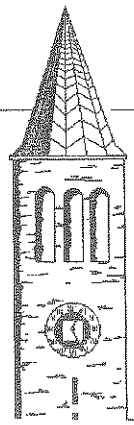

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by
Douglas J. Miller
Jason A. Karszes

Department of Agricultural Economics
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, New York, 14853-7801

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Department of Agricultural Economics
Cornell University, Ithaca, NY
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DOUGLAS J. MILLER
JASON A. KARSZES

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ABSTRACT

Generic commodity certificates, issued as a form of in-kind payment to federal farm program participants, benefitted consumers of corn through higher free stocks and lower prices. This study examines the welfare effects of these instruments on corn producers and the associated costs for taxpayers. A static analysis of the 1987/88 marketing year indicates that certificates reduced the 1987/88 average corn price received by farmers by $0.25 to $0.51 per bushel given increased disappearance of 383 to 729 million bushels. The resulting losses to corn program participants were in the range of $241 to $590 million, which are net of increased deficiency payments of $1,318 to $2,689 million due to the lower farm prices. Non-participants lost between $259 and $545 million.

WELFARE IMPACTS OF GENERIC CERTIFICATES ON U.S. CORN PRODUCERS

The Food Security Act of 1985 was designed to support farm income, decrease taxpayer costs, reduce surplus stocks, and increase the competitive stance of U.S. agricultural exports in the world marketplace. Generic commodity certificates were authorized to accomplish these market-oriented objectives by replacing cash payments to federal farm program participants with equivalent in-kind payments of accumulated Commodity Credit Corporation (CCC) commodities. The transferable certificates could be redeemed for cash from the government, CCC commodity stocks, or private stocks pledged as collateral for nonrecourse CCC loans. Certificates redeemed for public or private stocks effectively increased free stocks available to the market and thus reduced market prices.

This paper examines the welfare impacts of generic certificates on producer surplus in a static model of the U.S. corn market. The impacts of introducing generic certificates on corn producers are not well understood due to the voluntary nature of program participation and the complex alternative uses of the certificates by recipients, both of which are explained later. The only clearly recognized beneficiaries of generic certificates are

domestic and export consumers of U.S. corn who enjoyed lower market prices. Generic certificates reduced government cash payments to program participants and cut storage costs associated with the massive CCC stockpiles. However, deficiency payments to program participants were increased because of the lower market prices received by farmers. Thus, the net effect of the issuance of generic certificates on government (taxpayer) expenditures is uncertain.

To examine the impacts of generic certificates, this study focuses on 1987 corn program participants and non-participants and evaluates estimated changes in their producer surplus for the 1987/88 crop marketing year. The 1987 year was chosen because corn production was relatively normal, certificates were in full use by this time, and the impact of generic certificates on drought-affected corn prices in late 1988 can be examined. The methodology employed generates estimates of the average price received by farmers without the release of stocks by the certificate program. The changes in producer surplus for both participants and non-participants can then be evaluated.

CORN COMPONENT OF THE FEEDGRAINS PROGRAM

Basic Provisions

The corn component of the 1985 Feedgrains Program consisted of a deficiency payment scheme coupled with a required acreage set-aside, voluntary paid land diversion,

and nonrecourse loans for price support. Deficiency payments issued to 1987 program participants were based on the difference between a legislated target price of $3.03 per bushel and the maximum of the loan rate of $1.82 per bushel or the average market price received by farmers, which was $1.94 per bushel in the 1987/88 crop year. Farmers thus received $1.09 for each bushel of corn allowed by their specified program yield and permitted acreage. Program yields were established for each producer, and the permitted acreage was 80% of their base corn acreage. Program participation required the remaining 20% of the base acreage to enter the Acreage Reduction Program (ARP) and be maintained in a conserving use. Participants could also divert an additional 15% of their base acreage as a paid land diversion (PLD). The farmer received a fixed payment of $2.00 per bushel of program yield on each of these acres. Total deficiency and diversion payments of $7.29 billion were issued for the 23.0 million acres idled under the 1987 corn program.

The effect of the basic program provisions is illustrated in panel A, Figure 1. The acreage reductions and resulting production inefficiencies effectively shift the supply (marginal cost) curve for participants to the left (S to S_p). Thus, potential production of Q" bushels was reduced to Q_p. With a market price of M (assumed to be above the loan rate), areas 1 and 2 represent the producer

surplus (income) foregone by diverting acres to meet program requirements, and area 3 represents reduced variable costs of production. About 30 percent of these latter costs are land rents (Gardner, p. 99) lost to farmers because the land is not planted to other cash crops. However, some of this loss is recovered through PLD payments for farmers who elect this option.

Deficiency payments equal to the difference between M and the target price, T, are paid on Q' bushels. The number of bushels eligible for support, Q', is the product of the permitted corn acres and the established program yield. Production eligible for support under the 1987 corn program was 5,272 million bushels. Q' is less than Q_p because program yields are typically less than actual yields. The 1987 national average program yield was 104.2 bushels per acre compared to the actual average yield of 119.4 bushels per acre (Mercier).

The nonrecourse loan rate is the amount farmers may receive in the form of a 9-month loan from CCC for each bushel of eligible production (up to Q_p bushels) offered as collateral. If the market price is above the loan rate, the farmer would repay the loan principal at the loan rate plus interest and storage charges and sell the crop on the open market for the higher price. The loan is nonrecourse in the sense that it may not be repaid by the farmer if the market price is below the loan rate. The producer simply forfeits

their crop to CCC and keeps the loan principal as an income support; interest and storage charges are forgiven. The forfeited bushels exit the category of private stocks and become public stocks held by the government. Therefore, the loan program places a relative floor under prices for participants by removing surplus corn from free stocks and guaranteeing at least the loan rate for all Q_P bushels produced and enrolled in the loan program.

An important aspect of the feedgrains program is that participation is voluntary. A farmer's decision to participate is based on market signals and program incentives. This aspect creates separate markets for participant and non-participant production, which are shown in panels A and B, Figure 1. Although the level of program participation was probably affected by introducing certificates, we assume a fixed participation rate (90% of the eligible base acres in 1987). Quantitative analysis of this dynamic issue is beyond the scope of our study, but we qualitatively assess the impacts later. Additional details on the corn program are outlined in Glaser, Mercier, Stucker and Collins, and USDA 1990.

Role of Generic Certificates

Fixed value certificates (up to $1,000) with an eight-month life were issued to participating crop farmers for up to 50% of their total program payments. Certificates were

also issued to merchants through the Export Enhancement Program (EEP) and Targeted Export Assistance (TEA) program and to ethanol producers. In all, seventeen categories of payments including deficiency, paid land diversion, Conservation Reserve Program, and disaster payments were made to program participants with generic certificates (Bailey and Langley).

Recipients could redeem certificates for cash from CCC less a 4.3 % Gramm-Rudman-Hollings budget sequester, so this option was rarely exercised. Nearly all certificates were exchanged for private stocks pledged as CCC loan collateral, Farmer-Owned Reserve (FOR) holdings, or public (CCC) stocks. They could also be sold to others in need of certificates to redeem stocks. A market developed, and buyers often paid premiums over face value for these instruments.

The generic aspect of the certificates allowed them to be issued for one commodity and redeemed for another. Eligible commodities included wheat, rice, rye, corn, grain sorghum, barley, oats, soybeans, cotton, honey, and dairy products. Therefore, certificates used to redeem corn during the 1987/88 crop year may have been issued for several other programs over the course of the 1986, 1987, and 1988 program years (Bailey and Langley, Hanthorn and Westcott, Glauber, and USDA 1987). For instance, local price differences provided an advantage in redeeming corn rather than wheat in many areas of the country. Thus,

certificates issued for the wheat program were likely redeemed for corn stocks.

Conceptual Model

The effects of generic certificates on the corn market are illustrated in Figure 1. Separate markets for participants and non-participants (panels A and B) allow us to examine the welfare impacts of certificates on each. Panel C depicts the intersection of the total demand curve (domestic plus export demand) with the total supply curve (participant plus non-participant supply). However, the observed market price may be above (below) the intersection of these curves due to net stock accumulations (releases) by the government and private concerns. If the market price is M without generic certificates, then the government would have accumulated stocks equivalent to $Q'_s - Q'_d$ bushels. By introducing generic certificates, the government released $Q_d - Q_s$ bushels to the market as free stocks. The resulting price decline is represented as the move from M to M'.

The producer surplus loss is the area between the price lines and to the left of the appropriate supply curves. Non-participants lose producer surplus equivalent to area F. Participants suffer a gross loss equal to areas B and C. However, their loss is partially recovered in the form of increased deficiency payments (area B) on Q' bushels because of the price decrease from M to M'. Thus, the net producer

surplus lost to participants is area C.

The introduction of generic certificates had three major effects on the corn market. First, stocks under loan or held by CCC were released and resulted in lower market prices. Second, this lower price, ceteris paribus, resulted in increased program participation. Thus, more production was eligible for CCC loans and hence CCC stock accumulation. Third, recycling occurred as stocks redeemed from the loan program with certificates may have been replaced with eligible stocks from current production. Recycling implies that eligible stocks that would not have been placed under loan may have entered the loan program and were later forfeited. Therefore, government stocks may have partially increased due to certificates, although the net effect was a decline in stocks.

Thus, determining the actual amount of stocks released due to certificates is a difficult task given the effects outlined above. Although some quantity of released stocks entered the market, not all were absorbed by consumers due to substitution between public and private stocks. Previous studies have estimated this effect to be -0.20 to -0.66 (Glauber, Hanthorn and Westcott, Meyers et al). This means that for every 100 bushels of corn released from public stocks, 20 to 66 bushels are absorbed into private reserves for speculative purposes. Only 34 to 80 bushels of the original 100 bushels contribute to increased consumption.

The sources of redeemed stocks and the role of the substitution effect are discussed below.

EMPIRICAL METHODOLOGY

The 1987/88 marketing year began with carryin stocks of 4.9 billion bushels of corn and production of nearly 7.1 billion bushels. Domestic (about 6 billion bushels) and net export (just over 1.7 billion bushels) uses left ending stocks lower than beginning stocks by 623 million bushels. The decrease came from net releases of 801 million bushels from CCC and FOR stocks and net accumulations of 178 million bushels by private stockholders. Thus, the gross substitution effect between public and private stocks was -0.22.

Through the end of the 1986/87 crop year, 95 percent of corn redemptions were from loan collateral stocks. However, only 70 percent of all redemptions were from loan stocks in 1987/88 due to drought-fueled market prices later in the year. Monthly corn prices received by farmers rose throughout the year and were above the loan rate for the last seven months. Farmers were thus able to repay their loans and avoid forfeiture without having to redeem the corn with certificates. As a result, more generic certificates were used to redeem CCC and FOR stocks in advance of the poor 1988 crop.

To analyze the impact of certificates, the conceptual

model was calibrated to the conditions observed in 1987/88. Constant elasticity supply functions are assumed for participants and non-participants using a previously estimated elasticity of supply of 0.48 (Gardiner, et al, p. 7). Participant production was estimated to be 6,066 million bushels -- 50.8 million harvested acres (Mercier) times the national average corn yield. Non-participant production was taken as the difference between total production (7,072 million bushels) and participant production. Given an estimated change in prices, the definite integrals of the resulting supply equations approximate the changes in producer surplus for both participants and non-participants. The gross producer loss for participants (areas B and C, panel A, Figure 1) must be reduced by the increased deficiency payments (area B) to yield the net loss represented by area C. Area B is calculated as the estimated price change times the production eligible for support, 5,272 million bushels.

To estimate the average price received without certificates, a price-dependent form of a constant elasticity total demand equation was calculated. The elasticity of total demand (-0.43) was calculated as the weighted average of the domestic demand elasticity of -0.21 (Gardiner, et al, p. 7) and the excess demand elasticity of -1.2 (Tyers and Anderson, p.267). By inverting the total demand equation to derive a price-dependent specification,

the flexibility of total demand was estimated to be -2.33.

Given that the ex post data used to calibrate the total demand equation included those stocks released by certificates and the related price effects, we worked backwards to estimate the average price received by farmers if certificates had not been issued. Essentially, this involves moving from M′ to M with a leftward movement along the total demand curve. Thus, we subtracted the increase in corn disappearance attributable to certificates from the observed disappearance level to estimate corn disappearance without certificates. Then, this figure is inserted into the total demand equation and solved for M. The two major factors to consider in estimating the increase in disappearance due to certificates are the net amount of stocks released with certificates and the substitution effect between public and private stocks.

The sources of corn disappearance attributable to certicate redemptions in 1987/88 are indicated in Table 1. The first two columns are stocks redeemed from CCC holdings and private stocks redeemed from the three-year Farmer-Owned Reserve (FOR). These stocks are not considered to be free stocks and are rarely tapped unless prices rise substantially. FOR stocks are not eligible for release without substantial penalties until the corn price is 140 percent of the loan rate and are not triggered for immediate release until the price reaches the target price. In the

last quarter of the 1987/88 crop year, the worsening drought drove corn prices up enough to open FOR stocks for release from June 27 to July 31. Without the release of stocks due to certificates, prices would have risen to the release level earlier. Thus, we assumed that all FOR redemptions for the fourth quarter would have been released anyway. These stocks were not counted as disappearance attributable to generic certificates.

To be released, CCC stocks must be sold at the current market price. However, CCC transaction prices are often well above the average prices received by farmers due to spot market conditions. As well, purchases of public stocks are more difficult to manage than are purchases from private traders when ample stocks are available. Nonetheless, CCC releases would have accelerated in the summer of 1988 as purchasers sought relief from the drought-induced, tight stocks situation. Thus, all fourth quarter CCC redemptions were also treated as probable releases in the absence of certificates. Consequently, only CCC and FOR stocks redeemed in the first three quarters of the crop year were attributed to certificates.

The third column of Table 1 lists corn disappearance due to loan redemptions with certificates. Even with certificates available, the market price rose above the loan rate during the last three quarters of the marketing year. Thus, it is unlikely that quantities redeemed in the last

three quarters would have been forfeited to CCC, especially when prices would have been even higher in the absence of certificates. Only those stocks redeemed in the first quarter (1,267 million bushels) had some chance of forfeiture that was prevented by certificates. A large amount of these loan redemptions were from "Quick-PIK" operations -- farmers could place their corn under loan and immediately redeemed the loan with certificates to receive a price at least equal to the loan rate. Recycling of first quarter loans also inflated the amount of corn redeemed. To compensate for these effects, we assumed that only 10 percent of the first quarter redemptions would have been forfeited without certificates. This portion of the first quarter redemptions was attributed to increased corn disappearance.

The quantity of public stocks released to the market was then computed as the sum of the CCC and FOR redemptions for the first three quarters of the crop year minus the substitution effect. The substitution effect on redeemed CCC and FOR stocks was varied from -0.20, -0.33, -0.47, and -0.66 based on the previous estimates by Glauber, Hanthorn and Westcott, and Meyers, et al. Ten percent of first quarter loan redemptions (126.7 million bushels) were then added to the public stock releases to yield an estimate of total disappearance attributable to certificates.

Given the estimated increase in corn disappearance, the

appropriate movement along the total demand curve was determined from the price-dependent specification. By subtracting the disappearance attributable to certificates from the observed level of total use (7,699 million bushels) and inserting it into the price-dependent equation, we derived an estimate of the average price received by farmers without the certificate program, M. The observed price (M') and the estimated price without certificates (M) were then used to calculate the changes in producer surplus from the definite integrals of the participant and non-participant supply curves.

ANALYSIS AND SUMMARY

The findings of this study are presented in Table 2. Corn prices are estimated to be $0.25 to $0.51 per bushel lower and total use 383 million to 729 million bushels larger due to generic certificates in 1987/88. The associated producer surplus losses ranged from $241 million to $590 million for participants and from $259 million to $549 million for non-participants. The participant losses are net of the increased deficiency payments received from the government. The estimated increase in taxpayer costs due to these direct outlays range from $1,318 million to $2,689 million.

Certificates were first used in the 1986/87 marketing year, and those effects were evaluated by Hanthorn and

Glauber and by Westcott and Hanthorn. They estimated the price impacts of generic certificates with a quarterly price forcasting model. Price-dependent total demand equations, as used in this study, were specified on a quarterly basis for 1986/87 and comparable findings resulted. Thus, our results for 1987/88 appear consistent with the earlier studies.

The aggregate losses were greater for participants because 90 percent of the corn base was enrolled in the program in 1987. However, losses are much higher for non-participants on a per-acre or per-producer basis. We do not examine the impacts of the likely increase in participation resulting from the use of generic certificates, but the impacts can be assessed qualitatively. A decrease in market price would attract non-participants to the program. Assuming all new participants are former non-participants, the result is an increase in diverted acres and a decrease in planted acres. However, total corn production could increase or decrease depending on the number of new corn producers attracted to the program from other crops. Although market prices may now increase due to the potential reduction in corn plantings, the larger enrollment means more generic certificates will be issued because participant share of total production has increased. Thus, the price effect of the reduced production may be at least partially offset by increased free stocks from certificate redemptions

(either from the larger loan placements or remaining public stocks). Although the price effects are perhaps negligible (depending on the situation at hand), we do know government costs will rise because of increased program participation.

Estimates of the producer surplus loss for non-participants are considered to be relatively straightforward. However, there are further considerations to weigh in the participant case. Although we have already adjusted the change in producer surplus for increased deficiency payments received from the government, other secondary benefits accrue from using generic certificates. Redeeming loan collateral with certificates allowed producers to avoid paying interest and storage charges. Direct payments received in the form of certificates were not subject to the 4.3% G-R-H sequester on 1986 cash payments. Holding paper commodity instruments also is less costly for producers than holding actual commodities that must be stored and transported. Farmers could often sell their certificates for substantial premiums over face value. Finally, complex "PIK-and-Roll" and "Quick-PIK" strategies allowed farmers to arbitrage local price differences. Therefore, participant producer surplus losses in Table 2 may be overstated by the amount attributable to these factors. In some individual cases, participants may have enjoyed a small gain from receiving certificates.

Generic certificates were designed to meet the four policy objectives listed at the beginning of this paper, and the following conclusions are drawn from our findings. The objective of supporting farm income may or may not have been met. As stated, both participants and non-participants suffered producer surplus losses (i.e. income foregone), but participants likely have recovered some of their losses through the secondary benefits of certificate use. Thus, participants seeking income support from the program may have received an equivalent level of support after the introduction of generic certificates. However, this conclusion is not guaranteed in the case of every participating farmer.

As for the objective of reducing taxpayer costs, certificates may have initially reduced direct government expenditures on program and storage payments. However, total deficiency payments were ultimately larger due to the lower prices and increased participation induced by issuing generic certificates. As well, certificates decreased the reimbursements the government received for interest and storage costs on CCC loans. Loan redemptions with certificates allowed farmers to avoid paying these costs, and recycling increased the number of bushels eligible for redemption. Thus, government cost reductions were less than the value of the certificates issued, and total taxpayer costs may have been greater with generic certificates than

with direct cash payments.

The objectives of reducing surplus stocks and increasing trade competitiveness were likely met with the introduction of generic certificates. Public stocks were reduced as they were converted to free stocks, thus lowering prices and making U.S. corn more attractive to world buyers. Therefore, our findings show that these two of the four objectives were met. Generic certificates were partially successful in meeting their intended objectives.

Further analysis of the generic certificates case should examine several topics in greater depth. In particular, a dynamic approach incorporating cross-commodity effects would help overcome the limitation of this study associated with the impacts of time on participation, stockholding, alternative uses for certificates, and marginal benefits of certificates to recipients. Although these considerations have only been qualitatively assessed due to the scope of this study, the results presented are considered to be robust.

FIGURE 1

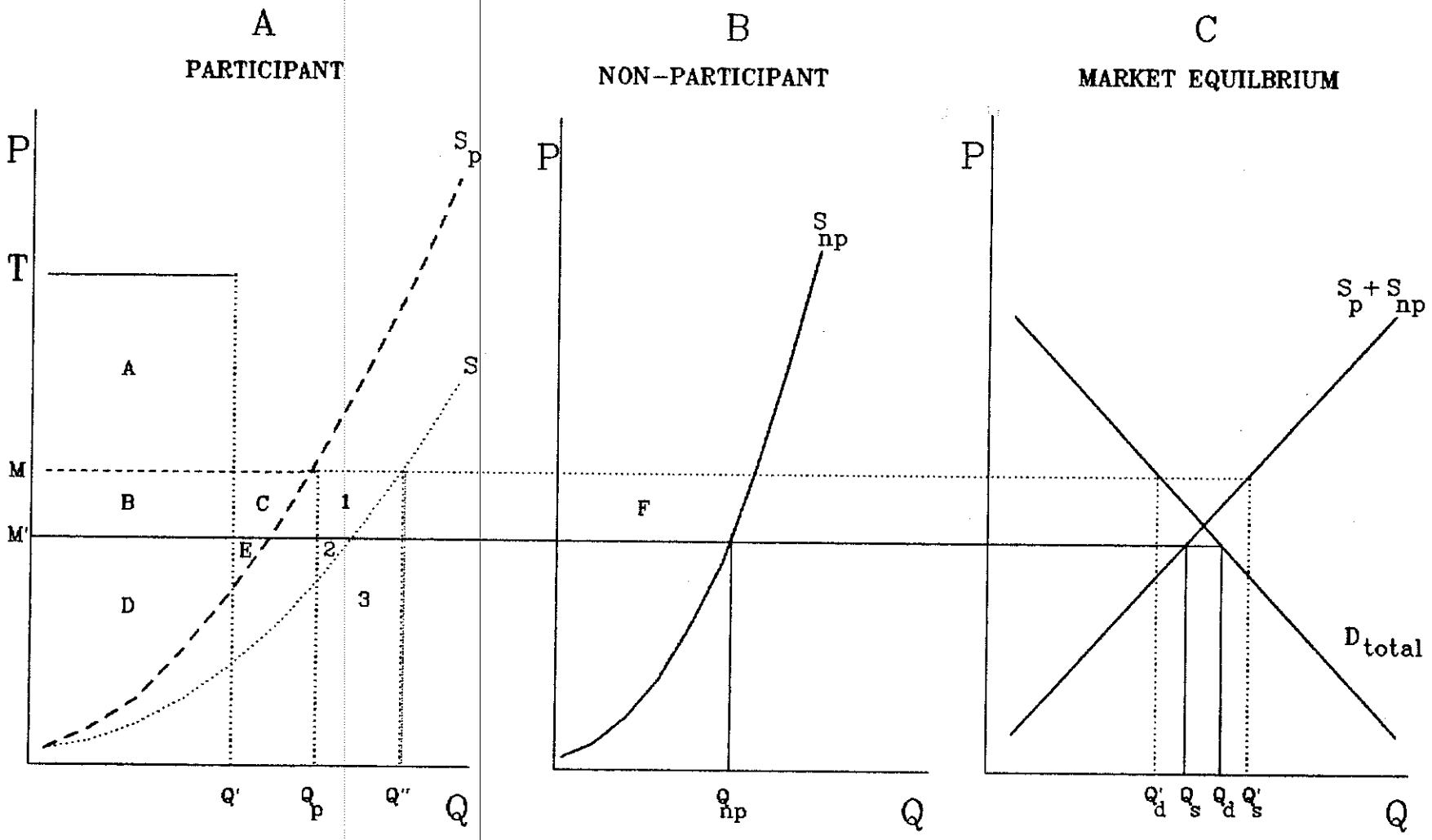
A
PARTICIPANT
B
NON-PARTICIPANT
C
MARKET EQUILBRIUM
P
T
S_p
S
A
M
B
C
1
M'
E
2
D
3
Q'
Q_p
Q''
Q
P
S_{np}
F
Q_{np}
Q
P
$S_p + S_{np}$
D_{total}
Q'_d
Q_s
Q_d
Q'_s
Q

Table 1

SOURCES OF U.S. CORN DISAPPEARANCE

1987/88 Marketing Year

Quarter	Generic Certificates *				Other	Total
	CCC Inv.	FOR	CCC Loan	Total		
	(million bushels)					
Sep/Nov	53	14	1,267	1,334	884	2,178
Dec/Feb	222	16	1,023	1.262	872	2,134
Mar/May	420	28	694	1,142	662	1,804
Jun/Aug	393	316	447	1,157	420	1,577
1987/88	1,087	374	3,431	4,894	2,798	7,693

* Corn disappearance attributed to various sources of generic certificate redemptions

Source: Feed Situation and Outlook Report, pp. 5-6, November, 1988

Table 2

EFFECT OF GENERIC CERTIFICATES
ON U.S. CORN PRICES AND PRODUCER WELFARE

1987/88 Marketing Year

	Substitution Effect			
	-0.20	-0.33	-0.47	-0.66
Bushels released by certificates (million)	729	631	526	383
Price received without certificates ($/bu)	2.45	2.37	2.29	2.19
Price change ($/bu)	0.51	0.43	0.35	0.25
Gross participant loss ($ million)	3,279	2,740	2,209	1,559
Increased deficiency payments ($ million)	2,689	2,267	1,845	1,318
Net participant loss ($ million)	590	473	364	241
Non-participant loss ($ million)	545	455	367	259

REFERENCES

Bailey, W. C. and J. A. Langley. "The Role of Generic Certificates in U.S. Commodity Programs." Chapter 8 in Agricultural-Food Policy Review: U.S. Agricultural Policies in a Changing World, AER-620, USDA/ERS, November, 1989.

Gardiner, W. H., V. O. Roningen, and K. Liu. Elasticities in the Trade Liberalization Database, AGES 89-20, USDA/ERS, May, 1989.

Gardner, B. The Economics of Agricultural Policies, New York: Macmillan, 1987.

Glaser, L. K. Provisions of the Food Security Act of 1985, AIB-497, USDA/ERS, January, 1986.

Glauber, J. W. Generic Certificates, AER-594, USDA/ERS, August, 1988.

Hanthorn, M. and J. W. Glauber. An Assessment of Marketing Loan Program Options, AER-581, USDA/ERS, December, 1987.

Mercier, S. Corn: Background for 1990 Farm Legislation, AGES 89-47, USDA/ERS, September, 1989.

Meyers, W. H., S. Devadoss, and M. Helmar. "Export Disposal of Wheat and Corn Stocks by the United States: A Quantitative Analysis for 1977-84," Chapter 19 in Embargoes, Surplus Disposal, and U.S. Agriculture, AER-564, USDA/ERS, December, 1986.

Stucker, B. C. and K. J. Collins, The Food Security Act of 1985, Major Provisions Affecting Commodities, AIB-497, USDA/ERS, January, 1986.

Tyers, R. and K. Anderson. "Imperfect Price Transmission and Implied Trade Elasticities in a Multi-commodity World," Chapter 9 in Elasticities in International Agricultural Trade, ed. C. A. Carter and W. H. Gardiner, Boulder, CO: Westview Press, 1988.

United States Department of Agriculture, "Special Reprint: Generic Certificates," Agricultural Outlook, USDA/ERS, April, 1987.

_____. Feed Situation and Outlook Report, USDA/ERS, 1986-89.

_____. The Basic Mechanisms of U.S. Farm Policy: How They Work, with Examples and Illustrations. MP-1479, USDA/ERS, January, 1990.

Westcott, P. C. and M. Hanthorn, "The Effects of Generic Certificates on Domestic Corn Markets," Feed Situation and Outlook Report, FdS-302, USDA/ERS, May, 1987, p. 21-29.

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