Factors Affecting Texas Wheat Basis Behavior

By
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Introduction

Extensive work has been done to explain the importance of basis movements to producers as it relates to crop marketing. Many producers know the basics of hedging, but the ability to accurately predict returns to a hedge is tied to an understanding of basis movements since the hedger is still subject to basis risk. Changes in the difference between cash and futures market prices (basis) often dictate the real gains or losses to be made by hedging. For this reason, the ability to understand/predict basis movements is of substantial importance to producers and merchandisers. Basis, in general terms, refers to the difference in a local cash grain price and the futures price at a specified market. The purpose of this project was to study basis movements in two price reporting areas: 1) North of the Canadian River in the Texas Panhandle, and 2) the Houston port. These two areas are hereafter referred to as NOC and HP areas, respectively.

Previous research indicates that the ability to predict basis is important when hedging (Hauser, Garcia, and Tumblin; Naik and Leuthold; and Tomek), and various studies have been conducted to identify the factors that affect/determine/explain basis (Garcia and Good; Kahl and Curtis; Martin, Groenwegen, and Pidgeon; Tilley and Campbell). Results from this previous research suggest that one of the most widely used methods for forecasting basis is to simply use a three-year moving average in which the basis period to be calculated is compared to an average of the corresponding contracts during the same calendar month over the last three years. Indeed, according to root mean squared error (RMSE) analysis by Jiang and Hayenga, the three-year moving average tended to compare very favorably with other more complicated methods.

> *As reported by Dhuyvetter and Kastens, "Structural models requiring ancillary forecasts of explanatory variables are of little value to producers needing to make production decisions based on price forecasts with limited information. Thus research to improve the efficiency of cash price forecasting with futures prices should focus on simple basis models -- especially those that are alternative renditions and extensions of historical basis as expected basis models."*

With this in mind, this study focused on developing a thorough understanding of the basis movements that have occurred over the 16-year period from June 1985 - May 2001, and then attempts to identify factors that producers could use as indicators of future basis movements. The analysis starts by studying 16 years of average nearby basis in the reporting regions of North of Canadian River (NOC) in the Texas Panhandle and the Houston Port (HP). Additionally, to better understand how supply shocks could impact basis behavior, normal crop years and short crop years were considered separately as well as together. For this study, short crop years are defined as years in which the average yield per acre was more than 5 percent below trend. The years 1986, 1988, 1989, 1991, 1995, and 1996 were considered as short crop years. The years

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following the enactment of the 1996 Farm Bill were also studied to see if basis patterns had changed in association with the changes in the farm program.

After studying average basis values/behavior over the 16-year period, econometric models were built to explain, or at least point to, important factors influencing basis movement. Using Simetar for Excel, multiple regression models were constructed using a list of variables including: a three-year average of basis as indicated from previous studies; exports-to-use ratio, stocks-to-use ratio, supply-to-use ratio, production-to-use ratio and export inspections were included as important fundamental data; binary variables were included for each month except June to identify seasonal tendencies; and another binary variable to account for the inception of the 1996 Farm bill. Nearby monthly average basis was used as the dependent variable.

Nearby basis = *f* (3 Yr. Ave., Exp./Use, Stocks/Use, Sup./Use, Prod./Use, Exp. Ins., Monthly, 96FB)

Simetar allows restrictions to be placed on the models so that numerous comparisons can be made. Some of the variations tested included modeling only the short crop years, modeling all but the short crop years, and dropping variables from the regression models. In this way, the research was able to identify differences across various types of crop years, as well as the impact of factors such as the 1996 Farm Bill.

Background

As mentioned earlier, nearby basis movements in the reporting area North of the Canadian River and at the Houston Port were examined in this study. These two markets were used because they are very different, and could react differently to similar fundamental information. As its title implies, the Houston port is an export point, and wheat flows to the port from the major producing regions. For this reason, basis at the Houston Port is often positive. That is, the cash price at Houston is higher than nearby futures prices in Kansas City, reflecting the cost of transporting wheat from surplus production areas to Houston. Conversely, the area North of the Canadian River is a grain surplus area. Wheat is harvested in this region beginning in May and continuing into June/July. Because of its distance from major milling and export facilities, and its proximity to a large concentration of cattle feeding operations, a greater percentage of wheat produced in the NOC region goes to feed consumption. Very little U.S. wheat is harvested earlier than the wheat from Texas, and most of the U.S. crop is harvested later in the summer/fall.

Basis Pattern Results

A graphical look at monthly average basis in the NOC region illustrates some starting points for discussion (Figure 1). From 1985 to 2001, nearby basis averaged - $0.35 (cash $0.35/bu. below futures) during the month of June, at the beginning of harvest, and weakened to -$0.45 into September. As the majority of the nation's harvest nears completion during the fall, a gradual strengthening pattern begins and extends to a high of -$0.27 by March, before the new crop forecasts begin to crystallize. There is a slight weakening of basis in January/February that may be associated with producer sales for tax reasons or cash flow purposes. Interestingly, the month of December includes both the minimum and maximum single month average basis, indicating that basis can be quite variable during the winter months. Removing the short crop years to study only the normal crop years, shows little difference in the monthly mean, or minimum and maximum observations (Figure 2).

Looking at the short crop years by themselves for the NOC region provides a slightly different picture (Figure 3). Nearby basis in June starts at an average of -$0.35. As the harvest moves north into the Central/Northern Plains, futures prices may rally as the impact of the short crop becomes better known, but basis weakens into September/October. Basis strengthens as the end of the year approaches in December, then displays some weakness in January/February and finally rallies into March. At times, short crop years exhibit strong enough basis during the winter months to provide producers with an incentive to consider locking in favorable basis bids on the coming summers harvest. To have an idea of the pre-harvest basis pricing opportunities that are available, producers need to be tracking forward contract and forward basis contract bids. While the basis information maintained by Texas Cooperative Extension (TCE) did not previously include this data, grants form the Texas Wheat Producers Board and Texas Corn Producers Board, along with the cooperation of participating elevators, are allowing TCE to gather this type of information for use by producers in the future.

The years since the 1996 Farm Bill was enacted were considered separately because they appear somewhat different (Figure 4). The 1996 short crop year skews the picture a bit, so the June 1997 - May 2001 period was considered without 1996. On average, basis is at its highest point in June, at -$0.41, during the Texas harvest and weakens as the summer and harvest progress. While starting at a lower level in June, it declines to an even lower average level of -$0.63 by September. Recovery comes as the winter progresses, reaching a high in March, but on average, it never returns to harvest month levels. The lower basis, in recent years, could be due to any one or a number of factors. However, one that should be considered is the marketing loan, and the increase in favorable Loan Deficiency Payment/Marketing Loan Gain (LDP/MLG) opportunities in recent years. The incentive to take LDPs/MLGs and not lock grain away under the loan allows grain to move into the market quicker and keeps it from acting as a lid to price advances later in the year. However, these changes may also reduce the orderly marketing function of the old loan program. One of the results may be a steeper decline in basis during the harvest period.

Analysis of the HP data reveals some similarities with the NOC data, but also contains several differences. First, as stated earlier, Houston is a grain deficit area, and a great deal of grain flows into the region for export purposes. Therefore, basis is almost always positive in HP. A 16-year average graph of basis in HP (Figure 5) shows a beginning basis of +$0.35 in June, as the Texas harvest gets into full swing, and weakens during the summer/fall hitting a September low of +$0.29. A gradual rise follows into March, or in some years into the next harvest.

Removing the short crop years of 1986, 1988, 1989, 1991, 1995, and 1996 has relatively little effect on average monthly basis (Figure 6). Basis is weakest in September, and strengthens through March. Looking at only the short crop years (Figure 7), basis is relatively flat over the first 5 months of the crop year (June - November), and then displays a much greater strengthening trend, on average, into March.

The HP basis pattern during the 1997- 2000 period deviates from previous years (Figure 8). Basis starts at a lower average level in June at +$0.23, and then declines to an average of +$0.11

for a low in September. During the October/November time frame, the average basis rallies, reaching a high of +$0.34 in November. From the November high, the 1997 - 2000 HP basis has tended to flatten out or decline across the remainder of the marketing year. As with the NOC region data, the adjustments in the marketing loan and LDP/MLG opportunities may be related to the lower basis in the early part of the marketing year. The early season weakness as well as the later season weakness in the HP basis are also likely to be influenced by the difficult export environment of recent years.

Econometric Modeling and Explanation of Variables

Graphical analysis points out trends in average basis movements. By isolating and analyzing sets of years with similar characteristics (i.e. short crop years, normal crop years, and years under the 1996 Farm Bill), a better understanding can be developed regarding why substantial deviations from the average basis pattern occur from year-to-year. The next step in this study was to build an econometric model to help explain which factors influence basis. The model considered monthly estimates of total use, stocks, exports, production, and total supply and export inspection numbers over the 1985 - 2000 crop years. Since the graphical analysis of basis movement pointed out a seasonal pattern to basis values, and since there seemed to be some changes taking place since the 1996 Farm Bill was enacted, a set of binary variables were included in the regression models to account for these effects.

Discussion of Results

The explanatory econometric model was constructed using Simetar for Excel. Nearby monthly basis was used as the dependent variable. The independent variables included monthly observations of a three-year average of basis, a stocks/use ratio, export inspections, a binary variable to adjust for special events such as the melt down of the nuclear plant in Chernobyl (in the Former USSR), a binary variable to account for the effect of the 1996 farm bill, and monthly binary variables to account for seasonality. While other fundamental data such as production, supply, and exports were intended for inclusion in the models, there was so much multicollinearity between some of the variables that the regression results coming from the explanatory model would be unreliable. As a result, the decision was made to include the ending stocks/use ratio as a variable that would summarize the supply/demand situation, and then export shipments were included to account for the impact of near term demand in the export arena.

Unrestricted Models

Results from the unrestricted models of both NOC and HP data (1985 - 2000) show that signs (direction of the relationship) were as expected, but that only some of the variables were significant at the .05 percent level. The overall fit of the model was not very good for either the NOC or the HP regions, explaining only 29.4 percent of the variation (R^2=.294) in the NOC region, but explaining 67 percent of the variation (R^2=.67) in the HP region basis over the 1985 - 2000 period (Tables 1, 2, Figures 9, 10).

The three-year average variable was negative and not significant in the NOC region model, showing both the wrong sign and less significance than would have been anticipated from findings of previous studies. However, the three-year average variable was positive and significant in the HP region model, displaying both the expected to sign and significance.

The ending stocks/use ratio variable was negative and significant in both the NOC and HP models. This finding makes sense in that one would expect a negative relationship between the ending stocks/use ratio and basis. An increase in ending inventory would mean more supplies that needed to be stored, and hence a decline in the supply of storage available relative to ending inventory. This would lead to a decline in the competitiveness of basis bids by elevators, and result in a lower basis.

The export inspections variable was positive and significant in both models, suggesting that export inspections have a positive influence on the basis level in both regions. These findings suggest that producers should keep a close eye on both the ending stocks/use ratio and export inspections in determining what they think will happen to basis in the coming weeks and months.

The 1996 Farm Bill variable was significant and negative in both models, suggesting that the basis level has been negatively impacted by something that occurred during this time frame. While a number of influences could be involved, one factor that these researchers think should be given consideration is the impact of the market loan program, and the favorable incentive for producers to take LDPs/MLGs in recent years. This opportunity has allowed producers an economic incentive to move grain earlier in the year and not lock it up in the loan program and isolate it from the marketplace. Whether the current marketing loan and LDP/MLG framework is in the producer's best interest is not a question of debate in this study. However, it is important to understand that the current structure may have eroded the loan program's ability to entice orderly marketing throughout the year.

The seasonal binary variables have signs similar to what might be expected in both the NOC and HP models, but are less significant than might have been expected. Only the September variable was significant in the NOC model, and none were significant in the HP model. Part of the reason for a lack of significance of these variables may be their interaction with the three-year average variable. Since the movement of the three-year average variable should exhibit a seasonal tendency if one exists, it may already account for much of that type of variation. Dropping the three-year average variable from the model did cause other seasonal variables to become significant.

Restricted Models

In an attempt to better explain/model basis behavior in both the NOC and HP regions, the years previously determined to be normal crop years (85, 87, 90, 92, 93, 94, 97,98, 99, 2000), and short crop years (86, 88, 89, 91, 95, 96) were modeled separately. Since previous research suggests that basis in normal crop years and short crop years don't necessarily react to information in the same way, it was decided that modeling the years separately could provide better insight about the relationships between the explanatory variables and basis under various conditions.

Normal Crop Years

The overall model fit improved when modeling only the normal crop years for both the NOC and HP regions. The amount of basis variation explained by the models improved to 62 percent (R^2=.62) in the NOC model and 78.1 percent (R^2=.781) in the HP model (Tables 3-4, Figures 11 -12). The three-year average variable was positive and significant as expected in the HP model, but was negative and insignificant in the NOC model. The ending stocks/use variable was significant and negative, as anticipated, in both the NOC and HP models, suggesting again that this is a key variable for producers to watch when calculating what will happen to basis in the future. The export inspection variable was positive and significant, as anticipated, in the NOC model, but was not significant in the HP model. The 1996 Farm Bill variable was negative and significant in both models. Both the September and October seasonal variables were negative and significant in the NOC model, but only the March seasonal variable was negative and significant in the HP model. Again, there may be some interaction between the three-year average variable and the seasonal variables that keeps them from appearing as significant as they might otherwise be.

Short Crop Years

The overall model fit was not as good for the short crop years models as for the normal crop years models, but it was better than for the 1985 - 2000 all years inclusive models (Tables 5, 6, and Figures 13, 14). The amount of basis variation explained ranged from 50.7 percent (R^2=.507) for the NOC model to 67.9 percent (R^2=.679) for the HP model. The three-year average basis variable was positive as expected in both models, but was not significant, suggesting that a three-year average of basis during previous short crop years may not be as valuable in explaining/predicting basis in future short crop years. As expected, the ending stocks/used ratio was again negative and significant in both models. Export inspections was not significant in either model, and the sign was negative in the NOC short crop year model. The 1996 Farm Bill variable was negative but not significant in the HP model, and positive and significant in the NOC model. The March and April seasonal variables were positive and significant in the HP model. Given the inconsistency in signs and significance, it would appear that neither of these models do a very good job explaining basis in short crop years. The only meaningful variable that was consistent across both models was the ending stocks/use ratio.

Implications

The purpose of this study was to help explain wheat basis behavior in Texas, and how producers could take advantage of seasonal patterns that exist, and develop a better understanding of factors that influence changes in basis over time. The graphical analysis in the first part of the study is important to producers in that it suggests that early harvest time basis may be favorable to what might be expected in the September/October time frame. As a result, taking basis risk by holding unpriced grain from harvest into the September/October time frame will likely be an unprofitable decision over time. The time to sell basis may be at harvest, or some time earlier in the production year if basis bids at the elevator are higher than the typical harvest time average. The ability to store wheat in anticipation of basis gains that will more than offset storage costs may not be as likely in Texas since our harvest precedes wheat harvest in most of the rest of the U.S. All Texas producers, including those in the NOC reporting area, benefit from being the first harvesters in North America, but that advantage limits their ability to pick up storage returns. Changes in the ending stocks/use ratio, and export inspections can help producers understand what is happening to basis currently, and should help them formulate expectations about what may happen to basis in the future.

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Figure 1. Monthly Wheat Basis - North of the Canadian, June 1985 - May 2000

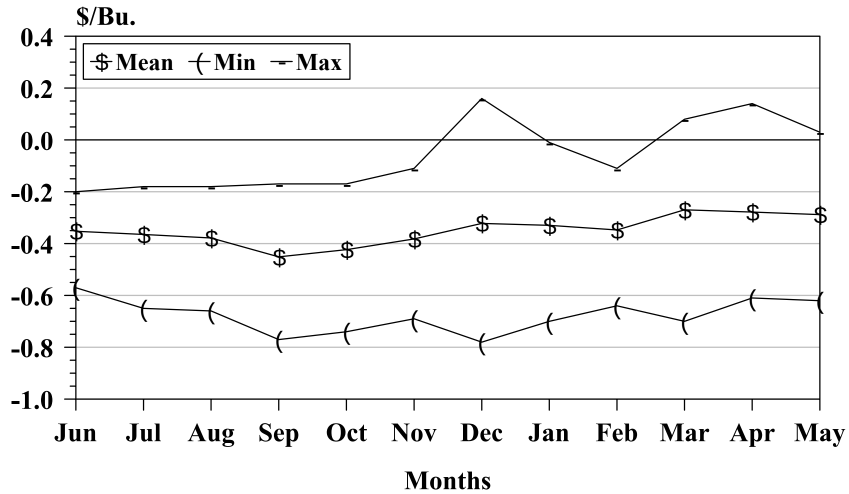

Figure 2. Monthly Wheat Basis - North of Canadian (w/o short crop) (85, 87, 90, 92, 93, 94, 97, 98, 99, 2000)

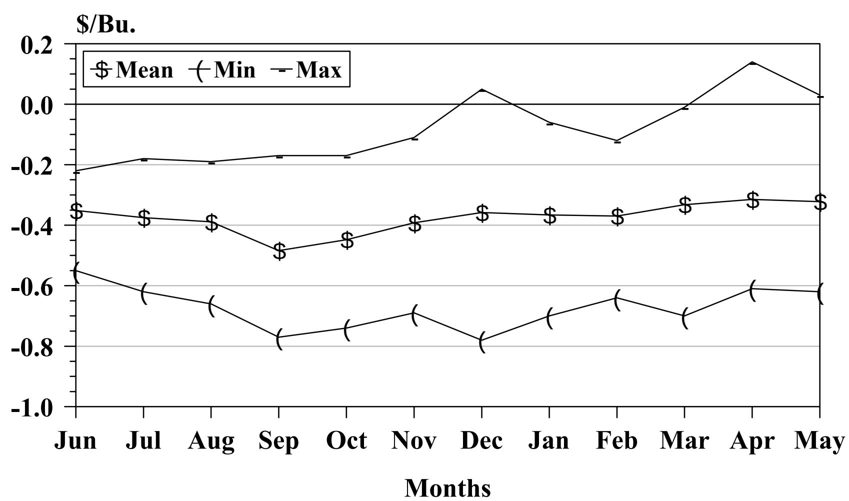

Figure 3. Monthly Wheat Basis - North of Canadian (short crop) (86, 88, 89, 91, 95, 96)

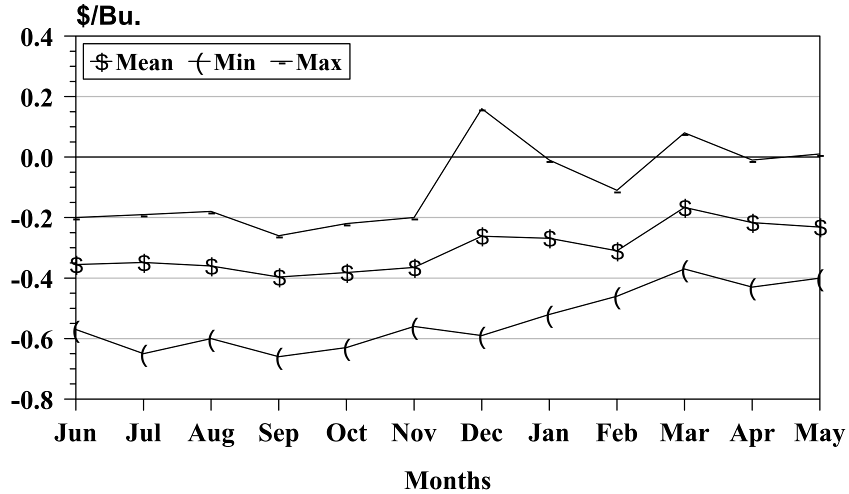

Figure 4. Monthly Wheat Basis - North of Canadian, 1997 - 2000

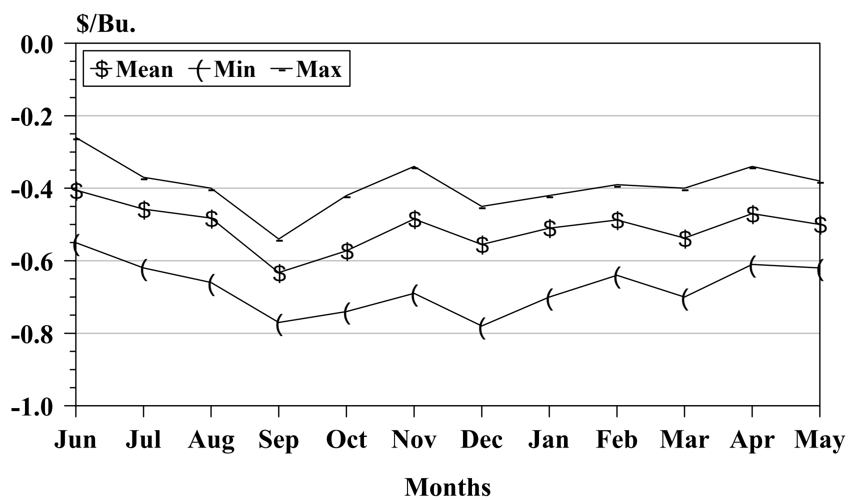

Figure 5. Monthly Wheat Basis - Houston Port, June 1985 - May 2000

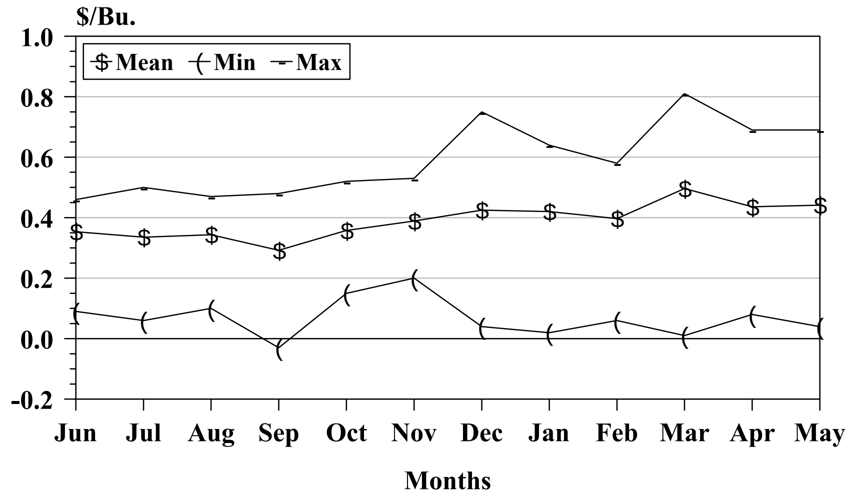

Figure 6. Monthly Wheat Basis - Houston Port (w/o short crop) (85, 87, 90, 92, 93, 94, 97, 98, 99, 2000)

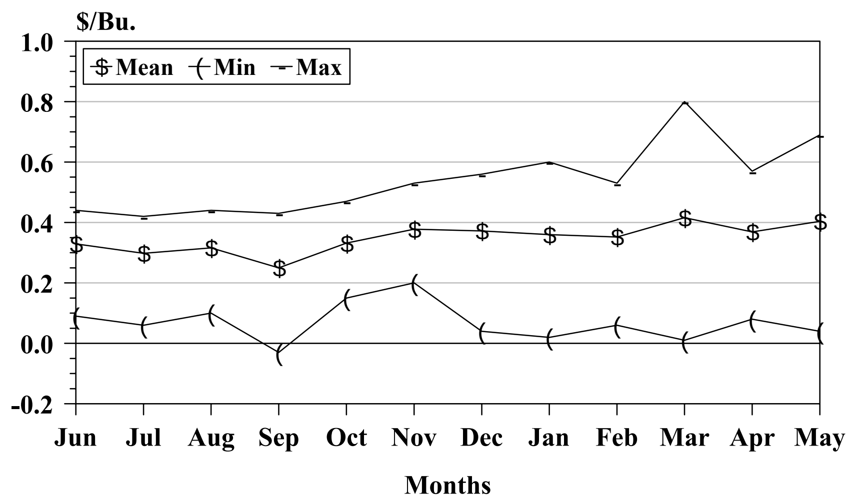

Figure 7. Monthly Wheat Basis - Houston Port (short crop) (86, 88, 89, 91, 95, 96)

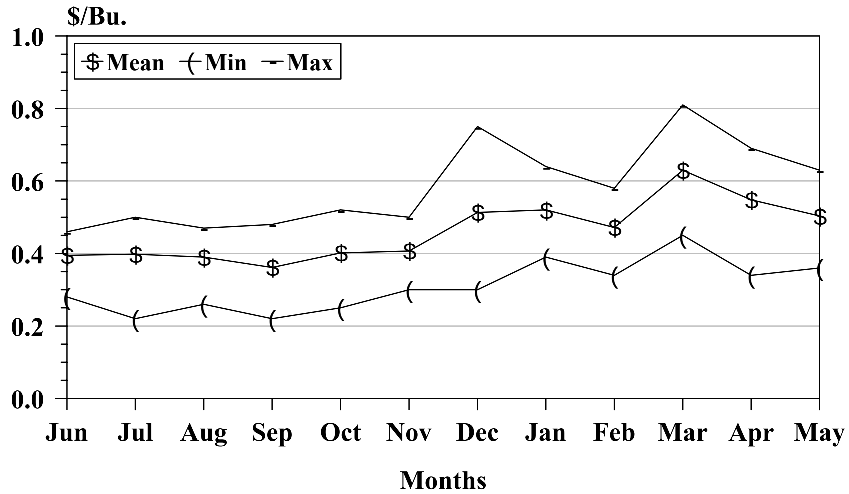

Figure 8. Monthly Wheat Basis - Houston Port, 1997 - 2000

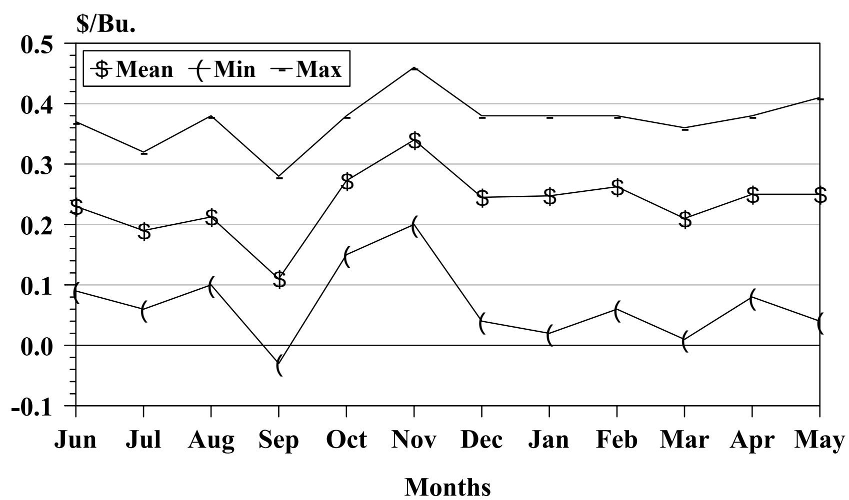

Figure 9. North of Canadian Wheat Basis
1985 - 2000 (regression results)

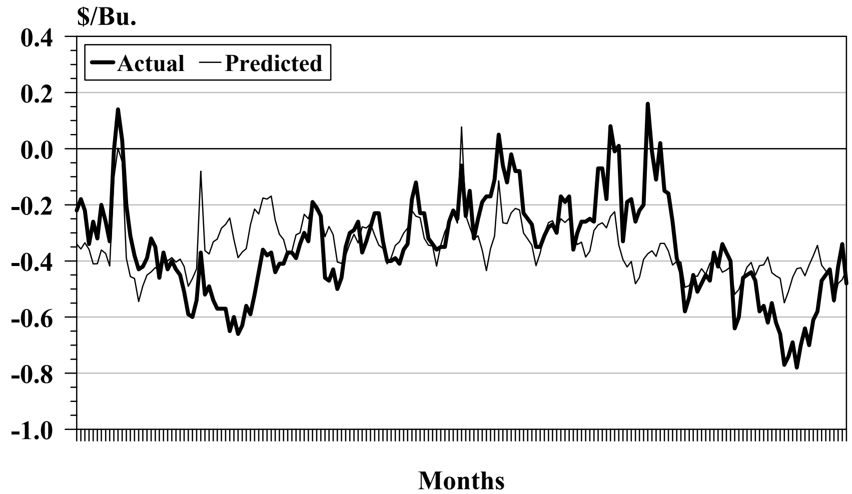

Figure 10. Houston Port Wheat Basis
1985 - 2000 (regression results)

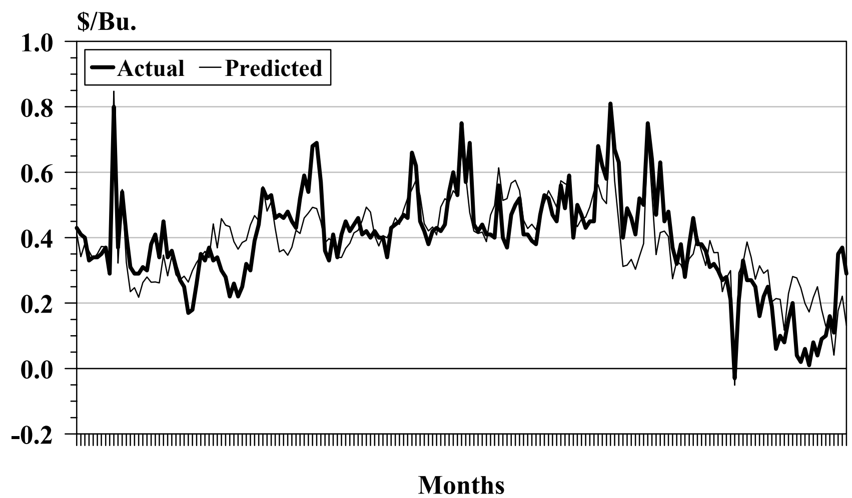

Figure 11. North of Canadian Wheat Basis (w/o short crop) (85, 87, 90, 92, 93, 94, 97, 98, 99, 2000) (regression results)

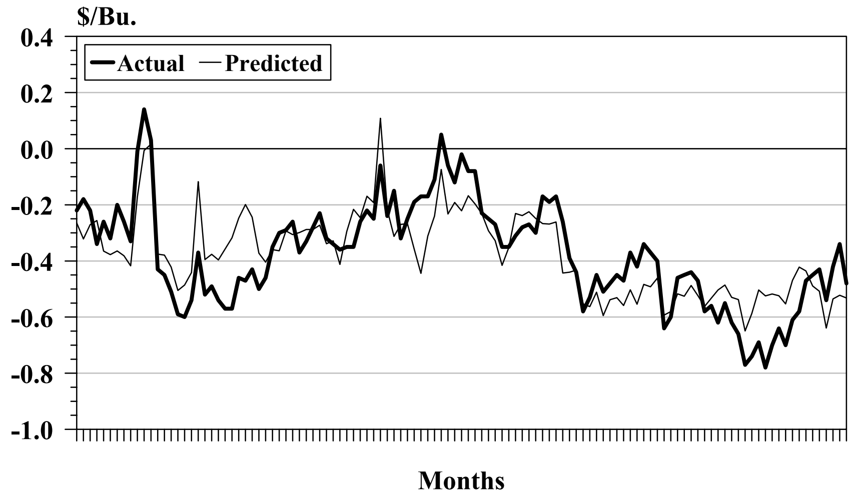

Figure 12. Houston Port Wheat Basis (w/o short crop) (85, 87, 90, 92, 93, 94, 97, 98, 99, 2000) (regression results)

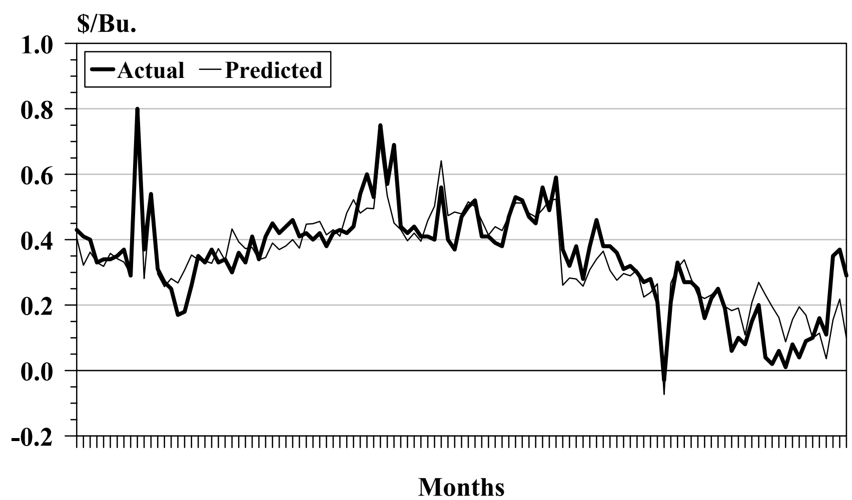

Figure 13. North of Canadian Wheat Basis (short crop) (86, 88, 89, 91, 95, 98) (regression results)

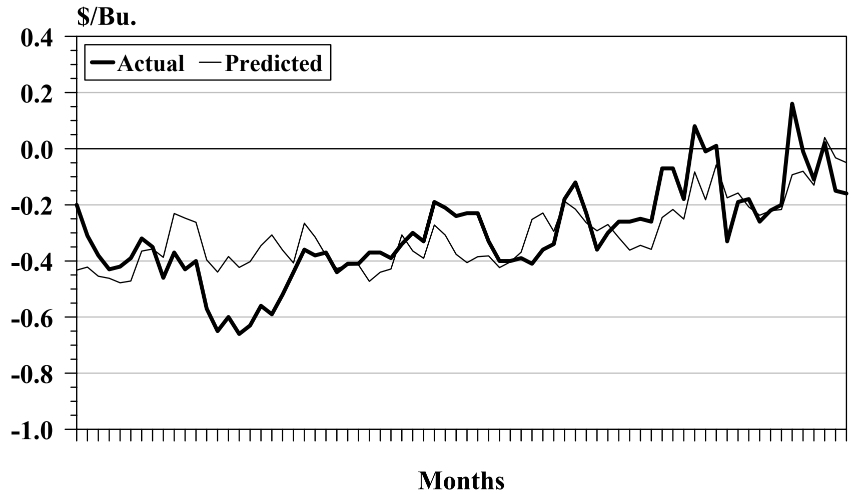

Figure 14. Houston Port Wheat Basis (short crop) (86, 88, 89, 91, 95, 96) (regression results)

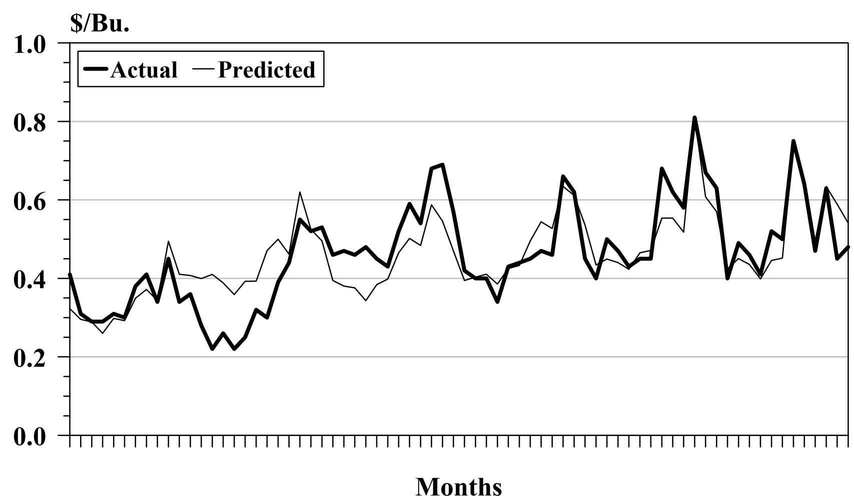

Table 1. North of Canadian Wheat Basis, 1985 - 2000

OLS Regression Statistics for NOC Basis - all

F-test	4.426
R^2	0.294
$RBar^2$	0.228

95%	Intercept	3-Year-Ave	Stocks/Use	Exp. Inspt.	Pos.-Dum.	96 Farm Bill
Beta	**-0.371**	-0.001	**-0.161**	**0.00000122**	**0.157**	**-0.099**
S.E.	0.071	0.017	0.059	0.00000053	0.040	0.027
T-test	-5.217	-0.065	-2.722	2.307	3.936	-3.672
Prob(t)	0.000	0.948	0.007	0.022	0.000	0.000

July dum.	Aug. dum.	**Sept. dum.**	Oct. dum.	Nov. dum	Dec. dum.	Jan. dum.	Feb. dum.	Mar. dum.	Apr. dum.	May dum.
-0.028	-0.056	**-0.134**	-0.091	-0.037	-0.006	0.012	-0.002	0.033	0.042	0.055
0.057	0.058	0.059	0.058	0.057	0.057	0.058	0.058	0.059	0.058	0.059
-0.489	-0.961	-2.264	-1.586	-0.645	-0.101	0.211	-0.037	0.550	0.728	0.939
0.626	0.338	0.025	0.115	0.520	0.920	0.833	0.970	0.583	0.468	0.349

Table 2. Houston Port Wheat Basis, 1985 - 2000

OLS Regression Statistics for HP Basis-all

F-test	21.530
R^2	0.670
$RBar^2$	0.638

95%	Intercept	3-Year-Ave	Stocks/Use	Exp. Inspt.	Pos.-Dum.	96 Farm Bill
Beta	**0.179**	**0.635**	**-0.272**	**0.000000798**	**0.115**	**-0.154**
S.E.	0.057	0.097	0.033	0.000000304	0.014	0.015
T-test	3.143	6.554	-8.134	2.625	7.973	-9.960
Prob(t)	0.002	0.000	0.000	0.009	0.000	0.000

July dum.	Aug. dum.	Sept. dum.	Oct. dum.	Nov. dum	Dec. dum.	Jan. dum.	Feb. dum.	Mar. dum.	Apr. dum.	May dum.
-0.009	-0.018	-0.022	0.004	0.023	-0.002	-0.005	0.004	-0.029	0.018	0.019
0.033	0.034	0.035	0.033	0.033	0.034	0.034	0.034	0.038	0.034	0.035
-0.275	-0.530	-0.647	0.127	0.708	-0.061	-0.152	0.126	-0.764	0.537	0.542
0.784	0.597	0.518	0.899	0.480	0.951	0.879	0.900	0.446	0.592	0.589

Table 3. North of Canadian Wheat Basis, (w/o short crop) (85, 87, 90, 92, 93, 94, 97, 98, 99, 2000)

OLS Regression Statistics for NOC Basis-w/o-shortcrops

F-test	10.001
R^2	0.620
$RBar^2$	0.558

95%	**Intercept**	3-Year-Ave	**Stocks/Use**	**Exp. Inspt.**	**Pos.-Dum.**	**96 Farm Bill**
Beta	**-0.394**	-0.011	**-0.213**	**0.00000236**	**0.174**	**-0.183**
S.E.	0.070	0.014	0.067	0.000000574	0.033	0.026
T-test	-5.595	-0.770	-3.174	4.112	5.240	-6.983
Prob(t)	0.000	0.443	0.002	0.000	0.000	0.000

July dum.	Aug. dum.	**Sept. dum.**	**Oct. dum.**	Nov. dum.	Dec. dum.	Jan. dum.	Feb. dum.	Mar. dum.	Apr. dum.	May dum.
-0.078	-0.122	**-0.219**	**-0.156**	-0.064	-0.085	-0.048	-0.029	-0.064	-0.022	-0.018
0.057	0.059	0.060	0.057	0.056	0.057	0.057	0.057	0.059	0.058	0.059
-1.360	-2.056	-3.662	-2.719	-1.145	-1.500	-0.841	-0.510	-1.089	-0.377	-0.303
0.177	0.042	0.000	0.008	0.255	0.137	0.403	0.611	0.279	0.707	0.762

Table 4. Houston Port Wheat Basis, (w/o short crop) (85, 87, 90, 92, 93, 94, 97, 98, 99, 2000)

OLS Regression Statistics for HP Basis-w/o-shortcrops

F-test	21.782
R^2	0.781
$RBar^2$	0.745

95%	Intercept	3-Year-Ave	Stocks/Use	Exp. Inspt.	Pos.-Dum.	96 Farm Bill
Beta	**0.233**	**0.588**	**-0.271**	0.0000004729	**0.114**	**-0.178**
S.E.	0.060	0.103	0.041	0.0000003545	0.014	0.016
T-test	3.856	5.729	-6.674	1.334	8.109	-10.800
Prob(t)	0.000	0.000	0.000	0.185	0.000	0.000

Aug. dum.	Sept. dum.	Oct. dum.	Nov. dum.	Dec. dum.	Jan. dum.	Feb. dum.	**Mar. dum.**	Apr. dum.	May dum.
-0.020	-0.020	0.000	0.032	-0.024	-0.040	-0.024	**-0.103**	-0.029	-0.018
0.037	0.038	0.036	0.035	0.036	0.037	0.036	0.041	0.037	0.037
-0.552	-0.538	0.007	0.911	-0.684	-1.086	-0.652	-2.507	-0.794	-0.484
0.583	0.592	0.994	0.365	0.495	0.280	0.516	0.014	0.429	0.629

Table 5. North of Canadian Wheat Basis, (short crop) (86, 88, 89, 91, 95, 98)

OLS Regression Statistics for NOC Basis-shortcrops

F-test	3.843
R^2	0.507
$RBar^2$	0.375

95%	Intercept	3-Year-Ave	**Stocks/Use**	Exp. Inspt.	**96 Farm Bill**
Beta	-0.055	0.331	**-0.194**	-0.00000155	**0.136**
S.E.	0.122	0.185	0.078	0.000000774	0.054
T-test	-0.449	1.790	-2.476	-2.002	2.530
Prob(t)	0.655	0.079	0.016	0.050	0.014

July dum.	Aug. dum.	Sept. dum.	Oct. dum.	Nov. dum	Dec. dum.	Jan. dum	Feb. dum	Mar. dum	Apr. dum	May dum.
0.020	0.019	0.013	-0.006	-0.006	0.061	0.083	0.050	0.180	0.110	0.056
0.078	0.078	0.080	0.078	0.078	0.078	0.078	0.078	0.082	0.080	0.079
0.253	0.240	0.158	-0.074	-0.075	0.784	1.065	0.639	2.191	1.382	0.712
0.801	0.811	0.875	0.941	0.941	0.436	0.291	0.525	0.033	0.173	0.480

Table 6. Houston Port Wheat Basis, (short crop) (86, 88, 89, 91, 95, 96)

OLS Regression Statistics for HP Basis-shortcrops

F-test	7.267
R^2	0.679
$RBar^2$	0.585

95%	**Intercept**	3-Year-Ave	**Stocks/Use**	Exp. Inspt.	**Pos.-Dum.**	96 Farm Bill
Beta	**0.294**	0.407	**-0.214**	0.0000001131	**0.078**	-0.015
S.E.	0.117	0.199	0.048	0.0000005144	0.027	0.032
T-test	2.524	2.039	-4.477	0.220	2.871	-0.481
Prob(t)	0.015	0.046	0.000	0.827	0.006	0.632

July dum.	Aug. dum.	Sept. dum.	Oct. dum.	Nov. dum	Dec. dum.	Jan. dum	Feb. dum	**Mar. dum**	**Apr. dum**	May dum.
0.022	0.005	-0.012	0.018	0.013	0.062	0.083	0.060	**0.138**	**0.117**	0.071
0.048	0.048	0.049	0.048	0.048	0.049	0.049	0.048	0.060	0.050	0.050
0.451	0.097	-0.240	0.380	0.278	1.257	1.703	1.258	2.309	2.347	1.404
0.654	0.923	0.811	0.705	0.782	0.214	0.094	0.214	0.025	0.023	0.166