The Impact of the LDP on Corn and Soybean Basis in Missouri

by:

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Paper presented at the NCR-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management

Chicago, Illinois, April 17-18, 2000

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This study analyzed the effect of the Loan Deficiency Payment (*LDP*) *program, established under the Federal Agriculture Improvement Reform (FAIR) act of* 199, *on corn and soybean basis in Missouri. Using daily corn and soybean basis data between* 1993 *and* 1999 *for multiple locations in Missouri, and incorporating a variable for when the LDP was in effect during* 1998 *and* 1999, *empirical models examining factors affecting corn and soybean basis were estimated. Results indicate that the presence of the LDP program has not had a significant economic impact on corn or soybean basis during the* 1998 *to* 1999 *period. Furthermore, factors affecting corn and soybean basis varied by time within the marketing year.*

Keywords: Basis, LDP, Government Programs, Corn, Soybeans

Introduction

Beginning in the fall of 1998 low corn and soybean prices triggered a government price support mechanism established under the 1996 Farm Bill. This mechanism, the loan deficiency payment (LDP), created minor marketing chaos for some producers. These producers did not understand how the LDP program functioned, and they did not understand how grain marketing strategies might change with the existence of the LDP. As producers, researchers, and politicians began to understand the LDP program, more questions regarding the effectiveness and fairness of the program arose. One study by Babcock, Hayes, and Kaus analyzed claims that the LDP's were not consistent across state boundaries. Furthermore, some producers and Extension marketing economists argued that the LDP affected long-term basis patterns.

Grain storage decisions depend on expected cash prices, e.g., Williams and Wright. Because historical basis information provides crucial information in the forecasting of cash corn and soybean prices (Dhuyvetter and Kastens; Kastens, Jones, and Schroeder; Tomek), factors causing the basis to deviate from historical patterns could impact current and future marketing strategies. Based on these concerns, the objective of this study is to analyze the impact of LDPs on corn and soybean basis in Missouri.

The 1996 Agriculture Market Transition Act gave farmers the choice of receiving a loan deficiency payment in lieu of placing their crop in storage under loan. The LDP is the loan price less the posted county price (PCP). Table 1 provides an example of how the LDP is determined for Lafayette county in Missouri. The PCP is based on a terminal or Gulf market price adjusted for a county loan differential. The PCP can be at, above, or below the local market price depending on how well the terminal or Gulf price, adjusted for the county loan differential, reflects local market conditions. Under previous farm programs, farmers forfeited the grain under loan to the Commodity Credit Corporation (CCC) when market prices were below the loan rate. The CCC could then hold the forfeited grain off the market creating a price floor at or near the loan price. The difference with the LDP in effect is that producers no longer have an incentive to forfeit the grain and thus market prices are not supported by the loan rate. Even though grain prices can fall below the loan rate due to supply and demand conditions, producers theoretically will still receive the loan rate as a floor price, i.e., cash price + LDP = loan rate.

The LDP alternative allows farmers to take the LDP up until 9 months following the beginning of harvest or until 9 months after the grain is placed under loan. This "decoupling" of marketing of grain from loan prices provide farmers the opportunity to seek profit maximization from both the loan program, in the form of an LDP, and in the cash market. In other words, the LDP program rewards producers for "picking the market top" (i.e., time of cash market sales) as well as "picking the market low" (i.e., time of taking LDP). If markets are efficient, there is no reason to expect producers could do this, but in reality this may be exactly what many producers try to do.

Despite claims that the LDP may have effected historical basis patterns, there has been little empirical research to substantiate or refute these claims. Visually reviewing basis data indicates that corn and soybean basis levels for September 1998 through the fall of 1999 are similar to historical basis levels (figures 1 and 2). However, only for certain times during the September 1998 through May 1999 and during all days for September 1999 to present has there been a LDP available. Figures 3 and 4 are used to graphically represent the 1998/1999, 2-year previous, and 5-year previous marketing year basis for Braymer, Missouri (Lafayette county). During most weeks of the 1998/1999 marketing year, corn and soybean basis was below both the 2-year previous and 5-year previous averages, but can all of the weaker basis be attributed to the LDP?

The effect on basis from a change in the LDP would occur if the LDP would cause producers to market grain at times other than would normally occur. For example, a "large" LDP at harvest may encourage a producer to take the LDP for cash flow needs and then hold onto the grain. The effect of this would be to change harvest basis levels compared to if the grain had been sold. The government determined loan rate is set to "theoretically" provide a fixed price support level. That is, county differentials are based on long-term price relationships between the county and USDA announced terminal market price. In theory, when cash prices are below the loan rate, the cash price plus LDP would equal the loan rate. However, two factors have caused alternative outcomes. First, the county differentials may not reflect the actual price spread. Second, the government would prefer not to take possession of grain so the county differential is changed periodically to increase the value of the county LDP – effectively causing the producer to take the LDP in lieu of the loan or cause the producer to redeem the loan at the PCP.[1] The LDP can only be locked in prior to or at the time of the sale up until May 31, with the exception of grain placed under loan where the 9-month period may go beyond May 31. In essence, some perceived that producer's cash marketing decisions may have been impacted by the relative level of the PCP to cash price. If the producers marketed the cash and LDP

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[1] For instance, the USDA announced market rates for April 3 and April 11, 2000, had accompanying notes regarding the differential. On April 3 the note stated, add -2 cents to the Gulf corn differential. On April 11, the note stated, add -4 cents to the Gulf corn differential. (http://165.221.16.16/public/RATESPUB/default.htm)

simultaneously, then a LDP adjusted price above (below) the loan rate would cause excess (less) grain to enter the market and push the cash price lower (higher).

If the CCC loan program no longer acts as a market price floor, then there is the possibility of a basis different than expected, based on a historical average. If the basis differs significantly from historical trends, then the PCP based on historical location differentials is likely to differ from local market prices. To the extent that the PCP does not equal local price, a new opportunity for profit seeking exists. As policy makers begin debate on the 2002 Farm Bill, information on the impact of FAIR programs needs to be understood. Additionally, producers, agribusiness persons, and Extension marketing economists need to understand whether current farm policy has effected the formulation of how cash grain prices are projected.

Empirical Model and Description of Data

Following the theoretical contributions of Working on commodity storage and basis, and extended by Stein and Telser, there have been considerable analyses of commodity basis behavior, e.g., Hauser, Garcia and Tumblin; Kahl and Curtis; Martin, Groenewegen, and Pidgeon; Tilley and Campbell; and Ward and Dasse. Other researchers have used historical basis patterns in evaluating grain marketing strategies, e.g., Kastens and Dhuyvetter. Most relevant, and somewhat difficult to cite, is that numerous producers, agribusinesses, and University Extension outlook economists use local basis and futures price to forecast local cash prices.

There has been numerous previous studies investigating factoring affecting grain and oilseed basis, e.g., Martin, Groenwegen, and Pidgeon; Tilley and Campbell; and Kahl and Curtis. Tilley and Campbell defined basis as the Gulf cash price less the Kansas City Board of Trade futures price adjusted for storage costs. Using weekly data, Tilley and Campbell regressed lagged basis, futures market liquidity, export commitments divided by free stocks, and contract month binary variables on basis. The partial adjustment model was estimated for both the expiration month and for a greater than 4 weeks prior to expiration time period. The estimated coefficient for the lagged basis, in the greater than 4 weeks to expiration model, indicated that it took three weeks for the basis to make 90% of the full adjustment. Also, an increase in the export commitment to free stock ratio and market liquidity variables increased basis.

The empirical analysis used for this study builds on previous research by Tilley and Campbell to estimate the effect of LDP on corn and soybean basis. A LDP adjusted cash price either below or above the loan rate is synonymous with the difference in the cash price and PCP. Producers are assumed to make rational management decisions and maximize profits; therefore, a producer may market the LDP independent of the cash to either satisfy cash flow needs or to take advantage of LDP adjusted prices above the loan rate. The expected impact on basis from a change in the LDP is determined empirically. For the current study, factors affecting corn and soybean basis are lagged basis, futures price, a proxy for the loan deficiency payment (LDP), futures market liquidity, days prior to contract expiration, futures contract dummy variables, and location dummy variables. The nearby basis model specified for this study is:

Basis$_{jit}$ = f (lagged basis$_{jit}$, futures price$_{jt}$, PCP$_{jit}$ / cash price$_{jit}$,
futures market liquidity$_{jt}$, days prior to contract xpiration$_{jt}$,
futures contract dummy variables$_{jt}$, location dummy variables$_{jit}$)

This study uses daily data between January 1993 and November 1999. Variable descriptions and summary statistics of selected variables are given in table 2. Nearby Basis is defined as the cash price minus the closing futures price for commodity j (j = corn and soybeans), in location i (i = Braymer, Cameron, Charleston, Chillicothe, Concordia, Corder, Hannibal, Jamesport, Kansas City, Sikeston, St. Joseph, St. Louis, and Tarkio), on day t (t = 1, 2, . . ., 1690). Cash prices were obtained from DTN Farm Dayta. Futures prices, rolled forward on the first trading day of the contract expiration month, are from Bridge. Similarly, the futures market liquidity variable was computed from data obtained from Bridge. Posted County Price (PCP) data were obtained from CARD, Iowa State University.

Malick and Ward (p. 160) suggest a partial adjustment model is appropriate because "traders may not react to every market signal simply because longer-term hedging positions are adjusted in a consistent manner with forward pricing needs and not to interim market price changes" [Tilley and Campbell, p. 932]. Lagged basis was included to capture the partial adjustment impact. Lagged basis is expected to be positive and lie in the unit interval.

The futures price was included as an explanatory variable to determine the relative price effect on basis. It is hypothesized that an increase in the relative price would strengthen basis in the short-run (day to day). Because the futures price is a joint function of supply-demand variables such as production, stocks to use, export commitments, etc., the price factors act as a proxy for daily fluctuations in these variables - for which data does not typically exist. Jiang and Hayenga evaluated alternative basis forecasting models for corn and soybean. They found transportation costs, production, and other demand factors to effect basis. Thus, in the current study the futures price could be capturing periods of poor or good production and changes in demand.

The LDP and cash prices are simultaneously determined. Therefore, using the level of the LDP is not appropriate. A proxy variable is used in place of the LDP. The ratio of PCP-to-cash price variable was included to determine whether the presence of the LDP effected basis when here was LDP available. Defined in this manner, when the PCP differs from the cash price the producer could receive a net cash price either above or below the loan rate. If the ratio is greater (less) than one, then a farmer could receive an adjusted cash price above (below) the loan rate, if the grain was marketed and the LDP taken simultaneously. There is expected to be no economic impact on basis from a change in the PCP-to-Cash price variable, because producers are assumed to market the LDP and cash independently. However, it is worth noting that taking the harvest time LDP may provided producers with short-term cash flow relief that allowed producers to store grain in anticipation of higher prices later in the marketing year. For this reason, seasonal models were estimated separately.

A futures market liquidity variable was constructed as the ratio of futures volume to open interest. The variable is included in the basis models as a proxy for the ability of hedgers and speculators to enter or exit the market. Tilley and Campbell used a similar variable to explain factors affecting Hard Red Winter Wheat basis. They found that prior to 4 weeks before contract expiration an increase in market liquidity strengthened basis, but during the 4 weeks before contract expiration an increase in market liquidity weakened basis. Following comments of Tilley and Campbell, no *a priori* impact on basis is hypothesized for this variable.

Days prior to expiration was included in the basis models to account for storage costs associated with storing the commodity. Also, as commodity futures contracts approach expiration, supply-demand factors in the cash and futures market equate. As the number of days prior to expiration increases, it is expected that basis will weaken.

Futures contract dummies are 0 or 1 binary variables. December is the default for corn and November is the default for soybean. Also, location dummy variables are included as 0 or 1 binary variables. For both corn and soybean, Kansas City is chosen as the default location. Locations other than St. Louis and locations along the Mississippi River, are expected to have a weaker basis relative to Kansas City.

Results

Results of the corn and soybean basis models estimated following the specification outlined in equation 1 are reported in table 3. For each of the thirteen locations which basis data was computed, the Dickey-Fuller test for the presence of a unit root was rejected. Thus, the models were estimated in levels. Data were pooled by crop and data transformed for cross-sectional heteroskedasticity and time-series autocorrelation following the Kmenta procedure. A single value of *rho*, for each crop, was used to transform all data for autocorrelation. The value of *rho* used to transform the corn and soybean data was -0.12 and -0.14, respectively. Corn and soybean basis models were estimated using the Pool command in Shazam 8.0. The explanatory variables explained around 95% of the variability in corn and soybean basis. Because the number of observations is particularly large, differentiating economic significance from statistical significance is particularly important.

As expected, lagged basis was positive and was within the unit interval for both the corn and soybean basis models. The partial adjustment factor can be computed by subtracting the coefficient estimate from one. Thus, the partial adjustment factors for corn and soybean basis are 0.065 and 0.125, respectively. A partial adjustment value closer to one indicates a more immediate adjustment. For this study, it was found that the long-run impact to a shock in one of the explanatory variables would have an impact of 15 times (one divided by 0.065) and 8 (one divided by 0.1250 times the reported coefficient estimate for the corn and soybean basis models, respectively.

The PCP-to-cash price ratio variable for both the corn and soybean basis equation was negative and statistically significant at the 0.01 level. For corn, a one percentage point increase in the ratio would decrease basis by $0.00006/bushel. The average value of this variable was 97% and the maximum was 122%. This indicates that at most the LDP program may have led to a $0.0015/bushel weaker corn basis. Accounting for the partial adjustment factor suggests the impact could have been up to a $0.023/bushel weaker corn basis. The $0.023/bushel decline in corn basis is one-fifth of the average corn basis (table 2). This impact could be viewed as being economically significant; however, only for a very small portion of the days when the LDP was available was the maximum PCP-to-cash price ratio observed. Using two-standard deviations from the mean of the corn PCP-to-cash price ratio would cause corn basis to weaken by at most $0.008/bushel. For soybean, a one percentage point increase in the soybean ratio would have weakened soybean basis by $0.006/bushel (1.04 maximum ratio and a partial adjustment factor of 8). Thus, the presence of the LDP did not have a significant long-run economic impact on either the corn or soybean basis.

A one dollar increase in corn (soybean) futures price lead to a $0.013/bushel ($0.002/bushel) strengthening corn (soybean) basis. Both the corn and soybean futures price variables were statistically significant. This result indicates that at relatively high prices (low prices) both corn and soybean basis strengthens (weakens). The long-run impact of a one dollar increase in corn or soybean futures is almost a $0.20/bushel and $0.02/bushel strengthening of corn and soybean basis, respectively.

In both the corn and soybean basis models, the futures market liquidity variable was not statistically different from zero. Furthermore, the magnitude of the coefficients suggests that deviations from the average liquidity value would not be economically significant. A one day increase in the number of days prior to expiration weakened corn basis by $0.0003/bushel. Because the futures price in this study was rolled forward on the last day of the month prior to contract expiration, the days to expiration variable varied between 1 and 60. Thus, basis would be about $0.02/bushel weaker at 60 days prior to contract expiration compared to the beginning of the expiration month.

Contract dummy variables varied in magnitude and statistical significance. Larger coefficients occurred in months further from harvest (default contract). Location dummy variables also varied in magnitude; however, locations further from the default location (Kansas City) and further away from river terminals were larger in absolute value. This is consistent with the difference in transportation costs of markets further from terminal and river markets.

Seasonal Basis Models

Because there is a seasonal pattern to producer marketing, market factors affecting corn and soybean basis may change over the course of the year. Specifically, there may have been adjustments to the LDP during specific periods of the year to provide holders of grain, who had not yet taken the LDP, the incentive to take the LDP in lieu of placing the grain under loan. Data were partitioned into three periods of the year: September through December; January through April, and May through August. These periods correspond to the harvest period, new crop planting period, and new crop development period and end of old crop marketing period. A basis model following equation 1 was estimated for each of the three time periods. Futures contract dummies were adjusted according the relevant contracts during the partitioned period.

The seasonal basis models are reported in tables 4 through 6. To conserve space the location dummy coefficients are not reported in the tables (this information is available from the author upon request). In general, the independent variables explained over 92% of the variability in corn and soybean basis. The partial adjustment coefficient, i.e., lagged basis, varied by period.

The partial adjustment coefficient was the largest for the January through April period. During this period, the long-run impact of a change in one of the explanatory variables would have nearly 25 and 10 times the magnitude of the coefficients reported for the corn and soybean basis models, respectively.

For corn and soybean basis, a change in the PCP-to-cash ratio had the largest impact during the harvest period, September through December. Using the partial adjustment coefficient and values for the PCP-to-cash price ratio during the harvest period, an overall impact on basis was computed. The maximum corn basis decline during the harvest period was computed as $0.007/bushel. The maximum soybean basis decline during the harvest period was computed as $0.003/bushel. Neither impact is economically significant. Of course, the impact may have been mitigated by producers taking the LDP at harvest to ease cash flow constraints and provide producers the opportunity hold grain off the market when they would have typically marketed grain - effectively strengthening basis. Estimation results indicate that as the marketing year progresses, the impact on basis from an increase in the PCP-to-cash price ratio decreases in magnitude. During the summer months, the impact is very small; however, the LDP is only available during May for that period.

Based on the magnitude of the futures price coefficient, a one dollar increase in futures price has the largest impact during the May through August period and the smallest impact during the January through April period.

The impact of a change in the futures market liquidity variable on basis changes by time within the marketing year. An increase in the market liquidity variable causes both the corn and soybean basis to weaken during the September through December and January through April time periods. However, during the May through August period the liquidity variable had no impact on corn basis and a positive and statistically significant impact on soybean basis. Future research may want to analyze why the impact of the liquidity variable changes by period within the marketing year. Days prior to contract expiration also varied in magnitude and sign between periods in the marketing year.

Conclusions

Prior to the 1998 crop year, loan deficiency payments (LDPs) were not available. Producers could put their grain under loan but market prices above loan rates created incentives for them to redeem the grain, pay off the loan and accrued interest, and sell the grain. In 1998, low grain and oilseed prices triggered the offers of LDPs in almost all regions of the US, and with the LDP came stories of market inefficiencies created because of the difference between the local cash price and PCP.

This study analyzed the effect of the Loan Deficiency Payment (LDP) program, established under the Federal Agriculture Improvement Reform (FAIR) act of 1996, on corn and soybean basis. Using daily Missouri corn and soybean basis data between 1993 and 1999, and incorporating the LDP when in effect during 1998 and 1999, empirical models of factors affecting corn and soybean basis were estimated. An increase in the LDP was found to have a small, negative, impact on both corn and soybean basis. Furthermore, the impact of the presence of the LDP differed within the marketing year. However, the presence of the LDP was not economically significant for any of the periods analyzed. The implication of this result is that cash price forecasts in the future can use historical local basis without adjusting for the presence of the LDP program.

Also, seasonal corn and soybean basis models were estimated. Results of these models indicate that factors affecting corn and soybean basis differ within the marketing year. This result suggests that some factors affecting corn and soybean basis are more pronounced at certain times within the marketing year than at other times. Specifically, the futures market liquidity has a significantly different impact at different times in the marketing year.

Results of this study can be used to assist farmers in marketing under low price scenarios. Price projections for the 2000 crop year indicate LDPs may once again be triggered assuming normal conditions. The results of this study suggest that the presence of the LDP did not impact basis enough to consider the LDP a factor when making price cash price projections using futures markets and historical local basis patterns.

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Table 1. Determination of Loan Deficiency Payment for Lafayette County Missouri

		PCP Below Loan Rate	PCP Above Loan Rate
A.	Gulf price	$2.16	$2.46
B.	Gulf differential	$0.46	$0.46
C.	Posted county price based on Gulf cash price (A ! B)	$1.70	$2.00
D.	Kansas City price	$1.88	$2.36
E.	Kansas City differential	$0.22	$0.22
F.	Posted county price based on K.C. cash price (D ! E)	$1.66	$2.14
G.	Posted County Price (maximum of line C and F)	$1.70	$2.14
H.	County Loan Rate	$1.87	$1.87
I.	Loan Deficiency Payment (LDP) rate (H ! G, where H ! G > 0 for LDP to be in effect)	$0.17	$0.00

Table 2. Description of Variables and Summary Statistics of Data used in Estimation of daily Basis Equations for Corn and Soybean (21,970 observations)

Variable	Description	Avg	S.D.
j	Commodity, where *j*= corn, soybean		
i	Location, where i= Braymer, Cameron, Charleston, Chillicothe, Concordia, Corder, Hannibal, Jamesport, Kansas City, Sikeston, St. Joe, St. Louis, and Tarkio.		
t	Days between January 1993 and November 1, 1999, t = 1, . . ., 1680		
Cash_{jit}	Local cash price of commodity *j* in town *i* on day *t*.		
	Corn ($/bu)	$2.586	$0.715
	Soybean ($/bu)	$6.240	$1.049
$\text{Nearby Futures}_{jt}$	Nearby futures price for commodity *j*, rolled forward on the first day of the contract expiration month, on day *t*.		
	Corn ($/bu)	$2.684	$0.595
	Soybean ($/bu)	$6.413	$1.003
Basis_{jit}	Local cash price of commodity *j* minus nearby futures of commodity *j* in town *i* on day *t*.		
	Corn ($/bu)	-$0.097	$0.218
	Soybean ($/bu)	-$0.173	$0.197
$\text{Lagged Basis}_{jit}$	Lagged one day local cash price of commodity *j* minus lagged one day nearby futures of commodity *j* in town *i* on day *t*.		
	Corn ($/bu)		
	Soybean ($/bu)		
PCP_{jit} / Cash Price_{jit}	Government determined Posted County Price (PCP), for commodity *j*, for the county town *i* is located divided by Cash_{jit} .		
	Corn ($/bu)	97.3%	4.2%
	Soybean ($/bu)	98.1%	2.2%
$\text{Futures Liquidity}_{jt}$	Trading volume for commodity *j* on day *t* divided by open interest for commodity *j* on day *t*.		
	Corn (%)	18.2%	7.6%
	Soybean (%)	31.3%	10.4%
Expiration_{jt}	Continuous variable equal to the number of days prior to contract expiration		
$\text{Contract Dummy}_{jt}$	0 or 1 binary variables differentiating the different contract months of commodity *j*		
$\text{Location Dummy}_{jit}$	0 or 1 binary variables differentiating location of cash price quote		

Table 3. Pooled Regression Results for Factors Affecting Missouri Corn and Soybean Basis, dependent Variable is $/bushel.

Corn			Soybean		
Variable	Coef.	p-value	Variable	Coef.	p-value
Lagged basis	0.935***	0.000	Lagged basis	0.875***	0.000
PCP/Cash	-0.06-E03***	0.002	PCP/Cash	-0.11-E03***	0.000
Futures	0.013***	0.000	Futures	0.002**	0.012
Liquidity	-0.17-E03	0.120	Liquidity	-0.02-E03	0.794
Expiration	-0.8E-04*	0.089	Expiration	0.8E-05	0.899
Contract Dummies (*default* = December)			Contract Dummies (*default* = November)		
March	0.003	0.205	January	0.004*	0.090
May	0.002	0.386	March	0.008***	0.002
July	0.005**	0.020	May	0.002	0.325
September	0.013***	0.000	July	0.002	0.327
			August	0.009***	0.002
			September	0.018***	0.000
Location Dummy (*default* = Kansas City)			Location Dummy (*default* = Kansas City)		
Braymer	-0.014***	0.000	Braymer	-0.042***	0.000
Cameron	-0.014***	0.000	Cameron	-0.043***	0.000
Charleston	0.001	0.763	Charleston	0.007***	0.000
Chillicothe	-0.015***	0.000	Chillicothe	-0.041***	0.000
Concordia	-0.009***	0.000	Concordia	-0.033***	0.000
Corder	-0.007***	0.000	Corder	-0.026***	0.000
Hannibal	-0.005***	0.000	Hannibal	-0.006***	0.000
Jamesport	-0.013**	0.000	Jamesport	-0.039***	0.000
Sikeston	-0.003***	0.000	Sikeston	-0.005***	0.000
St. Joe	-0.003***	0.000	St. Joe	-0.014***	0.000
St. Louis	-0.001	0.937	St. Louis	0.002*	0.060
Tarkio	-0.014***	0.000	Tarkio	-0.037***	0.000
Intercept	-0.028***	0.000	Intercept	-0.017***	0.004
R-squared	0.949		R-squared	0.963	
Mean of Dep. Variable ($/bu.)	-0.097		Mean of Dep. Variable ($/bu.)	-0.173	
No. of Obs.	21,970		No. of Obs.	21,970	

Note: Single, double, and triple asterisks denote coefficients significantly from zero at the 0.10, 0.05, and 0.01 level, respectively. Thirteen locations and 1690 time periods were pooled.

Table 4. Pooled Regression Results for Factors Affecting Missouri Corn and Soybean Basis During September through December, dependent Variable is $/bushel.

Corn			Soybean		
Variable	Coef.	p-value	Variable	Coef.	p-value
Lagged basis	0.901***	0.000	Lagged basis	0.875***	0.000
PCP/Cash	-0.14E-03***	0.000	PCP/Cash	-0.13E-03***	0.003
Futures	0.006***	0.001	Futures	0.006***	0.001
Liquidity	-0.36-E03***	0.001	Liquidity	-0.3-E03**	0.018
Expiration	-0.3E-03***	0.000	Expiration	0.8E-04	0.420
Contract Dummies (*default* = December)			Contract Dummies (*default* = November)		
March	0.005***	0.003	January	0.003	0.174
Intercept	-0.002	0.712	Intercept	-0.039***	0.003
R-squared	0.961		R-squared	0.962	
Mean of Dep. Variable ($/bu.)	-0.172		Mean of Dep. Variable ($/bu.)	-0.202	
No. of Obs.	6,890		No. of Obs.	6,890	

Note: Single, double, and triple asterisks denote coefficients significantly from zero at the 0.10, 0.05, and 0.01 level, respectively. Note, location dummy variables were used in the estimation of the basis equations, but coefficients are not reported.

Table 5. Pooled Regression Results for Factors Affecting Missouri Corn and Soybean Basis During January through April, dependent Variable is $/bushel.

Corn			Soybean		
Variable	Coef.	p-value	Variable	Coef.	p-value
Lagged basis	0.962***	0.000	Lagged basis	0.893***	0.000
PCP/Cash	-0.03-E03*	0.087	PCP/Cash	-0.05-E03***	0.002
Futures	0.002***	0.002	Futures	-0.1E-04	0.980
Liquidity	-0.3-E03***	0.000	Liquidity	-0.14-E03**	0.016
Expiration	-0.2E-03***	0.000	Expiration	0.3E-03***	0.000
Contract Dummies (*default* = March)			Contract Dummies (*default* = March)		
May	-0.001	0.552	May	-0.002*	0.068
Intercept	0.003	0.162	Intercept	0.010***	0.008
R-squared	0.984		R-squared	0.985	
Mean of Dep. Variable ($/bu.)	-0.107		Mean of Dep. Variable ($/bu.)	-0.178	
No. of Obs.	7,397		No. of Obs.	7,397	

Note: Single, double, and triple asterisks denote coefficients significantly from zero at the 0.10, 0.05, and 0.01 level, respectively. Note, location dummy variables were used in the estimation of the basis equations, but coefficients are not reported.

Table 6. Pooled Regression Results for Factors Affecting Missouri Corn and Soybean Basis During May through August, dependent Variable is $/bushel.

Corn			Soybean		
Variable	Coef.	p-value	Variable	Coef.	p-value
Lagged basis	0.942***	0.000	Lagged basis	0.851***	0.000
PCP/Cash	-0.04-E03	0.587	PCP/Cash	-0.1-E03	0.293
Futures	0.017***	0.000	Futures	0.004***	0.003
Liquidity	0.13-E03	0.622	Liquidity	0.36-E03**	0.017
Expiration	0.4E-03***	0.010	Expiration	0.3E-03**	0.040
Contract Dummies (*default* = July)			Contract Dummies (*default* = July)		
September	0.008**	0.037	August	0.011**	0.014
			September	0.025***	0.000
Intercept	-0.054***	0.596	Intercept	-0.047***	0.000
R-squared	0.928		R-squared	0.948	
Mean of Dep. Variable ($/bu.)	-0.024		Mean of Dep. Variable ($/bu.)	-0.141	
No. of Obs.	7,683		No. of Obs.	7,683	

Note: Single, double, and triple asterisks denote coefficients significantly from zero at the 0.10, 0.05, and 0.01 level, respectively. Note, location dummy variables were used in the estimation of the basis equations, but coefficients are not reported.

Figure 1. Nearby Corn Basis for Braymer, Missouri, January 1995 through October 1999.

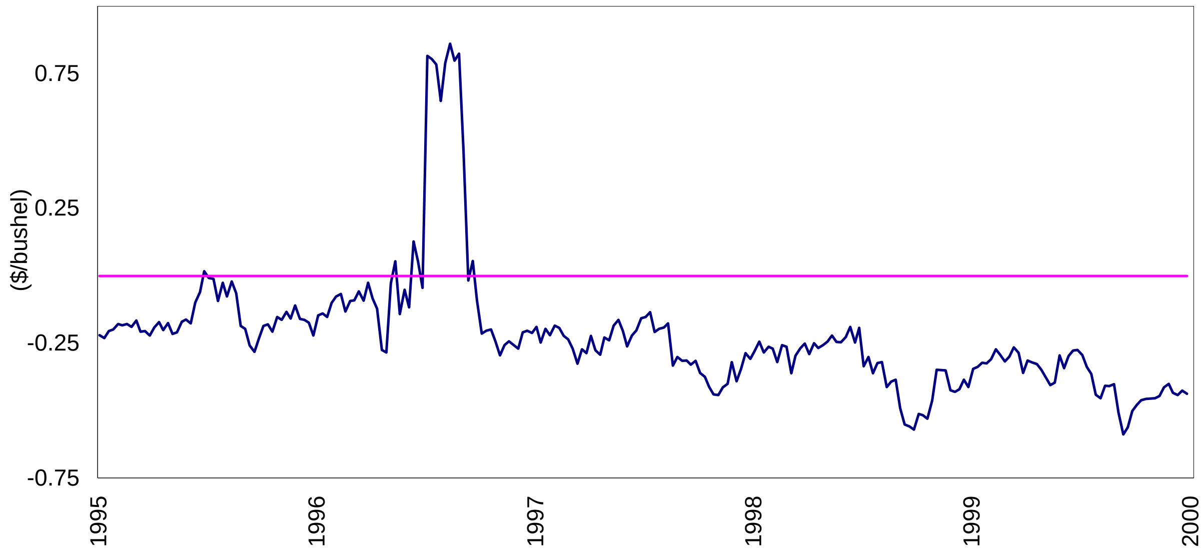

Figure 2. Nearby Soybean Basis for Braymer, Missouri, January 1995 through October 1999.

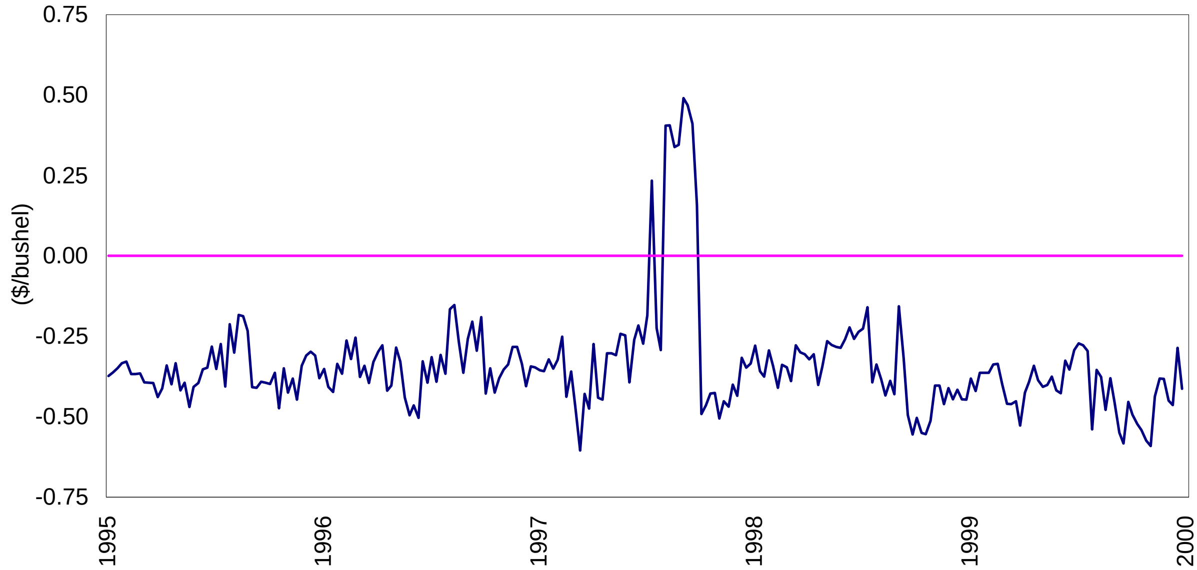

Figure 3. Braymer, Missouri, Weekly Nearby Corn Basis for 1999, 1998-1999 Average, and 1994-1999 Year Average, Marketing Year begins 1st week of September.

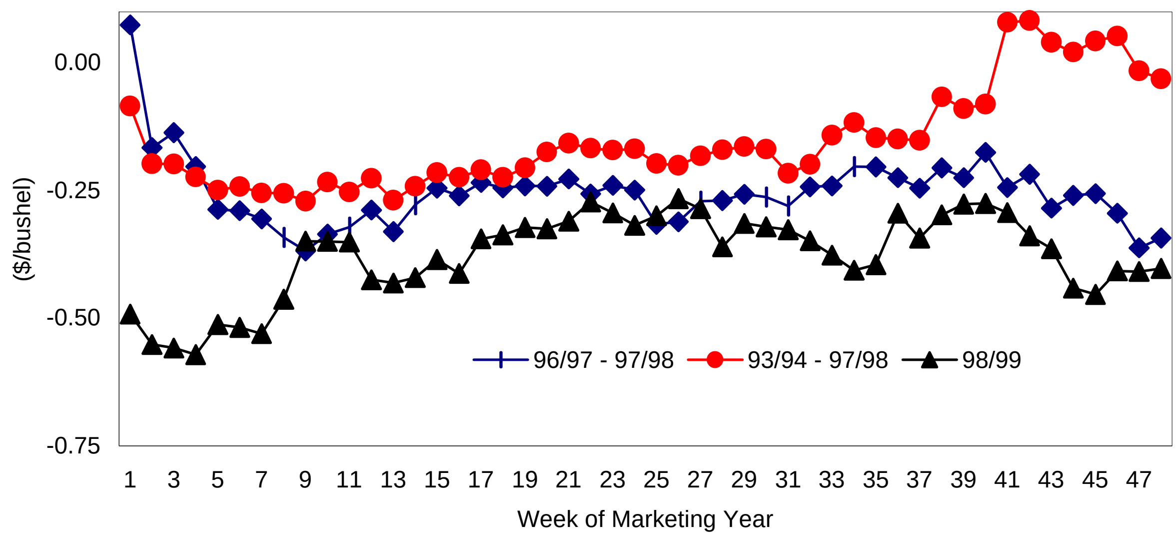

Figure 4. Braymer, Missouri, Weekly Nearby Soybean Basis for 1999, 1998-1999 Average, and 1994-1999 Year Average, Marketing Year begins 1st week of September.