Are Canadian Farmers Overconfident?

Stefanie Fryza and Fabio Mattos
Department of Agribusiness and Agricultural Economics, University of Manitoba


Copyright 2011 by Fryza and Mattos. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
Research Method

- Panel data model with fixed effects and robust estimators
- Performance with respect to a benchmark is the dependent variable
  - it measures "gain" or "loss" relative to benchmark
  - \( p_{i,t} \) is price received by farmer \( i \) in year \( t \)
  - \( p_{i,t} \) is percentage of crop priced by farmer \( i \) in year \( t \) using each type of marketing contract
  - \( Activeness_{i,t} \) is measure of marketing activeness, indicating how much producer \( i \) varies his/her marketing strategy
  - \( \beta \) is coefficient of monthly benchmarks
  - \( \gamma \) is coefficient of Activeness
  - \( \theta \) is coefficient of Month

The objective of this research is to explore:
- whether Canadian wheat producers have better information or analytical skills to outperform the market
- if they are overconfident in their ability to market their wheat.

Wheat Marketing in Canada

- All wheat produced and sold for human consumption and export in Western Canada must be marketed through Western Canadian Wheat Board (CWB).
- Until 2000 CWB offered only one marketing alternative to farmers—pool pricing:
  - guarantees all farmers same final price by pooling wheat sales during crop year.
- After 2000 other pricing alternatives were developed to accommodate producers’ demand for more flexibility to manage risk and cash flow
  - EPO: Early Payment Option
  - DPC: Daily Price Contract
  - BPC: Basis Price Contract
  - FP: Fixed Price Contract

These new contracts have distinct features but essentially allow farmers to use futures markets to price wheat.

Table 1. Average Values

<table>
<thead>
<tr>
<th></th>
<th>All farmers</th>
<th>Alberta</th>
<th>Saskatchewan</th>
<th>Manitoba</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance (Own)</td>
<td>8.789</td>
<td>8.67</td>
<td>9.82</td>
<td>6.99</td>
</tr>
<tr>
<td>12-Month benchmark</td>
<td>8.704</td>
<td>8.69</td>
<td>9.85</td>
<td>6.99</td>
</tr>
<tr>
<td>20-Month benchmark</td>
<td>8.377</td>
<td>8.73</td>
<td>9.78</td>
<td>6.90</td>
</tr>
<tr>
<td>%EPO</td>
<td>10.93</td>
<td>8.97</td>
<td>9.16</td>
<td>11.22</td>
</tr>
<tr>
<td>%DPC</td>
<td>15.50</td>
<td>14.66</td>
<td>12.77</td>
<td>19.98</td>
</tr>
<tr>
<td>%FPC</td>
<td>10.50</td>
<td>12.47</td>
<td>9.11</td>
<td>11.17</td>
</tr>
<tr>
<td>Month</td>
<td>15.69</td>
<td>15.91</td>
<td>15.77</td>
<td>15.32</td>
</tr>
</tbody>
</table>

Research

- Three regression models are estimated, using different benchmarks to calculate \( perf_{i,t} \)
- Four equations are estimated in each model, one for the whole sample and then one for each province
- All estimated coefficients are statistically distinguishable from zero
- Percentage of grain delivered against each marketing contract (%EPO, %DPC, %FPC, %BPC) are all negatively related to performance, except for Saskatchewan when considering the 24-month benchmark.
- Farmers who use new marketing contracts tend to perform worse than benchmark.
- Negative relationship between Month and performance
- Performance in measurement relative to other benchmarks
- Activeness has positive coefficients when performance is measured against 12-month benchmark
- Activeness has negative coefficients when performance is measured against 20- and 24-month benchmarks

Table 3. Model with Performance based on 20-Month Benchmark ($/ton)

<table>
<thead>
<tr>
<th></th>
<th>All farmers</th>
<th>Alberta</th>
<th>Saskatchewan</th>
<th>Manitoba</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.05***</td>
<td>-0.11***</td>
<td>0.05***</td>
<td>-0.14***</td>
</tr>
<tr>
<td>%EPO</td>
<td>-0.04**</td>
<td>-0.20***</td>
<td>0.11***</td>
<td>-0.14***</td>
</tr>
<tr>
<td>%DPC</td>
<td>-0.12***</td>
<td>-0.18***</td>
<td>-0.07***</td>
<td>-0.15***</td>
</tr>
<tr>
<td>%FPC</td>
<td>-1.77***</td>
<td>-2.23***</td>
<td>-1.16***</td>
<td>-2.46***</td>
</tr>
<tr>
<td>Active</td>
<td>6.96***</td>
<td>5.20***</td>
<td>8.47***</td>
<td>6.07***</td>
</tr>
</tbody>
</table>

Conclusions

- There is a negative relationship between marketing activeness and performance, suggesting farmers are overconfident in their ability to market grain
- This result only holds when performance is measured against the 12-month historical futures price
- Findings on overconfidence are sensitive to the benchmark adopted to measure performance
- Opposite results are found when 20- and 24-month futures price is used as benchmarks
- Farmers seem to have superior skills to market their grain when they measure performance relative to other benchmarks
- There is a negative relationship between usage of new marketing contracts and performance, suggesting farmers are not able to detect and take advantage of profit opportunities using the new marketing contracts

Further Research

- Results vary depending on the benchmark adopted to calculate performance. Therefore it is important to explore what benchmarks are relevant and perhaps consider other benchmarks (such as final CWB pool price).
- Results might be highly influenced by 2000/01, when wheat prices reached all time record highs and there was large variability in performance depending whether farmers priced wheat early in marketing window or waited to price it towards the end of marketing window.

References


For further information
Please contact Fabio Mattos (fabio_mattos@umanitoba.ca).