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CORNHUSKER ECONOMICS

Measuring the Performance of Cooperative Equity Redemption Plans

Cooperatives differ from other businesses in that they are owned by their patrons and net margins are distributed to patrons on the basis of use instead of capital investment. For financing, cooperatives often rely on allocated equities from retained patronage refunds. Retained patronage refunds are noncash allocations of net margins reinvested in a cooperative by patrons. Under an ideal program of equity formation, equity is held by patrons in proportion to patronage. Each patron's share of financing the cooperative is equal to the share of benefits received. Equities of former patrons are retired as active patrons take on more of the responsibility of financing the organization.

The performance of a cooperative's equity redemption program can be measured by computing the difference — or disparity — between actual equity financing of the cooperative and financing strictly in proportion to patronage. This disparity measure also can be used to compare the performance of alternative equity formation and redemption plans. Table 1 (on next page) presents disparity values for several popular equity redemption plans under various assumptions about individual patron use of the cooperative over time. Plans with lower disparity values perform better than plans with higher values given specific assumptions about patron use.

Disparity values are presented for first-in/first-out revolving fund, percentage-of-all-equities, and special plans. In first-in/first-out revolving fund plans, equities are redeemed in the order they are allocated. With percentage-of-all-equities plans, the cooperative redeems a specific percentage of all equities every year. Each patron receives redemption of the same percentage regardless of when the equities were allocated. Under special plans, equities held by estates or by patrons who are over a certain age, are no longer farming, are no longer in the cooperative's service area, claim hardship, or request redemption on an "on call" basis are redeemed. Disparity values are not presented for base capital plans because of computational similarities

Market Report	Yr Ago	4 Wks Ago	11/27/09
<u>Livestock and Products,</u>			
<u>Weekly Average</u>			
Nebraska Slaughter Steers, 35-65% Choice, Live Weight.....	\$90.00	\$86.64	\$82.35
Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb....	105.99	98.59	105.72
Nebraska Feeder Steers, Med. & Large Frame 750-800 lb....	96.54	93.11	98.31
Choice Boxed Beef, 600-750 lb. Carcass.....	153.20	141.15	140.85
Western Corn Belt Base Hog Price Carcass, Negotiated.....	53.79	52.32	56.66
Feeder Pigs, National Direct 50 lbs, FOB.....	55.00	*	*
Pork Carcass Cutout, 185 lb. Carcass, 51-52% Lean.....	57.50	57.16	59.86
Slaughter Lambs, Ch. & Pr., Heavy, Woolled, South Dakota, Direct.....	97.62	91.25	92.12
National Carcass Lamb Cutout, FOB.....	259.78	239.19	240.83
<u>Crops,</u>			
<u>Daily Spot Prices</u>			
Wheat, No. 1, H.W. Imperial, bu.....	4.91	3.95	4.28
Corn, No. 2, Yellow Omaha, bu.....	3.54	3.48	3.65
Soybeans, No. 1, Yellow Omaha, bu.....	8.74	9.59	10.26
Grain Sorghum, No. 2, Yellow Dorchester, cwt.....	4.41	5.64	6.21
Oats, No. 2, Heavy Minneapolis, MN, bu.....	2.15	2.49	2.52
<u>Feed</u>			
Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton.....	202.50	*	*
Alfalfa, Large Rounds, Good Platte Valley, ton.....	77.50	82.50	82.50
Grass Hay, Large Rounds, Premium Nebraska, ton.....	75.00	*	*
Dried Distillers Grains, 10% Moisture, Nebraska Average.....	133.00	120.00	121.50
Wet Distillers Grains, 65-70% Moisture, Nebraska Average.....	43.00	40.00	42.00
*No Market			

between these plans and revolving fund plans. In a base capital plan, each patron's equity requirement is readjusted annually according to the cooperative's capital needs and the patron's use of the cooperative.

The table presents values for revolving fund plans with five-, ten-, and twenty-year revolving periods. Under the percentage-of-all-equities plans, either five or ten percent of the allocated equity held by each patron is redeemed. To close out the equity account of inactive patrons, cash payouts are made to these patrons either when their patronage ends or ten years later. With the special plan, all of a patron's equities are redeemed when patronage ends, ten years later, or twenty years later (i.e., according to a bylaw provision or in response to patron death or age).

For each plan, disparity values are presented for five different assumptions about patron use of the cooperative: (A) patronage is constant throughout the farming careers of patrons; (B) patronage increases throughout the farming careers of patrons; (C) patronage increases through the early years of patrons' careers and declines as patrons move toward retirement; (D) patronage fluctuates from period to period during the patrons' careers; and (E) patronage lasts only a few years.¹

According to the table, the performance of a plan depends largely on the assumptions about patron use. Nonetheless, the five-year revolving fund plan usually performs best. Only when patron contributions of new equity continually increase (assumption B) does the percentage-of-all-equities plan with immediate payouts do better. The performance of the ten-year revolving fund plan relative to the percentage-of-all-equities plan depends on whether payout in the latter plan occurs immediately or ten years after patronage ends. At an annual redemption of five per-

cent, the percentage-of-all-equities plan has some of the highest disparity values, particularly when patronage lasts only a few years (E). Special plans perform relatively poorly. Only when patronage increases throughout the farming careers of patrons (B) and payouts are immediate does the special plan do as well as most other plans.

Table 1 also shows the annual patron investment necessary to maintain \$100 equity in the cooperative given the particular equity redemption plan and assumption about patron use. Typically, the plans with the lowest disparity values require the greatest annual investments. Active patrons must assume a larger share of financing the cooperative to redeem equity of overinvested and former patrons. Under some circumstances, however, a plan may have both a lower disparity value and required investment than another. For instance, the ten-year revolving fund usually is associated with both a lower disparity value and annual investment than the percentage-of-all-equities plan with ten percent per annum redemption and a ten-year lagged payout. This suggests the revolving fund plan is more efficient in terms of providing a particular level of disparity at the least cost to patrons.

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¹ For information on calculating the disparity measure, detailed descriptions of the patron use assumptions, and analysis of other plans, see Jeffrey S. Royer and David W. Cobia, "Measuring the Equity Redemption Performance of Farmer Cooperatives," *North Central Journal of Agricultural Economics*, Vol. 6, No. 1 (January 1984), pp. 105-112.

Table 1. Percentage Disparity and Necessary Annual Patron Investment for Alternative Equity Redemption Plans and Patron Use Assumptions

	Disparity (%)					Annual Investment (\$)				
	A	B	C	D	E	A	B	C	D	E
Revolving fund:										
5-year revolving period	7.5	14.2	14.3	23.3	30.0	20.00	20.00	20.00	20.00	20.00
10-year revolving period	13.8	24.8	25.0	34.4	55.0	10.00	10.00	10.00	10.00	10.00
20-year revolving period	26.3	43.1	42.9	38.6	77.5	5.00	5.00	5.00	5.00	5.00
Percentage-of-all-equities:										
5 percent per annum:										
Immediate payout	18.7	11.3	26.5	30.5	76.1	8.86	11.68	9.35	8.34	6.04
10-year lagged payout	26.9	34.9	41.1	38.2	78.0	6.67	7.60	6.93	6.58	5.57
10 percent per annum:										
Immediate payout	14.1	8.5	22.1	28.1	64.1	13.27	16.12	13.23	12.55	10.29
10-year lagged payout	19.5	28.5	32.3	32.9	64.8	10.94	11.53	10.93	10.76	10.10
Special:										
Immediate payout	25.6	15.4	32.4	35.0	87.0	5.13	7.69	6.01	4.79	2.90
10-year lagged payout	38.1	43.5	52.1	47.6	89.9	3.39	4.35	3.75	3.24	2.25
20-year lagged payout	50.6	60.6	62.8	55.4	92.9	2.53	3.03	2.73	2.45	1.57