“Peanut Quota Markets and Peanut Production After FAIR”

Jan Chvosta
North Carolina State University

Randal R. Rucker
Montana State University

Walter N. Thurman
North Carolina State University

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I. Introduction

The U.S. peanut program has restricted peanut production and increased the price received by farmers since 1949. (See Rucker and Thurman, 1990, for a history of the peanut program and its effects.) Unlike the programs for grains, cotton, and rice, the 1996 Federal Agriculture Improvement and Reform (FAIR) Act left the peanut program largely intact. As before FAIR (and since 1977) the right to grow peanuts for the domestic edible market is embodied in marketing quota, which can be leased and sold. Also as before FAIR, the right to grow peanuts to be exported or crushed into oil and meal is unrestricted. (See Borges and Thurman, 1994, and Babcock, 1990, for analyses of peanut supply in light of "additionals" production.) What did change post-FAIR was the set of restrictions on the lease and transfer of quota.

Prior to 1996, lease and sale transactions were largely unrestricted within counties, but were prohibited across county lines. This led to geographically distinct markets for peanut quota with little tendency for quota lease rates and sales prices to equalize across counties. The FAIR Act for the first time allowed quota movement across county lines other than for the purpose of consolidating holdings

1 Chvosta is a Ph.D. candidate at North Carolina State University, Rucker a Professor of Agricultural Economics and Economics at Montana State University, and Thurman a Professor of Agricultural and Resource Economics at North Carolina State University.
by firms operating in multiple counties. FAIR set up a schedule of phased-in relaxation of transfer restrictions. Quota movement out of a county in 1996 was limited to 15 percent of 1995 quota. In 1997, the cap moved upward, allowing 25 percent of 1995 quota to be leased or permanently sold out of a county. In annual increments of 5%, the allowable transfer increased to 35% by 1999. In 2002, the limit will reach its currently scheduled maximum of 40%.

Quota rentals represent significant income streams to quota owners and significant costs to peanut growers. The movement of quota and associated changes in lease rates imply important welfare effects to these groups and we now have four years of experience with peanut quota markets post-FAIR. In some parts of the country, quota has moved as much as the regulatory caps allow. For example, between 1995 and 2000 in Texas, cross-county quota movement represented 53% of 1995 quota. Other areas have seen less, but still substantial, movement: in Oklahoma 36% of 1995 quota had migrated by 2000. But in the traditional peanut-growing areas of the Southeast there has been less cross-county movement: in Georgia and Alabama, 9% of quota moved across county lines, in Florida 8%, and in North Carolina and Virginia 7%.

In this paper we present a model of the effects of cross-county quota transfer and test empirical predictions from it with a county-level panel of pre- and post-FAIR data to assess the effects of changes in U.S. peanut policy. We have compiled from USDA-FSA sources data on quota movements for virtually every peanut-producing county in the seven major peanut-producing states.

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2 On its face, the 53% figure for Texas appears to violate a transfer provision of the FAIR Act. There are, however, unlimited transfers allowed between adjacent counties, which likely explains the seemingly excess movement.
Analysis of the data shows large quota movements in areas where observations on additionals production would have predicted such. We find that movements in production, as distinct from movements in quota, such as the large shifts found in Texas\textsuperscript{3} cannot be explained entirely by FAIR, but can reasonably be attributed to changes in the profitability of growing competing crops such as cotton. The reduced profitability of the latter might itself be attributed in part to the elimination of cotton deficiency payments.

II. The U.S. Peanut Program and Restrictions on the Transfer of Quota

Peanut production is concentrated almost entirely in seven southern states\textsuperscript{4} and is an important source of income in many local economies. There are two peanut markets, separated both by end-use of the peanut and by government policy—the edible market and the crush market. Peanuts sold into the edible market are used in such products as salted-in-the-shell peanuts, candy bars, and peanut butter. Peanuts sold into the crush market are used to produce peanut oil, cake, and meal. Peanut oil is consumed by humans but is not included among “edible” uses for policy purposes. Peanut cake and meal are animal feeds.

Government programs regulating peanut prices and production have been in effect since the

\textsuperscript{3} The share of Texas production held by the five largest counties in 1994 was 32%. In 1998 the five-county share grew to 65%. The increase in the share represented by top-five county production came from a dramatic reduction in the share of production from the 101 smallest peanut producing counties. These 101 counties accounted for 50% of peanut production in 1994 but only 20% by 1998. (The share of production from a middle-sized category remained stable over the four-year period.) The production from small counties declined in absolute terms as well.

\textsuperscript{4} Alabama, Florida, Georgia, North Carolina, Oklahoma, Texas, and Virginia.
1930s. The current peanut program includes a price support for peanuts sold into the domestic edible market, poundage quotas placing upper limits on the peanuts produced and sold as edibles by individual growers, and highly restrictive quotas on peanut imports. The edible (or quota) support price is the minimum legal price in the domestic edible market and the price at which the government will buy quota peanuts. Only growers with poundage quota can sell their peanuts directly into the edible market for this price. Peanuts grown without poundage quota are known as “additionals” and must be sold in the export market or placed in growers’ association pools. The transfers and deadweight costs associated with these aspects of the peanut program have been estimated elsewhere (see Rucker and Thurman (1990), U.S. GAO (1993)). Here we focus on the effects of the restrictions on quota transfers.

Until 1977, the primary tool used to restrict the level of output under the federal peanut program was acreage allotments. Although marketing quotas were specified annually, they were set to exceed the quantity of peanuts typically grown on the allotted acres. In December 1967, legislation was enacted that authorized the sale or lease of acreage allotments for the 1968 and 1969 crop years. The transfer provisions were made permanent in 1969, but approval of the transfer by the Secretary of Agriculture was required. The sale and lease of allotments was permitted only within counties.\(^5\)

Under the Food and Agricultural Act of 1977, poundage quota was required to sell peanuts into the domestic edible market for the high quota support price. Growers could grow more than their

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\(^5\) A trivial amount of quota leaked across county borders. Intercounty transfers were allowed in states with less than 10,000 pounds of quota and when an individual owned or operated land in contiguous counties. Because such transfers were not the norm and because they had little effect on the locational distribution of quota, we do not consider them further.
A grace period was provided, so that no quota actually was forfeited for two years following this modification of the program rules.

The farm bill of 1981 suspended acreage allotments. Under the new version of the program, anybody was allowed to grow peanuts, but only those growers with poundage quota could receive directly the quota support price. Another potentially important change was the restriction under the legislation of quota owners’ rights to lease their quota. To maintain ownership of poundage quota, peanuts had to be grown on the farm to which the quota was assigned in two out of any three consecutive years. A quota owner could lease his quota without losing it, but only so long as peanuts were grown on his farm.

The potential effects of this program change on quota lease markets are limited by the manner in which the program is administered by the Agricultural Stabilization and Conservation Service (ASCS)/Farm Services Agency (FSA). The ASCS/FSA, as part of its standard procedures, has allowed farms to be “combined” so that, from the perspective of the legislation, two separately owned farms become a single farm. Thus, a quota owner can lease his quota to another individual indefinitely without losing it, so long as their farms have been combined.

An important feature of the peanut program is that peanut growers are allowed to grow “additionals” (beyond the amount of their poundage quota) for sale in the export market or for placement with growers’ association pools. The price of these additionals is less than the quota support

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6 A grace period was provided, so that no quota actually was forfeited for two years following this modification of the program rules.
price and represents the foreign demand price for U.S. edible peanuts. The price difference between quota peanuts and additionals implies that the quota rights have value. With binding restrictions on production for the domestic edible market, and with no restrictions on the transfer of quota, positive lease and sale values for peanut quota will be observed and any aggregate level of output will be produced at minimum cost. When markets for quota are restricted, however, output may be produced at a cost in excess of the minimum.

Consider first the marginal cost of producing peanuts and the related demand for poundage quota within a single county. The relationships among quota support price \((P_S)\), world price \((P_w)\), marginal costs of production, and the rental demand for quota are illustrated in Figure 1. Because additionals production is unrestricted, \(P_w\) is the relevant marginal price for additionals.

With zero quota allocated to the county, \(q_0\) additionals will be produced at price \(P_w\). For levels of quota less than \(q_0\), a competitive market for quota within the county will dictate a demand price for quota of \(P_S - P_w\), the price difference to which an incremental unit of quota entitles growers. If the

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7 See Rucker and Thurman (1990) for an explanation of why the price of additionals sold for export and the expected price for additionals placed in association pools will tend to be equal.

8 The analysis that follows demonstrates the effects of eliminating restrictions on the lease and transfer of peanut quota under the assumption that there are no restrictions on intracounty leasing of quota. The interpretation of this analysis as showing the effects of eliminating restrictions on intercounty quota transfers under the current peanut program requires the assumption that ASCS/FSA provisions for “combining” farms completely eliminate any effects that the two-out-of-three year leasing rule in the 1981 farm bill (see discussion above) might have on quota lease markets. Further, we assume that all peanuts produced in the U.S. are edible grade peanuts that can be used for either edible or nonedible (crush) uses. That is, there is no difference in the costs of producing quota and additional peanuts and additional peanuts can be used for edible purposes. See Rucker and Thurman (1990) for further discussion of issues related to this assumption.
An implication of this discussion is that if quota in the county is less than $q_0$, all the quota will be used and the difference between $q_0$ and the quota amount will be the quantity of additionals produced. For quota levels greater than $q_0$, the opportunity cost of producing and selling quota peanuts is the marginal cost of producing peanuts, which exceeds $P_w$. The value of the marginal product of quota is therefore the quota support price ($P_S$) less the marginal cost of production (MC). With a quota allocation between $q_0$ and $q_1$, quota rental rate will vary inversely with the level of quota and no additionals will be produced. If the allocation of quota is $q_1$ or greater, the quota rental rate will be zero.

The costs of restrictions on quota transfers between counties are illustrated in Figure 2, where $MC_1$ and $MC_2$ are the marginal costs of production in counties 1 and 2, and $Q_q$ is the poundage quota allotted to each county (assumed for graphical simplicity to be the same in each county). Because each county is a price taker in the domestic and world markets, the demand price each faces is $P_S$ up to $Q_q$ and $P_w$ thereafter. If poundage quota cannot be transferred between counties, total production in county 1 is $q_0$ (consisting of $Q_q$ quota peanuts and $q_0 - Q_q$ additionals) while total production in county 2 is $Q_q$ (all quota peanuts). The marginal cost in county 1 is $P_w$ and the quota lease rate is $P_S - P_w$. The marginal cost in county 2 is $P_2$ and the quota lease rate is $P_S - P_2$.

The gains from making quota transferable across counties are shown in Figure 2 as follows. When restrictions on transferability are removed, production will be achieved at minimum cost. The

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9 An implication of this discussion is that if quota in the county is less than $q_0$, then increments in quota will displace additionals production one-for-one and will not change total county production. Increments in quota between $q_0$ and $q_1$ will increase total county production one-for-one as additionals production is zero when quota exceeds $q_0$. Increments in quota beyond $q_1$ will not increase production because the marginal cost exceeds the quota support price.
aggregate marginal cost of producing any given quantity of peanuts is the horizontal summation of the marginal cost curves for the individual counties, \( MNMC_T \). The demand curve facing the combined counties is \( P_s CHP_w \). In the case shown in Figure 2, demand and aggregate marginal cost intersect at \( Q_T (=2Q_q) \), implying that the least-cost allocation of production is \( q_1 \) in county 1 and \( q_2 \) in county 2 with both counties producing only quota peanuts. The market-clearing quota lease rate is \( P_s - P_T \).

Allowing intercounty transfers of quota thus reduces the lease rate and increases production in county 1 and increases the lease rate and reduces production in county 2. \( Q_q - q_2 (= q_1 - Q_q) \) pounds of quota are transferred from county 2 to county 1. In county 1, \( q_1 - Q_q \) pounds of quota with value of BDIJK are purchased for BDIG, implying an aggregate gain of GIJK. In county 2, \( Q_q - q_2 \) pounds of quota with value of ABEF are sold for ABGF, implying an aggregate gain of EGF. The total increase in producer surplus from making quota transferable across county lines (in this two-county example) is therefore GIJK + EGF. The analysis extends in a straightforward manner to a larger number of counties. Equivalent results can be obtained using demand functions for peanut quota (not shown) that derive from the prices and cost curves in Figure 2.

When the expected level of production in a county is equal to that county’s quota allocation, the identification of points on county-level demand curves for quota is accomplished by subtracting quota

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10 Note that in Figure 2, making quota transferable across counties reduces the production of additionals but does not alter the production of quota peanuts. Total production of edibles is still \( 2Q_0 \) with \( q_2 \) being produced in county 2 and \( q_1 \) being produced in county 1. In this instance, production of additionals falls to zero. We demonstrate in the Appendix that only if the total quantity of quota were small enough to raise its price to \( P_s - P_w \) would there be production of additionals in the unrestricted equilibrium.
lease rates from the edible support price at the quota quantity. When the expected level of production in a county exceeds that county's quota allocation—that is, when additions are produced—the actual level of production (adjusted for variation due to weather conditions) combined with the contract price for additions (the average price at which additional peanuts are sold for in the export market, an empirical proxy for \( P_w \) in Figures 1 and 2) can be used to identify points on county-level marginal-cost curves.

The provision in the peanut program allowing for the production of additions requires consideration of distinct scenarios for the welfare analysis of quota transfer restrictions. Two cases other than that illustrated in Figure 2 are important for present purposes. First, suppose in Figure 2 that \( MC_1 \), the marginal cost of production in the low-cost county, exceeded \( P_w \) at the quota output level \( Q_q \). Then, with restrictions on the transfer of quota across county lines, neither county would produce additions. In this case, the welfare gains from allowing intercounty transfer of quota are measured in exactly the same manner as for the tobacco program (see Rucker, Thurman, and Sumner). Second, suppose that \( MC_2 \), the marginal cost of production in the high-cost county, is less than \( P_w \) at the quota output level \( Q_q \). In this case, and in the presence of restrictions on the transfer of quota, both counties produce additions. This implies that the marginal costs of production are equal across counties and that no welfare gains result from allowing the intercounty transfer of quota.

III. Quota Transfer Post-FAIR: Empirical Analysis

11 In such instances, the estimation of the marginal costs of production is essentially identical as for tobacco. See Rucker, Thurman, and Sumner for a detailed discussion of the estimation procedure in the tobacco context.
Substantial amounts of quota have migrated across county lines since the 1996 Act. Table 1 reports a measure of quota movement for each of the seven major peanut producing states. The National Agricultural Statistical Service (NASS) reports county-level data on effective quota, which includes the quota owned in a county and the quota that is leased in from other counties. Thus, post-1996, it includes all quota that has been transferred via lease or sale. The economic model from the previous section suggests that quota will move to equalize lease rates across counties. Low lease rate counties should include those that fail to meet or just meet their quota. High lease rate counties should include those that regularly produce additionals. If it were known in advance that a county would fail to meet its quota, the lease rate should be zero. If it were known in advance that additionals would be produced, the lease rate should equal the full difference between the support price and the world export price. If it were known in advance that the county would exactly hit its quota but no more, the lease rate would fall between these values.

These arguments suggest an elementary prediction: that the lifting of transfer restrictions should result in a movement of quota out of counties that under produce their quota. A regression of changes in county quota on additionals production, then, should have a positive slope. The prediction of the model is asymmetric. It is additionals producing counties to which transferred quota will flow, but there is no necessary connection between the extent to which an additionals-producing county overproduces its quota and the extent of its quota inflow. All additionals-producing counties are equally likely candidates for absorbing quota. Therefore, if one regresses changes in quota (from before to after the lifting of transfer restrictions) on a measure of the tendency to produce additionals, one should find a positive slope larger than one for under producing counties and no slope for additionals producing
counties.

We test these empirical predictions in a series of regressions reported in table 2. The empirical specification is:

\[
\bar{Q}_{2000}^i \& \bar{Q}_{1995}^i \cdot \alpha \% \sum_{k=1}^{n} D_{ik} \% \alpha (q_{1995} & \bar{Q}_{1995}^i) \% \sum_{k=2}^{n} D_{ik} (q_{1995} & \bar{Q}_{1995}^i) \% \alpha_i,
\]

where \( \bar{Q}_i \) denotes the level of effective quota in county \( i \) in year \( t \), \( q_i \) denotes the level of production in county \( i \) in year \( t \), and the \( D_{ik} \) are county dummy variables. The regressions are run separately for each state.

The dependent variable is the change in effective quota between 1995 (the last year pre-FAIR) and 2000. This spans the lifting of transfer restrictions and allows five years for quota movement. The independent variable is additionals production in 1995: total peanut production less effective quota in that year. This is an imperfect measure. What we would like is an \textit{ex ante} measure of additionals production instead of actual additionals production in a specific year. In the same way that using current income in a Keynesian consumption function biases the estimates of the consumption response to a change in permanent income, our specification should bias downward the estimated effect of a change in additionals production. We currently are gathering and verifying data on multiple pre-FAIR years, which will allow us to substitute an average of additionals production over time for the measure that we use in the table 2 regressions.

The regression results in table 2 are remarkably consistent with the predictions of the model. In
all states except for Florida and Virginia, the coefficient on additionals production for under producing counties is greater than one with a t-ratio greater than 3. The lack of significance of the coefficient in the case of Florida is hardly surprising given that there were only three counties in the state that failed to produce additionals in 1995. The $R^2$ statistics for several of the states are quite high, particularly so for Oklahoma and Texas, in which high proportions of counties under produced their quota. The coefficients just discussed are mostly significantly greater than one statistically as well.

Just as the coefficients for under-quota counties are consistent with the predictions of the model so too are the coefficients for over-quota counties. The model predicts no particular relation for the over-quota counties and the table 2 results bear this out. In all cases except for Oklahoma and Texas, the slope of the regression through over-quota counties is statistically indistinguishable from zero. The Texas and Oklahoma coefficients are significantly positive, but much less so (and statistically significantly less so) than are the coefficients for under-quota counties. The data are plotted along with the estimated regression lines in Figure 3.

The county-level panel data allow the imposition and testing of various homogeneity restrictions. In particular, we tested for the equality of regression slopes across states, both for under-quota counties and over-quota counties. All such tests rejected at conventional levels. We also estimated more general versions of the table 2 regressions. The hypothesis that over-quota counties should have a different relation between quota movement and over-quota production than should under-quota counties requires the identification of those counties that are over-quota.\footnote{In fact, a dichotomy between two types of counties is, perhaps, overly simplistic. Farmers might better be thought of as planting so as to maximize expected profits or expected utility. Farmers}
criterion that over-quota counties produced peanuts in excess of their quota in 1995. One could also identify over-quota counties as those that produced more than \((100+x)\%\) of their quota in 1995. We estimated these switching regression models, varying \(x\) between -40 and +50. By calculating the likelihood value for each value of \(x\) over a grid, we estimated by maximum likelihood the cutoff \(x\). Remarkably, the maximum likelihood estimate of \(x\) is 0 and it is fairly precisely estimated. By inverting the likelihood ratio statistic (see Meeker and Escobar, 1995) an approximate 95% confidence interval for \(x\) is (-7.1, 10.3). Clearly, the slope of the relationship changes, and changes near a level of production approximately equal in percentage terms to a county’s quota.

IV. Production Changes Post-FAIR

The U.S. peanut industry has been hit by large shocks over the last half decade. The North American Free Trade Agreement and the World Trade Organization negotiations directly increased imports of peanuts and peanut products into the United States, reducing the demand for U.S. peanuts. While the U.S. peanut program still is intact, both support prices and quota levels are down by 10% below pre-Fair levels. These factors have led to changes in regional levels of peanut production.

Table 1 and figure 4 summarize changes in the geography of production since FAIR. To capture effects pre- and post-FAIR we compare the 1994-1995 period with the 1999-2000 period. The largest producing states are Georgia and Texas, but their stories are dramatically different. While the traditional front runner, Georgia, produced more than 1.3 billion pounds in 2000, its production declined by 16% over the 1994-2000 period. Production in number two Texas was 675 million
pounds in 2000, representing a remarkable 40% increase from pre-FAIR levels. (Even more remarkable were the levels of production in Texas in the late 1990's, which reached 900 million pounds before dropping sharply in 2000.) The growth in Texas production is remarkable because it is unique among the states. Total national production declined by 8% over the 1994-2000 period. Among other peanut-producing states, only Florida (which grew by 16%) saw positive growth. Notably, Texas’ neighbor state of Oklahoma produced 31% fewer peanuts in the later period than in the earlier period.

Post-FAIR movements in quota were the subject of the previous section. Quota relocation tends to equalize lease rates across counties and shifts production out of counties that either fail to meet quota or just barely meet quota in a typical year. Such movement makes peanut growing less profitable and reduces production in counties from which quota migrates. It also increases the income to quota owners in those same counties. But, the movement of quota cannot explain the production increases we have seen in Texas, or the declines in most other states. What drives changes in national and state production levels is the profitability at the margin of peanut operations: the profit from producing peanuts for the export market.

Because Texas quota production has been a constant proportion of the fairly constant national quota, the increase in Texas production has come entirely in the form of additional peanuts, produced either for the export or crush markets. Additionals production in Texas increased from 85 million pounds to almost 600 million pounds over the 1995-1999 period before dropping to about 350 million pounds in 2000. Prices received for those peanuts averaged just over $300 per ton, compared with a current quota support price of $610 per ton.

Apart from the dramatic growth in production, there have been major shifts in the location of
production in the post-FAIR period (see figure 5). The greatest growth has occurred in the High Plains area, containing Yoakum, Terry, Gaines, Dawson, and Collingsworth counties. The High Plains area, irrigated out of the Ogallala aquifer, increased its total production by 540 million pounds between 1995 and 1999. Quota production in the region has grown only by about 100 million pounds.

At the same time that the High Plains dramatically increased its acreage and production, the two other producing regions in the state declined. Peanut production in the Rolling Plains, southeast of the High Plains and stretching from Abilene to Dallas, almost disappeared over the 1995-1999 period declining from 168 million pounds to 32 million pounds. Quota fled the area at the same time, falling from 237 million pounds to 92 million pounds. (Notice that the Rolling Plains under produced its quota both at the beginning and at the end of the period.) The third major producing region, the Coastal Bend (including Frio and Atascosa counties) receives more rainfall than the High Plains and irrigation there is less critical. The Coastal Bend saw much of its quota leave, a decline from 167 million pounds of quota in 1995 to 85 million pounds in 1999. Production in the Coastal Bend declined more moderately, from 127 million pounds to 102 million pounds.

The movement of both production and quota away from the Rolling Plains and Coastal Bend and toward the High Plains suggests that quota migrated out of counties that produced only their quota (or less) prior to 1996. As a result of the loosening of transfer restrictions, a county in which quota rental rates were near zero prior to 1996 can be expected to have reduced both its total production and quota production, with the reduction in quota typically larger than the reduction in production. This is what we see in both the Rolling Plains and the Coastal Bend.

The geographic shifts just described imply a dramatic concentration of production in a small
number of counties. The counties that have gained the most are those already mentioned: Dawson, Gaines, Terry, Yoakum, and Collingsworth in the High Plains and Frio and Atascosa in the Rolling Plains. The five biggest peanut-producing counties in 1999 almost quadrupled production over 1995 levels. Compare this to the state-wide increase in production, which represents just a doubling.

The share of state production held by the five large counties in 1995 was 29%. In 1999 the five-county share grew to 66%. The production shares of the next five biggest producing counties, numbers six through 10, declined modestly over the 1995-1999 period, but the bulk of the increase in the share of top-five county production came from a dramatic reduction in the share of production from the smallest 100 peanut producing counties. These smallest producers accounted for almost half of peanut production in 1995. By 1999, their share had fallen to under 20% and their tonnage of production had declined in absolute terms as well.

What are the reasons for the rapid growth in Texas and, in particular, in the High Plains? Was it related to the FAIR Act? Four reasons that market observers cite are (1) the availability of water in Texas; virtually all of the Texas growth has come about in irrigated acreage, (2) a greater resistance to disease in Texas because peanuts are grown on land that has not recently been planted in peanuts, (3) the development of new larger harvesting equipment, and (4) a decline in cotton prices, an alternative crop to peanuts in Texas. But in order to explain the Texas phenomenon, there must have been changes in these factors over the last several years. As a wise man once said, you can’t explain change with a constant. This principle would rule out explanations (1) and (2)–water did not just recently become available in Texas nor is the resistance to disease a recent development. Moreover, a useful explanation must be consistent with the fact that production did not dramatically increase in other states
over the same period. The development of new equipment, explanation (3), should have had similar effects elsewhere.

Perhaps the most convincing explanation is the fourth, that cotton in the High Plains has become less profitable and that irrigated peanuts are an attractive substitute crop for irrigated cotton. A look at the data supports this interpretation: irrigated cotton acreage has declined in the High Plains by roughly the same amount as irrigated peanut acreage has grown. (Acreage in dryland cotton has not declined, but that is because it is grown in rotation with peanuts.) Important factors responsible for the shift out of cotton include increased costs in the High Plains associated with an increasing boll weevil problem and lower market prices for cotton. Part of the decline in the profitability of cotton may also be attributed to FAIR, which by eliminating target prices and deficiency payments may have reduced incentives to produce. The cotton connection can explain the trend in the High Plains area but does not apply to other producing regions in Texas, in which peanut acreage actually has declined. In the other regions, cotton and peanuts are not such natural substitutes. Production conditions and changes in these regions are more similar to other states, with peanut production post-FAIR either growing modestly or declining.

Will the Texas share of national peanut markets continue to grow? To the extent that the declining profitability of cotton has abated, the shifts out of cotton acreage will be a one-time phenomenon. In fact, one could point to 2000 production in Texas as an indication that the phenomenon has peaked: Texas’ share of national peanut production fell in 2000, for the first time in five years, from 24% to 21%. However, planted acreage was at an all-time high and the production decline was due to poor yields. Further, recent investments in peanut handling infrastructure in the High
Plains could constitute a base for further growth in peanuts. Tempering any prediction must be the fact that new farm legislation is not far off and, if incentives to produce cotton are restored, the balance could tilt in cotton’s favor in Texas once again.
Table 1: Peanut Production by State: Before and After FAIR

<table>
<thead>
<tr>
<th>State</th>
<th>2000 Production (millions of pounds)</th>
<th>Change in Production*</th>
<th>Percent of State Quota Moving Across County Lines**</th>
</tr>
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<tbody>
<tr>
<td>Georgia</td>
<td>1,339</td>
<td>-16%</td>
<td>9%</td>
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<tr>
<td>Texas</td>
<td>675</td>
<td>40%</td>
<td>53%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>357</td>
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<td>9%</td>
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<tr>
<td>Virginia</td>
<td>214</td>
<td>-13%</td>
<td>7%</td>
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<tr>
<td>Florida</td>
<td>205</td>
<td>16%</td>
<td>8%</td>
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<tr>
<td>Oklahoma</td>
<td>131</td>
<td>-31%</td>
<td>36%</td>
</tr>
<tr>
<td>U.S. Total</td>
<td>3,288</td>
<td>-8%</td>
<td></td>
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</tbody>
</table>

* Pre-FAIR production is the average of production in years 1994 and 1995. Post-FAIR production is the average of production in years 1999 and 2000.

** Quota movement is measured as the net change in effective quota in quota-increasing counties between 1995 and 2000.
Table 2. Explaining Cross-County Quota Movement with Additionals Production: Linear Regressions by State

Dependent Variable: Change in Quota, 1995-2000

<table>
<thead>
<tr>
<th>State</th>
<th>1995 Additionals Production (For Counties Under Quota)</th>
<th>1995 Additionals Production (For Counties Over Quota)</th>
<th>R²</th>
<th>Number of counties</th>
<th>Number producing additionals</th>
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<td>Coefficient</td>
<td>Standard Error</td>
<td>Coefficient</td>
<td>Standard Error</td>
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<td>.47</td>
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<tr>
<td>North Carolina</td>
<td>4.96'</td>
<td>(1.10)</td>
<td>-.29</td>
<td>(.22)</td>
<td>.48</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>1.50''</td>
<td>(.14)</td>
<td>2.62''</td>
<td>(.52)</td>
<td>.84</td>
</tr>
<tr>
<td>Texas</td>
<td>1.62''</td>
<td>(.22)</td>
<td>.81'</td>
<td>(.07)</td>
<td>.70</td>
</tr>
<tr>
<td>Virginia</td>
<td>.54</td>
<td>(.32)</td>
<td>.06</td>
<td>(6.34)</td>
<td>.36</td>
</tr>
</tbody>
</table>

Key:
* denotes rejection of H₀: â=0 against Hₐ: â>0 at a significance level less than .01.
† denotes rejection of H₀: â=1 against Hₐ: â>1 at a significance level less than .01.
Figure 1

Peanut Production
Within a County
Figure 2

The Effects of Allowing Intercounty Transfer of Peanut Quota
Figure 3. Scatter Plots for the Table 2 Regressions

Thousands of Pounds

Alabama

Florida

Georgia

North Carolina
Figure 3–continued. Scatter Plots for the Table 2 Regressions

Thousands of Pounds

Oklahoma

Texas

Change in Quota, 1995 to 2000

Change in Quota, 1995 to 2000

Virginia

Change in Quota, 1995 to 2000

Change in Quota, 1995 to 2000

Overs-Quota Production in 1985

Overs-Quota Production in 1985

Overs-Quota Production in 1985

Overs-Quota Production in 1985
Figure 4.

Changes in Peanut Production Since FAIR

- Large Increase (39%)
- Small Increase (16%)
- Small Decrease (-13% to -23%)
- Large Decrease (-30%)
Shifts in Texas Production
Since the FAIR Act
References


