The Outlook for Agriculture and Other Leading Indicators of the Nebraska Economy

Presentation to the Board of Directors of Cornerstone Bank

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Outline

• Theory of the Nebraska Economy

• The Central Role of Agriculture

• Leading Economic Indicator – Nebraska
  – A tool which is rigorously designed and tested
  – A tool which can forecast key variables 6 months ahead
The Central Role of Agriculture

- Indicator components that reflect the strength of agriculture and rural Nebraska: dollar exchange rate, *Survey of Nebraska Business*

Central Role of Manufacturing

- Indicator component: manufacturing hours

Struggles with Population Growth

- Need “count” indicator components: building permits, airlines passenger counts
The Central Role of Agriculture
February, 2014 Ranking

#1 in irrigated acres with nine million acres
#1 in commercial red meat production
#1 (tied with Texas) for cattle-on-feed numbers
#2 in corn-based ethanol production
#3 in corn for grain production
#5 in soybean production
#5 in all hay production
#6 in all hogs and pigs, and #7 in hog slaughtering
The Central Role of Agriculture
The Golden Triangle

Figure 1.1

NEBRASKA'S GOLDEN TRIANGLE

CORN  BRO-FUELS  SOYBEANS

LIVESTOCK
The Central Role of Agriculture
Corn Production

Figure 2.1 Nebraska Annual Corn Production: Actual and Trend from 2000 to 2015
The Central Role of Agriculture
Soybean Production

Figure 2.2 Nebraska Annual Soybean Production: Actual and Trend From 2000 to 2015
The Central Role of Agriculture

• In the short-run, there is
  • pressure on crop prices, profits and crop land values in Nebraska
  • but also more balanced income growth in Nebraska agriculture

• In the long-run, an expansion of livestock production in Nebraska
The Central Role of Agriculture – The Long-Run

• With the surge in crop production, there is room for growth in another component of the Golden Triangle
  • Livestock

• This suggests that increases in farm income and land prices are sustainable near current levels.
  • Growth in support businesses and perhaps even population
Livestock activity may continue to migrate North
  • Rising and reliable (aquifer) crop production
  • Abundant distillers grain
  • Processing capacity

Potential for growth in hogs and other livestock sectors
# Nebraska Agriculture – Hogs

<table>
<thead>
<tr>
<th>U.S./State</th>
<th>2003 (1,000 head)</th>
<th>2012 (1,000 head)</th>
<th>Change, 2003 – 2012 (1,000 head)</th>
<th>Percent of U.S. 2012 Inventory in:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2003 (%)</td>
<td>2012 (%)</td>
<td>2003 (%)</td>
<td>2012 (%)</td>
</tr>
<tr>
<td>U.S.</td>
<td>54,434</td>
<td>60,538</td>
<td>6,104</td>
<td>11.2</td>
</tr>
<tr>
<td>Iowa</td>
<td>14,850</td>
<td>19,570</td>
<td>4,720</td>
<td>31.8</td>
</tr>
<tr>
<td>North Carolina</td>
<td>8,980</td>
<td>8,140</td>
<td>-840</td>
<td>-9.4</td>
</tr>
<tr>
<td>Minnesota</td>
<td>5,900</td>
<td>7,090</td>
<td>1,190</td>
<td>20.2</td>
</tr>
<tr>
<td>Illinois</td>
<td>3,590</td>
<td>4,110</td>
<td>520</td>
<td>14.5</td>
</tr>
<tr>
<td>Indiana</td>
<td>2,800</td>
<td>3,520</td>
<td>720</td>
<td>25.7</td>
</tr>
<tr>
<td>Nebraska</td>
<td>2,535</td>
<td>2,620</td>
<td>85</td>
<td>3.4</td>
</tr>
<tr>
<td>Kansas</td>
<td>1,490</td>
<td>1,740</td>
<td>250</td>
<td>16.8</td>
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</table>
# Nebraska Agriculture – Farm Income

<table>
<thead>
<tr>
<th>Year</th>
<th>Nebraska Farm Income</th>
</tr>
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<tbody>
<tr>
<td>2004</td>
<td>$3.6 billion</td>
</tr>
<tr>
<td>2005</td>
<td>$3.1 billion</td>
</tr>
<tr>
<td>2006</td>
<td>$2.2 billion</td>
</tr>
<tr>
<td>2011</td>
<td>$7.7 billion</td>
</tr>
<tr>
<td>2012</td>
<td>$5.8 billion</td>
</tr>
<tr>
<td>2013</td>
<td>$6.7 billion</td>
</tr>
<tr>
<td>2014</td>
<td>$5.8 billion</td>
</tr>
<tr>
<td>2015</td>
<td>$5.6 billion</td>
</tr>
</tbody>
</table>
## Nebraska Agriculture – Farmland

<table>
<thead>
<tr>
<th>Year</th>
<th>Nebraska Farm Real Estate, Value Per Acre</th>
</tr>
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<tbody>
<tr>
<td>2009</td>
<td>$1,340</td>
</tr>
<tr>
<td>2010</td>
<td>$1,520</td>
</tr>
<tr>
<td>2011</td>
<td>$1,940</td>
</tr>
<tr>
<td>2012</td>
<td>$2,590</td>
</tr>
<tr>
<td>2013</td>
<td>$3,050</td>
</tr>
</tbody>
</table>
Leading Economic Indicator - Nebraska

- Business expectations
- Value of U.S. dollar
- Single-family home building permits
- Airline passenger counts
- Initial claims for unemployment insurance
- Manufacturing hours
Leading Economic Indicator - Nebraska

• For each component, there is a logical reason it leads the economy

• Further, statistically, each component leads the future economic growth:
  – In other words, statistical tests indicate that when the component increases, the Nebraska economy rises in a subsequent month
Leading Economic Indicator - Nebraska

• Strong Correlations with the Economy
  – Correlation between the LEI-N and future value of real state GDP is 0.87.
  – Correlation between the LEI-N and the CEI-N is 0.91

• More precisely, it most strongly predicts growth 6 months into the future
Leading Economic Indicator – Nebraska
The LEI-N Predicts Future Growth in the Economy

<table>
<thead>
<tr>
<th>LEI-N/Period</th>
<th>Influence on CEI-N</th>
</tr>
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<tbody>
<tr>
<td>1 month earlier</td>
<td>None</td>
</tr>
<tr>
<td>2 months earlier</td>
<td>0.16</td>
</tr>
<tr>
<td>3 months earlier</td>
<td>None</td>
</tr>
<tr>
<td>4 months earlier</td>
<td>None</td>
</tr>
<tr>
<td>5 months earlier</td>
<td>0.27</td>
</tr>
<tr>
<td>6 months earlier</td>
<td>0.22</td>
</tr>
<tr>
<td>7 months earlier</td>
<td>None</td>
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</table>
Leading Economic Indicator - Nebraska

Figure 2: Change in LEI - N
Last 6 Months
Forecast from the Leading Economic Indicator - Nebraska

Figure 7: 6-Month Forecast of Coincident Economic Indicator - Nebraska
Leading Economic Indicator - Nebraska

• The LEI-N is available on the 3rd Friday of each month at www.cba.unl.edu
• The LEI-N can be used to predict growth in aggregate measures of economic or business activity
  – Over the next 6 months
Leading Economic Indicator - Nebraska

• Take the example of the quarterly net loans and leases from Nebraska Commercial Banks (FDIC data)

• During the volatile 2006-2014 period,
  – LEI-N is correlated with future Net Loans (.67)
  – LEI-N predicts growth in Net Loans two quarters in the future
### Forecast from the Leading Economic Indicator - Nebraska

#### 2-Quarter Forecast of Nebraska Commercial Bank Net Loans

<table>
<thead>
<tr>
<th>Year</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
</tr>
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<tbody>
<tr>
<td>2014</td>
<td></td>
<td>2.51%</td>
<td>0.90%</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>158.00</td>
</tr>
<tr>
<td>2014</td>
<td>159.00</td>
</tr>
<tr>
<td>2014</td>
<td>160.00</td>
</tr>
<tr>
<td>2014</td>
<td>161.00</td>
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<tr>
<td>2014</td>
<td>162.00</td>
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<tr>
<td>2014</td>
<td>163.00</td>
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<tr>
<td>2014</td>
<td>164.00</td>
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<tr>
<td>2014</td>
<td>165.00</td>
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<tr>
<td>2014</td>
<td>166.00</td>
</tr>
<tr>
<td>2014</td>
<td>167.00</td>
</tr>
<tr>
<td>2014</td>
<td>168.00</td>
</tr>
</tbody>
</table>

Index Growth  
Index Value
Leading Economic Indicator – Nebraska Component: Survey of Nebraska Business

• A Survey of 500 Nebraska businesses each month (available on 1st Friday)
  – During most months, a 25% to 30% response rate

• A random selection of businesses
  – Responses dominated by small businesses, yielding key insights not available from other LEI-N components
Leading Economic Indicator – Nebraska
Strength of Business Expectations

Business Expectations
Last 6 Months

- Jan 14
- Feb 14: 0.32%
- Mar 14: 0.45%
- Apr 14: 0.41%
- May 14: 0.26%
- Jun 14: 0.64%
- Jan 14: -0.10%

Start Something.
Business Expectations by Region of Nebraska

Business Expectations By Region  
May/June Average

Statewide: 0.49%  
Omaha MSA: 0.73%  
Southeast NE: 0.83%  
Central NE: 0.29%
Leading Economic Indicator – Nebraska Regions

• Monthly Leading Economic Indicator reports are under development for each of these regions
  – LEI-O, or LEI-C, or LEI-SE

• Also developing a Housing Affordability Index for Nebraska and its local regions in the coming months
Leading Economic Indicator – Nebraska Regions

• The LEI for one or more regions of Nebraska
  – can be used to predict growth in an aggregate measure of economic or business activity in those regions over the next 6 months
Leading Economic Indicator - Nebraska Regions

- Using existing data, an LEI also could be developed for the specific service territory of a utility company, a hospital, a bank, or development district
  - A public service to the community
  - Presentation to key customers
LEI-N in the News

- Media references for the LEI-N over the last 3 months
  - Lincoln Journal Star 6
  - Omaha World Herald 3
  - Radio (KLIN, KVRN, KWBE, KFOR) 12
  - Television 3
Nebraska Long-Term Economic Outlook – Findings

Annual Job Growth Nebraska vs. U.S.

<table>
<thead>
<tr>
<th>Year</th>
<th>United States</th>
<th>Nebraska</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1.8%</td>
<td>1.2%</td>
</tr>
<tr>
<td>2015</td>
<td>1.5%</td>
<td>1.0%</td>
</tr>
<tr>
<td>2016</td>
<td>1.4%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>
How Can Nebraska Ignite Faster Growth?

- Effective Tax Modernization

- Pro-Growth Regulations
  - Reduce barriers to housing development
  - Reduce barriers to growth in the livestock industry
  - Efficient water policy
THANK YOU

Any Questions?