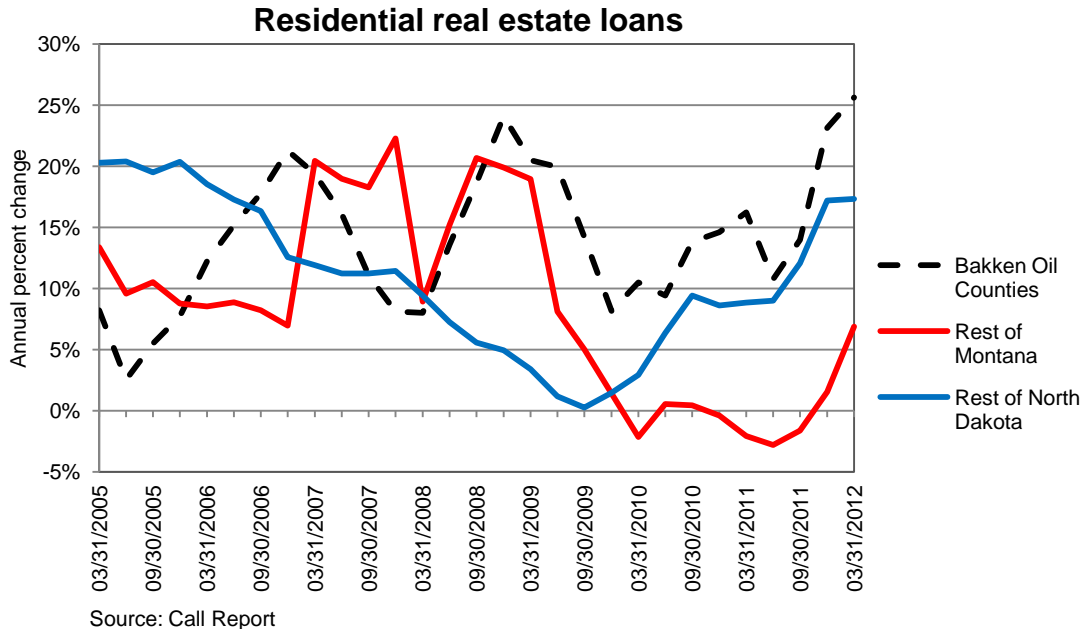
Source: Call Report



- Growth in construction and land development loans (loans secured by real estate to fund land improvements and construction) in the Bakken area has historically been similar to growth in the rest of North Dakota. However from 3/31/2010 to 3/31/2012, construction and land development loans in the Bakken area increased 37 percent, while decreasing 19 percent in the rest of North Dakota.

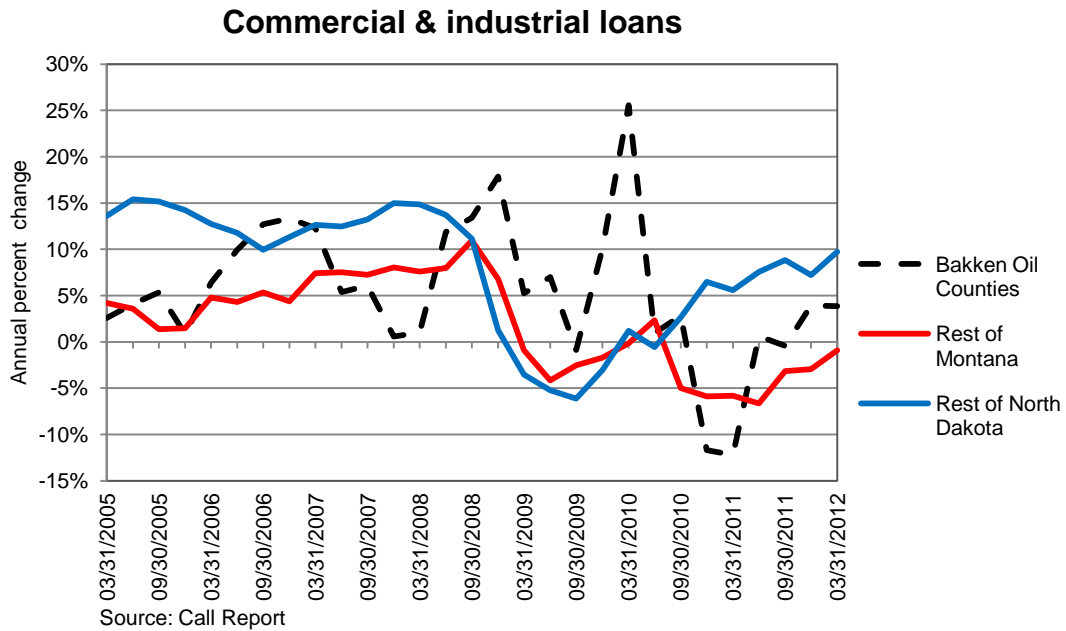


- From 3/31/2009 to 3/31/2012, residential real estate loans (first and second liens secured by 1-4 family properties) increased 61 percent in the Bakken area, while increasing 31 percent in the rest of North Dakota.
- The largest one-year increase in residential real estate loans in the Bakken area was from 3/31/2011 to 3/31/2012, at 26 percent.

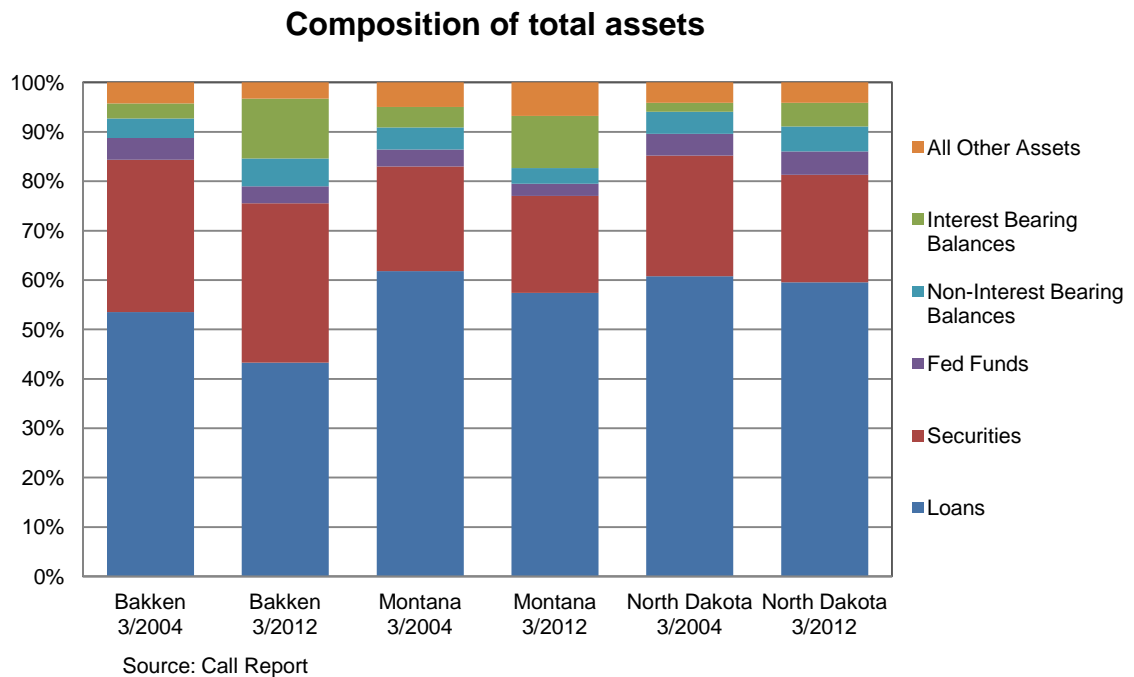




- Commercial and industrial loans increased 19 percent in the Bakken area from 3/31/2007 to 3/31/2012.

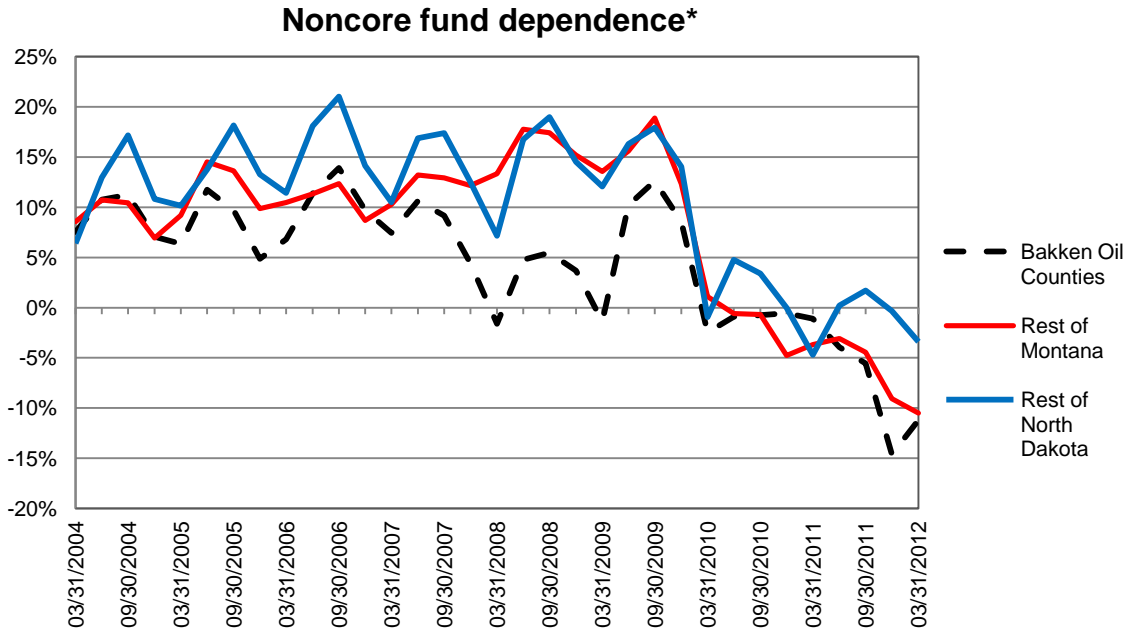


- The percent of loans to assets at the Bakken banks has decreased more than in the rest of Montana and North Dakota since 2004; the share of assets of Bakken banks held as interest-bearing balances—such as those held at the Federal Reserve—has increased more than that of banks in the rest of Montana and North Dakota.



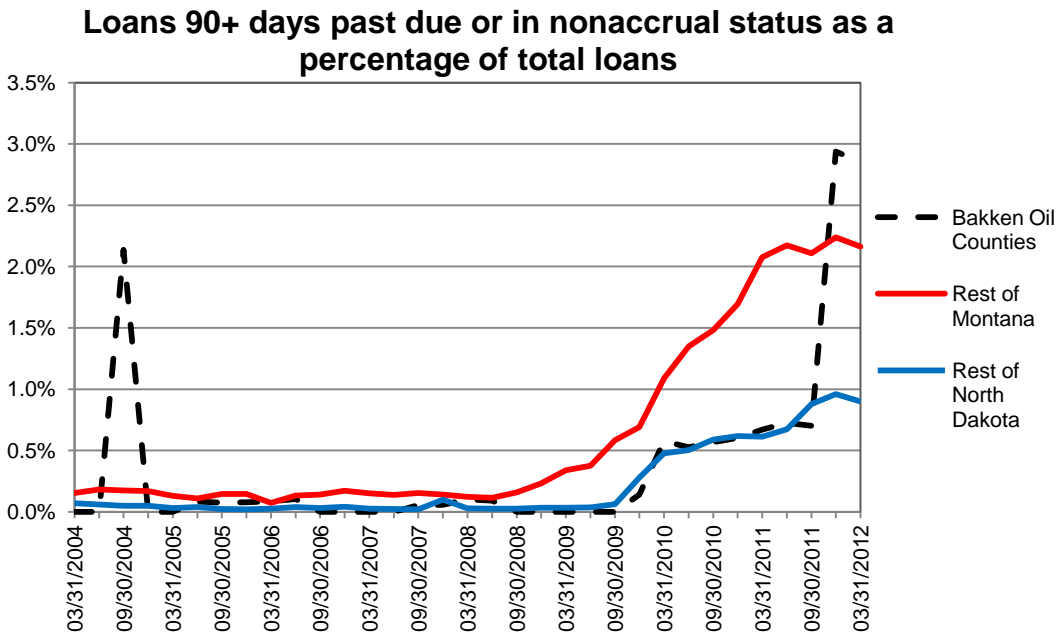


- Consistent with data on increased deposits, reliance on noncore sources of funding, such as brokered deposits and borrowings, began to decrease in 2011.



* Noncore liabilities less short term investments, divided by long term assets
Source: Call report

- The spike in loans 90+ days past due or in nonaccrual status as of 12/31/2011 is primarily due to one bank within the Bakken area, but otherwise has remained consistent with the rest of North Dakota.

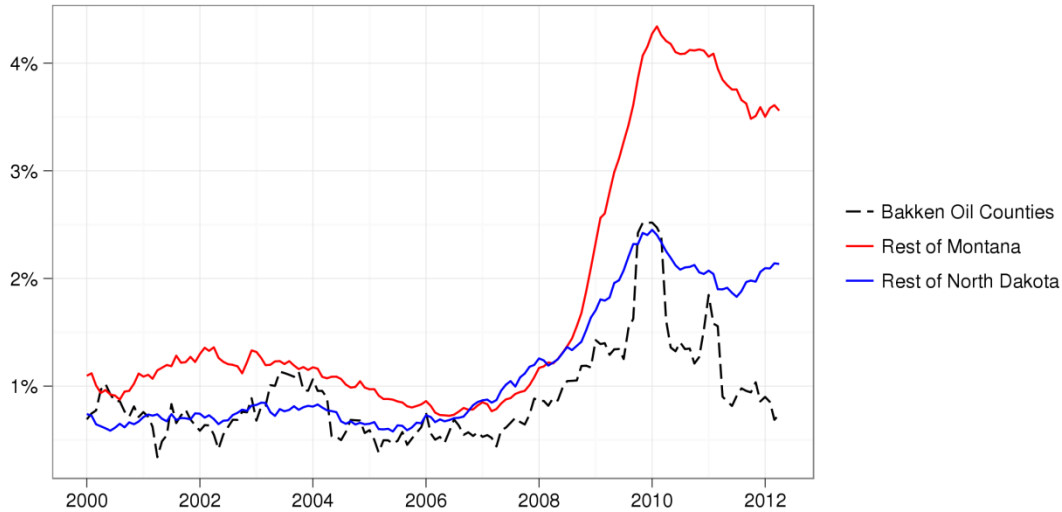


Source: Call Report



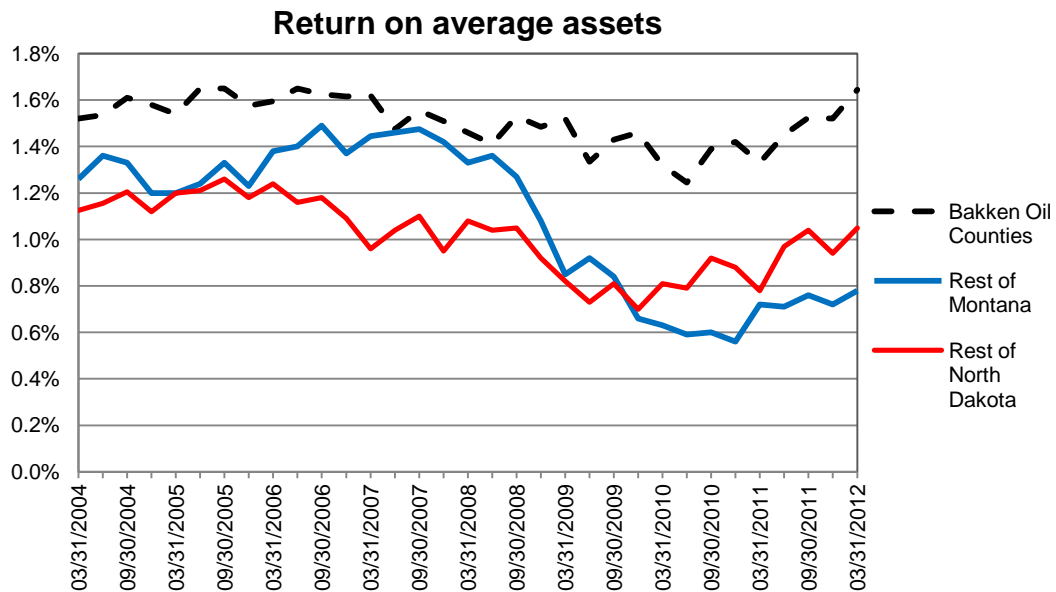
- The incidence of serious mortgage problems in the Bakken paralleled the rest of Montana and North Dakota relatively closely until 2010, when it dropped sharply compared with more modest declines elsewhere.⁴

Incidence of Serious Mortgage Problems



Note: Mortgages that are 90+ days delinquent, in foreclosure, or post-foreclosure but associated with real estate owned (REO) by lenders, as a percentage of outstanding mortgages.
Source: Staff calculations based on data provided by LPS Applied Analytics

- Profits—as measured by return on average assets—are higher within the Bakken area, averaging 1.43 percent since 3/31/2009, while averaging 0.86 percent in the rest of Montana and North Dakota.

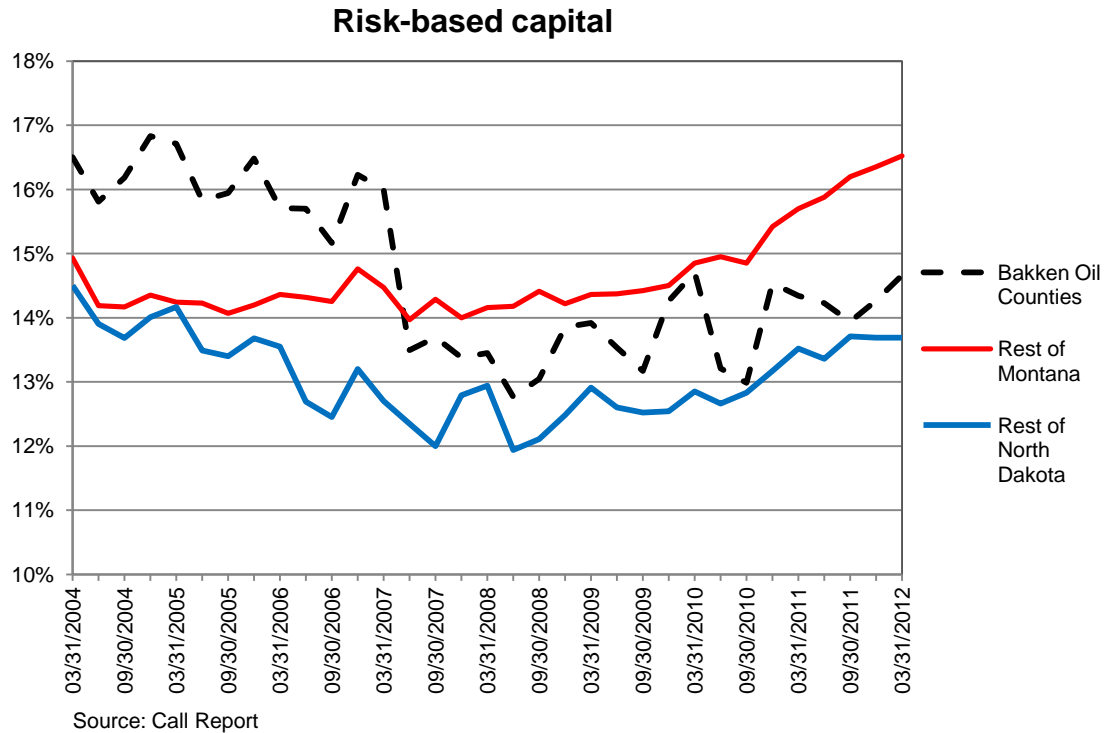


Source: Call Report

⁴ Unlike the other data in this section, information on mortgage delinquencies is not restricted to mortgages made or held by Bakken-based banks.



- Capitalization within the Bakken is similar to that in the rest of Montana and North Dakota.



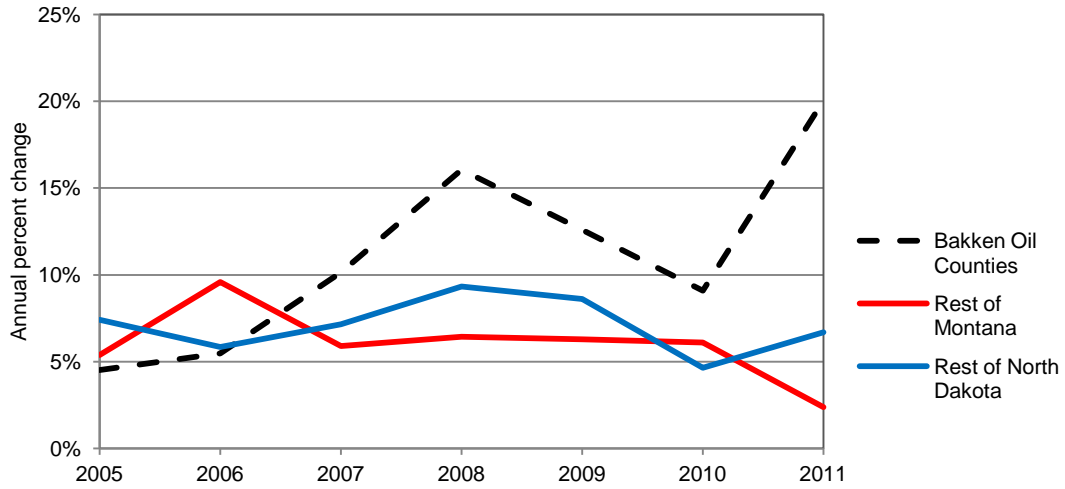
B. Deposits of and Small Business Lending by Banks Active in the Bakken

In this section, we compare a wider range of banks operating in the Bakken with other banks operating in Montana and North Dakota. This section relies on data from the Summary of Deposits and Community Reinvestment Act Small Businesses data set. The former includes data for any bank with a physical presence in the area under review, while the latter captures data on select banks that made loans in the areas under review (even if they do not have a physical location in the areas). The findings in this section mirror what we found in Section A.

- The Summary of Deposits shows total deposits in branches and headquarters in the Bakken area growing more rapidly than in other Montana and North Dakota banks beginning in 2008.
 - Deposits in Bakken area branches and headquarters grew 28 percent from 2006 to 2008, while deposits in other banks in Montana and North Dakota grew 15 percent.
 - The overall increase in Bakken area deposits from 2004 to 2011 was 108 percent, while the increase was 56 percent in the rest of Montana and North Dakota.



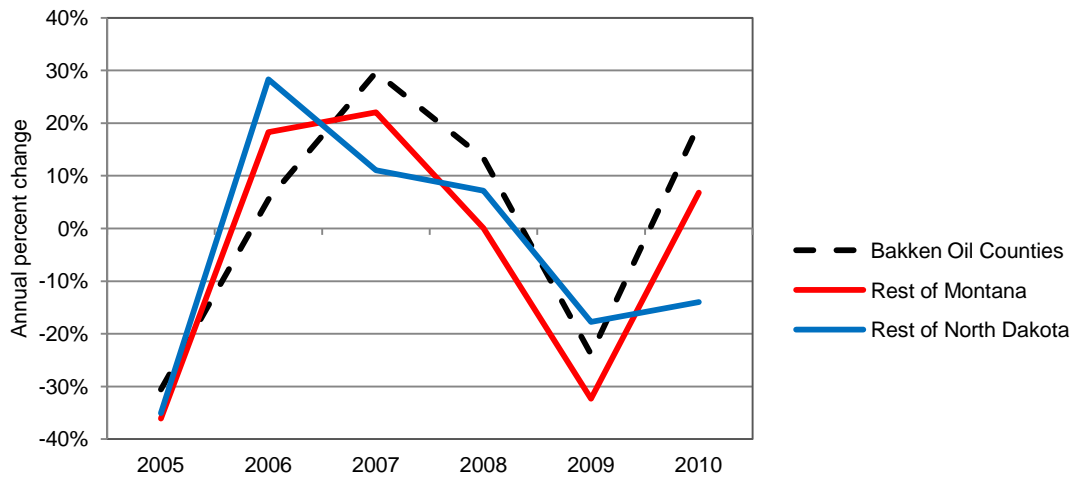
Deposit growth - summary of deposits



Source: Summary of Deposits, as reported to FDIC annually as of June 30, including branches of all FDIC insured institutions

- Small loans made to firms within the Bakken show similar growth to those in the rest of Montana and North Dakota.

Total value of loans less than \$1 million to businesses



Annual report required based on annually adjusted asset size thresholds (\$1.098 bil as of 2010). In 2010, 36 banks reported data within Bakken counties; 73 banks reported within the rest of Montana, and 47 banks reported within the rest of North Dakota.



Data on Demographic, Economic and Financial Activity in the Bakken. June 20, 2012.
Federal Reserve Bank of Minneapolis

Appendix A. Bakken Definition

Definition for oil production: North Dakota production is from Bakken, Sanish, Three Forks and Bakken/Three Forks Pools as reported by the North Dakota Department of Mineral Resources. Montana production is total production from Richland, Roosevelt and Sheridan counties.

Definition for other indicators: North Dakota counties: Billings, Burke, Divide, Dunn, Golden Valley, McKenzie, Mountrail, Stark, and Williams. Montana counties: Richland, Roosevelt, and Sheridan

The major oilfield service cities in the Bakken are Williston (Williams County), Dickinson (Stark County) and Sidney (Richland County).

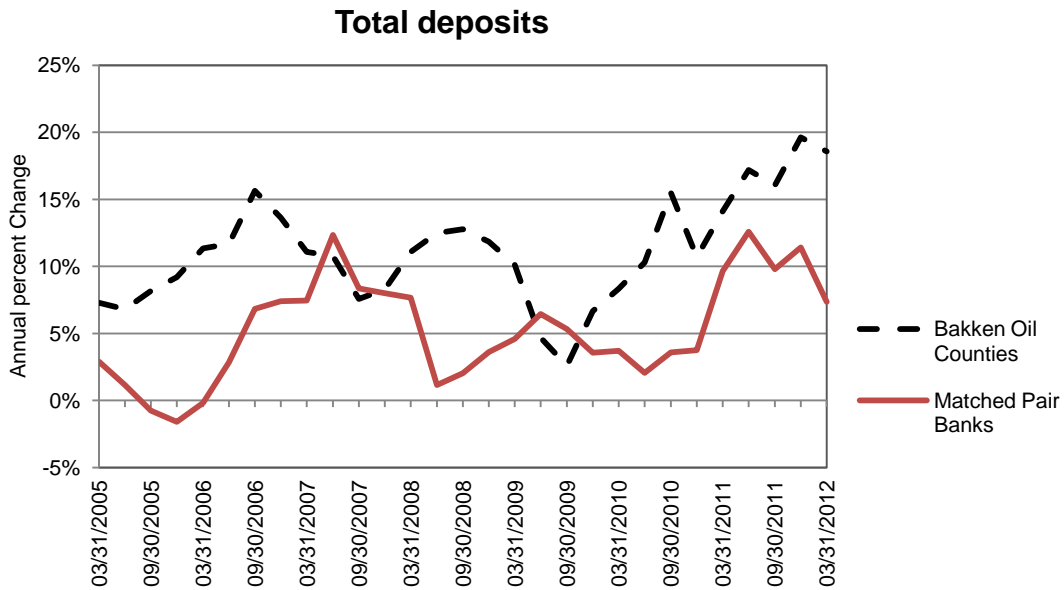


Appendix B.

The analysis in this appendix (called “matched pair”) compares the operations and performance of specific Bakken area banks with specific similar banks outside the Bakken area. We match banks based on factors such as asset size, loan composition and rural/urban nature of bank location.⁵

The matched pair analysis has very similar results to those reported in Section 3 of this memo. Bakken area banks show larger and more rapid increases in deposits and residential real estate loans than the banks outside the oil patch. Noncurrent loans to total loans, however, has begun to increase more than in the matched pair banks since 2010.

- Total deposits in the Bakken area have risen at a faster pace since 2010 than in the matched pair banks.
- From 3/31/2009 to 3/31/2012, total deposits in the Bakken have increased twice as much as in the matched pair banks.

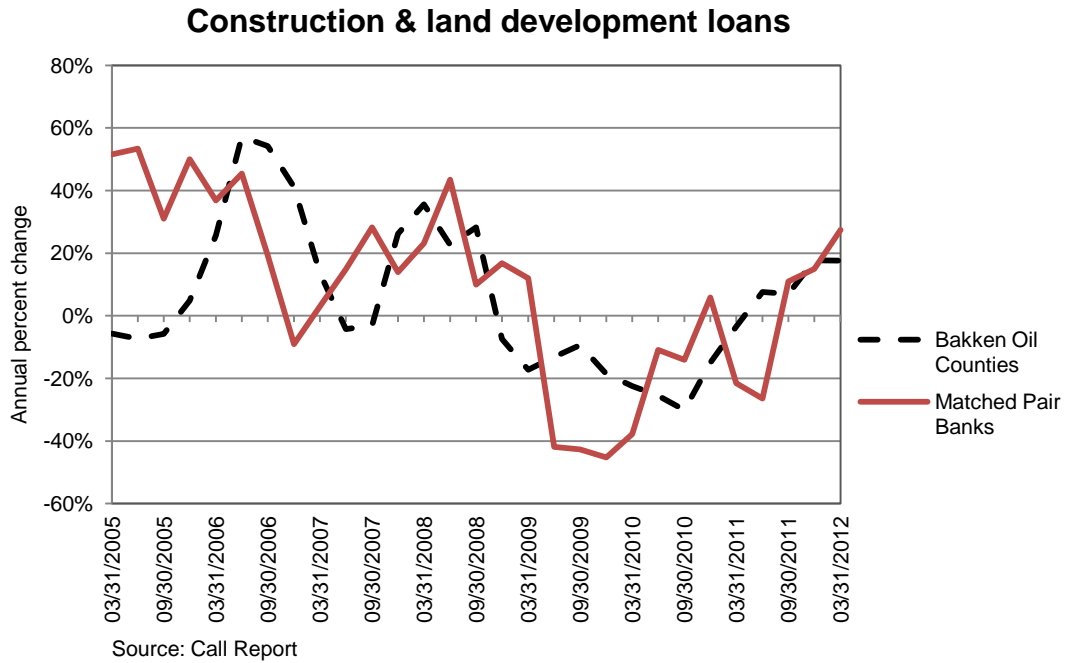


Source: Call Report

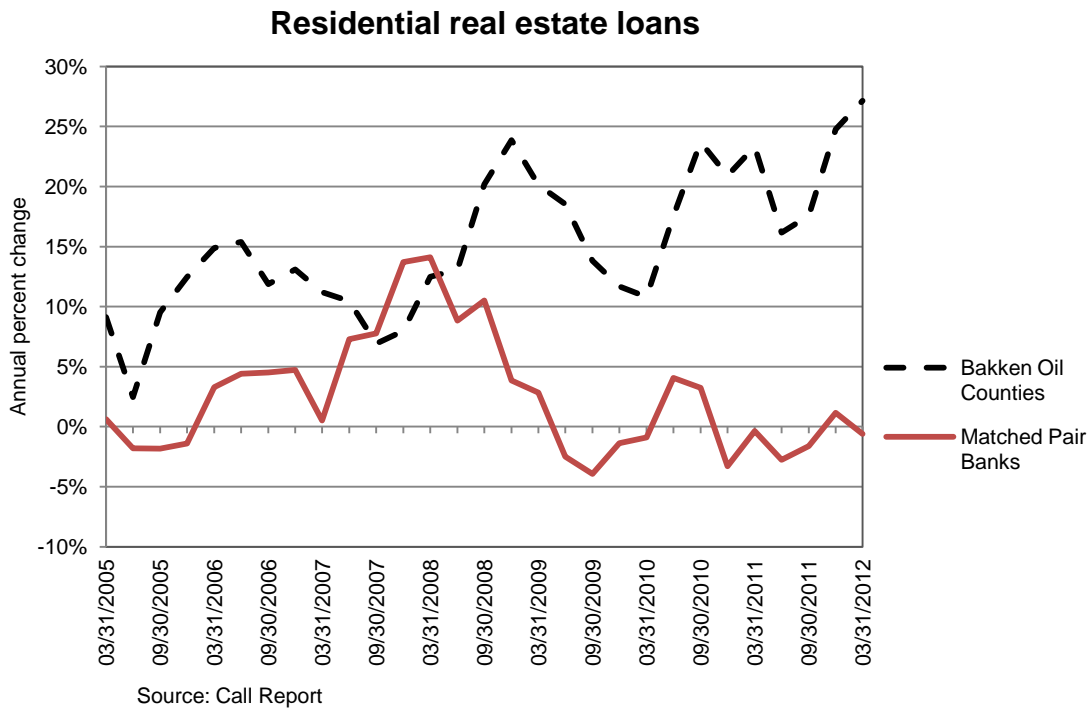
⁵ Two Bakken banks were excluded from this analysis due to merger activity since 2005 that affected the banks’ growth. A list of the specific matched pairs is available from the authors, as is a complete list of variables used to match the banks.



- Construction and land development loan activity within the Bakken area has been similar to that in the matched pair banks.

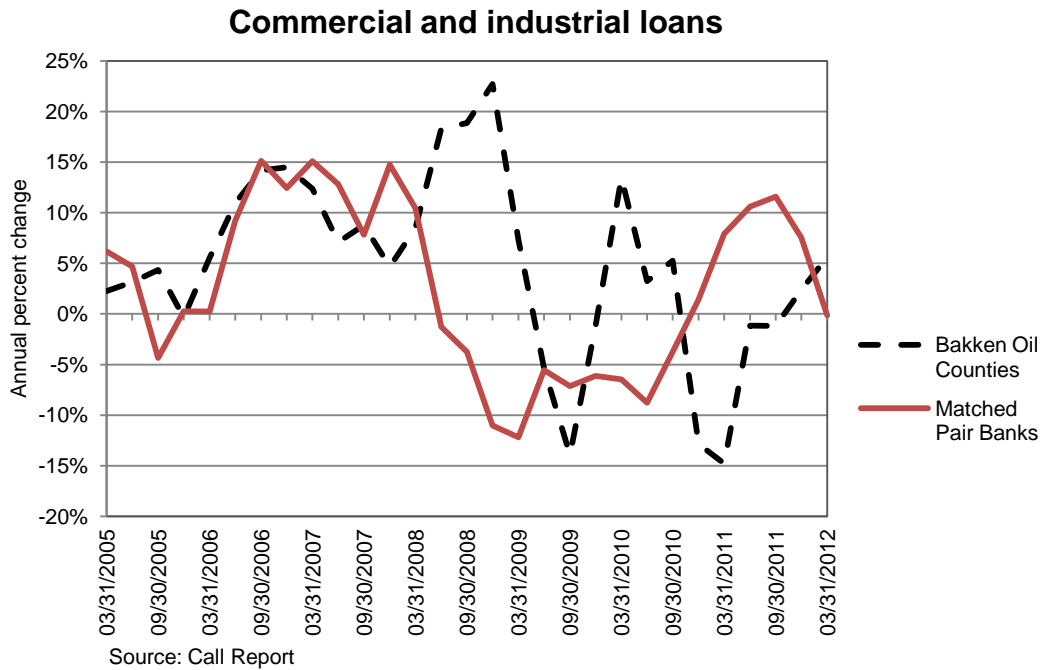


- Residential real estate loans have risen at a faster pace in the Bakken since 2008 than in the matched pair banks.
- From 3/31/2009 to 3/31/2012, residential real estate loans increased 74 percent in the Bakken area, while the matched pair banks saw a decrease of 2 percent.

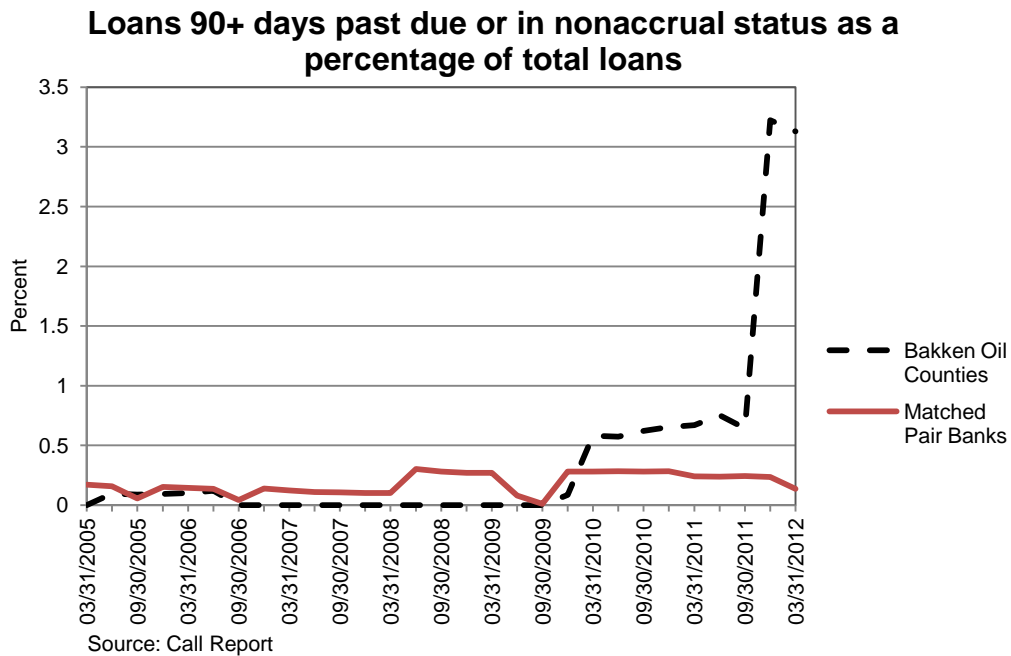




- Commercial and industrial loans increased 19 percent in the Bakken area from 3/31/2007 to 3/31/2012, while decreasing 2 percent in the matched pair banks.

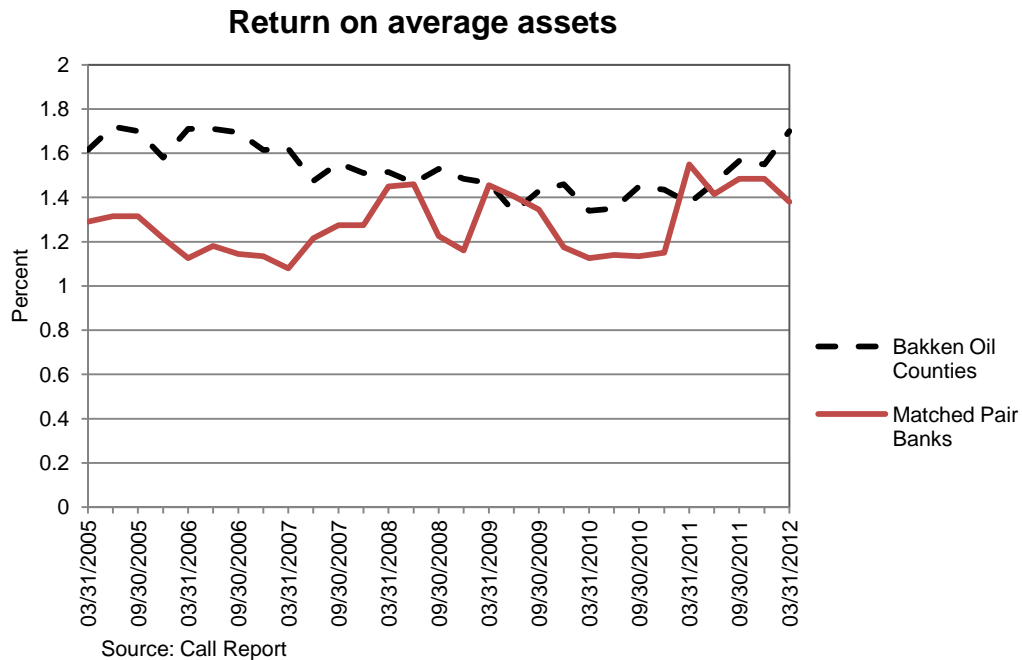
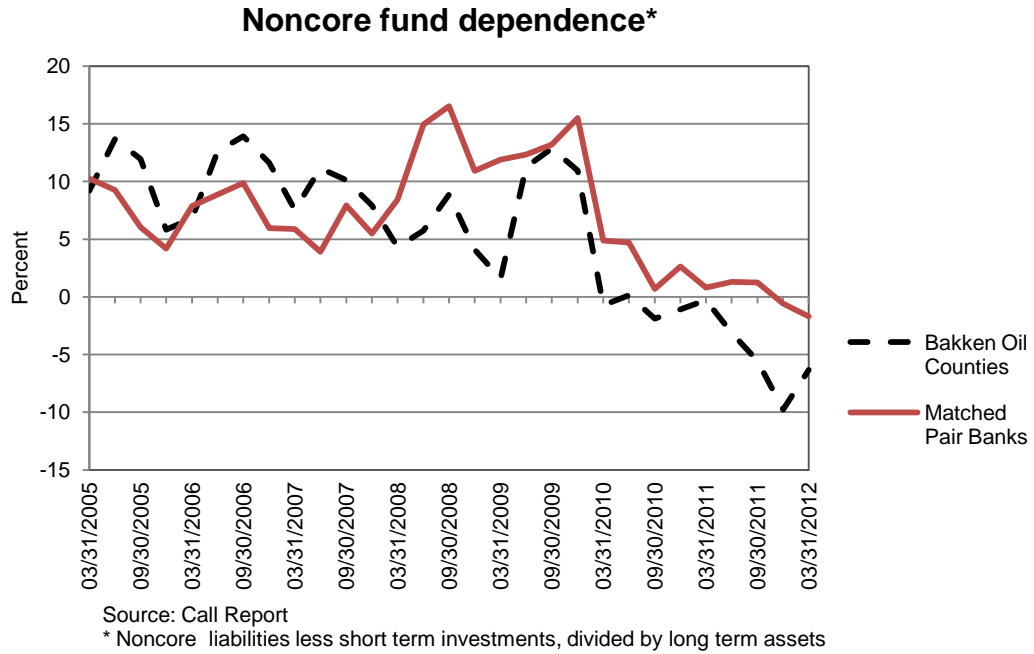


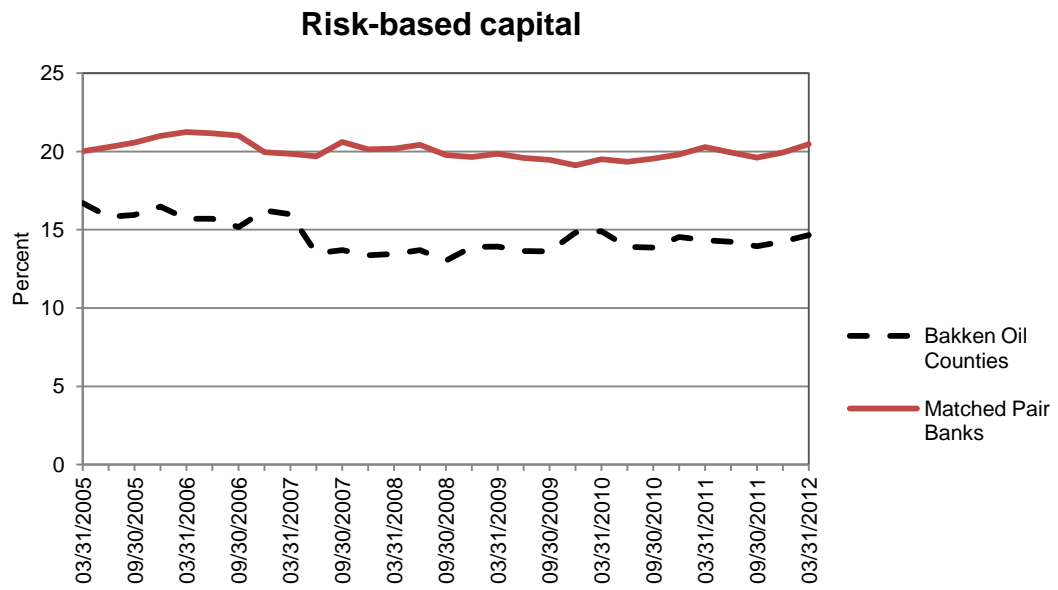
- The spike in noncurrent loans is primarily due to one bank within the Bakken area, but otherwise has remained consistent with the matched pair banks.





- Noncore fund dependence shows a steeper decline beginning in 2011 than in the matched pair banks due to the faster increase in deposits.





Source: Call Report