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AN ECONOMETRIC MODEL OF FARMERS' DEMAND FOR COMMODITY CREDIT CORPORATION LOANS

Michael Golden and Leonard Burman

Commodity Credit Corporation (CCC) price support loan activity has important implications for U.S. Treasury outlays. In 1977, CCC purchases of agricultural commodities (the vast majority of which were in the form of support loans) amounted to \$3.9 billion.[1] In other words, roughly 25 percent of federal purchases of nondurable goods, or 2.7 percent of all federal purchases, arose from CCC commodity transactions. In 1976, CCC purchases were \$900 million, only about 9.5 percent of federal purchases of nondurables and 0.7 percent of total federal purchases of goods and services. Furthermore, the quarterly pattern of the series is extremely volatile, with swings often exceeding \$500 million in a single quarter. In the six years between 1972 and 1977, nominal CCC purchases were negative in each of the first three years and positive in the last three.

Because CCC activity is both so large and so volatile, forecasts of CCC activity are very important when one is making any economic projection concerned directly or indirectly with the federal government sector of the U.S. economy. CCC cash flows can have a tremendous impact on the size and timing of the federal deficit. CCC loans also figure prominently in the determination of farm income. Equations capable of providing reliable forecasts of CCC loan activity should prove useful for estimating CCC loan outlays and for economic policy analysis related to these outlays. They should also be helpful in forecasting the manpower required to administer CCC support loan activities. Finally, they should provide the policymaker with information about the power of certain policy tools (e.g., the effect on quantities of grain put under loan given a change in the loan rate).

Until recently, only a few published studies have estimated grain quantities placed under CCC loan. Miller et al. [3] give a lucid exposition of the response of rational, profit-maximizing grain producers to the dispensation of their produce among the available alternatives as well as annual equations for two commodities (corn and wheat). The goal of this article is to extend their economic logic in the area of CCC loans and to present empirical results as a test of the theoretical arguments that are developed. Though results are presented only for corn and wheat, the theoretical framework should be very similar for all food and feed grains.

EARLIER WORK

Recently, several econometric studies have analyzed farmers' demand for CCC loans. The first studies, by Channareddy and Holmes [1, 2], were important insofar as they demonstrated significant relationships between loan demand and price support levels relative to market prices. Interest rates and storage costs were not included in these studies, however, and the theoretical basis for the structural models chosen was not carefully developed.

A more complete model of the decision process involved in placing commodities under loan was developed by Miller, Meyers, and Lancaster [3]. This analysis was based on the concept of loan activity as a hedge against future price increases. In addition, the interest rate paid on CCC loans in relation to the interest rate charged by alternative lenders (Production Credit Associations) was shown to be a significant determinant of the demand for government loans. The results of this study are very encouraging and suggest directions for further development. The data used in the study were available only on an annual basis. Monthly data on net placements of grain under

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This research was done while the authors were employed, respectively, as economist for the Council of Economic Advisers and agricultural economist for Data Resources, Inc., using DRI software and data bases. All views and errors in the text are the sole responsibility of the authors.

The authors are grateful to Ronald Miller, Glenn Nelson, and Bruce Scherr, as well as the anonymous referees, for their suggestions and comments, and to Paul Westcott for his technical assistance.

[1] CCC commodity loan extensions are treated as federal government purchases of nondurable goods in the National Income and Product Accounts (NIPA). Loan redemptions are treated as negative purchases. The numbers used here differ slightly in concept and size from those used in the NIPA. Briefly, government donations of commodities are added back into the figures presented in Table 3.6 of the *Survey of Current Business* (SCB) but are excluded from our (unpublished) numbers. We have not used the SCB numbers because they are not available at a quarterly frequency. Note that this difference only applies to the figures in the first paragraph. All commodity series used in the empirical section are available from USDA.

loan (placements less redemptions), which are collected by the USDA, provide an opportunity to lessen the problem of aggregation bias and to examine explicitly the seasonal variations in loan demand. These data also allow consideration of loan redemptions, an issue not addressed in the Miller paper. Moreover, grain storage costs should be included in the calculation of the net value of a loan to farmers. Discounted present values can be used to account explicitly for the time value of money. Finally, eligibility to obtain CCC loans is represented in the empirical results presented for both corn and wheat by inclusion of the percentage of planted acreage eligible for CCC loans.

THEORETICAL DEVELOPMENT

A farmer who is eligible for CCC loans has two principal means of satisfying his cash flow requirements: he can sell as much of his crop as is necessary to amass the necessary cash or he can use part or all of his crop as collateral for a CCC loan. We assume that he would not consider alternative lenders because the CCC interest rate has always been lower than the rate charged by alternative lenders.

If a farmer had perfect knowledge of future prices, his decision would be simple. He would sell on the market if

$$P_t > \frac{P_{t+n} - C_{t,t+n}}{1 + R_{t,t+n}} \tag{1}$$

where

P_t = price in period t
$C_{t,t+n}$ = net cost per unit of holding for n periods[2]
n = 1, . . ., max
max = maximum duration of loan
$R_{t,t+n}$ = opportunity cost over the n periods (rate of return).

He would put his entire crop under loan if

$$P_t < \frac{P_{t+n} - C_{t,t+n}}{1 + R_{t,t+n}} \tag{2}$$

and he would be indifferent between selling and putting his crop under loan if

$$P_t = \frac{P_{t+n} - C_{t,t+n}}{1 + R_{t,t+n}} \tag{3}$$

There are two qualifying conditions, however, First, the loan itself may have more intrinsic value than the crop would have on the market. That is,

$$\frac{PSUP_t - C_{t,t+dur}}{1 + R_{t,t+dur}} > \frac{P_{t+n} - C_{t,t+n}}{1 + R_{t,t+n}} \tag{4}$$

where

$PSUP_t$ = loan rate
n = 0, 1, . . . , max
dur = minimum holding period before the loan can be defaulted.

Equation 4 requires that the present value of the support price, net of costs, at default time exceed the net present value on the market of the crop at any time period before max. In this case, the loan would be taken with the expectation of defaulting.

Second, for either of equations 2 or 3 to hold, one or both of two conditions must be satisfied. The value of the loan or $PSUP_t$ must be greater than or equal to P_t. If neither condition were satisfied, producers would no longer be indifferent given equation 3. Rather, they would prefer marketing their crops to taking government loans. If equation 2 is satisfied, the fraction of the crop put under loan could be derived as follows.

If

$$PSUP_t < P_t$$

and

$$PSUP_t \bullet Q_t^L < CF_t$$

then

$$CF_t = P_t \bullet Q_t^M + PSUP_t \bullet Q_t^L \tag{5}$$

where

CF_t = cash flow requirement for period t
Q_t^M = quantity marketed in period t
Q_t^L = quantity placed under loan in period t.

[2]The net cost of holding one unit of grain for one period can be defined as:

$$C_{t,t+1} = PSUP_t \bullet (R_{t,t+1}^{CCC} - R_{t,t+1}) + SC_{t,t+1}$$

where

$PSUP_t$ = loan rate

$R_{t,t+1}^{CCC}$ = interest rate per period charged by the CCC

$SC_{t,t+1}$ = storage cost for period t.

Note that $C_{t,t+1}$ could (and often does) have a negative value because $R_{t,t+1}$ is sufficiently greater than $R_{t,t+1}^{CCC}$ to outweigh $SC_{t,t+1}$.

By definition:

$$Q_t^S = Q_t^M + Q_t^L \tag{6}$$

where

Q_t^S = total supply in period t[3].

Substituting equation 6 into equation 5 gives:

$$CF_t = P_t \bullet (Q_t^S - Q_t^L) + PSUP_t \bullet Q_t^L \tag{7}$$

or, rearranging terms,

$$CF_t = P_t \bullet Q_t^S + (PSUP_t - P_t) \bullet Q_t^L \tag{8}$$

Solving for Q_t^L yields:

$$Q_t^L = \frac{CF_t - P_t \bullet Q_t^S}{PSUP_t - P_t}. \tag{9}$$

Note that Q_t^L is undefined when $PSUP_t$ equals P_t. The cash flow constraints must be satisfied for each period during which the grain is under loan. After the crop has been placed under loan, the decision is whether to redeem part of the loan to satisfy current cash flow requirements. In equations 6 through 9, the quantity of grain under loan would replace Q_t^S, and Q_t^L would be the quantity that would remain under loan for another period (unless equation 2 is no longer satisfied, in which case all of the loan would be redeemed).

The foregoing exposition is based on several simplifying assumptions, the first being that future prices are known with certainty. The analysis is not greatly changed if one now admits that farmers do not know with certainty, but rather hold expectations of, future prices of their produce. The modeling of farmers' price expectations, P^e, is discussed in detail in the empirical results section.

Because farmers' price expectations are subject to substantial risk, considerable variance is associated with the expected value of a CCC loan. Miller et al., [3] have shown that loan placements are related positively to the volatility of recent prices. The more market prices are likely to vary, the more likely it is that the discounted value of the net cash proceeds from a sale some time in the future will exceed the net cash proceeds realized by a sale today. Thus, if recent market prices have been subject to large fluctuations, it may appear more profitable to place at least some grain under loan with the CCC and wait for a large price rise than to sell grain on the current market and forego the potential price improvement. A two-year moving standard deviation of the price of grain at the farm is used to represent the risk associated with a farmer's price expectation.[4]

A second simplification in the analysis is the assumption that farmers make their loan decisions on a period-to-period basis, i.e., n = 1. Beyond the first quarter, the decision is whether to redeem the loan or hold for another quarter. Though it is probably true that farmers' time horizons extend beyond one quarter, the benefits created by relaxing the time horizon assumption are not believed to justify the concomitant complications.

Another term is necessary to represent the previously mentioned special conditions, which would overshadow the normal decision process. In the first condition, a farmer might intend to default on a loan. The higher the loan rate in relation to the current price, the more likely this possibility becomes. Under the second condition, the loan rate may be too low in relation to the current price to satisfy current cash flow requirements. This situation would also be related to the loan rate/price ratio. Finally, if cash flow requirements are assumed to be proportional to the value of current production (with α being the factor of proportionality), equation 8 can be simplified. Assume

$$CF_t = \alpha \bullet Q_t^S \bullet P_t.$$

Reordering equation 8 gives

$$Q_t^L = \frac{(\alpha - 1) P_t}{PSUP_t - P_t} \bullet Q_t^S. \tag{10}$$

Define

$$\beta = \frac{PSUP_t}{P_t}.$$

Then

$$Q_t^L = \frac{(\alpha - 1) P_t}{(\beta - 1) P_t} \bullet Q_t^S. \tag{11}$$

Cancelling P_t gives

$$Q_t^L = \frac{\alpha - 1}{\beta - 1} \bullet Q_t^S. \tag{12}$$

This confirms Miller's formulation using production alone as an independent variable to proxy for cash flow requirements. In empirical application, collinearity between $\frac{\alpha - 1}{\beta - 1}$ and β, the loan rate/price ratio, is likely to preclude

[3]We are ignoring non-CCC inventories in this analysis. Inventory changes are assumed to be a residual determined after marketing and loan placement decisions are made.

[4]Miller et al. [3] use a three-year moving variance in their annual model.

the inclusion of that constrained formulation in the regression equation. If $PSUP_t/P_t$ (i.e., β) is assumed to represent both the planned default motive and the failure of the loan price to satisfy cash flow problems, production (or Q^S_t) is included in the equation in a linear form. The final function form is:

$$(13) \qquad NETK_t = f\left(\frac{P_t}{\frac{P^e_t - C_{t,t+1}}{1 + R_{t,t+1}}}, PDEV_t, \frac{PSUP_t}{P_t}, Q^S_t, Q_1, Q_2, Q_3, Q_4\right)$$

where

$NETK_t$ = net loan placements of grain in period t
$PDEV_t$ = eight-quarter moving standard deviation of P_{t-1}
Q_i = seasonal dummy for quarter i.

The first term in equation 13 represents the current market price in relation to the net discounted future price. The second term, $PDEV_t$, is the price volatility variable. The loan rate/price ratio and production variables represent "planned default" and cash flow situations as described heretofore. Finally, seasonal dummies are used because the dependent variable is very seasonal.

EMPIRICAL RESULTS

Quarterly corn and wheat versions of equation 13 were estimated, with adjustments, for the interval from 1967:1 to 1977:4. The major adjustment to the corn equation is the division of the dependent variable by the percentage of planted corn acreage eligible for loan payments. Given that the right side represents the desired level of placements, it is adjusted by the percentage of current supplies, proxied by acreage, which are eligible for loan. There is no adjustment for the period since 1974, when there were no acreage restrictions. Several times in the past 11 years the total eligible acreage has exceeded the total planted acreage (not all signed-up acreage was actually planted). For those times, 100 percent replaces the actual ratio.

The relevant price expectation is not the average price for the next quarter but the maximum level the price will reach during that period (assuming that the farmer will be quick enough to act when that price is reached). Various price expectation formulations were tried for both corn and wheat. The price expectation term for corn varies according to the time of the year. During the first two quarters of the crop year,

$$P^e_t = \frac{\sum_{i=1}^{4} P_{t-i}}{4} + PDEV_t.$$

That is, early in the crop year, farmers are assumed to expect prices to reach one standard deviation above the mean (of the last four quarters) before the loan comes to maturity. In the third and fourth quarters of the crop year, only the four-quarter moving average is used:

$$P^e = \frac{\sum_{i=1}^{4} P_{t-i}}{4}$$

At this time, the decision is whether or not to redeem the loan. If the price is below the recent average, farmers are expected to either hold for another quarter or default.

Because corn is not ordinarily placed under loan after the first two quarters of the crop year, and the default/redemption motive in the latter two quarters is represented by the support price in relation to the discounted price expectation, the cash flow/default proxy ($PSUP_t/P_t$) only enters the corn equation in the first two quarters of the crop year. The square of the ratio is used, based on the assumption that cash flow problems become much less important and planned default becomes increasingly common as the support price approaches the price at the farm. Statistical comparisons of linear and parabolic functional forms indicate that the latter is indeed the better descriptor.

The estimated equation for corn is:[5]

$$NETKCORN_t = \frac{ACPCORN@BASE_t}{ACPCORN_t}\Bigg[\underset{(-1.52)}{-283} \underset{(-4.66)}{-308} \bullet \frac{PCORN_t}{\frac{PCORN^e_t - CCORN_{t,t+1}}{1 + R_{t,t+1}}} + \underset{(3.55)}{265} \bullet PCORNDEV_t + \underset{(7.89)}{406} \bullet \left(\frac{PSUPCORN_t}{PCORN_t}\right)^2 \bullet (Q4 + Q1)$$

[5] See Appendix for variable descriptions.

$$+ \underset{(2.88)}{0.0849} \bullet QCORN^{S}_{t} \bullet Q4 + \underset{(2.42)}{384} \bullet Q1 + \underset{(2.72)}{437} \bullet Q2 + \underset{(2.58)}{415} \bullet Q3 \Bigg]$$

$\bar{R}^2 = 0.888$
Durbin-Watson Statistic = 2.03

Standard Error = 67.9

(t-statistics in parentheses)

A comparison of the actual and predicted net quantity of corn placed under loan is shown in Figure 1.

All of the independent variables have the priori expected signs and are significantly different from zero at the 5 percent level. Table 1 shows the elasticities at the mean by quarter (starting with the first crop year quarter) for the four main explanatory variables. Because the dependent variable has a mean above zero in the first two quarters (when most corn is placed under loan) and below zero in the last two (when corn loans tend to be redeemed), the elasticities change sign as the activity changes from net placement after harvest to net redemption in the spring and summer. It should be noted that elasticities at the mean which are not shown are meaningless because the dependent variable (placements less redemptions) historically has a mean near zero.

Although the formulation used for corn was tried for wheat, differences in government programs and the nature of the crop itself suggested some changes. Both the price expectation variable and β are continuous over the crop year—that is, neither the standard deviation term in the price expectation variable nor PSUP/P is multiplied by Q4 + Q1. Because of the diversity of types of wheat (e.g., durum, hard winter, soft winter), the wide range of planting and harvesting periods for spring and winter wheat and their impact on new crop expectations, and the fact that market needs for each type of wheat vary with their respective and distinguishable uses, the price is more volatile and thus a consistently high level of activity is maintained year-round.

Acreage eligibility is treated differently in the wheat equation. Until 1974, the wheat program was based on acreage allotments that were related to the domestic requirements for wheat. In 1974, the allotments were terminated as the basis for determining eligibility. Because of the irregularity in the allotment series (zeroes in the last three years), the multiplicative correction of the right side (desired placements times percent eligible) was replaced by a correction simply on the production variable, which represents immediate cash flow requirements. During the period of allotments, the ability to satisfy cash flow would be proportional to the acreage eligibility. A separate production variable (zero through 1973 and the production level thereafter) was found to be insignificant and was not included in the final regression equation. Its significance may be explained by the relatively high prices and incomes during the 1974-1977 period, which greatly reduced short-term financial pressures.

Finally, a third variable, the inverse of the level of inventories at the beginning of each quarter, is used to help represent price expectations. The higher the inventories, the less volatile prices are likely to be. Farmers are assumed to factor this observation into their formation of price expectations.

The estimated equation for wheat is:

$$NETKWHT_t =$$

$$\underset{(0.93)}{86} \quad \underset{(-2.62)}{-145} \bullet \frac{PWHT_t}{\dfrac{PWHT^{e} - CWHT_{t,t+1}}{1 + R_{t,t+1}}} + \underset{(2.43)}{99} \bullet PWHTDEV_t + \underset{(2.52)}{112} \bullet \left(\frac{PSUPWHT_t}{PWHT_t}\right)^2$$

$$+ \underset{(2.25)}{0.073} \bullet QWHT^{S}_{t} \bullet \frac{ACPWHT@BASE_t}{ACPWHT_t} - \underset{(-1.78)}{52623} \bullet \frac{1}{KWHT}$$

$$- \underset{(-1.3)}{30} \bullet Q1 - \underset{(-1.06)}{30} \bullet Q2 + \underset{(2.13)}{92} \bullet Q3$$

R = 0.691
Durbin-Watson Statistic = 1.76

Standard Error = 52.9

(t-statistics in parentheses)

A comparison of the actual and predicted net quantity of wheat placed under loan is shown in Figure 2.

The first elasticity (Table 2) is probably the most meaningful because there is so much activity after the beginning of the crop year. The mean drops off by 80 percent from the third quarter to the fourth (first two quarters of the

FIGURE 1. NET QUANTITY OF CORN PLACED UNDER LOAN

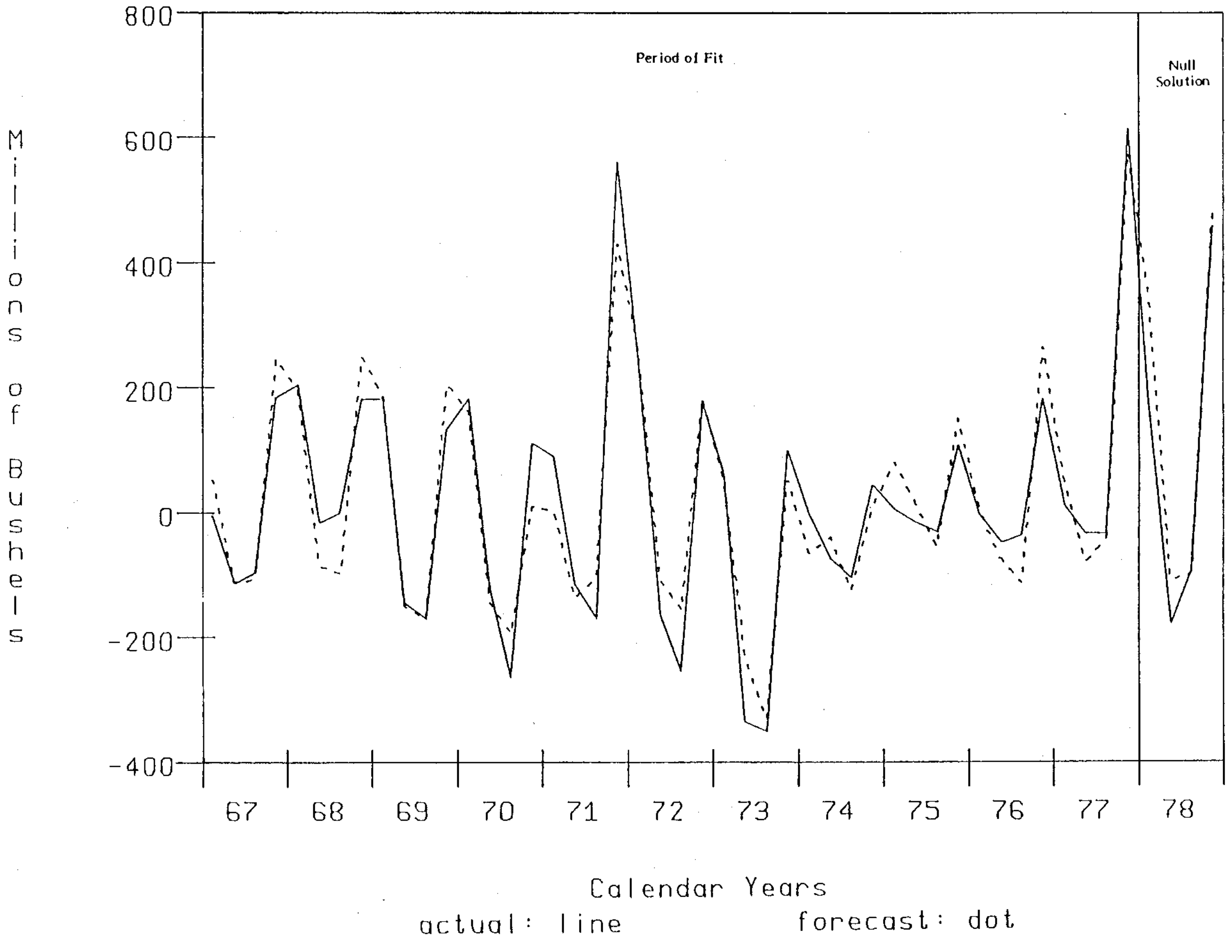

TABLE 1. MEANS AND ELASTICITIES FOR CORN: BY QUARTER, CROP YEAR BASIS

Variable	Mean of Variable	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep
$\dfrac{PCORN_t}{\dfrac{PCORN_t^e - CCORN_{t,\,t+1}}{1 + R_{t,\,t+1}}}$	0.989	-1.20	-2.93	2.81	2.27
$PCORNDEV_t$	0.208	0.26	0.55	-0.47	-0.36
$\left(\dfrac{PSUPCORN_t}{PCORN_t}\right)^2$	0.736	1.22	2.37	--	--
$QCORN_t^S$	5290	1.96	--	--	--

FIGURE 2. NET QUANTITY OF WHEAT PLACED UNDER LOAN

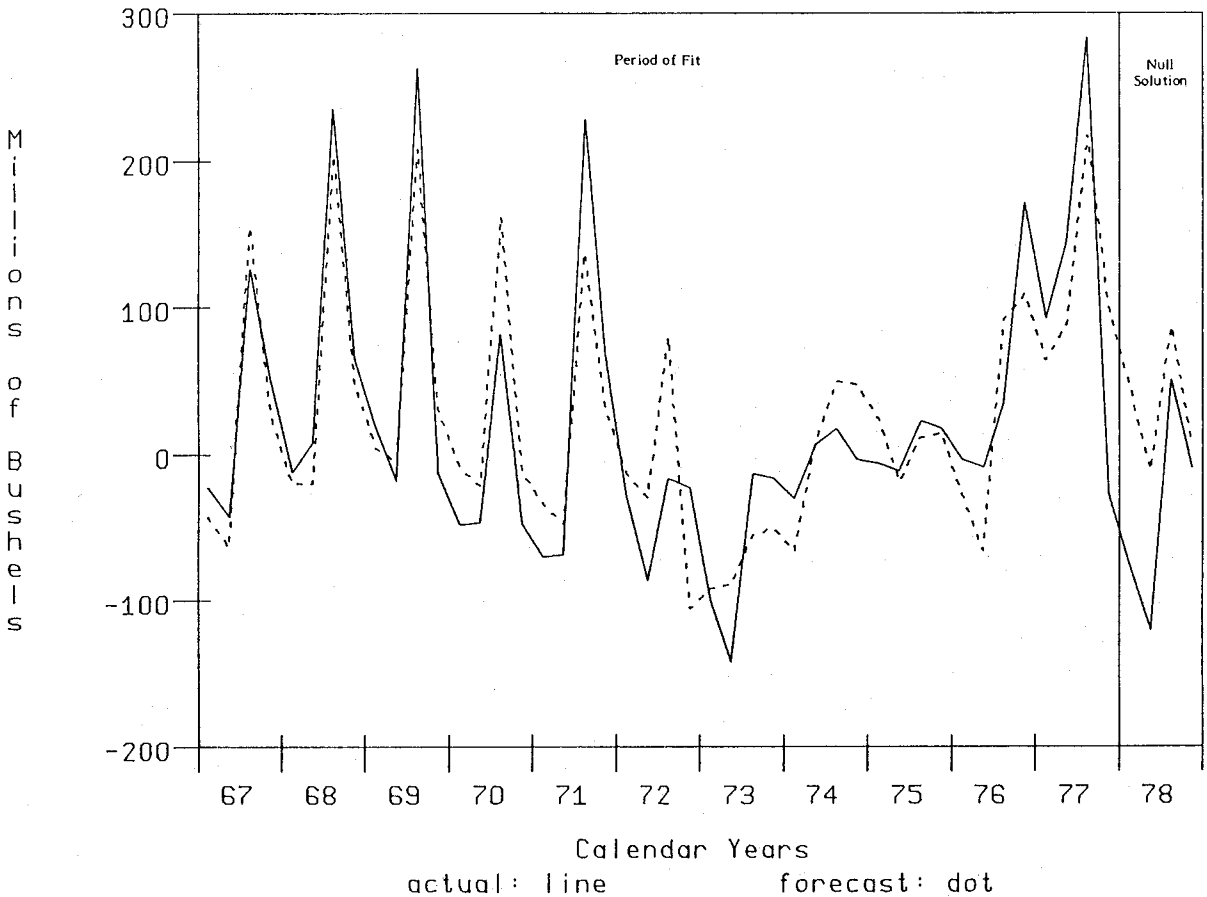

TABLE 2. MEANS AND ELASTICITIES FOR WHEAT: BY QUARTER, CROP YEAR BASIS

Variable	Mean of Variable	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
$\dfrac{PWHT_t}{\dfrac{PWHT_t^e - CWHT_{t,\,t+1}}{1 + R_{t,\,t+1}}}$	0.925	-1.17	-6.52	7.00	5.22
$PWHTDEV_t$	0.355	0.29	1.70	-1.82	-1.45
$\left(\dfrac{PSUPWHT_t}{PWHT_t}\right)^2$	0.629	0.67	3.19	-3.40	-2.88
$QWHT_t^S \bullet \dfrac{ACPWHT@BASE}{ACPWHT}$	669	0.38	--	--	--
$\dfrac{1}{KWHT}$	0.00099	-0.72	-1.37	2.09	2.42

crop year), suggesting that substantial redemption activity is offsetting much of the new loan placements.

SUMMARY

The preceding analysis of the major determinants of CCC loan activity is supported by quarterly behavioral equations for net placements of corn and wheat with the CCC. The results for the corn and wheat equations are encouraging. In the first quarter of the crop year, when the dependent variable most closely approximates placements of grain under loan, the elasticities of the first two dependent variables are remarkably similar—a 1 percent increase in the current market price would reduce placements by approximately 1.2 percent because of the decreasing likelihood that the present value of future prices will exceed the current price. In addition, if the support price were equal to the market price before the increase, a further reduction in placements of approximately 1.3 percent for wheat and 2.4 percent for corn could be expected because of exacerbated cash flow problems on the reduced value of the loan if defaulted. A 1 percent increase in the volatility of recent prices stimulates an estimated 0.29 percent more wheat loan activity and an additional 0.26 percent corn loan activity.

The generality of the theory and the results of the estimated equations show promise for additional work in this very important subject. Econometric modeling of CCC loan activity in other food and feed grains is a topic deserving further efforts. Such equations would be useful in both budget and policy analysis.

APPENDIX

Mnemonic		Description
APCORN		Planted acreage of corn—thousands of acres.
	Source:	United States Department of Agriculture (USDA), Economics, Statistics, and Cooperatives Service (ESCS), "Acreage."
ACPCORN@BASE		Total corn base acreage on farms enrolled in government programs (i.e., eligible for price support loans)—thousands of acres.
	Source:	USDA, ESCS, "USDA News—Final Feed Grain Sign-Up Report" (in Spring).
	Note:	There was no government program before 1962 or from 1974 to 1977.
ACPWHT		Planted acreage of wheat—thousands of acres.
	Source:	USDA, ESCS, "Acreage."
ACPWHT@BASE		Total wheat base acreage on farms enrolled in government programs (i.e., eligible for price support loans)—thousands of acres.
	Source:	USDA, ESCS, "Final Wheat Sign-Up Report" (in Spring).
	Note:	There was no government program before 1962 or from 1974 to 1977.

CCORN

$$CCORN_{t,t+1} = \frac{PSUPCORN_t \bullet (RCCC_t - R_t) + SCCORN_t}{4}$$

CWHT

$$CWHT_{t,t+1} = \frac{PSUPWHT_t \bullet (RCCC_t - R_t) + SCWHT_t}{4}$$

KWHT		Stock of wheat at beginning of quarter—millions of bushels.
	Source:	USDA, ESCS, "Grain Stocks."
NETKCORN		Net placements of corn under loan (placements less redemptions)—millions of bushels.
	Source:	Originally published in "USDA News—Grain Loan Activity." Currently unpublished but available from USDA, ESCS, National Economics Division, Income and Finance Branch.
NETKWHT		Net placements of wheat under loan (placements less redemptions)—millions of bushels.
	Source:	Originally published in "USDA News—Grain Loan Activity." Currently unpublished but available from USDA, ESCS, National Economics Division, Income and Finance Branch.
PCORN		Average price received for corn by farmers (average of the ends of the three months in each quarter)—dollars per bushel.
	Source:	USDA, ESCS, "Agricultural Prices."

PCORNDEV

$$PCORNDEV_t = \left\{ \frac{\sum_{i=1}^{8} \left[PCORN_{t-i} - \frac{\left(\sum_{j=1}^{8} PCORN_{t-j} \right)}{8} \right]^2}{7} \right\}^{1/2}$$

$PCORN^e$

$$PCORN^e_t = \frac{\sum_{i=1}^{4} PCORN_{t-i}}{4} + PCORNDEV_t$$

in the first two quarters of the crop year

$$= \frac{\sum_{i=1}^{4} PCORN_{t-i}}{4}$$

in the last two quarters of the crop year.

Mnemonic	Description
PSUPCORN	National average support level during marketing year for corn (loan rate plus any direct price support payment received)—dollars per bushel.
Source:	USDA, Agricultural, Stabilization, and Conservation Service (ASCS), "ASCS Commodity Fact Sheet."
PSUPWHT	National average support level during marketing year for wheat (loan rate plus any direct price support payment received)—dollars per bushel.
Source:	USDA, ASCS, "ASCS Commodity Fact Sheet".
PWHT	Average price received for wheat by farmers (average of the ends of the three months in each quarter)—dollars per bushel.
Source:	USDA, ESCS, "Agricultural Prices".
PWHTDEV	$\mathrm{PWHTDEV}_t =$

$$\left\{ \frac{\sum_{i=1}^{8} \left[\mathrm{PWHT}_{t-i} - \frac{\left(\sum_{j=1}^{8} \mathrm{PWHT}_{t-i} \right)}{8} \right]^2}{7} \right\}^{1/2}$$

PWHT^e	$\mathrm{PWHT}^e_t = \frac{\sum_{i=1}^{4} \mathrm{PWHT}_{t-i}}{4}$
QCORN^s	Annual production of corn (in the first quarter of the crop year, 0 elsewhere)—millions of bushels.
Source:	USDA, ESCS, "Crop Production".
QWHT^s	Annual production of wheat (in the first quarter of the crop year, 0 elsewhere)—millions of bushels.
Source:	USDA, ESCS, "Crop Production".
R	Average market yield on U.S. government three-month bills (average of daily closing bid prices)—percent per annum.
Source:	Board of Governors of the Federal Reserve System, Banking Section, Division of Research and Statistics, Statistical Release G.13, "Selected Interest Rates and Bond Prices".
RCCC	Interest rate charged for CCC commodity loans distributed over the crop year—percent per annum.
Source:	National Archives, "Federal Register." Also available from USDA, ASCS, Financial Management Division.
SCCORN	Warehouse storage charge for corn (commingled)—dollars per bushel.
Source:	Unpublished data. Available from USDA, ASCS, Inventory Management Division.
SCWHT	Warehouse storage charge for wheat (commingled)—dollars per bushel.
Source:	Unpublished data. Available from USDA, ASCS, Inventory Management Division.

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