Economic and Social Impacts of Agriculture

Paul Lewin, J.D. Wulfhorst, Scott Jensen, Neil Rimbey, University of Idaho
Challenges in the “New” West
Purpose

• Is there value to agricultural lands beyond their development potential?
• What can we learn from studies done in Owyhee County that can benefit you wherever you live?
Owyhee County
UI Owyhee Soc. Econ. Studies

- 1998-99: BLM RMP driven study. Social and Economic impact analysis. (Owyhee only)
- 2002-03: Another BLM RMP driven study. Social and Economic impact analysis. (Owyhee and 4 SW Idaho counties)
- 2014-16: Owyhee County Commission funded study over 3 years. Social and Economic impact analysis. (Owyhee and 4 SW Idaho counties)
UI Owyhee Studies and $ Sources

1998 sources: Boise District Grazing Board, Bureau of Land Management, Owyhee Cattleman’s Association, Owyhee County Commission

2003 source: Bureau of Land Management (ID State)

2014-16 source: Owyhee County Commission
Most Current Study

- Commissioners approached UI faculty
- Needed information on impacts of decisions
- Menu options given
  - Regional economic analysis
  - Social analysis
  - Ranch level economic model
OWYHEE PEOPLE
CONSUMERS, WORKERS & TAXPAYERS
Population Change

Population (2013): 11,720

Source: Idaho.REAProject.org (7-11-2014)
Data: Regional Income Division, BEA (5-5-2014)
Size of Households
Household Income Distribution

- < $10K
- $10-$20K
- $20-$30K
- $30-$40K
- $40-$50K
- $50-$60K
- $60-$75K
- $75-$100K
- > $100K

University of Idaho Extension
Where people work (commuting)

Inflow/Outflow Job Counts in 2011

Where workers are employed

- Boise City city, ID: 18%
- Nampa city, ID: 10%
- Caldwell city, ID: 8%
- Homedale city, ID: 7%
- Meridian city, ID: 5%
- Marsing city, ID: 4%
- McCall city, ID: 3%
- Ontario city, OR: 2%
- Twin Falls city, ID: 2%
- Mountain Home city, ID: 1%
- All Other Locations: 40%

1,519 - Employed in Selection Area, Live Outside
3,374 - Live in Selection Area, Employed Outside
853 - Employed and Live in Selection Area
Employment Indices

Source: Idaho.REAProject.org (7-11-2014)
Data: Regional Income Division, BEA (5-5-2014)
Industry Function Employment

- Agriculture & natural resource extraction: 40%
- Higher education: 35%
- Engineering-intensive manufacturing: 30%
- Corporate management & administration: 25%
- Knowledge-intensive business services: 20%
- Distributive services: 15%
- Capital-intensive manufacturing: 10%
- Finance, insurance & real estate: 5%
- Media, entertainment & recreation: 0%
- Health care: 0%
- Government: 0%
<table>
<thead>
<tr>
<th>Industry</th>
<th>% Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm employment</td>
<td>18.2</td>
</tr>
<tr>
<td>Forestry, fishing, and related activities</td>
<td>8.3</td>
</tr>
<tr>
<td>Mining</td>
<td>3.1</td>
</tr>
<tr>
<td>Local government</td>
<td>1.8</td>
</tr>
<tr>
<td>State and local</td>
<td>1.4</td>
</tr>
<tr>
<td>Government and government enterprises</td>
<td>1.3</td>
</tr>
<tr>
<td>Construction</td>
<td>0.9</td>
</tr>
<tr>
<td>Military</td>
<td>0.9</td>
</tr>
<tr>
<td>Federal, civilian</td>
<td>0.8</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>0.8</td>
</tr>
<tr>
<td>Information</td>
<td>0.8</td>
</tr>
<tr>
<td>Retail trade</td>
<td>0.7</td>
</tr>
<tr>
<td>Other services, except public administration</td>
<td>0.7</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>0.7</td>
</tr>
<tr>
<td>Arts, entertainment, and recreation</td>
<td>0.6</td>
</tr>
<tr>
<td>Accommodation and food services</td>
<td>0.6</td>
</tr>
<tr>
<td>Administrative and waste management services</td>
<td>0.5</td>
</tr>
<tr>
<td>State government</td>
<td>0.2</td>
</tr>
</tbody>
</table>

\[
LQ = \frac{\% \text{ jobs in Ind. A in Owyhee}}{\% \text{ jobs in Ind. A in USA}}
\]
Cattle Industry

• Cattle industry accounts directly for:
  – 7.1% of employment;
  – 17.7% of cash receipts;
  – 9.8% of county gross product; and
  – 20.4% of exports

• Cattle industry accounts indirectly for
  – 13.7% of total employment;
  – 22.5% of total cash receipts; and
  – 16% of county gross product
AUM ECONOMIC IMPACT
There are 45,660

The total demand for forage is 547,920 AUMs

= 7.72 AUMs of public land forage

352,439 AUMs of public land forage

Dependency on public land is 64%
Economic impact of a reduction of 35,244 AUMs or (10%)

<table>
<thead>
<tr>
<th>Impact Type</th>
<th>Jobs</th>
<th>Labor Income</th>
<th>Value Added</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Effect</td>
<td>4.4</td>
<td>$443,909</td>
<td>$446,590</td>
<td>$1,912,334</td>
</tr>
<tr>
<td>Indirect Effect</td>
<td>7.5</td>
<td>$493,510</td>
<td>$581,212</td>
<td>$1,842,783</td>
</tr>
<tr>
<td>Induced Effect</td>
<td>2.7</td>
<td>$87,234</td>
<td>$170,020</td>
<td>$288,839</td>
</tr>
<tr>
<td>Total Effect</td>
<td>14.6</td>
<td>$1,024,653</td>
<td>$1,197,823</td>
<td>$4,043,956</td>
</tr>
</tbody>
</table>

Source: University of Idaho Extension
ECONOMIC IMPACTS

CONCLUSION
In summary…

• Owyhee has a narrow economic base
  – It concentrated in natural resource industries
  – Agriculture is the most important sector for Owyhee's economy
  – Its economy follows agriculture ups & downs

• Challenge: Broadening the industry mix & adding value to commodities
  – Increase economic resilience

• Economic model has many uses
Here you can find the report

- [http://tinyurl.com/owyheemodel](http://tinyurl.com/owyheemodel)
What We Did

• Ranch- or Farm-Level
  – 4 “Producer Panels” for ranch production inputs and outputs
    • Jordan Valley area, Marsing area, Bruneau area, Three Creek Area
  – Use of U of I Crop Enterprise budgets for major agricultural crops in Owyhee County (hay, corn, silage, grain, etc.)- Used in Regional Model

• 3 Ranch budgets form the basis for profit maximizing economic models (40 year horizon, cyclic cattle prices, etc.)
Case Studies (Uses of Ranch-level Models)

- Federal grazing allotment reductions (Request from County Commissioners)
- Sage grouse management adjustments (Western Regional Research Effort)
- Invasive species impacts (UI MS Thesis on Western Juniper encroachment)
Ranch-level Economic Impacts


Photo by Digital Wildlife Images Productions, may not be used elsewhere without permission.
# Federal Grazing and Sage-grouse

## Impacts Expressed on $/AUM Removed Basis (Annual and Planning Horizon)

<table>
<thead>
<tr>
<th></th>
<th>Spring</th>
<th>Fall</th>
<th>Spring &amp; Fall</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Annual Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>-$27.94</td>
<td>-$22.34</td>
<td>-$25.74</td>
<td>-$14.01</td>
<td>-$16.51</td>
<td>-$20.46</td>
<td>-$26.62</td>
</tr>
<tr>
<td><strong>Discounted Net Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>-$271</td>
<td>-$262</td>
<td>-$312</td>
<td>-$162</td>
<td>-$195</td>
<td>-$237</td>
<td>-$296</td>
</tr>
</tbody>
</table>
# Western Juniper Encroachment

<table>
<thead>
<tr>
<th></th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPV</td>
<td>435,983</td>
<td>373,515</td>
<td>294,852</td>
</tr>
<tr>
<td>Annual Net Income</td>
<td>32,009</td>
<td>(29,182)</td>
<td>25,178</td>
</tr>
<tr>
<td>Change in Net Income per AUM lost</td>
<td>-8.80</td>
<td>-10.56</td>
<td></td>
</tr>
<tr>
<td>Annual Borrowing</td>
<td>16</td>
<td>(394)</td>
<td>79</td>
</tr>
<tr>
<td>Variable Costs</td>
<td>87,890</td>
<td>(16,137)</td>
<td>70,528</td>
</tr>
<tr>
<td>Forage Costs</td>
<td>30,661</td>
<td>(7,447)</td>
<td>26,312</td>
</tr>
<tr>
<td>BLM AUM Usage</td>
<td>2,031</td>
<td>(102)</td>
<td>1,317</td>
</tr>
<tr>
<td>Private Leased AUMs</td>
<td>12</td>
<td>(52)</td>
<td>34</td>
</tr>
<tr>
<td>Brood Cows</td>
<td>267</td>
<td>(17)</td>
<td>213</td>
</tr>
<tr>
<td>AUYs</td>
<td>386</td>
<td>(30)</td>
<td>311</td>
</tr>
</tbody>
</table>
Study Area

FIGURE 1. Map of Southwestern Idaho
## Survey methodology

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed surveys</td>
<td>N = 553</td>
<td>N = 385</td>
<td>N = 669</td>
</tr>
<tr>
<td>Response rate / Cooperation rate</td>
<td>76%</td>
<td>64%</td>
<td>34% / 52%</td>
</tr>
<tr>
<td>Sampling frame / structure</td>
<td>Single-frame (LLines), simple random sample</td>
<td>Single-frame (LLines), simple random sample</td>
<td>Dual-frame, random-digit dial frame (cell &amp; LLines) / simple random sample</td>
</tr>
<tr>
<td>Geography of sample</td>
<td>Owyhee County</td>
<td>1) Owyhee County, 2) rural &amp; 3) urban subsamples of Ada, Canyon, Elmore Co.</td>
<td>1) Owyhee County, 2) rural &amp; 3) urban subsamples of Ada, Canyon, Elmore Co.</td>
</tr>
</tbody>
</table>
### Overview of comparative data

<table>
<thead>
<tr>
<th>Measure</th>
<th>1998-99</th>
<th>2002-03</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do any of your close friends run cattle ranches?</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Cohesion: 1) belong to community; 2) people similar</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Cohesion: 1) loyal to community; 2) borrow / exchange favors</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Cohesion: 1) rare to visit neighbors; 2) feel connected in comm.</td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Cohesion: 1) live here gives sense of comm.</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>NR / Public lands use: 1) enough Wild.; 2) grazing on PL; 3) wildlife</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>protection on PL</td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>ORV use on PL, Public particip. NR mtgs, recreational use</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>
Cohesion example:
I feel I can borrow things and exchange favors with neighbors
Do you have close friends that run a ranch?

Note – 1998 was Owyhee ‘only’
Level of approval for different public lands uses

- Livestock grazing
- Logging
- Hunting / fishing
- Energy Development
- ORVs
- Mountain biking
- Equestrian trail riding

- Urban
- Rural
- Owyhee
On which natural resource management issues have you participated in public meetings during the last five years…

- Public lands
- Grazing
- ORV use
- Endangered species
- Mining

[Bar chart showing participation percentages by location (Urban, Rural, Owyhee)]
How problematic are each of the following rangeland issues facing southwestern ID today?

% indicating the issue is "a severe problem"
What kind of impact do you believe will occur by routing transmission & power lines through the Birds of Prey Nat’l Conservation Area?

<table>
<thead>
<tr>
<th>Impact Level</th>
<th>Urban</th>
<th>Rural</th>
<th>Owyhee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong negative impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat negative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat positive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong positive impact</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2015 Survey Results
ORV use on public lands:

“Idaho needs more recreational opportunities for ORVs on public lands”
Level of agreement to use public lands for livestock grazing

Strongly agree | Agree | Neutral | Disagree | Strongly disagree

Urban | Rural | Owyhee

2015 Survey Results
Do you consider livestock grazing a healthy or unhealthy component of a working landscape?

2015 Survey Results

- Urban
- Rural
- Owyhee
Degree of perceived impact from litigation that targets removal of livestock grazing on public lands will have on ranches in Owyhee county

2015 Survey Results
Summary thoughts…

• Agricultural lands play an important role in EVERY community.
• Economic
• Social
• Other
Questions?