PRODUCER PRICES RECEIVED AND MILL PRICES PAID FOR QUALITY IN SOUTHWEST COTTON: SIMILARITIES AND DIFFERENCES

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Abstract

Quality premiums and discounts at the mill and producer pricing points were compared for similarities and differences. Results showed that premiums and discounts were similar for staple length, but differed substantially for micronaire and strength. One possible reason for these differences may be the existence of the loan schedule. Loan quality premiums and discounts were compared to the two pricing points, and the findings indicated that the loan did not reflect market values for the quality attributes. Additionally, the Daily Spot Cotton Quotations, from which the loan is adjusted every year, did not reflect market values either. Thus, these sources of quality premium and discount information may be distorting market pricing signals in the market.

Introduction

Price information is an important part of the efficient operation of a market. In cotton, buyers need information on the quality and the price of cotton in order to purchase cotton to fill demands. Sellers need information on quality and price to make effective and timely marketing decisions. Information on cotton quality in the U.S. is provided by the U.S. Department of Agriculture (USDA) through the use of the High Volume Instrument (HVI) grading system. This system provides objective information on the quality of cotton in terms of industry accepted measures. USDA also provides price information for various qualities of cotton through the Daily Spot Cotton Quotations (DSCQ). The DSCQ provide price and quality premium and discount information for seven marketing regions in the U.S. on a daily basis (U.S. Dept. of Ag.). However, the DSCQ have been found to be unreliable as indicators of *producer* market prices in the *Southwest region* (Hudson et al., in press).

The importance of price information to the market, and the broad-reaching implications that price information can have, implies a need for the development of objective, reliable sources of that information. That is, price information has important uses in marketing and production decisions. Without accurate information,

incorrect decisions are more likely to result. Chen and Ethridge (1996), Chen and Ethridge (1995), and Ethridge et al. (1995) have described research on prices at the mill level (purchases by and sales to mills). This research has developed objective measures of prices paid by textile mills for a broad spectrum of qualities through the use of econometric models and a large volume of mill purchase records. To date, this has been the only known source of objective, reproducible prices for that portion of the marketing channel. These objective measures of mill prices provides explanation of price behavior at the last pricing point in the marketing channel (mill level).

Another line of research (Brown et al.; Ethridge et al., 1992; Hudson et al., 1995) has measured prices at the producer end of the marketing channel since 1988. This econometric price estimation system, called the Daily Price Estimation System (DPES), measures prices, premiums, and discounts received by producers for the Texas-Oklahoma market regions. It also represents the only source of objective, reproducible market price information on the producer market (Brown et al.; Hudson et al., in press).

The development of objective price information at mill and producer levels offers the opportunity to address some questions that have not been previously addressed. One important topic in terms of market operation is the effectiveness of market mechanisms in transmitting price signals from one end of the market to the other. That is, is the price paid for strength at the mill level, for example, what the producer receives for strength? To get some perspective on that issue, this paper examines the premium and discount structure paid by mills and received by producers in the Southwest region.

Price Comparisons

Price measurements at the mill level were taken from work by Chen and Ethridge (1996). These prices, premiums, and discounts represent the average across the 1992-1994 period at the mill level for the Southwest region (Texas and Oklahoma). A detailed description of the data and estimation methods used for deriving the mill prices is given in Chen and Ethridge (1996). Producer prices were taken from the DPES. A description of the data and methods used to derive prices at the producer level can be found in Brown et al. and Hudson et al. (1995). Prices, premiums, and discounts from daily results were aggregated to obtain a weighted average over the 1992-1994 period. The mill and producer price results provide a means of examining the premium/discount structure at the mill and producer levels to compare for similarities and differences. These comparisons were performed for staple (fiber length), micronaire, and strength. Comparisons were not made for the color and leaf grades because contracts at the mill level for the time period examined utilized the old composite grade code (Chen and Ethridge, 1996), while the

producer market used the separated color and leaf grades (Brown et al.). Thus, comparison of quality premiums and discounts for color and leaf were not possible.

Results of comparisons between price differentials paid by mills and received by producers reveal some similarities and differences (Table 1). For example, larger discounts were received by producers for staple length shorter than 34/32nds of an inch than were paid by mills. Producers received a slightly larger premium than was paid by mills for staple 35 and a slightly lower premium for staple 36. The strength premiums and discounts showed marked differences, although the magnitudes were not large. That is, no strength premiums or discounts were paid by mills for cotton from the Southwest region over the sample period, yet producers were receiving premiums and discounts for strength. Micronaire discounts showed a different pattern at the two pricing points. Note that the base in the mill market is different than in the producer market (Table 1). That is, the highest valued cotton from the mill perspective was in the 3.3 to 3.4 micronaire range (while 3.5-4.9 is base in the CCC loan schedule) (Chen and Ethridge, 1996), while the highest valued cotton in the producer market was in the 3.5 to 4.9 micronaire range. Additionally, producers received larger discounts than mills for low micronaire cotton and smaller discounts for high micronaire cotton.

These differences indicate inefficiencies in transmission of price information through the marketing channel, but the analysis provides no explanation of the cause(s). One hypothesis often put forth to explain this occurrence is systematic manipulation of the market by parties involved in transactions, but the data do not support that hypothesis. The results presented in Table 1 show that there is no systematic over discounting or not paying high enough premiums. In fact, if one looks at the strength alone, one would have to question why merchants would pay premiums for strength at the producer level if the mills are not paying for higher strength. If there were systematic manipulation, producers would be expected to receive higher discounts or lower premiums for all attributes, including strength.

An alternate hypothesis is more consistent with the empirical evidence. That hypothesis is that the premiums and discounts in the loan strucutre are causing discrepancies to be as large as they are. The evidence supporting that interpretation is shown in Table 2, where loan premiums and discounts are added to the data in Table 1. Note that in almost every case examined (all except micronaire 5.0-5.2 and strength 26), the premium or discount received by producers was *between* the price paid by mills and the loan value. This indicates that the loan value may be "pulling" the producer values towards it rather than the mill and producer premiums and discounts converging to one another. This may be explained in two alternative ways. First, the existence of the loan may be encouraging competition (for premiums) between itself and buyers, so that buyers are having to pay higher premiums at the producer level than mills are paying in order to "attract" that cotton away from the loan. Conversely, the loan discounts tend to be larger than that paid by mills, so buyers can place larger discounts on the producer level without having to worry about the cotton flowing into the loan. An alternative explanation is through price information. That is, the loan values are in place in the market, so buyers and sellers may look at the loan as being the "true" value of the cotton and make buying and selling decisions accordingly. Either way, the evidence suggests that the loan is having some effect on the structure of the premiums and discounts.

One may argue that there is an inherent difference in the markets and loan premiums and discounts because of the way the loan is calculated and that the loan adjusts toward market values. However, the loan is adjusted by using the 7-month average of the DSCQ, which has been found not to be representative of the *producer* market in the Southwest region (Hudson et al., in press). Table 3 shows the comparison of the DSCQ prices, along with the loan, prices paid by mills, and prices received by producers. This comparison indicates that the DSCQ is close to the loan, and not representative of what is found in the producer or mill markets. Thus, if the loan is adjusted by the DSCQ, the adjustment toward producer market values is likely to be very slow at best and away from market values at worst, thus compounding the problem.

Implications and Conclusions

Definitive explanation for these patterns is not possible from existing evidence. Estimations of price structures as they relate to quality attributes at both the producer and mill levels represent almost seven years of research on the DPES system and almost four years of research on mill prices. They both constitute the *only* estimates of the price structures that are based entirely on *bona fide* market transactions and are reproducible by documented, reproducible procedures.

Using these available measures of premiums and discounts at the two end-points of the market channel, the evidence indicates that price signals on values of attributes are not being conveyed through the market as effectively as they might. Some divergences are expected in a dynamic market, but some of the premiums and discounts differ substantially between the two pricing points. However, this evidence for the Southwest market does not necessarily extend to other regional markets. No hard evidence exists on those markets on which to make comparisons.

Reasons for discrepancies between the two pricing points are not clear. A working hypothesis is that the loan structure (and perhaps the DSCQ, since the DSCQ do not appear to deviate much from the loan) is a part of the

problem with price signals getting through the market. That is, as market participants search for reliable indicators of market premiums and discounts for quality attributes, they are influenced by the loan schedule because they *assume* that the loan schedule approximates the market, and thus tend to "pull" the producer market differences toward those reported in the loan rather than those being paid by the mills.

Overall, this analysis may be indicating that the market is conveying price information more efficiently than may have been presumed. That is, examination of market values at the mill and producer levels indicates that there were some differences in premiums and discounts (especially with micronaire), but they were not as far apart as would appear if one presumes that the DSCQ represents the "market." However, this analysis is also indicating that the loan schedule is distorting market price information to some degree. The effects from the loan appear to be on *perceived* market values rather than what is realized in the market. It is important to note that the quality premiums and discounts are not actually *seen* in the market, but are implicit in the price paid for the cotton. Thus, perceptions of market values perpetuated by the loan schedule and DSCQ can be affecting production and buying behavior, which affect market performance. This may tend to disrupt incentives to the production of higher quality fiber, for example. The extent to which this is happening is unclear. An additional implication is that forward cash contracting is often carried out using the loan differences as a means of accounting for quality differentials. These results imply that forward contracts formed in this manner may not reflect the "true" value of the cotton.

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Table 1. Cotton Quality Premiums and Discounts (¢/lb. of cotton) for the Southwest (Texas-Oklahoma) Markets, Average for 1992-1994.

Attribute	Paid by Mills	Recvd. by Producers
Staple		
≤ 28	--	-4.81
29	--	-3.46
30	--	-2.50
31	-0.98	-1.66
32	-0.65	-0.96
33	-0.32	-0.41
34	base	base
35	+0.31	+0.43
36	+0.62	+0.50
≥ 37	--	+0.50
Micronaire		
≥ 5.3	-9.21	-4.77
5.0-5.2	-7.32	-2.80
3.5-4.9	-1.24	base
3.3-3.4	base	-1.53
3.0-3.2	-0.86	-2.72
2.7-2.9	-1.71	-4.55
2.5-2.6	-2.79	-6.79
≤ 2.4	--	--
Strength		
19	0	-0.68
20	0	-0.51
21	0	-0.40
22	0	-0.28
23	0	-0.17
24&25	base	base
26	0	+0.17
27	0	+0.28
28	0	+0.40
29	0	+0.51
30	0	+0.62
≥ 31	0	+0.74

Table 2. Cotton Quality Premiums and Discounts (¢/lb. of cotton) for the Southwest (Texas-Oklahoma) Markets, Average for 1992-1994.

Attribute	Paid by Mills	Recvd. by Producers	Loan
Staple			
≤ 28	--	-4.81	-7.73
29	--	-3.46	-7.73
30	--	-2.50	-5.85
31	-0.98	-1.66	-4.12
32	-0.65	-0.96	-3.43
33	-0.32	-0.41	-2.20
34	base	base	base
35	+0.31	+0.43	+0.52
36	+0.62	+0.50	+0.62
≥ 37	--	+0.50	+0.67
Micronaire			
≥ 5.3	-9.21	-4.77	-3.63
5.0-5.2	-7.32	-2.80	-2.33
3.5-4.9	-1.24	base	base
3.3-3.4	base	-1.53	-2.25
3.0-3.2	-0.86	-2.72	-4.50
2.7-2.9	-1.71	-4.55	-8.52
2.5-2.6	-2.79	-6.79	-12.00
≤ 2.4	--	--	-15.65
Strength			
19	0	-0.68	-2.50
20	0	-0.51	-1.97
21	0	-0.40	-1.30
22	0	-0.28	-0.92
23	0	-0.17	-0.47
24&25	base	base	base
26	0	+0.17	+0.07
27	0	+0.28	+0.52
28	0	+0.40	+0.70
29	0	+0.51	+0.97
30	0	+0.62	+1.27
≥ 31	0	+0.74	+1.53

Table 3. Cotton Quality Premiums and Discounts (¢/lb. of cotton) for the Southwest (Texas-Oklahoma) Markets, Average for 1992-1994.

Attribute	Paid by Mills	Recvd. by Producers	Loan	Reported by DSCQ
Staple				
≤ 28	--	-4.81	-7.73	-6.92
29	--	-3.46	-7.73	-6.91
30	--	-2.50	-5.85	-4.77
31	-0.98	-1.66	-4.12	-3.08
32	-0.65	-0.96	-3.43	-1.81
33	-0.32	-0.41	-2.20	-1.22
34	base	base	base	base
35	+0.31	+0.43	+0.52	+0.13
36	+0.62	+0.50	+0.62	+0.14
≥ 37	--	+0.50	+0.67	+0.14
Micronaire				
≥ 5.3	-9.21	-4.77	-3.63	-3.82
5.0-5.2	-7.32	-2.80	-2.33	-2.49
3.5-4.9	-1.24	base	base	base
3.3-3.4	base	-1.53	-2.25	-1.24
3.0-3.2	-0.86	-2.72	-4.50	-2.73
2.7-2.9	-1.71	-4.55	-8.52	-7.00
2.5-2.6	-2.79	-6.79	-12.00	-10.27
≤ 2.4	--	--	-15.65	-13.71
Strength				
19	0	-0.68	-2.50	-2.20
20	0	-0.51	-1.97	-1.86
21	0	-0.40	-1.30	-1.37
22	0	-0.28	-0.92	-1.04
23	0	-0.17	-0.47	-0.58
24&25	base	base	base	base
26	0	+0.17	+0.07	0
27	0	+0.28	+0.52	+0.04
28	0	+0.40	+0.70	+0.10
29	0	+0.51	+0.97	+0.16
30	0	+0.62	+1.27	+0.29
≥ 31	0	+0.74	+1.53	+0.36