Analyzing the Impact of Changing Farm Policy on Texas High Plains Agriculture

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Introduction

• Agricultural producers face a changing policy environment with the likely elimination of direct payment subsidies (DCP).

• Direct Payments have been a guaranteed source of revenue relied upon by lenders in extending operating loans.

• Elimination of this known receivable could negatively impact producer profit margins and their ability to obtain adequate financing.

• Loss of Direct Payments may also have an unfavorable financial impact on rural communities in the Texas High Plains.
Direct Commodity Payments

• DCPs are fixed monetary compensations given annually to commodity farmers on a per acre basis as designated in the 2008 Farm Bill. They are based on historical acres and yields, and paid independently of current production.

• Example – Assume Joe Farmer has 100 acres of corn base with a direct payment yield of 125 bushels:
  – 100 Acres X 85% = 85 Payment Acres
  – 85 Acres X 125 bushels/acre = 10,625 Bushel Yield
  – 10,625 Bu Payment Yield X $0.28 Bu Payment Rate = $2,975
Objectives

• Utilize the FARM Assistance strategic planning model to perform a ten-year farm level impact analysis of direct program payment elimination on five distinct production regions of the Texas High Plains.

• Utilize these changes in farm level incomes as an input into the socioeconomic model, IMPLAN, to measure regional economic impacts.
Model operations were developed to illustrate production agriculture in six clusters/regions of the Texas Panhandle. Focus groups consisting of producers, Farm Service Agency employees, agribusinesses, county agents, and extension specialists provided individual farm characteristics.

Market prices were derived from the Texas Cattle Feeders Association market summary reports and the Chicago Board of Trade futures settlement sheets, and were adjusted for local basis. Crop yields and cattle stocking rates came primarily from focus groups estimates, and are assumed to be below average in 2013 due to poor moisture conditions.

Direct payment calculations were based on figures from the Farm Service Agency, the FARM Assistance database, and the Environmental Working Group (EWG) farm subsidy database.
Study Area

- Cluster 1 Northwest
- Cluster 2 Northeast
- Cluster 3 Southwest
- Cluster 4 Central
- Cluster 5 Southeast
- Cluster 6 - N/A Counties
## Cluster Farm Demographics

<table>
<thead>
<tr>
<th></th>
<th>Cluster 1 Northwest</th>
<th>Cluster 2 Northeast</th>
<th>Cluster 3 Southwest</th>
<th>Cluster 4 Central</th>
<th>Cluster 5 Southeast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Crop Acres</td>
<td>3000</td>
<td>3040</td>
<td>2040</td>
<td>3240</td>
<td>5000</td>
</tr>
<tr>
<td>Total Pasture Acres</td>
<td></td>
<td></td>
<td>1000</td>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>% Owned Acres</td>
<td>40%</td>
<td>40%</td>
<td>75%</td>
<td>50%</td>
<td>20%</td>
</tr>
<tr>
<td>% Irrigated Acres</td>
<td>75%</td>
<td>50%</td>
<td>50%</td>
<td>33%</td>
<td>25%</td>
</tr>
<tr>
<td>% Grain Acres</td>
<td>84%</td>
<td>94%</td>
<td>51%</td>
<td>83%</td>
<td>0%</td>
</tr>
<tr>
<td>% Cotton/Peanut Acres</td>
<td>16%</td>
<td>6%</td>
<td>16%</td>
<td>17%</td>
<td>71%</td>
</tr>
<tr>
<td>% Pasture Acres</td>
<td></td>
<td></td>
<td></td>
<td>33%</td>
<td>29%</td>
</tr>
<tr>
<td>Number Head Stockers</td>
<td></td>
<td></td>
<td></td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Number Head Cows</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>
Data and Methods

Farm Level Impact

- After each farm (model operation) was developed, a study analysis was performed using the Texas AgriLife Extension Service’s Financial and Risk Management (FARM) Assistance Program
  - FARM Assistance is technically a 10-year pro forma financial analysis that incorporates the research methods of stochastic simulation. It is aimed at helping farmers and ranchers with strategic planning and risk management.

- Each model operation was simulated under two scenarios. The first projected an economic environment from 2013-2022 that continued government support at levels outlined in the 2008 Farm Bill. A second analysis simulated the loss of direct program payments after 2013. Federal crop insurance subsidies were not projected to change under either scenario.
## Results from 2013-2022

### Avg Farm Level Impact (in $1,000)

<table>
<thead>
<tr>
<th></th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
<th>Cluster 4</th>
<th>Cluster 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Continue</td>
<td>Eliminate</td>
<td>Continue</td>
<td>Eliminate</td>
<td>Continue</td>
</tr>
<tr>
<td><strong>Net Cash Farm Income</strong></td>
<td>$516</td>
<td>$436</td>
<td>$285</td>
<td>$255</td>
<td>$264</td>
</tr>
<tr>
<td><strong>Real Net Worth</strong></td>
<td>$1,909</td>
<td>$1,757</td>
<td>$1,421</td>
<td>$1,360</td>
<td>$1,288</td>
</tr>
<tr>
<td><strong>Prob Working Capital &lt; 0</strong></td>
<td>18.40%</td>
<td>32.00%</td>
<td>49.80%</td>
<td>56.10%</td>
<td>43.00%</td>
</tr>
<tr>
<td><strong>Government Payments</strong></td>
<td>$75.00</td>
<td>$28.00</td>
<td>$46.00</td>
<td>$37.00</td>
<td></td>
</tr>
<tr>
<td><strong>Debt to Assets Ratio</strong></td>
<td>42.53%</td>
<td>45.47%</td>
<td>50.38%</td>
<td>52.08%</td>
<td>47.82%</td>
</tr>
<tr>
<td><strong>Return to Assets Ratio</strong></td>
<td>16.81%</td>
<td>14.88%</td>
<td>10.94%</td>
<td>10.07%</td>
<td>11.70%</td>
</tr>
<tr>
<td><strong>Operating Exp/Receipts</strong></td>
<td>70.00%</td>
<td>73.00%</td>
<td>72.00%</td>
<td>74.00%</td>
<td>67.00%</td>
</tr>
<tr>
<td><strong>Net Income/Receipts</strong></td>
<td>21.00%</td>
<td>17.00%</td>
<td>13.00%</td>
<td>9.00%</td>
<td>19.00%</td>
</tr>
</tbody>
</table>

While direct program payments accounted for only around 3.6% of total farm receipts, eliminating them resulted in a 15.6% drop in average net cash farm income and a 7.95% loss in equity over the ten-year planning horizon.
Farm Level Impact
Probability of Working Capital < 0

Cluster 1
Cluster 2
Cluster 3
Cluster 4
Cluster 5

2013-2022 Average

Continued
Eliminated

$75,000
$28,000
$75,000
Farm Level Impact
Debt to Asset Ratio

2013-2022 Average

Cluster 1  Cluster 2  Cluster 3  Cluster 4  Cluster 5

- Continued
- Eliminated
Data and Methods – Regional Impact

• **Study Area**: 22 Counties in the Texas High Plains

• **Data**: 2011 Farm Service Agency Direct Government Payments by County

• **Assumptions**:
  – Producers receive 75% of direct payments
  – Landlords receive 25% of direct payments
    • 75% of landlords reside within the region
• IMPLAN was used to determine how a loss of farm payments could affect the Texas Panhandle region.
  
  – *IMPLAN is an economic input-output model that utilizes comprehensive data from the entire U.S. by county. Multipliers are generated to evaluate the response of a region’s economy to a “shock” of some type. Typically, estimated multiplier effects come from three possible sources.*

**Data and Methods – Regional Impact**

- **Direct**
  - direct final demand changes

- **Indirect**
  - industries purchasing from industries resulting from direct final demand changes

- **Induced**
  - changes in the expenditures of household income

*Induced effects are the only multiplier analyzed because the loss in direct payments results in a change in income only.*
Two primary measures of economic activity

- Industry Output – Change in the value of total production of an economy
- Employment – Number of jobs affected
Total Producer Direct Payment Loss in Study Area
$80,560,550

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Induced Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>$48,713,118</td>
</tr>
<tr>
<td>Employment</td>
<td>428</td>
</tr>
</tbody>
</table>

The effect of a direct payments loss of $80,560,550 results in an economic impact of $48,713,118 in industry output and 428 jobs, assuming no change in production levels.
Conclusions

• Projections developed through FARM Assistance show that eliminating direct program payments could increase operational liquidity and solvency risk, which in turn may affect the ability to obtain adequate financing.

• Regional impacts calculated with IMPLAN were less than typically seen for a change in direct demand. Normally the multiplier effect leads to a number larger than the initial input value. Possible reasons for a smaller result include:
  – Since the model only measured income, not output, some of the DCP money could have been used for paying down debt, investing in savings, etc and not circulated through the region.
  – Since 25% of landlords lived outside the area, a portion of the proceeds may not have remained in the Panhandle.
  – Since DCPs are not directly tied to crop production, reducing that income source may not have affected farmer’s expenditures on seed, fertilizer, etc.
Will Future farm programs that are more closely tied to actual production result in a higher level of economic impact to the region?
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