

**Deliveries on the
New York Cotton Exchange #2 Cotton Futures Contract:
An Analysis of their Location and Amount Over the Period 1970-1997**

A Report to the American Cotton Shippers Association

by

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**with a Foreword by the
American Cotton Shippers Association**

August, 1997

Foreword

American Cotton Shippers Association

Since its establishment in 1924, the American Cotton Shippers Association (ACSA) has maintained a continuing interest in the efficient functioning of the cotton market on a regional, national and international scope. ACSA's membership is composed of primary buyers, mill service agents, and domestic and export merchants of raw cotton who handle approximately 75% of the U.S. cotton sold in domestic and export markets. Because of their involvement in the purchase, sale, and hedging of cotton, ACSA members are vitally interested in the efficient functioning of the world's only viable cotton futures market, the New York Cotton Exchange's No. 2 Upland Cotton Futures and Options Contracts.

Through its Committee on Futures Contracts, ACSA maintains a continuing interest in the effective functioning of the No. 2 Futures and Options Contracts. In fulfilling this responsibility, the Committee has from time-to-time proposed changes in the Contract to improve its performance and addressed proposals which could adversely impact the operation of the Contract or impair the ability of the commercial (producers, merchants, cooperatives, and textile mills) interests to make efficient use of the contract for price discovery and/or to hedge their sales and/or purchases. Consonant with this responsibility is the education of the industry on the economic benefits available through the appropriate use of futures and options contracts.

The reformation of federal farm programs has elevated the importance of educating the producer segment of the risk management alternatives made available by futures and options contracts. Understanding the purpose and value of these risk management instruments is essential to their acceptance by producers. Critical to understanding the appropriate uses of the futures market for the purposes of price discovery and off-setting risks is acquiring an understanding of the terms and conditions of the contract along with an understanding of the delivery process.

Recent developments in the cotton industry emphasize the importance of understanding the delivery process. In 1996, the Port of Corpus Christi, Texas made application to the New York Cotton Exchange for certification as a delivery point and more recently producer and cooperative interests in Arizona and California have discussed the establishment of a delivery point in the Port of Los Angeles. In the public hearings on the Corpus Christi application and at recent discussions at a Forum on the Establishment of a Western Delivery Point, hosted and moderated by the California Cotton Growers Association, the testimony and discussion clearly indicated that the

essential purposes of delivery and delivery locations of the No. 2 Contract required review and evaluation to determine whether the delivery locations and the delivery process properly facilitated the essential purposes of the contract.

To undertake the review the Committee on Futures Contracts selected one of the leading experts on contract delivery, Dr. Anne E. Peck, Holbrook Working Professor of Commodity Price Studies at Stanford University. Dr. Peck's comprehensive study of the performance of the Chicago Board of Trade's wheat, corn, and soybean contracts, "An Evaluation of the Performance of the Chicago Board of Trade Wheat, Corn, & Soybean Futures Contracts During Delivery Periods from 1964-65 Through 1988-89", resulted in recommendations for revisions in the delivery structure of those contracts which are currently pending before the Commodity Futures Trading Commission.

Neal P. Gillen
Executive Vice President and General Counsel

August, 1997

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Introduction

In May, 1994 deliveries on the New York Cotton Exchange's cotton futures contract totaled some 3,523 contracts. In July, 2,526 contracts were settled through delivery. Individually, these are the largest number of futures contracts that have been settled through delivery on the NYCE in the modern era, since trading revived there in the 1970s. Since futures markets are not principally delivery markets, when deliveries do become large it can be an indication that there is a problem with the specifications governing the contracts. Thus, it is appropriate to ask whether the deliveries in May and July of 1994 were so large as to strain the market's capacity in any way. In this report, the recent delivery experience is compared to the warehouse capacity of the market, to levels of trading in the market, and to the amount of cotton available in the market to satisfy deliveries in order to assess directly whether the market's current capacity is adequate.

In raising a concern about the level of deliveries in 1994, some have also questioned whether the current delivery locations on the NYCE futures contract are representative of all cotton marketed in the US. In particular, they have used the occasion to argue that, because the current contract excludes delivery in the Western states, a West Coast delivery location should be added to the contract. Thus, it is appropriate to ask whether the current delivery locations are central to principal producing regions and marketing channels of the cotton crop. In this report, data on regional production, mill use and exports of cotton are examined to determine the centrality of the current delivery locations in order to assess whether additional delivery points are needed to improve the contracts' representativeness.

¹ The author is Professor , Food Research Institute, Stanford University. I am grateful to numerous individuals at the New York Cotton Exchange and in the cotton trade for their assistance with the data and responsiveness to inquiries.

Although conceptually separable, the issues of adequacy of delivery capacity and adding delivery locations are usually linked, the latter being the most obvious means to cure an inadequacy in the former. Even more to the point, when the delivery capacity of a futures market is judged to be inadequate, it is usually because the contract's current delivery points are not locations where significant supplies are regularly available. Perhaps the most well-known recent examples of the connection between the two issues are provided by the grains and soybean futures contracts on the Chicago Board of Trade (CBOT) where the contract terms remained little changed from the markets' inception in the 1860's (the 1950's for soybeans), calling for delivery in Chicago which was then a principal terminal market. As Chicago declined as a terminal market, deliverable supply also declined, to the point where the only reason stocks of grain were held in Chicago was to protect the futures market. But these were small in amount and manipulation, both real and threatened, became all too common in the delivery months. Numerous studies have documented the problems with the CBOT contracts, including my own.² They contain analyses similar to those conducted here and, wherever possible, the results of the analyses of data from the cotton market are placed in context provided by the experience of these markets.

Finally, it is of course always possible to continue to argue for adding a delivery location, notwithstanding the demonstrable adequacy and representativeness of the current locations for the market. But, in so arguing, it is then necessary to consider whether such a contract change will have effects on the market and if so, whether those effects will improve the functioning of the market. Such assessment is by definition more speculative, involving judgment of "what ifs" rather than evaluation of the historical evidence, but, it is nonetheless critical – changes that reduce the utility of the market end by hurting all users. In this regard, it is possible to assess whether the current contract is of broad appeal, such as would be the case if it were serving large numbers of buyers and sellers well, and the report

² These include the study my colleague Jeffrey Williams and I completed for the National Grain and Feed Association, "An Evaluation of the Performance of the Chicago Board of Trade Wheat, Corn, and Soybean Futures Contracts During Delivery Periods from 1964-65 Through 1988-89," April, 1991; Mid-American Institute for Public Policy, "Grain Futures Contracts for the 1990s," July, 1991; and, US General Accounting Office, "Chicago Futures Markets: Selecting Agricultural Futures Delivery Points involves Tradeoffs," June, 1991.

presents evidence on the extent of firms' use of the current NYCE contract market.

The Plan of the Report

The report begins with a discussion of the purpose of a futures market and the role of delivery. Often, this discussion is omitted, leaving it implicit in the analyses and arguments which follow. In fact it is the broader understanding of the purpose of a futures market which guides the entire analysis, from deciding what evidence will be helpful in assessing a particular question to interpreting what the results reveal about market performance. Following this discussion is a summary of the current delivery provisions of the NYCE cotton futures contract as to standard delivery. Measures of delivery capacity in the currently approved locations are included as is some information on the amount of delivery in each location. The report then takes up, in order, evidence on each of the issues raised above: the levels of deliveries on the NYCE contracts, the centrality of the current delivery points, and the levels of use of the current futures contracts. The report concludes with a number of observations from conversations with members of the trade which occurred during the period of this study.

As much as possible, analyses of the evidence from the NYCE cotton futures market begin with 1970. Analyses of the patterns in cotton production and marketing often begin even earlier. Major changes in government programs under which enormous stocks were accumulated and prices determined by program provisions began in the mid-1960s. By the early 1970s most of the cotton surplus had been worked off and the NYCE futures market, where trading had virtually ceased during the 1950s and 1960s, began to attract significant levels of trading.

Some may wonder at the need to analyze data from markets of 25 years ago. The longer period is used for two reasons. The Western delivery issue is itself not a new issue, having been a subject of much debate in the early 1980s in the context of a CBOT proposal for a new cotton futures market.³ Of particular interest is whether trends in either the futures market or the

³ For a history of the proposal and discussion of the many issues raised when designing contract terms, especially concerns about permitting deliveries from multiple locations, see the reports of the American Cotton Shippers Association "Comments" and Roger W. Gray "Analysis of the Proposed Contract Market Rules of the CBOT Medium Staple Cotton Futures Contract," submitted to the CFTC on September 1, 1981.

physical market that were identified at the time of those discussions have changed in any way and thus might lead to changed conclusions. Second, 25 years is a period long enough to insure that the substantial variety of market circumstances which affect the comparative surplus and scarcity of cotton within and between years are given adequate representation in the data. To state the obvious, the adequacy of the delivery system cannot be measured by examining just years in which cotton is in surplus or just years when exports are high or just years of comparative shortage. To be found to be adequate, the delivery system must be evaluated in all circumstances.

Finally, the analyses are confined to evaluating the quantity of delivery, the representativeness of the delivery locations, and the growth in the futures market overall. Together these comprise the measures which are used regularly to assess the adequacy of the delivery system, whether in the context of a proposal for a new contract market or in evaluating an existing one. If these analyses produced evidence that the current system was inadequate in any way, the logical next step would be to analyze prices for evidence of how the identified inadequacy affected price discovery and then consider solutions. Neither step was deemed necessary in the present case. At the same time, it means that the report considers no evidence on pricing and, to the extent that arguments about specific delivery proposals involve pricing issues, it is necessarily incomplete.

The Purpose of a Futures Market

The central purpose of a futures market, in so far as it differs from other markets, is to give reflection today to the value of a commodity both today and at specified future dates. That is, its central purpose is price discovery and price discovery alone, and many of the features unique to futures markets, such as their standardized contract terms, were designed specifically to promote efficient price discovery. For example, all cotton futures contracts of a given maturity are identical in their specifications as to location, grade, payment procedures, and the like. Cotton futures contracts can be bought and sold only on an approved futures exchange like NYCE, only during approved trading hours, and only according to exchange rules. The exchange has a clearinghouse which provides a third party guarantee to each contract and a margin system designed to minimize the possibility of contract default and eliminate the need to assess individually the credit risk

of each contract. As nearly as possible, every futures contract is identical and the only issue being resolved by trading in the market is price. Another consequence of uniformity is that transactions costs on the exchange are low, low costs promote trading, trading promotes liquidity, and liquidity promotes price discovery.

Of course, the uniformity of contract terms on a futures market means that only rarely are its terms exactly those of any actual transaction between an individual buyer and seller, whether between a producer and a mill or a merchant, or between a merchant and a mill or an importer. That is, only rarely would its terms be so close to any user's actual needs that delivery would be a logical choice for either the seller or the buyer. It is usually cheaper for all parties to offset their futures positions and arrange the physical transfer on more preferred terms. Thus, deliveries on futures contracts are generally expected to be low because the terms are standardized and individual buyers' and sellers' needs are not (and because of low transactions costs, offset is itself very inexpensive).

Occasionally, however, the terms may match precisely and using the delivery system to make or take delivery may be the best way to fulfill a commitment. Thus, there will be variation in deliveries from month to month and there may even be substantial deliveries occasionally. It also suggests that the number of deliveries ought to be compared to the level of contractual commitments in the market in assessing their amount, even if exactly when in the contract's life that level should be measured is left unclear. In addition, it is easy to see that if the delivery process itself adds significant costs to a transaction, it will discourage deliveries and the greater the delivery costs, the lower will be deliveries. But this also should make clear that too few deliveries are often evidence of a problem in a contract as well. It may mean the delivery locations themselves are not central and no supplies are available to the market, or it may mean that delivery costs are high. Either should be cause for concern. In all, the number of deliveries must be judged in comparison to stocks available to make deliveries.

It should be obvious as well that the possibility of delivery on a futures market does not create a new use for the commodity. With or without a futures market, any year's cotton production must eventually be milled domestically or exported and price levels will adjust accordingly. Delivery on a futures market, even if it may seem to some to provide a temporary home

for unwanted stocks, is not an additional demand that will somehow prevent the crop from having to move into other market channels and somehow not affect price. Moreover, delivery requires that the stocks be moved to approved locations and into approved storage facilities, moves that are not costless and that leave the stocks in locations which may bear no relation to their final destination. Thus, if deliveries are thought to be an alternative market, marketing costs will be greatly increased and prices received by producers will be lower by even more than would have been necessary to market the "temporarily unwanted cotton" in the first place.

The standard terms of the futures contract are intended to be as representative of normal trade practice as possible in order to be widely recognized and valued in the industry, but they cannot represent all possible locations of physical market dealings. Were delivery permitted everywhere, the price would not be meaningful to either a buyer or seller because there could be no assurance as to what it represented. The ideal commodity, from the point of view of efficient price discovery, is the economist's paradigm of the space-less, time-less market where all production and all consumption are in one location and all are instantaneous. Were there such a commodity, one could also imagine that different settlement terms would work as well as physical delivery. It is not mere coincidence that the financial futures contracts use cash settlement in lieu of physical delivery. For stock indices, for example, location per se is not an issue and, for the broadest of them, there is a very actively traded, liquid physical market. Under such circumstances, it is possible that the best settlement alternative is settling in cash differences at the contract's expiration.

No physical commodity reflects the paradigm: commodity production and consumption are dispersed regionally in the US as well as across the world and they both occur only over time. Regional markets, if they exist, are often small, usually seasonal, and very illiquid. And, although exchanges often have considered other ways to settle futures contracts written on physical commodities, the usual solution remains physical delivery of the actual commodity. It insures that the futures price is linked closely to a referent cash market price and, properly designed, it is the alternative that is least manipulable. A single delivery point is preferred precisely because it creates specificity. However, using a single location can restrict the amount of commodity that is regularly available to make delivery for the reason that the

typical regional market is often small and illiquid. Thus, an exchange, in seeking to design the best possible contract, must select more than one location from which delivery may occur, either at the same price or at determined premium or discounts, in order to insure adequate supply underlies the contract. Almost by definition, the locations should be in principal producing areas, terminal markets, and/or consuming centers. But, the greater the number of locations and the greater differences among them, the greater is the uncertainty over precisely what price is reflected in the contract. In such circumstances, the value of the market in terms of its pricing efficiency is thereby reduced. The issue then is balancing specificity and representativeness and the analyses below will evaluate whether the current delivery points on the NYCE cotton contract are reasonably representative of the US cotton market.

Delivery Terms and Capacity of the NYCE Cotton Futures Contract⁴

The NYCE cotton futures contract permits delivery at the contract price in five locations in three of the four principal cotton producing regions in the US – Galveston, Greenville, Houston, Memphis and New Orleans. Par delivery on the contract is of cotton graded strict low middling, 1-1/16th inch staple length. Certain other grades and staple lengths are also permitted to be delivered at premiums and discounts determined by current average price differentials in the market, averages to be calculated according to exchange rules and an additional discount is applied to staple lengths shorter than the par grade. Total space in warehouses licensed by the exchange in these cities amounts to nearly one million bales, capacity which is more than double the maximum amount of cotton delivered in any single contract expiration in the last 25 years. Thus, space in the aggregate is surely adequate.

The number of licensed warehouses and total available space in each delivery location is not equally distributed, however, and so there could still be concern about adequacy in an individual location. The exchange has approved eight separate licensed warehouses in Memphis, five in Galveston, and one each in Houston and Greenville. At present there are no licensed warehouses in New Orleans. Given that additional warehouses in each location can apply for licensing from the exchange should there be a

⁴ See New York Cotton Exchange, "Deliverer's and Receiver's Guide: Cotton Futures," 1996 for details of delivery rules, eligible warehouses, and a description of the delivery process.

perceived demand, it is not surprising to find that the distribution of approved warehouse space reflects closely the distribution of deliveries among the eligible locations. That is, the vast majority of deliveries on NYCE futures contracts occur from warehouses in Memphis and Galveston. According to data supplied by the NYCE, only twice in the 28 contract expirations from March, 1992 to July, 1997 were there deliveries in Greenville and only in eight months were there deliveries in Houston. In total they averaged only 3.1 percent of contracts delivered over this period. As between Memphis and Galveston, there tend to be slightly more deliveries from warehouses in Galveston (on average, 53 percent of contracts delivered), but in any month deliveries can be in either location.

Comparing the currently licensed warehouse space in Memphis and Galveston to recent delivery levels, it appears to be more than adequate. In Memphis, the available space is substantially more than twice the amount of deliveries in any month in recent years and in Galveston it is nearly so. Similarly, deliveries in Houston have never approached the approved capacity. The anomaly is that even though deliveries from Greenville occurred only twice during 1992-1997, when they occurred they appear to have been greater than the available space. This is possible of course because the measured amount of deliveries includes re-deliveries; nevertheless the contrast is striking and one would expect that the evident demand to make deliveries in Greenville, even if only an occasional demand, would lead to increased licensed warehouse capacity. It was reassuring to learn that such is indeed the case, and at the time of this writing, the NYCE was in the final stages of approving a substantial expansion of delivery capacity in Greenville.

In order for cotton to be eligible for delivery on a NYCE contract, it not only has to be in a licensed warehouse, it must also be certificated by the exchange as qualifying for delivery. Certification is not difficult but does involve costs which, according to the NYCE manual, ranged between \$5.00 and \$8.75 per bale in 1996. Moreover, penalty fees are assessed by the exchange on cotton remaining under certification for more than three months, the amount of the penalty increasing with the length of the period under which the cotton is certificated. Thus, delivery costs amount to at least 5 and perhaps 10 percent of the value of cotton and it is not surprising that not all stocks available in the delivery locations are certificated. As the minimum currently approved for delivery, however, they provide an

extremely useful benchmark against which to compare actual delivery amounts in the assessments which follow. If deliveries relative to certificated stocks are not excessive in comparison to similar measures from other markets, they are surely not excessive relative to the total stocks which could be made available for delivery in those locations.

Levels of Deliveries on the NYCE Cotton Futures Contracts

From the discussion earlier, deliveries need to be compared to levels of trading and to deliverable stocks in order to judge their amount. Accordingly, in Table 1, deliveries on NYCE cotton contracts from 1972-1997 are compared to levels of open contractual commitments at various times in each contract's trading history and to supplies in position to make deliveries at the beginning of the delivery period.⁵ The results are reported separately for each decade in order to judge whether there has been any changes in amount in the more recent years.

First, deliveries on cotton futures are normally very small percentages of the maximum number of contracts held open in the trading history of each contract and there is no evidence that the amount is increasing in recent years. By comparison to the median level of only 5 percent in cotton, deliveries on the CBOT wheat contract averaged between 17 and 18 percent of the maximum open positions in each wheat futures contract, those on corn 7 to 10 percent, and those on soybeans 18 to 20 percent.⁶ Second, deliveries are also quite small percentages of the number of contracts open at the beginning of the month during which first notices will be sent, that is on the first of the month immediately preceding the delivery month. Moreover, there is again

⁵ Data on deliveries on the NYCE cotton contracts were located variously in NYCE records, USDA, Commodity Exchange Authority "Annual Summary of Commodity Futures Statistics" Statistical Bulletins, and CFTC "Annual Reports." These sources are incomplete and data is missing for short periods. The level of trading is measured by the level of open interest at three times in each contract's trading history, on the day trading in the individual contract reaches its maximum amount, on the first day of the month before delivery, and at the close of the day before the first day on which notice may be given of a trader's intention to deliver. Finally, certificated stocks of cotton are those certified eligible for delivery, the series of weekly observations dating to the 1972/73 crop year were provided by trade sources, and the observation closest to but before the beginning of the delivery month is used since it is closest to first notice day.

⁶ Detailed discussion of the findings from the CBOT wheat, corn and soybean futures markets is in Anne E. Peck and Jeffrey C. Williams, "Deliveries on the Chicago Board of Trade Wheat, Corn, and Soybean Futures Contracts, 1964/64-1988/89," *FRI Studies*, XXII, 2, 1991, p.138-9.

Table 1

Deliveries on NYCE Cotton Futures Contracts
in Comparison to the Open Interest in Each Contract
and to Certificated Stocks, 1972-1997*

Deliveries on NYCE Contracts in Relation to:	<u>1970s</u>	<u>1980s</u>	<u>1990s</u>
	<i>Percentages</i>		
Maximum Open Interest in each contract	3.3	4.0	3.8
Open Interest 3 weeks before delivery starts	6.2	6.4	5.6
Open Interest 1st Notice Day	25.2	25.0	34.0
Certificated Stocks	58.6	102.8	85.4

* Figures in the table are median percentages. The delivery months included in each decade are: 1970s=10/1972-7/1980; 1980s=10/1980-7/1990; and 1990s=10/1990-5/1997. Based on data from the New York Cotton Exchange; Commodity Futures Trading Commission, "Annual Reports," various years; USDA, Commodity Exchange Authority, "Annual Summary of Commodity Futures Statistics," Statistical Bulletins, various years; and trade sources. Delivery data are missing for the periods 3/1974-5/1976 and 7/1984-3/1987.

no indication delivery levels are increasing. Third, deliveries are somewhat higher percentages of the levels of open interest just prior to the beginning of the delivery process, with medians in each decade between 25 and 35 percent. By comparison, these levels are considerably less than those on CBOT contracts where deliveries on wheat futures contracts averaged some 60 percent of contracts open at the beginning of the delivery period and those on soybeans some 50 percent. Together, the results show that the amount of deliveries on the NYCE have been and remain at low levels compared both to levels of trading and when compared to relations on other markets.

Finally, the data in Table 1 show deliveries are most frequently less than 100 percent of certificated stocks of cotton at the beginning of the delivery period, which is also a remarkably low level. Again, by comparison, deliveries on some CBOT contracts regularly amounted to over 200 percent of total stocks available for delivery. And, the real difference between the delivery levels on the NYCE cotton market and those on the CBOT is significantly greater since certificated stocks of cotton are only a percentage of the stocks in the delivery locations which could be made available for delivery if needed. The data in Table 1 also show there has been some variation in this measure over time, with the median increasing from 81 percent in the 1970s to 137 percent in the 1980s but then declining to 85 percent in the most recent years. Its current low level is impressive evidence of adequacy.

In sum, the evidence shows clearly that cotton deliveries have not been large by any standard, either in comparison to levels of trading and deliverable stocks of cotton or in comparison to levels observed on other markets. Rather, they are indicative of a market whose contracts call for delivery in locations where adequate supplies of cotton are regularly available and for which delivery occurs generally in a small proportion of the number of contracts open in each contract.

Changes in the Regional Production and Distribution of Cotton and The Continuing Importance of the Current Futures Delivery Points

The second concern is whether the delivery locations on the contract are central to cotton marketing channels, even if stocks there are clearly adequate in amount. To be sure, there have been changes in the regional concentrations of production as well as in the principal marketing channels

for cotton over the last century. It would be more surprising if there had not been, given the significant changes in regional development patterns within the US, in advances in cotton production and spinning technologies, and in world patterns of production and consumption over this century. The question is whether the changes have been such as to undercut the importance of the locations now designated for delivery on the NYCE contract as either collection points or representative trading centers. Put comparatively, have there been changes in the cotton marketing system such as occurred over the years in the grains and soybeans markets which left Chicago (and then Chicago and Toledo) as an essentially out-of-position location(s) for deliveries?

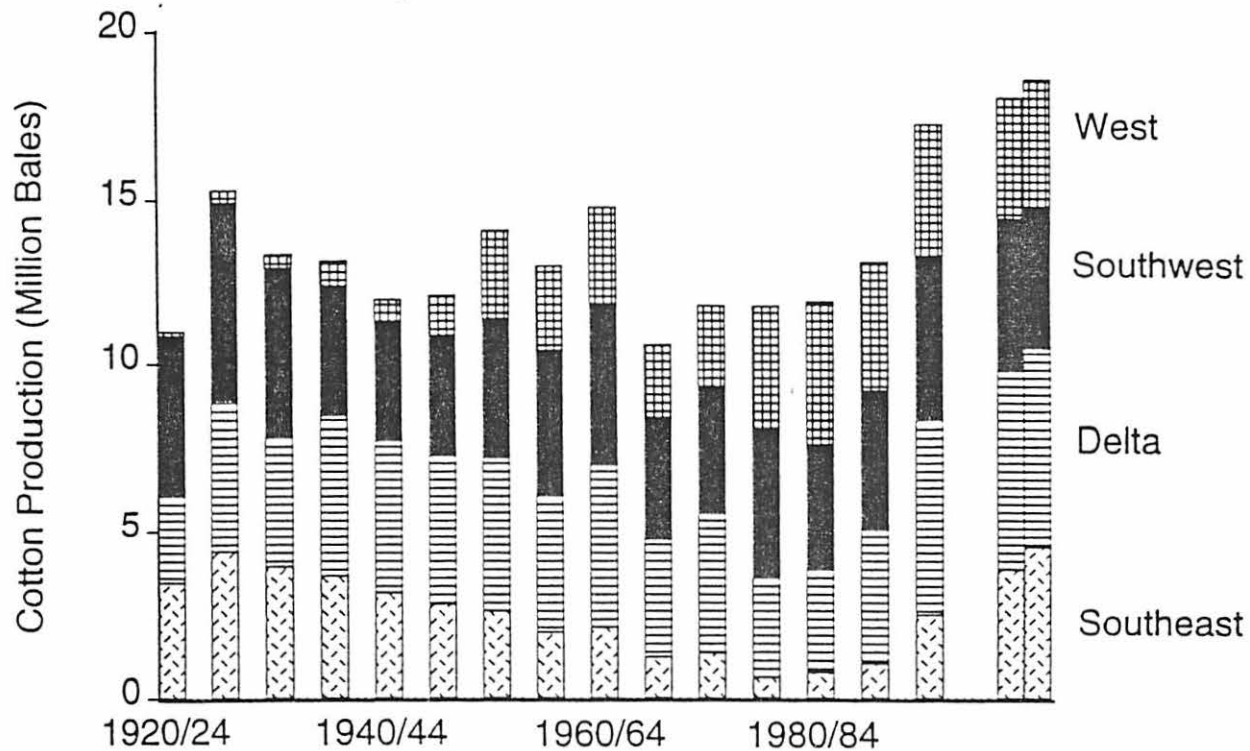
Looking first at cotton production patterns, the data assembled in Figure 1 highlight changes in both amount and location of production since 1920.⁷ Two patterns are obvious. First, after decades of decline, production of cotton has been growing steadily since the early 1980s. In the most recent five year period (1990-94) it was the highest ever, exceeding even the average levels from the years just prior to the Great Depression. Moreover, the overall growth shows little sign of abating, with new production peaks in both 1995 and 1996.

Second, there have been important changes in regional concentrations of production in recent years, and like the overall production trends above, changes began in about 1980. Beginning in 1920, production in the West increased steadily from virtually nothing to account for nearly a third of total production by the early 1980s. Simultaneously, the relative importance of the Southeast and, to a lesser extent, the Southwest regions declined with production in the Southeast going from nearly 30 percent of total production to only 5 percent in the mid-1970s. Production in the Southwest declined from more than 40 percent of production to just a little more than 30 percent. However, since the beginning of the 1980s, the Southeast has recovered as a major production center with average production of over 2 million bales in 1990-94, an amount which represents over 10 percent of total production.

⁷ The data in the figure are cumulative production from each region averaged over 5 year periods. Data for 1920 through 1993 are from USDA, The Cotton Industry in the United States, Agriculture Economic Report No. 739, July 1996. Data for 1994 are from the USDA, ERS, CWS, Cotton and Wool Situation and Outlook Yearbooks, November, 1995 and permitted calculation of the 1990-94 five year average. Data for 1995 and estimates for 1996 are from the November, 1996 Situation and Outlook Yearbook.

Figure 1: Regional Distribution of Cotton Production

Five Year Averages, 1920/24-1990/94, and 1995 and 1996



The data from 1995 and 1996 only underscore the change, with production from the Southeast at levels greater than production in the Western states in both years. Production in the Delta states also appears to be increasing somewhat in recent years.

USDA analysts adduced four factors in explanation of these patterns, and especially of the resurgence of the Southeast – the success of the boll weevil eradication program has made cotton production more profitable in several Southeastern states, adoption of short-season production systems have improved yields and income by reducing insect damage, restrictions on water supplies in the West occasioned by severe droughts in the 1980s and early 1990s limited water available for cotton, and significant acreage abandonment in the Southwest due to adverse weather.⁸ All are expected to continue to be important factors in determining the relative profitability of cotton production among regions and hence underscore the anticipated continued importance of the historical production areas.

Thus, while there have been changes in the regional distribution of production over the past decades, they have not been such as to reduce the importance of the three regions – Southeast, Delta, and Southwest – in which the delivery locations for the NYCE futures contract are currently. Indeed, overall production from these three regions is increasing. At one time, production from the West could have been described as replacing that from one or more of the principal production areas, but no longer. It reached its peak at about the time the Chicago Board of Trade was considering developing a new futures contract which would permit Western delivery. Since then, production from the traditional areas has fully recovered while that from the West declined. If anything, the traditional areas are now replacing the West, even in the aggregate.

These comparisons, based on aggregate cotton production, mask another change in the West that has been underway since the early 1980s and that is the shift in production from upland cotton to ELS cotton. Whereas in 1980, only 1.7 percent of cotton produced in the West was ELS cotton, by 1995 the proportion was 8.3 percent. Thus, not only has production from the West declined in aggregate, its production is increasingly of ELS cotton and hence the decline in its contribution to the supply of upland cotton is even more

⁸ See James A. Larson and Leslie A. Meyer, "Supply, Demand, and Prices," The Cotton Industry in the United States, op. cit. for details.

dramatic. It would be more than somewhat ironical if a Western delivery point were added to the NYCE contract now, when the amount of cotton produced from the region is so clearly declining, when it was not added to a proposed new contract at the time its production was greatest.

The second aspect of importance in assessing the centrality of the existing delivery locations is their representativeness as major distribution centers for collection, marketing and/or pricing of cotton. There have been six surveys of the distribution of US cotton shipments during individual cropyears since 1960, of which four fall at nearly ten year intervals, 1961/62, 1970/71, 1980/81, and 1992/93⁹ and their results are summarized in Figure 2. The two principal uses of cotton are of course exports and mill consumption, and information in the surveys identified separately exports from Western Gulf ports and Pacific ports.¹⁰

As is evident in Figure 2, the distribution pattern has remained remarkably stable over this forty year period, with Southeastern mills usually taking in excess of half the total crop, approximately one-third going for export and the remainder to other uses. The figures for 1980, when more than half of total use was for export, are the only deviation. Indeed, the only change in the marketing of cotton these data show is an increase of exports through West Coast ports. Importantly though, the Western Gulf ports remain significant if not dominant export sources. In aggregate then, about 80 percent of the average cotton crop is marketed through the eastern two-thirds of the country (mostly to mills in the Southeast or for exports from Galveston), with only 20 percent marketed through western ports. The NYCE

⁹ The relevant published reports are: USDA, ERS, MED, "The Traffic Pattern of American Raw Cotton Shipments, Season 1961/62," Marketing Research Report No. 705; USDA, ERS, "Domestic Shipments of US Cotton, 1970-71 Season," Statistical Bulletin no. 483; and USDA, ERS, "US Cotton Distribution Patterns, 1980-81," Statistical Bulletin No. 696. The results of the fourth survey, for the 1992/93 season, have not been published separately but the percentage distributions are reported in The Cotton Industry in the US, op.cit., Table 11, p. 48. The reports are based on surveys of cotton warehouses and, depending of response rates in the specific survey, the resulting data represent substantial (but not complete) percentages of the distribution of total production. For this reason, the data presented here are percentage distributions, not absolute amounts. Additionally, the results from the most recent survey, in 1992/93, are reported only in percentages.

¹⁰ Other uses included variously shipments to Northeastern mills, cotton at interior concentration points from which it will be shipped to a final destination not identified at the time of the survey, exports through Atlantic and Central Gulf ports, and trade with Mexico and Canada, all aggregated to form the All Other category in the figure.

Figure 2: Marketing of the US Cotton Crop

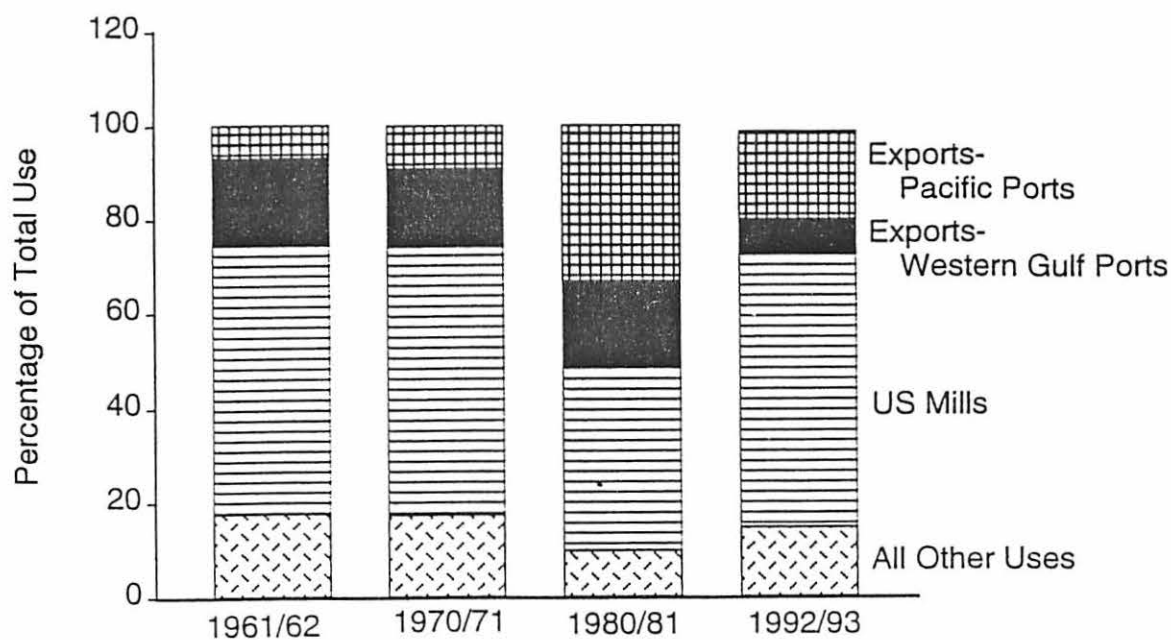
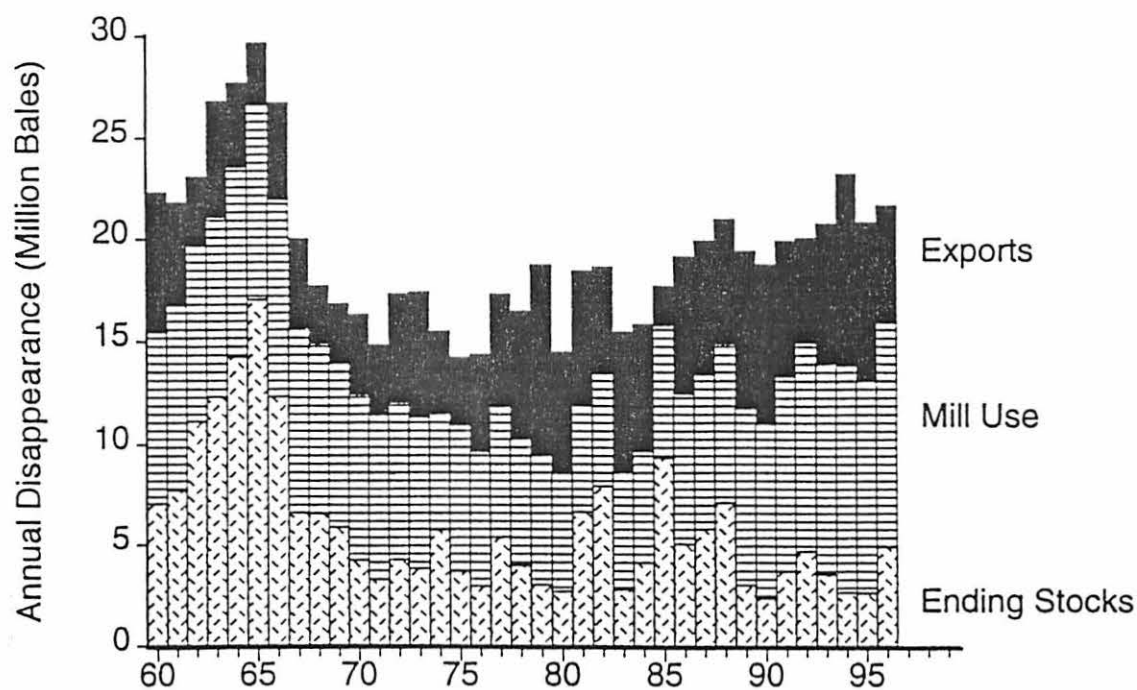


Figure 3: Annual Disappearance of the Total Available Supply of Cotton, 1960-96



contract must surely be described as representative of the vast majority of the US cotton marketing channels.

The data in the figure are snapshots of the marketing system taken approximately once every ten years. It is important to confirm that these pictures are representative. The data displayed in Figure 3 show trends in the disappearance of cotton in the US, including use by mills, exports, and cotton continuing in storage at the end of the year, from 1960 to 1996. They confirm that exports and domestic mills' use of cotton has been a more or less constant percentage of total supply of cotton, varying in proportion to the availability. In recent years, that has meant a growth in absolute amount as available supplies have grown. The most important change since 1960, in the pattern of cotton disappearance evident in the figure, is the decline in levels of stocks held at the end of the year. The decline is almost entirely the result of changes in US government programs, the implications of which are discussed in the next section.

In sum, while there have been changes in the regional distribution of cotton shipments over the last three decades, the changes have not been such as to undermine the importance of the traditional centers of cotton pricing and marketing in the Southeast, Delta, and Southwest regions. Indeed, the Southeast has increased in importance in recent years and the Western Gulf ports remain significant origination points for exports. The contrast between this pattern and that found in the grain and soybean markets with respect to the delivery locations on their futures markets could not be stronger. In cotton, the delivery locations have remained central to the production regions and marketing channels; in the grains and soybeans, they were left essentially outside the entire marketing system.

The comparison between the cotton futures delivery points and those for the CBOT contracts has one more lesson. In the changes in contract specifications now under review for corn, there is absolutely no mention of a West Coast delivery alternative, yet in 1995/96, corn exports from West Coast ports (mostly to China) amounted to nearly 25 percent of total exports of corn, an increase from virtually nothing just twenty years earlier. The Midwest and Gulf ports comprise the bulk of the production and marketing of the corn crop and their centrality cannot be questioned. The centrality of the Southeast, Delta, and Southwest in the production and marketing of cotton is similarly unquestionable. That there is production and marketing of both crops in

other areas simply demonstrates, as noted earlier, production and consumption of agricultural products are regionally dispersed. Delivery on their futures contracts cannot be required everywhere.

The Growth in Trading on the New York Cotton Exchange since 1970

The data assembled in Figure 4 document the overall growth in levels of trading on the NYCE and show its close relation with the generally declining levels of government intervention in the market place.¹¹ In 1970, trading on the cotton futures market (along with the wheat and corn futures markets) was still very low, a consequence of the extensive government loan programs of the 1950s and 1960s which supported prices through the accumulation of the very large stocks of cotton seen in Figure 3, thereby eliminating both private storage and price uncertainty from the market. However, fundamental changes in the US farm programs began in the mid-1960s, government stocks were sold and direct price intervention mostly eliminated and by 1970 the changes were taking effect. The very large levels of government stocks of the 1960s were nearly gone and whereas the maximum level of government-owned stocks in the 1969/70 year was 5.2 million running bales, in 1970/71 it was only 3.9 million. More telling still, year-end government stocks declined from 3 million to 0.3 million, virtually completing the government's exit from the storage business. Government storage remained comparatively insignificant throughout the 1970s, only returning to sizable (but variable) accumulations in the 1980s.

The decade-long absence of a government price-support-through-storage program had direct consequences for the futures market. Trading returned, albeit slowly at first. Firms whose warehouses had been full of government stocks and who had had to specialize only in the details of the government programs for nearly 20 years were once again merchants. Almost as if merchandising itself had to be relearned and in so doing the value of futures markets in facilitating decisions rediscovered, volume on the

¹¹ Sources include the annual reports of the Japan Cotton Traders' Association, The Japan Cotton Statistics and Related Data, the USDA, CEA "Annual Summary of Commodity Futures Statistics," and the reports by the CFTC, "Commitments of Traders." For 1992 to the present, the CFTC "Commitments of Traders" are weekly and the report for the date closest to the end of the month was used. Data on CCC inventories for the period 1992/93 to the present were obtained from the Farm Service Agency, USDA. However, because of program changes these reports are not comparable to the earlier series and thus were not included in the figure.

Figure 4: Growth in Levels of Trading on the NYCE Cotton Futures Contract and Its Relation to Government Stocks Accumulations

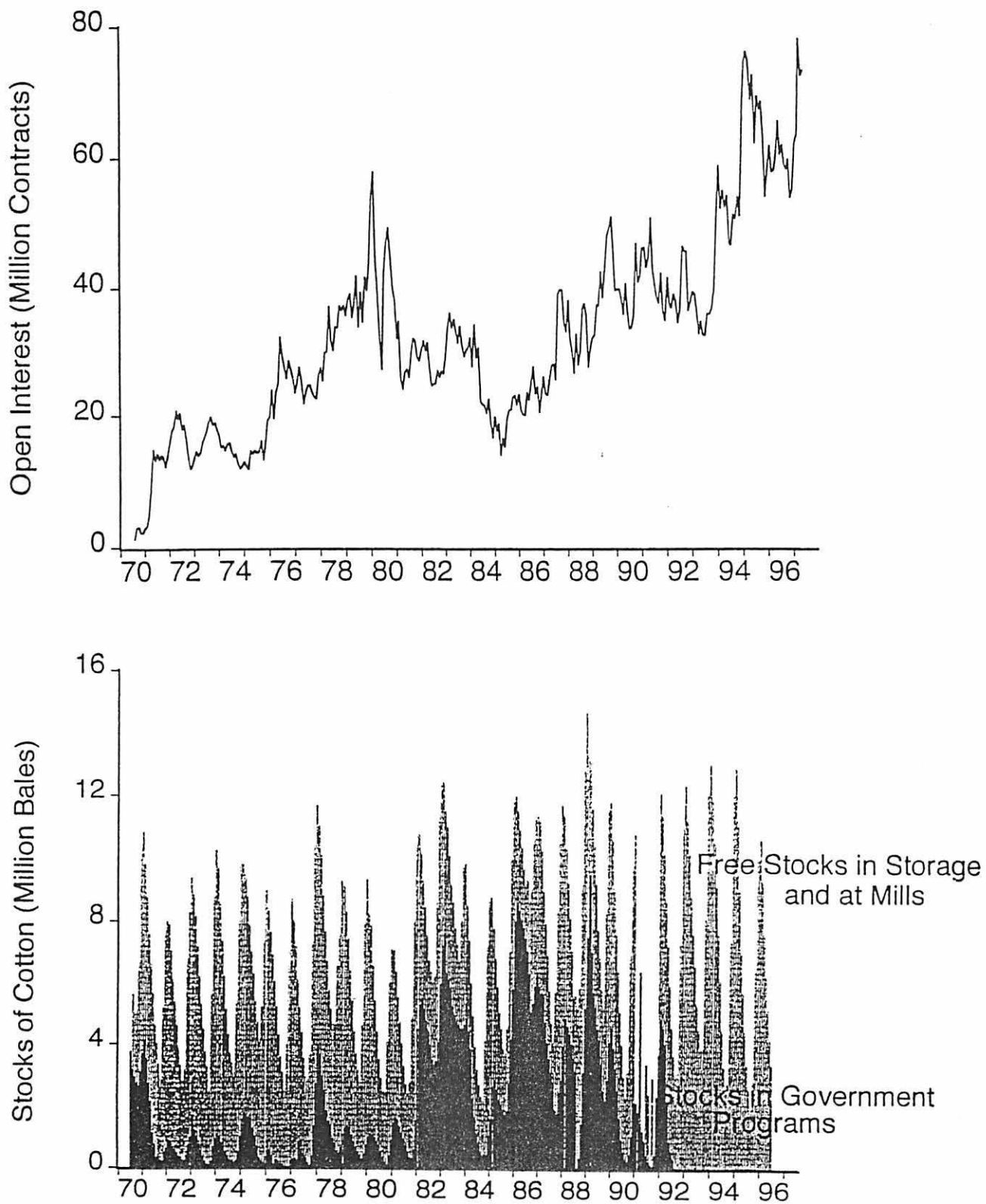
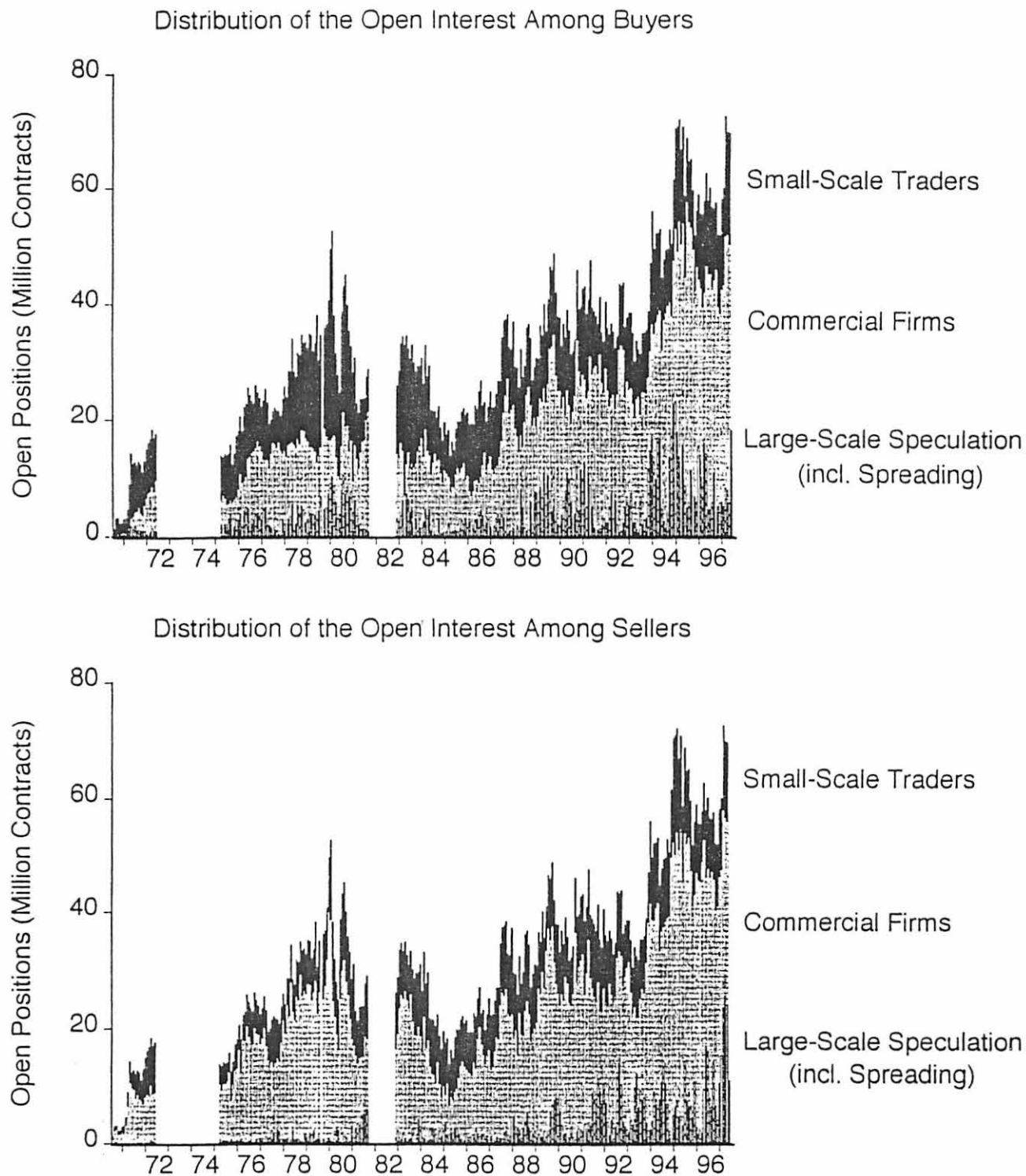


Figure 5: Growth in Commercial Firms' Use of the NYCE Cotton Futures Market



exchange grew only slowly at first. Growth required the development of floor traders at the exchange since many if not all of those active before the declines in trading of the 1950s and 1960s would have long since had to leave the markets because of lack of business. Growth in trading also required the revived interest of speculators willing to take longer term positions, absorbing the temporary imbalances between commercial firms' buying and selling needs. Thus, after a period of five or six years, market growth resumed and levels of open interest nearly tripled over the last half of the 1970s.

However, changes in world market conditions and in government programs in the early 1980s led to the accumulation of substantial stocks once again and reversed the trend, returning the market to the levels of trading seen in the first half of the 1970s. But even with the new stocks, the programs themselves remained more market oriented and, as the stocks data clearly show, revisions in program terms were made so as to quickly reduce stock levels, a pattern that was to persist throughout the 1980s and into the 1990s. Whenever surpluses accumulated in government ownership, program provisions were altered and the surpluses worked off. The clear market orientation of the new programs supported rather than supplanted the market as the earlier programs had done and, as that orientation was reconfirmed in program adjustments after each accumulation of stocks, the growth in the importance and use of the futures market resumed nearly unabated throughout the late 1980s and 1990s. The overall growth in levels of trading is surely one sign of a healthy market.

Another issue is the extent to which the overall market growth has been a consequence of the growth in commercial firms' use of the market, that is, whether the market continues to be useful to firms. The data assembled in Figure 5 provide a clear answer, demonstrating that virtually the entire growth in trading is due to increased trading by commercial firms.¹² The figure also shows how balanced firms' use of the cotton futures

¹² See footnote 9 for data sources. There are two gaps in the available data when they evidently were not published and/or summarized annually. The patterns in the existing data were so clear that filling these gaps was unnecessary to the conclusions in the paper. One additional aspect of the data is that the level at which positions became reportable changed in 1995, going from 100 contracts to 2500 contracts overall (1600 in any one delivery month; 300 in the spot month) and, as is evident in the figures, the change had virtually no effect on the measured amount of commercial versus speculative participation in the market. Commercial

market has been, with commercial firms both the largest buyers and sellers in aggregate of futures contracts. This balance is itself also an indication that the cotton futures contract is well-designed, accommodating equally well the needs of buyer and seller and penalizing neither in ways which discourage use. Indeed, such strong evidence of growth and balance combined with the evident continuing centrality of the principal delivery locations is *prima facie* evidence that the market is serving the cotton industry well.

Concluding Observations

Review of contract terms is an on-going process; markets do change and terms should change to reflect them. But, the evidence reviewed here found no cause for concern about the current contract terms on the NYCE cotton futures market. Use of the market is growing, it is widely supported among commercial buyers and sellers. The delivery points now specified in the contract continue to be central to the production and marketing of cotton and warehouse space approved by the exchange in these locations is more than adequate. Deliveries are generally at very low levels compared to both levels of trading and to stocks certificated to make deliveries.

As important as the analyses of available data in coming to these conclusions, I also interviewed a number of individuals in the cotton trade. My purpose was to gain a sense of traders' views of the adequacy of the current contract provisions, much in the way that I had been able to do in my study of the CBOT markets in conversations with many participants in the grain and soybean markets. Perceptions of performance could not be more different. Whereas firms who traded on the CBOT's markets were virtually unanimous in their perception that the grain and soybean futures markets were not performing well and the delivery terms needed amendment, firms trading on the NYCE cotton market are virtually unanimous in their perception that the cotton futures market is working well and the current delivery locations were appropriate. In both cases, perceptions were based on a variety on indicia, so that in talking with several, an appreciation for the large number of factors that individual users examine in assessing the market was quickly acquired.

firms' positions are dictated by the size of their business and clearly most were doing business of sizes greater than even the new reporting limits.

In discussing the centrality of the current delivery locations, mention was made of many additional points which aggregate data such as those used in this report do not capture. For example, in addition to the resurgence of the Southeastern milling industry, several emphasized the recent growth in exports from Atlantic ports and to Mexico and Latin America as evidence of the continuing centrality of the three regions currently represented on the contract. Note was also made that substantial amounts of Western production, and specifically that from Arizona, can be delivered at existing contract locations on the Western Gulf for virtually the same cost as it would take to deliver it to West Coast ports. When then added to others' points that California production would never be delivered in any event because it trades at a significant premium, the conclusion was inescapable that adding a Western delivery would not comprise a net addition to the geographical representativeness of the current contract. Not surprisingly, pricing issues figured prominently in many traders' concerns, from the effects of increasing delivery stocks on market performance generally to the likely effects of significant deliveries of Arizona cotton in particular on price levels. Although pricing issues were not part of this study, the arguments were clear and cogent.

Perhaps most importantly, all with whom I spoke were well aware that the current NYCE contract was widely used by both buyers and sellers and that this balance has been important in providing greater market liquidity for all. There was naturally then much concern about the possible effects of adding an outside delivery location on this balance. Would sellers find basis variability increased to such an extent that routine merchandising uses of futures would become too expensive because of the added uncertainty in location specificity of futures prices? Would the utility of the market to buyers decline enough that they would use it less? Though more speculative of course, these worries underscored the importance of being sure changes are undertaken only when the evidence is persuasive that they will improve the market. There is no suggestion in the evidence considered here that changes are needed or that they will improve the market.

Summary

In this report, evidence was examined on the adequacy, representativeness, and usefulness of the current delivery specifications on the NYCE futures contracts. Deliveries were compared to the amount of exchange approved delivery capacity, to levels of contractual commitments, and to levels of stocks available for delivery. In all cases, the current specifications were found to provide more than adequate capacity.

The report also considered whether the current delivery locations are representative of principal cotton production and marketing patterns. Examination of the distribution of production and disappearance of the US cotton crop showed the Western areas were decreasing in importance while the Southeast, Delta, and Southwest were increasing. Thus, the current delivery locations are central to principal marketing flows of cotton and the addition of a delivery location on the West Coast would not improve the representativeness of the current contract.

Finally, as noted, it is always possible to continue to argue for adding a delivery location, notwithstanding the demonstrable adequacy and representativeness of the current system. If there were no cost to the market, it would not matter. In the report, evidence was provided on the remarkable growth in overall levels of trading on the current NYCE contract and its remarkable balance among firms as buyers and sellers, evidence which demonstrates that the current contract is widely valued among a broad range of potential users in the cotton industry. The costs of a change that is detrimental to the functioning of the market are thus very high. In other words, any proposed contract change that is not a solution to a problem should be required to meet a very high standard – it should demonstrably improve the contract's performance – before being approved. There is no evidence that the addition of a Western delivery point would improve the performance of the NYCE cotton futures contract.