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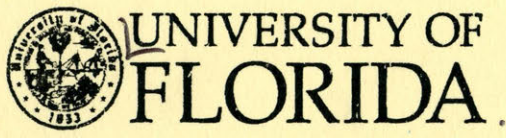
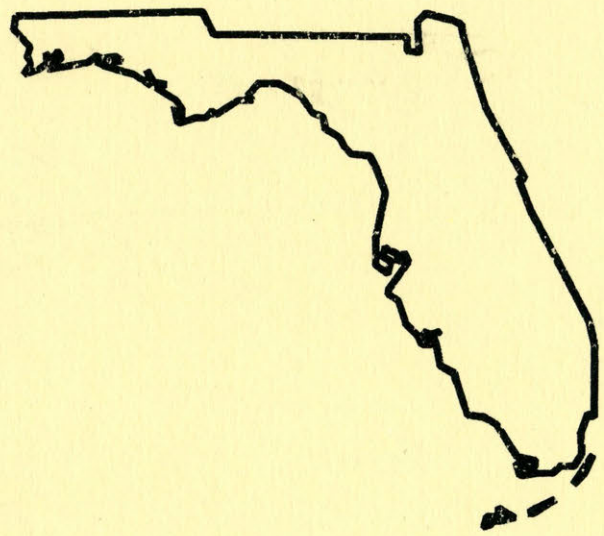
ER 02-8

Richard Beilock
Sikavas NaLampang

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Trends In Florida Produce Shipments: 1985-1998

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August 2002

TRENDS IN FLORIDA PRODUCE SHIPMENTS: 1985-1998

by

Richard Beilock and Sikavas NaLampang

Abstract

The final two decades of the 20th Century are widely regarded as being turbulent, difficult times for Florida's producers of fresh fruits and vegetables. Particularly in southern Florida, urban growth continued to take agricultural land. Environmental regulations constrained farmer activities. Weather, always a variable, brought several severe freezes in the 1980s which destroyed crops and sharply curtailed citrus production north of Orlando. In 1992, Hurricane Andrew wreaked destruction on South Florida crops, destroyed many Lemon trees and nearly wiped out Florida's Lime industry. Perhaps most troubling, at least most newsworthy, it was a time of increasing penetration of U.S. markets by imports. To gain some insights into how Florida producers have fared in the face of these challenges, trends in Florida produce shipments will be examined from 1985 through 1998. In addition to the overall volume of shipments, seasonal patterns will be addressed and information presented on Florida's market share for the nation as a whole as well as sub-regions.

Keywords: Florida produce, shipping trends, market shares

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INTRODUCTION

The final two decades of the 20th Century are widely regarded as being turbulent, difficult times for Florida's producers of fresh fruits and vegetables. Particularly in southern Florida, urban growth continued to take agricultural land. Environmental regulations constrained farmer activities. Weather, always a variable, brought several severe freezes in the 1980s which destroyed crops and sharply curtailed citrus production north of Orlando. In 1992, Hurricane Andrew wreaked destruction on South Florida crops, destroyed many Lemon trees and nearly wiped out Florida's Lime industry. Perhaps most troubling, at least most newsworthy, it was a time of increasing penetration of U.S. markets by imports. Between 1985 and 1998, Canada's market share in the U.S. increased by three quarters, Chile's by half, Mexico's more than doubled, and the share for all other imports rose by a third. Arguably contributing to rising imports were the Free Trade Agreement between Canada and the U.S., which came into force in 1989, and the addition of Mexico five years later (in 1994) in the North American Free Trade Agreement.¹ Finally, in the mid-1990s U.S. growers, particularly those in Florida, alleged that Mexico was dumping tomatoes in the U.S. market.

To gain some insights into how Florida producers have fared in the face of these challenges, trends in Florida produce shipments will be examined from 1985 through 1998. In addition to the overall volume of shipments, seasonal patterns will be addressed and information presented on Florida's market share for the nation as a whole as well as for sub-regions. It should be stressed that the presentation employs data on the volume, but not the value, of produce shipments.

DATA AND METHODOLOGY

Data for this study come from three USDA annual publications:

Fresh Fruit and Vegetables Shipments: By Commodities, States, and Months

Fresh Fruit and Vegetable Arrivals in Eastern Cities

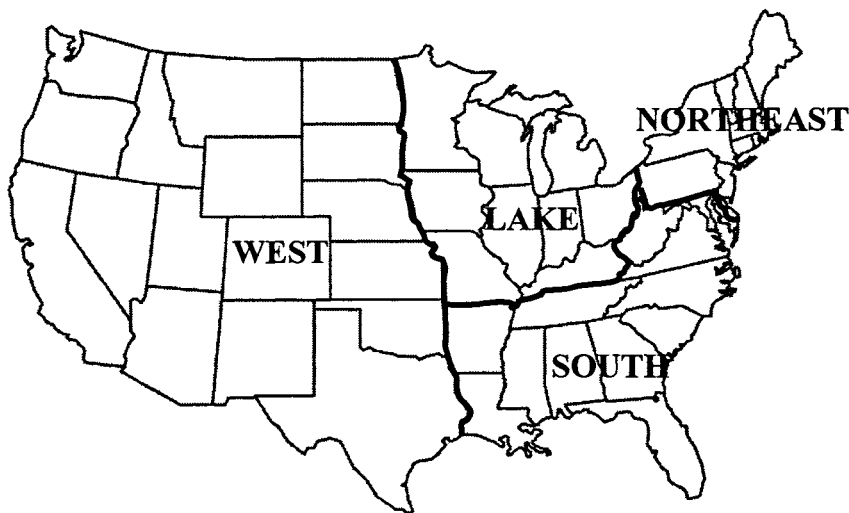
Fresh Fruit and Vegetable Arrivals in Western Cities

The first publication, hereafter called SHIPMENTS, contains information on the total volume of shipments, by month and commodity, from each U.S. state, as well as volumes imported into the U.S. by country. In practice, SHIPMENTS tends to underreport intrastate shipments. This was adjusted for using a procedure described in Beilock et al.. The two other publications, hereafter called ARRIVALS, report the volumes of produce arriving at selected cities across the U.S. by state or country of origin. Using an approach described in Beilock et al. and tested by Beilock

¹ The extent to which these trade agreements have actually contributed to increased penetration into U.S. produce markets is open to debate, see, for example, Beilock, Espinel, and NaLampang.

and Portier, ARRIVALS and population data were used to determine the distribution across four regions in the U.S. of shipments from a state or importing country.² The destination regions are presented in Figure 1.

Figure 1: Destination Regions



The fresh vegetables examined in this study are:

- | | | |
|----------|--------|------------|
| Cabbage | Celery | Cucumbers |
| Potatoes | Squash | Sweet Corn |
| Tomatoes | | |

The fresh fruits are:

- | | | |
|------------|---------|-------------|
| Grapefruit | Oranges | Watermelons |
|------------|---------|-------------|

In addition, results are presented for All Produce, which is the sum of all produce types, including but not limited to the ten listed above.

Beginning with All Produce, for each category figures are presented showing the following:

Index of Total Shipments: The total annual volume of shipments by Florida producers presented as an index, with 1985=100.

Florida's Market Share in U.S. and by Region: The market shares accounted for by Florida presented for the U.S. and for each of the destination regions.

² Regrettably, data for the ARRIVALS series has not been collected since 1998.

It should be noted that movements in Florida's market share for the U.S. may differ from movements in total shipments due to factors such as population growth, which may alter the total volume of a commodity delivered to U.S. markets from all producers, domestic and foreign. In addition, the Index of Total Shipments includes products shipped to Canada and other countries, while the U.S. market share analysis does not. So if the percentage of all Florida shipments exported rises (falls) the trend in total shipments would tend to be higher (lower) than the corresponding trend in Florida's U.S. market share.

Florida's market share in a region may change due to changes in total deliveries from all sources to that region and, in addition, to changes in the percentage of Florida's product going to that region.

Regional Market Shares Relative to U.S. Market Share: The size of Florida's market share in each region, relative to Florida's U.S. market share, displayed as an index with 1985=100.

The intent of these figures is to reveal in which regions Florida's market share is growing or shrinking faster than for the country as a whole. A score above (below) 100 indicates that the trend in Florida's market share in that region is better (worse) than for Florida's market share for the country as a whole.

For example, suppose in 1985 Florida's market share in the U.S. for commodity X is 40 percent, but it is only 20 percent in the Lake States. Then the base, equal to 100, would be for Florida's market share in the Lake States to be half, .5, that for the U.S.. Now, suppose that in 1993 Florida's market share for commodity X in the U.S. had increased to 50 percent and in the Lake States to 30 percent. Florida's market share in the Lake States in 1993 would be 0.6 that for the U.S. ($30/50 = 0.6$). As 0.6 is 20 percent greater than 0.5, the 1993 score would be 120 ($0.6/0.5 * 100 = 120$).

Distribution of Shipments to Regions, 1985 and 1998: These figures present the distribution of Florida shipments across the destination regions for 1985 and 1998.

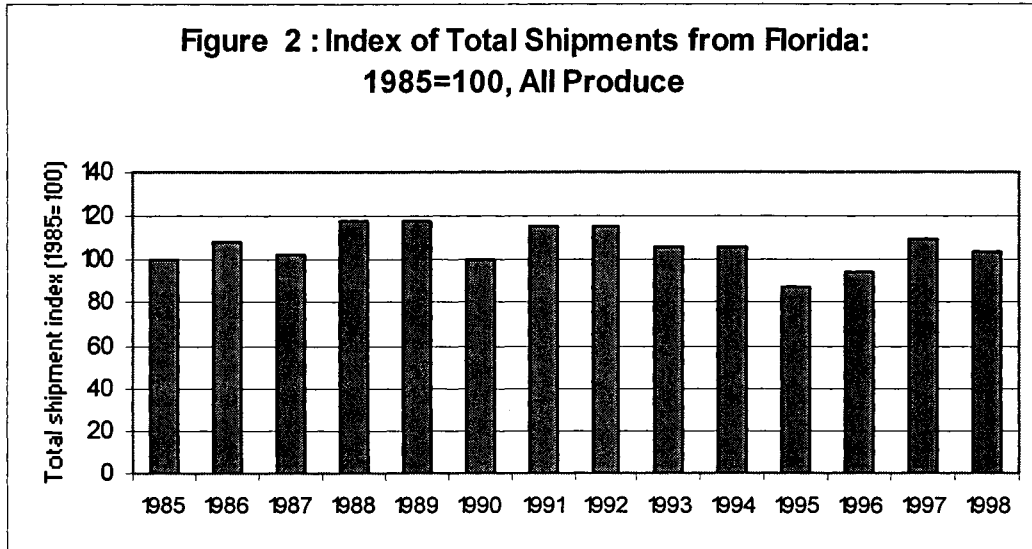
Distribution of Shipments Across Quarters of the Year: The final set of figures present the distribution of Florida shipments across the four quarters of the year for 1985 and 1998.

RESULTS

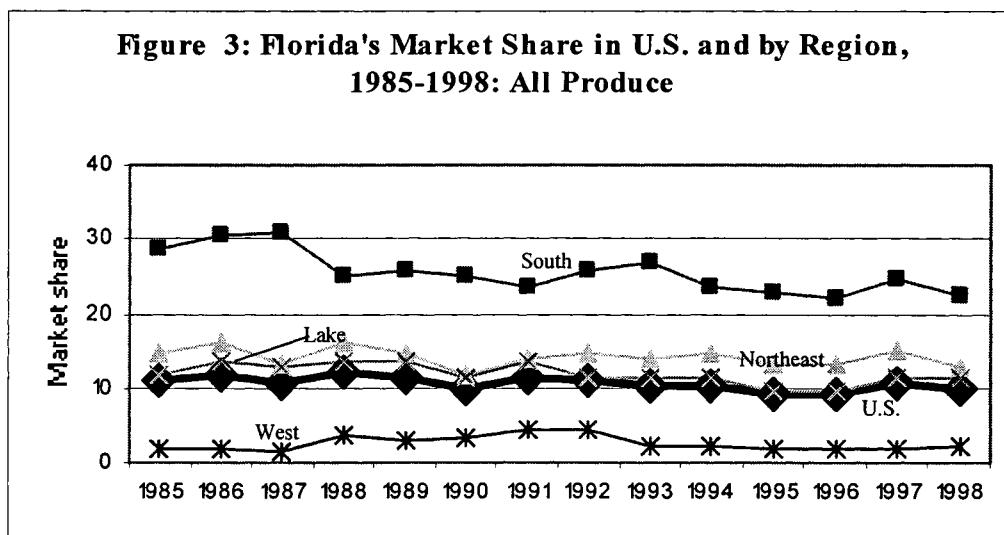
ALL PRODUCE

In Figure 2, an index of the total volume of produce shipments by Florida producers is presented. Despite variable weather, increased imports, and other problems, the total volume of produce shipped by Florida producers has been remarkably constant. In no year did the total volume vary by more than 20 percent of the 1985 level and in most years shipment totals were within 10 percent. Again, the reader is reminded that the index presented is for volume, not value. So revenues received by the Florida industry may have altered up or down over the period.

In addition, while the total shipments from Florida remained essentially unchanged during the period from 1985 through 1998, the U.S. population increased by 13 percent, so market share may have eroded.

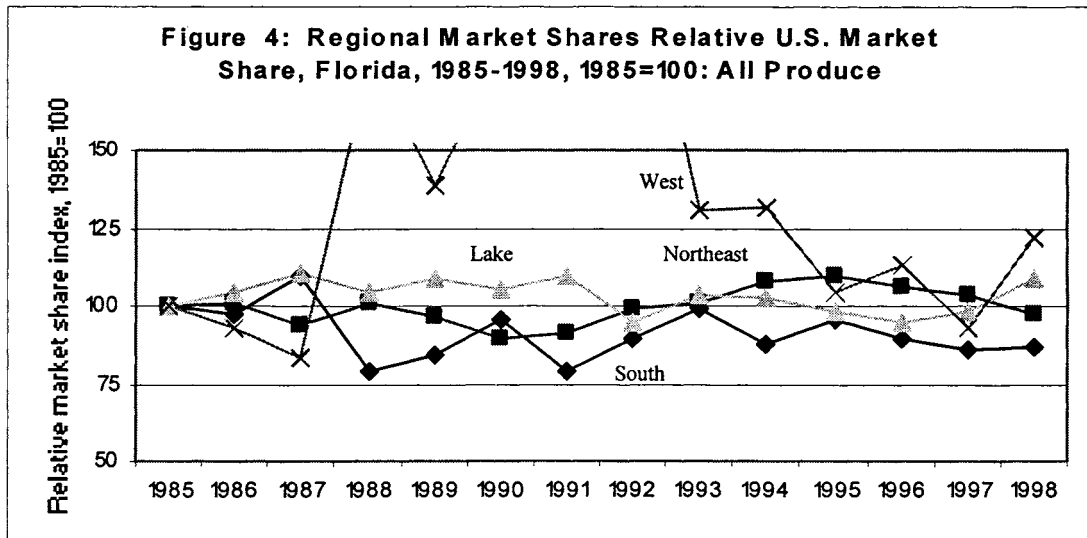


Not surprisingly, given the stability of Florida’s total shipments (see Figure 2), the state’s market share in the U.S. does not vary greatly over the period, see Figure 3. In 1985, Florida supplied just under 11 percent of all produce in the U.S.. By 1998 this had declined, slightly, to about 10 percent.³ Largely due to distance to market and the location of competitors, Florida’s market shares differ markedly across the regions. Florida accounts for about a quarter of produce shipments to the South, but only a few percent of that to the West, with the Northeast and Lake State shares falling between, see Figure 3. This pattern will be repeated for the majority of individual produce types examined.



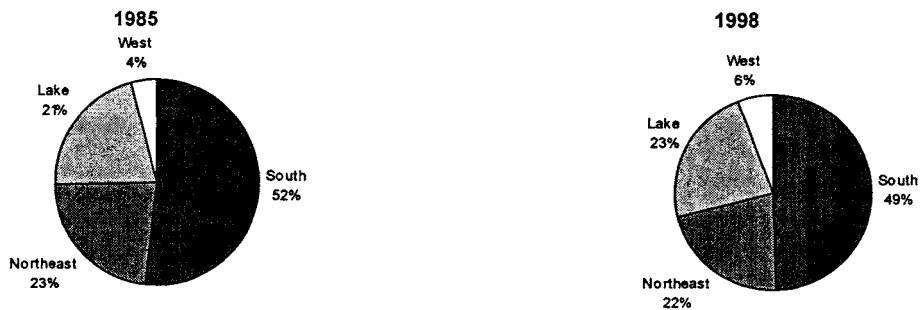
³ In 1998, Florida’s total shipments were 3.5 percent higher than they had been in 1985. The magnitude of the decline in market share suggests that it is largely the result of population growth.

In Figure 4, Florida's regional market share trends are expressed as an index of the U.S. market share, with 1985=100. Again, a score above (below) 100 indicates that Florida's share in that region has grown faster (slower) or declined slower (faster) than Florida's market share for the entire U.S.. The highly variable index for the West primarily reflects Florida's small share in that region. The indices for the Northeast and the Lake States, for the most part, tracked closely to that for the U.S. (i.e., stayed near 100). Beginning in 1991, the index for the South tended to be under 100, indicating that Florida's share in that region eroded somewhat relative to its share for the U.S. as a whole.



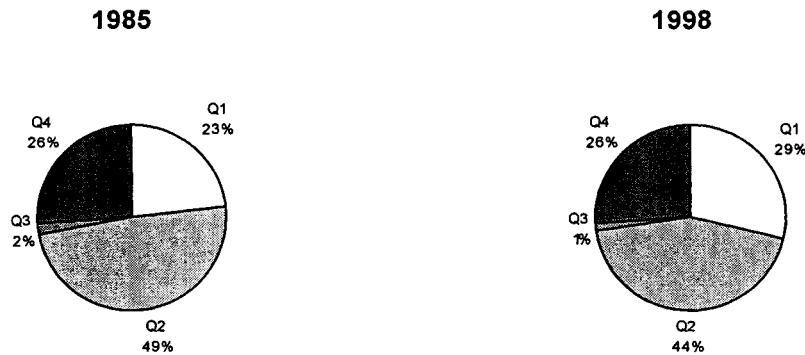
Examination of the distribution of Florida shipments within the U.S. suggests considerable stability, see Figure 5. Notice that, despite the just-described drop Florida's market share in the South, in 1998 nearly the same percent of all Florida's shipments went to that region (52 versus 49 percent in 1985 and 1998, respectively). This reflects rapid population growth in the region, both absolutely and relative to the Northeast and Lake States. From 1985 to 1998, the South's population grew more than four times faster than the Northeast and more than two times faster than the Lake States. As demand levels are largely determined by population, to maintain any level of market share a producer would have to increase absolute shipment levels more to the South than to the other two regions.

Figure 5: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: All Produce



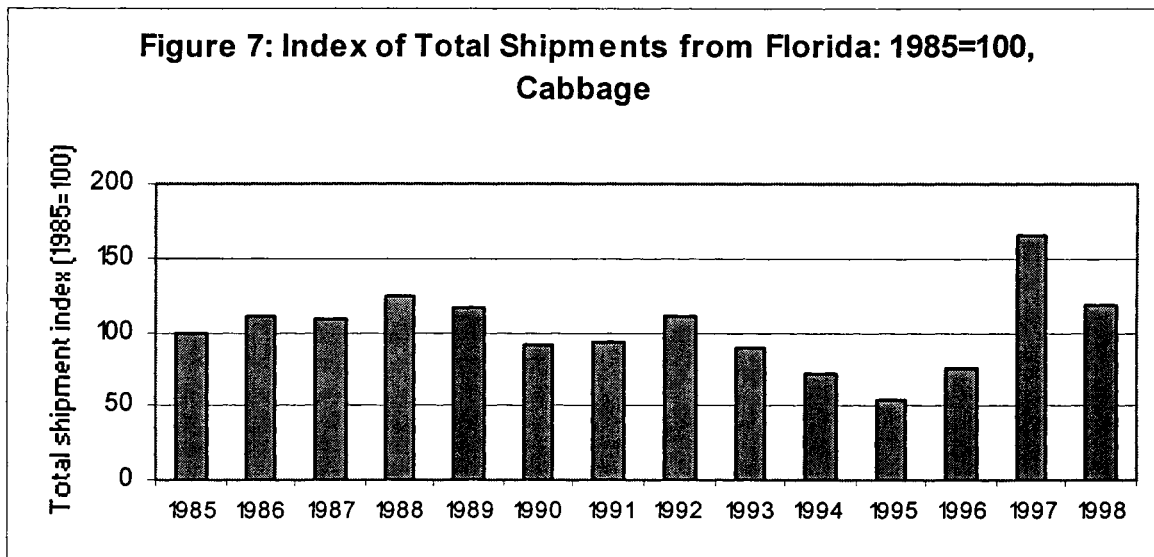
Just as there was little change with regard to the regional distribution of Florida shipments of All Produce, seasonal patterns were largely unchanged, see Figure 6. With between 40 and 50 percent of all shipments, the second quarter (Q2) is by far the important. Reflecting production difficulties during Florida's summer and competition in that season from growers outside the state, shipments during the third quarter (Q3) account for only a few percent of the total. The remainder, normally around half of all shipments, is divided almost evenly between the first and fourth quarters (Q1 and Q4).

Figure 6: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: All Produce

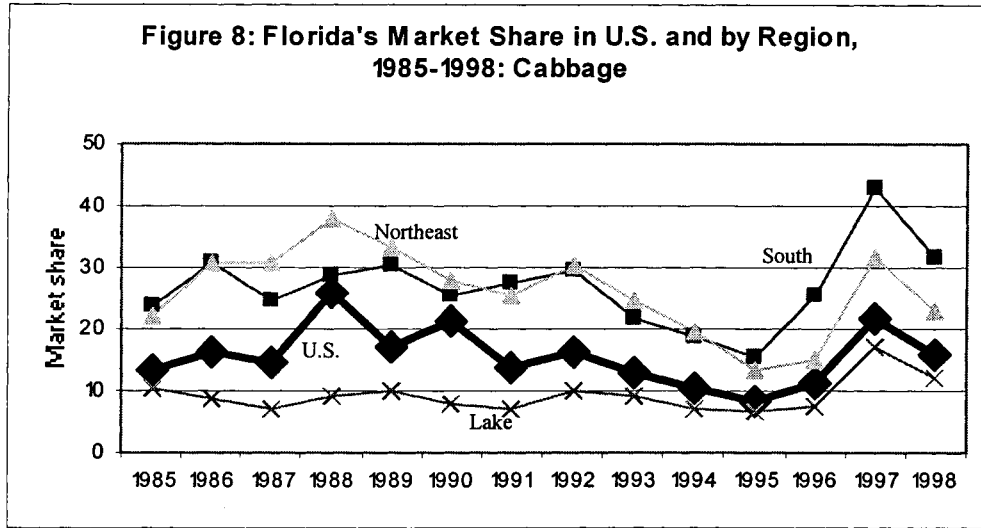


CABBAGE

In 1998, Cabbage accounted for 3 percent of all Florida shipments. As can be seen in Figure 7, shipment levels for Cabbage from Florida remained almost constant from 1985 through 1992 or 1993. By 1995 they had collapsed to almost half their earlier level, but have since recovered and, indeed, gained some ground.

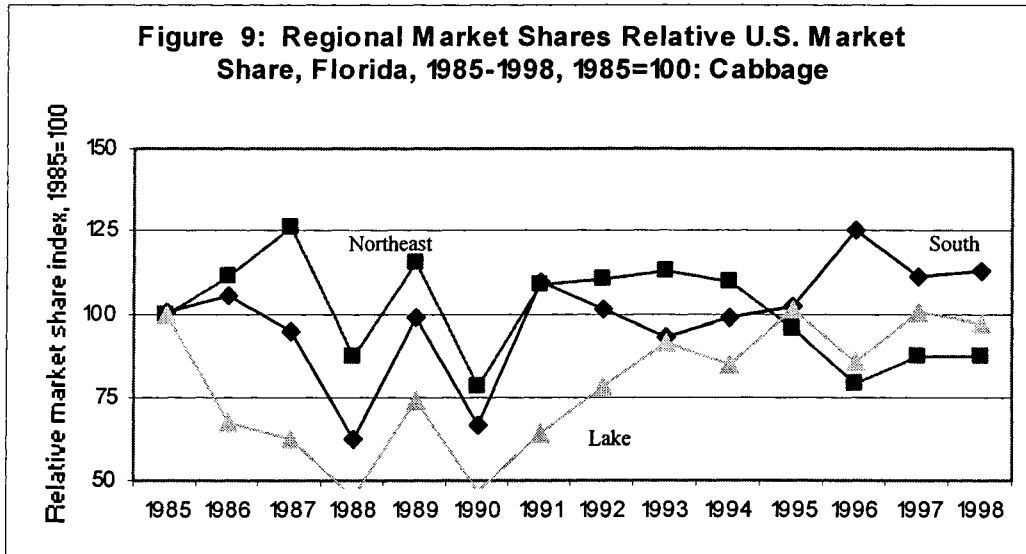


Over the period, Florida's market share for cabbage in the U.S. ranged from a high of 26 percent in 1988 to a third of that level in 1995, see Figure 8. By the end of the period, Florida's market share had returned to near its 1985 level. Throughout much of the period, the region in which Florida had the highest market share alternated between the South and the Northeast. Since the mid-1990s, the market share in the South has been the highest. Shipments to the West were negligible and not presented in Figure 8.



Note: West not shown due to low volume of shipments to the region.

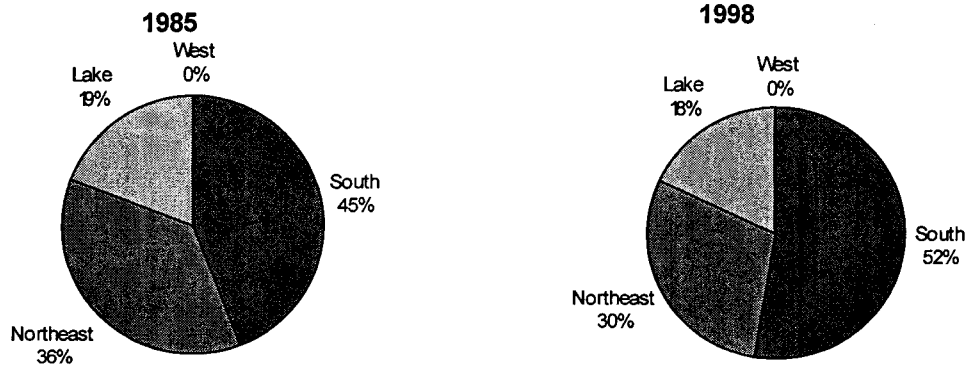
While there was considerable variability until the early 1990s, particularly for the Lake States, in recent years Florida's regional market share trends have tracked closely with its U.S. market share, see Figure 9.



Note: West not shown due to low volume of shipments to the region.

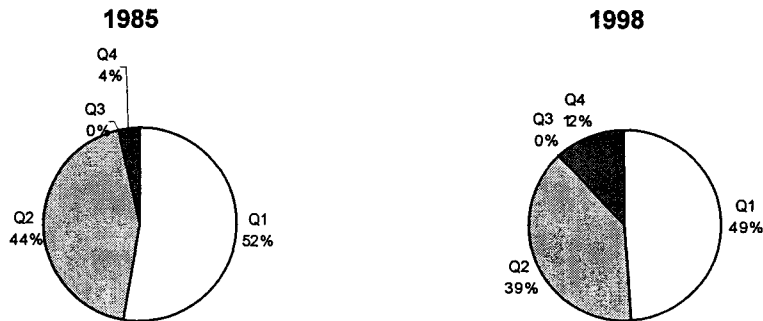
Reflecting both the rise in Florida's market share in the South relative to the Northeast and more rapid population growth in the South, the share of all Cabbage Florida shipped to the South was higher in 1998 than 1985, with virtually all these gains being at the expense of the Northeast, see Figure 10.

Figure 10: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: Cabbage



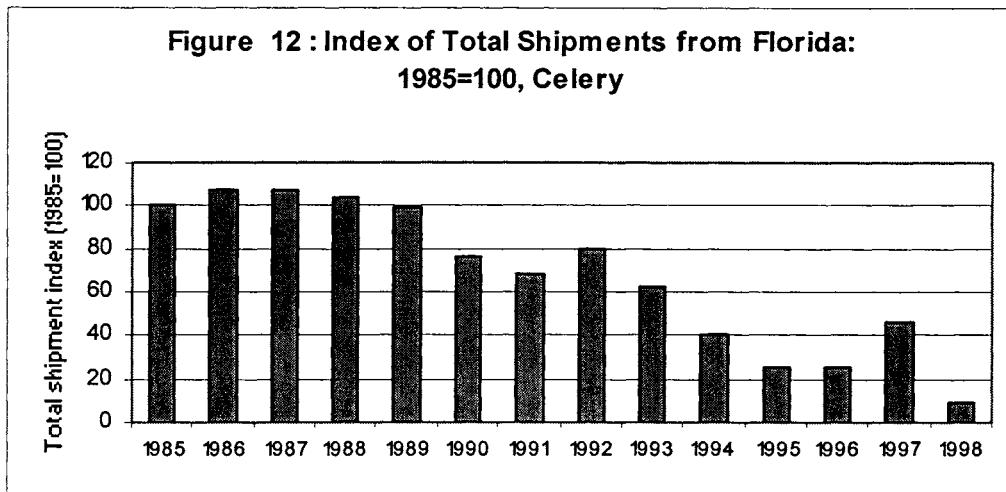
In both 1985 and 1998, Q1 was the most important quarter, followed closely by Q2, see Figure 11. The most notable difference between the two years is that 12 percent of the shipments in 1998 were during Q4, three times that quarter's share in 1985.

Figure 11: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Cabbage

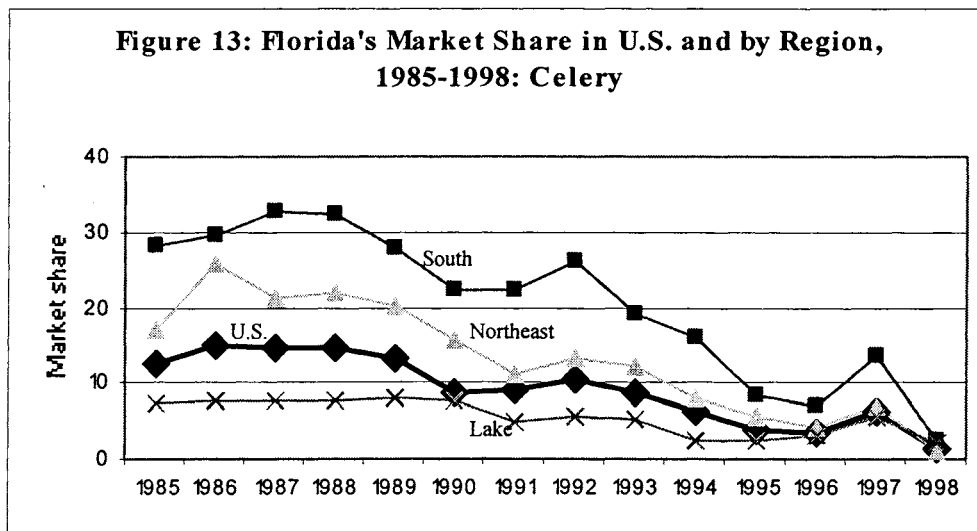


CELERY

Today Celery is an extremely minor crop in Florida, accounting for only 0.4 percent of all shipments in 1998. In 1985, however, Celery's share of all shipments was nearly 10 times higher, between 3 and 4 percent. This is reflected in a sharp and persistent drop, beginning in 1990, in the total volume of Celery shipments by Florida, see Figure 12.



Given the sharp drop in total volumes, it is not surprising that Florida's national and regional market shares for Celery have likewise collapsed, see Figure 13. Information regarding the West is not shown as shipments to this region were negligible throughout the period.

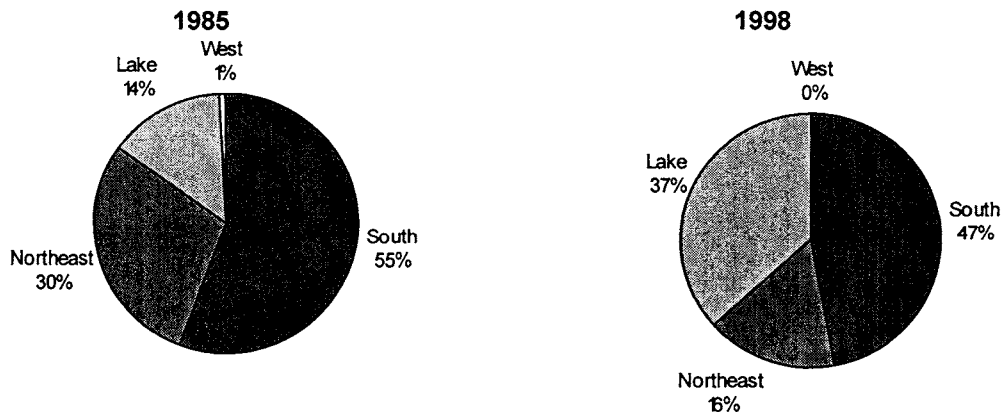


Note: West not shown due to low volume of shipments to the region.

Because of the very low volumes shipped in the mid and late 1990s, indices of the relative trends in Florida's regional and U.S. market shares are extremely volatile and provide little useful information. As such, these results are not shown.

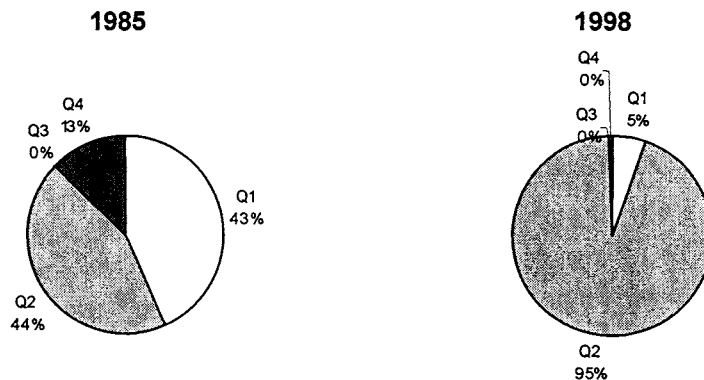
Changes in the regional distribution of Florida Celery are somewhat surprising. Rather than becoming more concentrated in more local markets as total volumes decreased, the percentage of deliveries going to the South has lowered, somewhat, from 55 percent in 1985 to 47 percent in 1998, see Figure 14. Curiously, between 1985 and 1998 the relative importance of the Northeast and the Lake States effectively reversed. However, considering the very small volumes of Celery being shipped from Florida in recent years, little importance should be ascribed to this reversal.

Figure 14: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: Celery



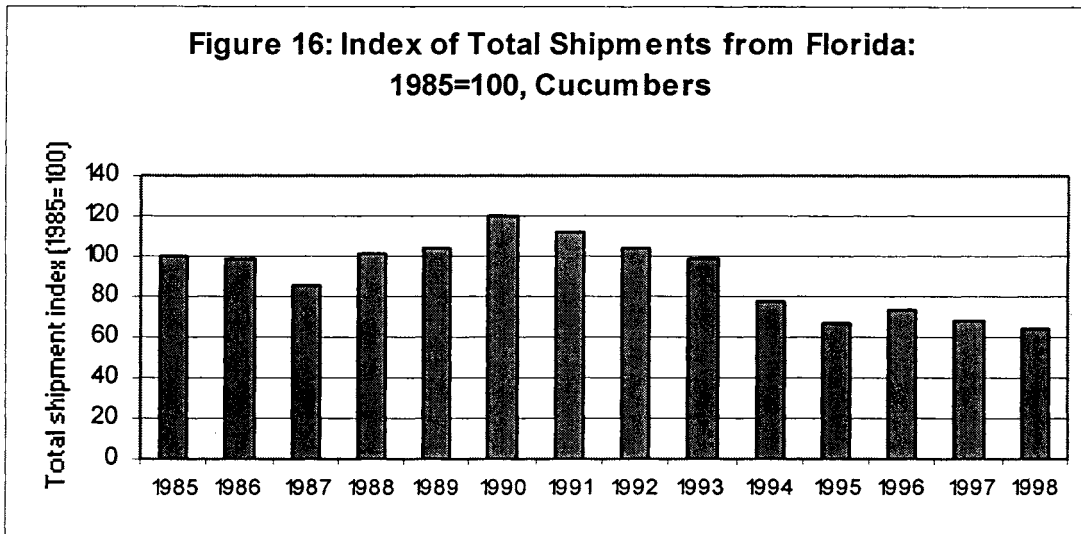
Before the decline in volume, about one eighth of Florida's Celery was shipped in Q4 and the remainder split almost evenly between Q1 and Q2, see Figure 15. By 1998 virtually all shipments were in Q2.

Figure 15: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Celery

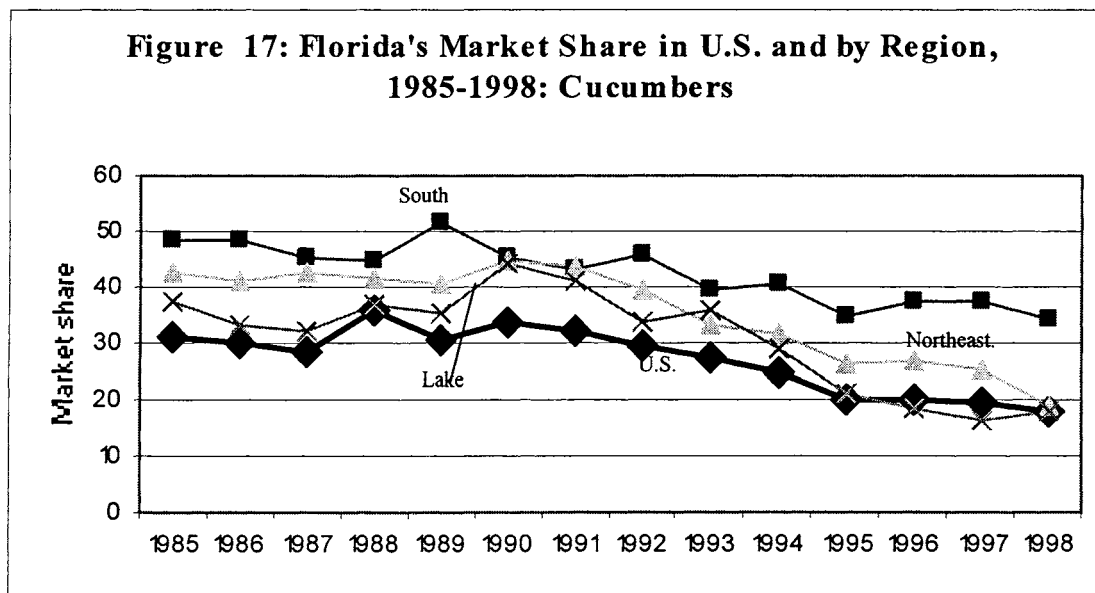


CUCUMBERS

Like Celery, beginning in 1990 Cucumbers declined in importance, though not as precipitously. In 1985, Cucumbers accounted for 4.4 percent of all Florida produce shipments, versus 2.6 percent in 1998. Unlike Celery, Cucumber shipments stabilized in the mid-1990s at 60-to-70 percent of 1985 levels, see Figure 16.

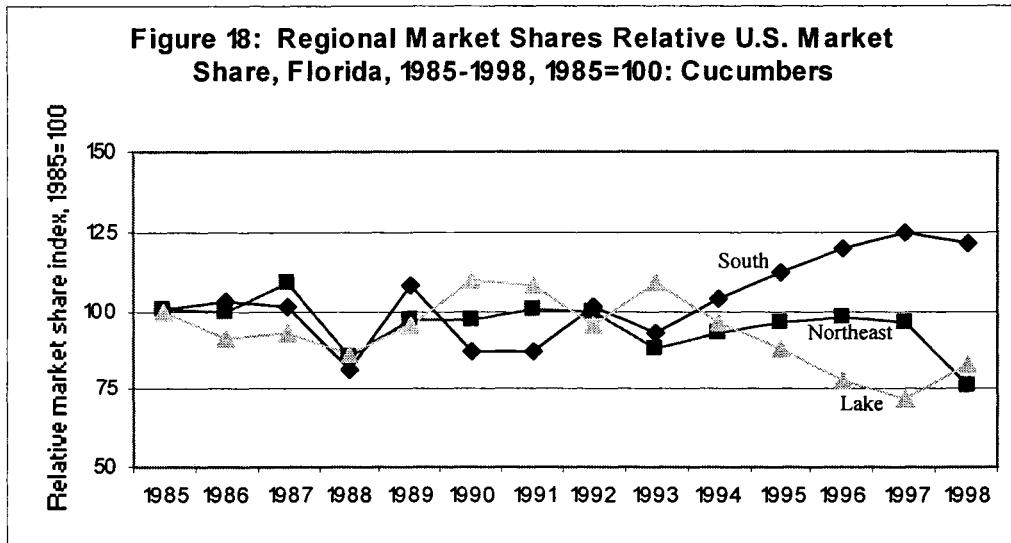


Echoing the trend in total shipments, Florida's share of Cucumbers in the U.S. and the regions drifted downward in the early 1990s, stabilizing around 1995, see Figure 17. The West is not shown because of the negligible shipments and, hence, market share by Florida in that region.



Note: West not shown due to low volume of shipments to the region.

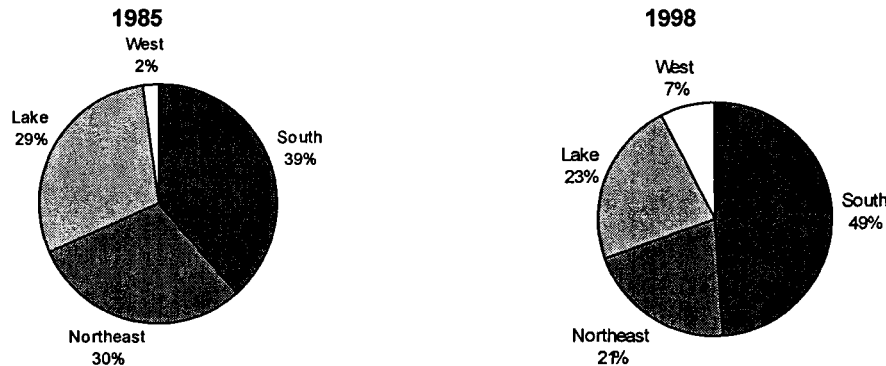
Throughout most of the period, changes in Florida's regional market shares have closely followed that for the U.S.. However, in recent years there has been some tendency for Florida's market share in the South to fare better than its national market share and the reverse in the Northeast and Lake States, see Figure 18.



Note: West not shown due to low volume of shipments to the region.

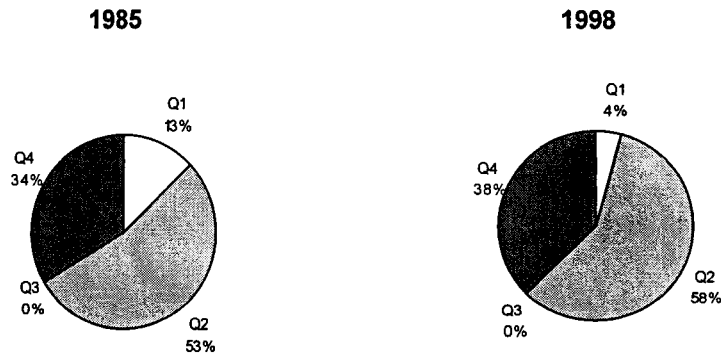
Considering that Florida's market share for Cucumbers in the South has held up better than in the Northeast and Lake States, as well as the faster population growth in the South, the share of all Florida's shipments going to the South increased by a quarter, from 39 percent to 49 percent, between 1985 and 1998, see Figure 19. Of some surprise, the percent of all shipments going to the West more than tripled, from 2 percent to 7 percent.

Figure 19: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: Cucumbers



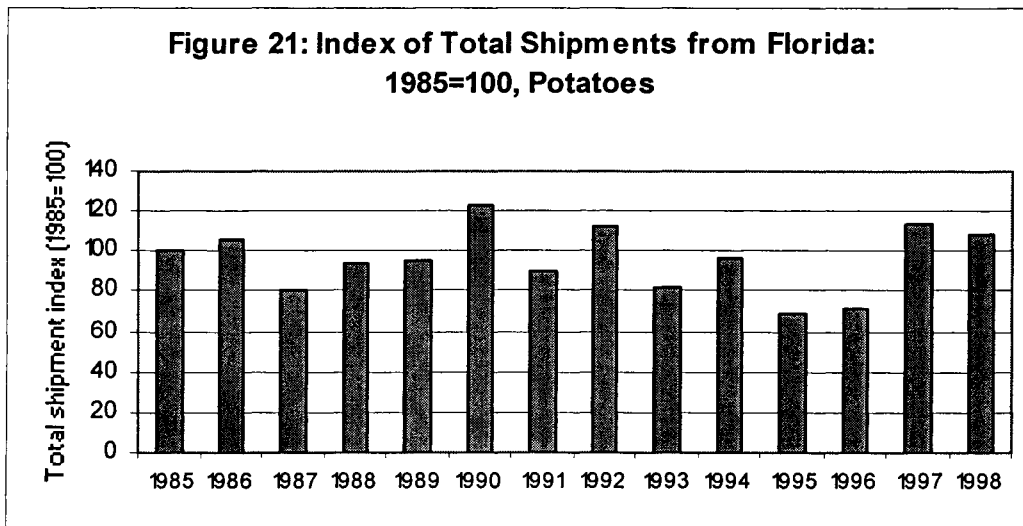
Unlike Celery, the decline in total shipment volumes was not coincident with dramatic changes in the seasonal pattern of shipments, see Figure 20.

Figure 20: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Cucumbers



POTATOES

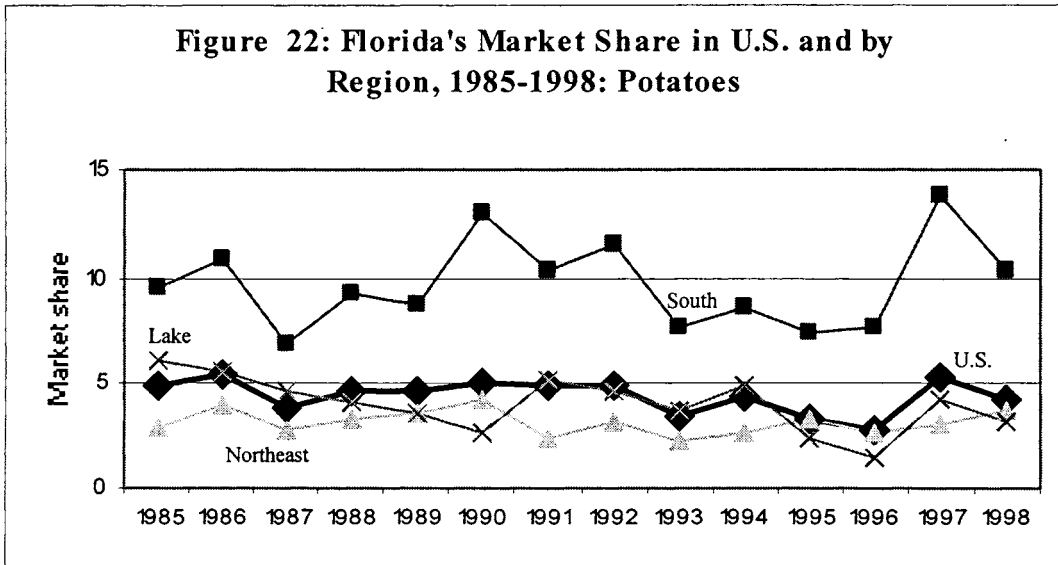
In both 1985 and 1998, Potatoes⁴ accounted for just under 10 percent of all Florida produce shipments. During the period, there were two dips in shipment levels, one in the late 1980s and one in the mid-1990s, see Figure 21.



Nationally, Florida accounted for about 5 percent of all Potato shipments. Shipments of Florida Potatoes to the West were negligible and Florida's market share in the South was roughly twice that for the Northeast and Lake States, see Figure 22. This is not surprising considering that potatoes have a low value per unit weight, which tends to make lengthy transport uneconomical, and that the large majority of the U.S. Potato crop is produced in the northern tier states, particularly those in the West.

⁴ In keeping with USDA practice, both table and chipper potatoes are included.

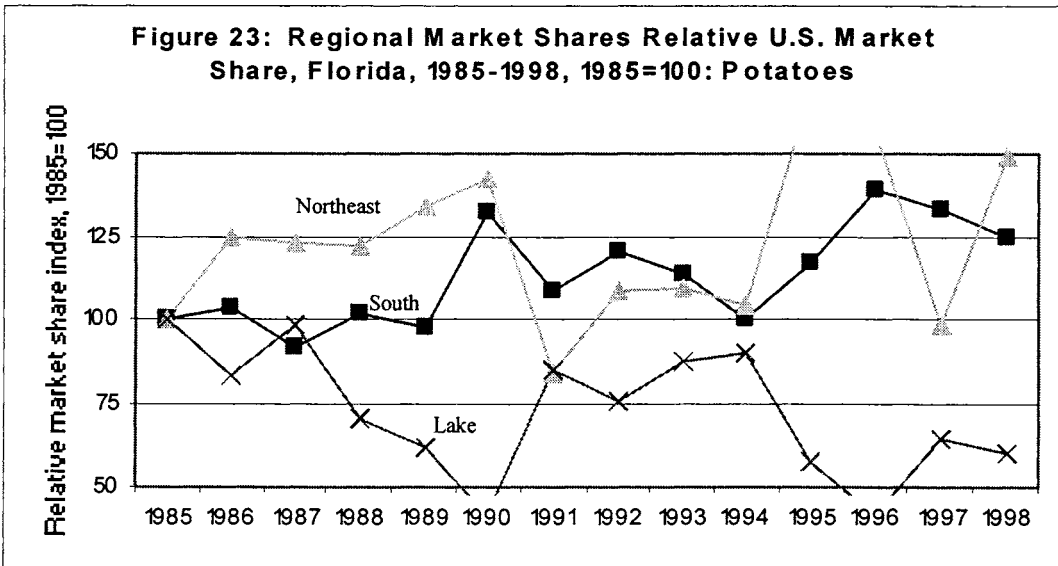
Figure 22: Florida's Market Share in U.S. and by Region, 1985-1998: Potatoes



Note: West not shown due to low volume of shipments to the region.

Throughout most of the period, Florida's regional market shares in the South and Northeast tended to rise relative to the state's national market share and the reverse for the Lake States, see Figure 23.

Figure 23: Regional Market Shares Relative U.S. Market Share, Florida, 1985-1998, 1985=100: Potatoes

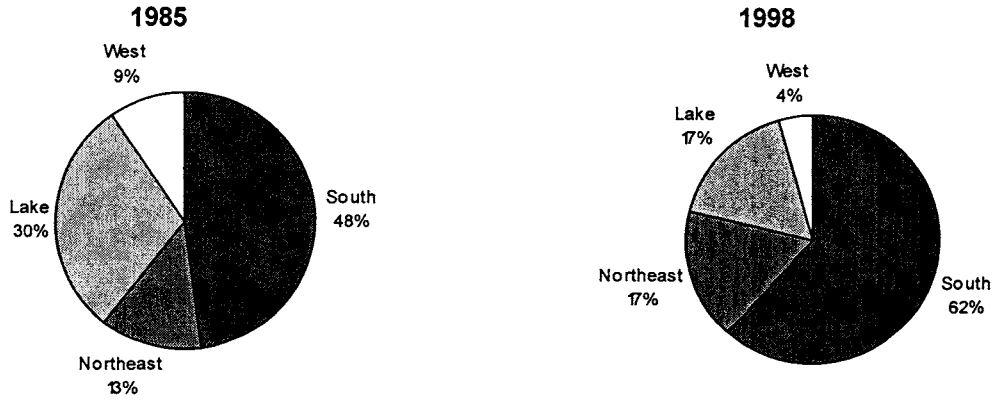


Note: West not shown due to low volume of shipments to the region.

Reflecting the changes in market shares, between 1985 and 1998, the percentages of all Potato shipments to the Northeast and South rose at the expense of the Lake States and, to a much

lesser degree, the West, see Figure 24. The rise in the South is particularly large because of the combined effects of faster population growth and rising market share.

Figure 24: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: Potatoes



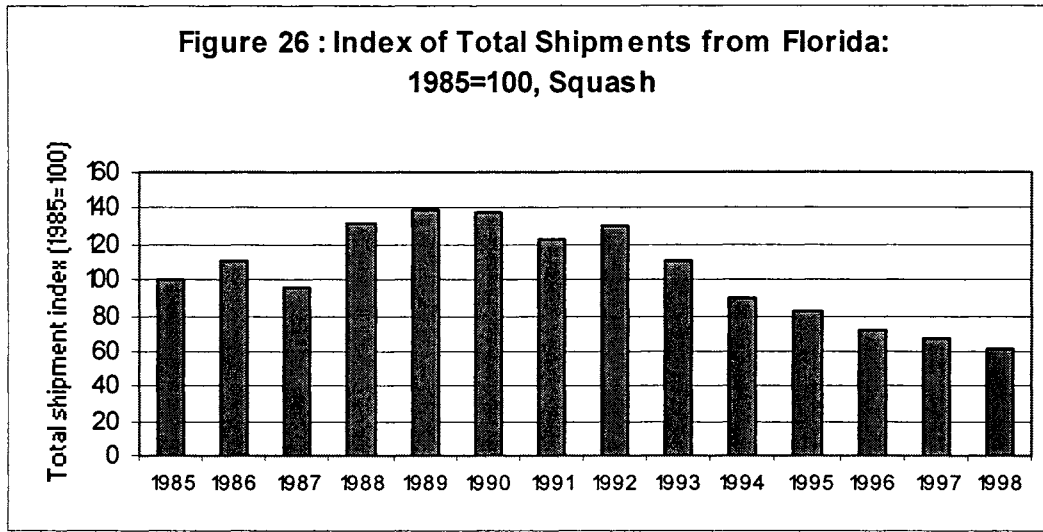
There were effectively no changes in the seasonal pattern of Florida Potato shipments across the period, see Figure 25.

Figure 25: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Potatoes

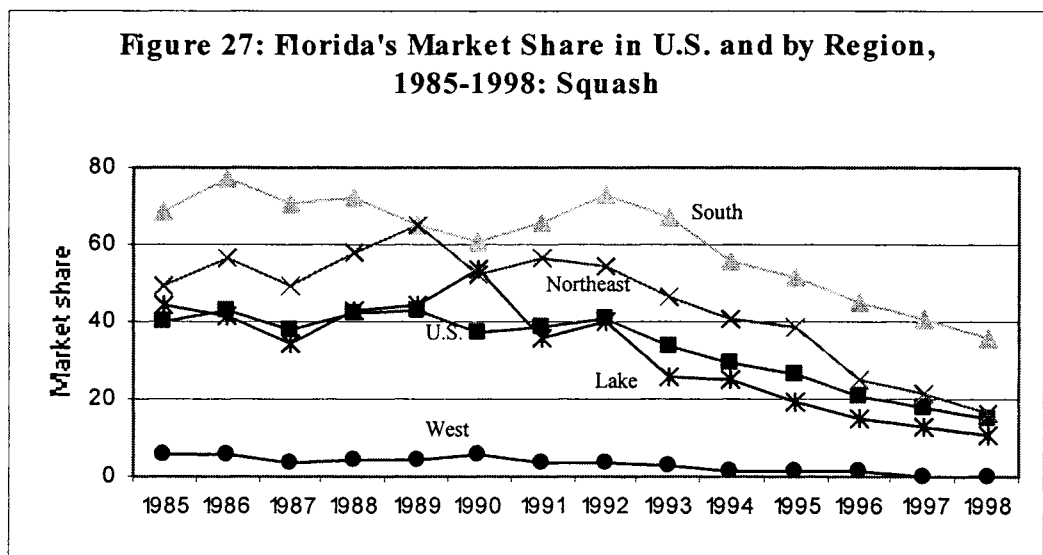


SQUASH

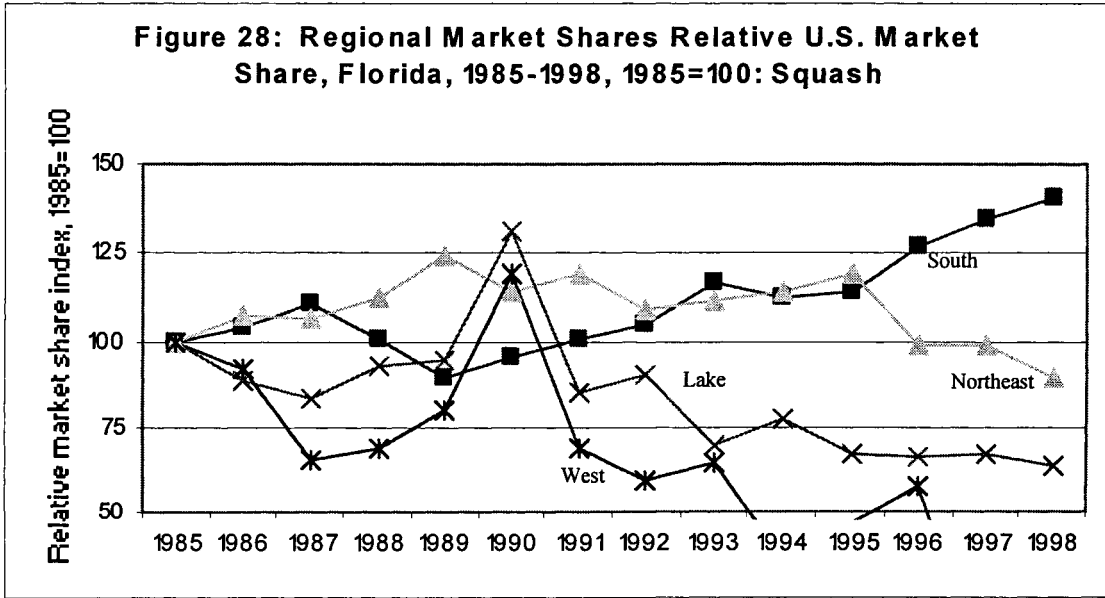
In 1985, Squash accounted for 1.6 percent of all Florida produce shipments. This rose to 2 percent by 1989, but then declined to 1 percent in 1998, see Figure 26.



Trends in Florida's market share for Squash follow closely its total shipments (compare Figure 26 and the U.S. market share in Figure 27). In 1985, Florida accounted for 5 percent of Squash shipments to the West. This rose to 6 percent by 1990, but by the late 1990s shipments from Florida to the West virtually ceased.

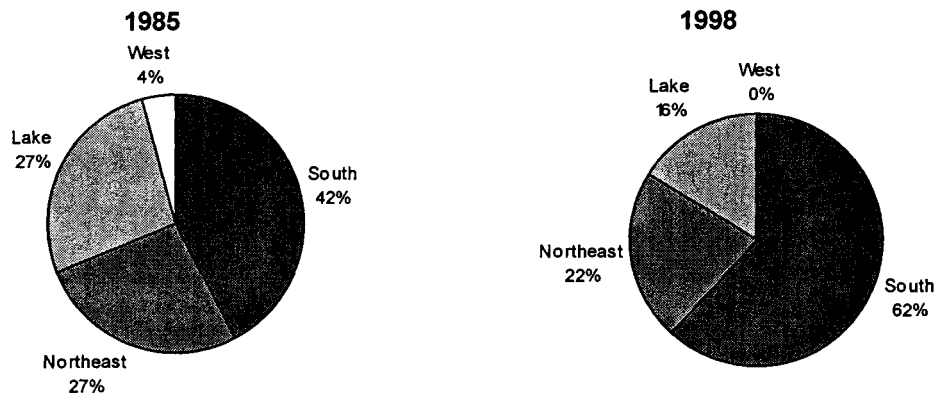


Relative to its national market share, since the mid-1990s Florida has realized gains in the South and losses elsewhere, see Figure 28.



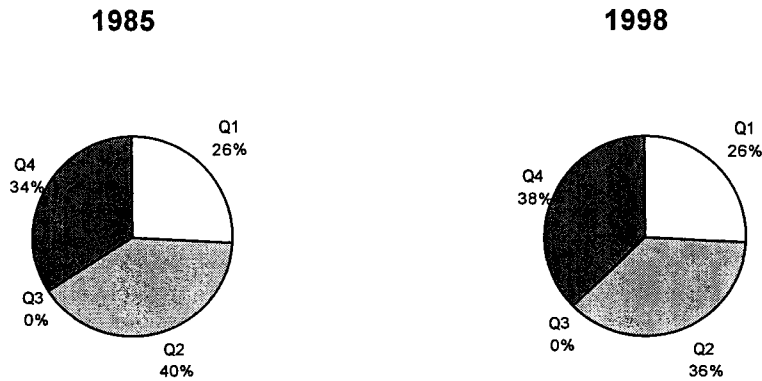
Reflecting the trends in market shares, the distribution of Florida Squash across the regions changed markedly between 1985 and 1998, see Figure 29. The South gained at the expense of the other regions. The largest absolute loser was the Lake States, which went from receiving 27 percent to 16 percent of Florida's Squash shipments. As noted above, shipments to the West virtually ceased.

Figure 29: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: Squash



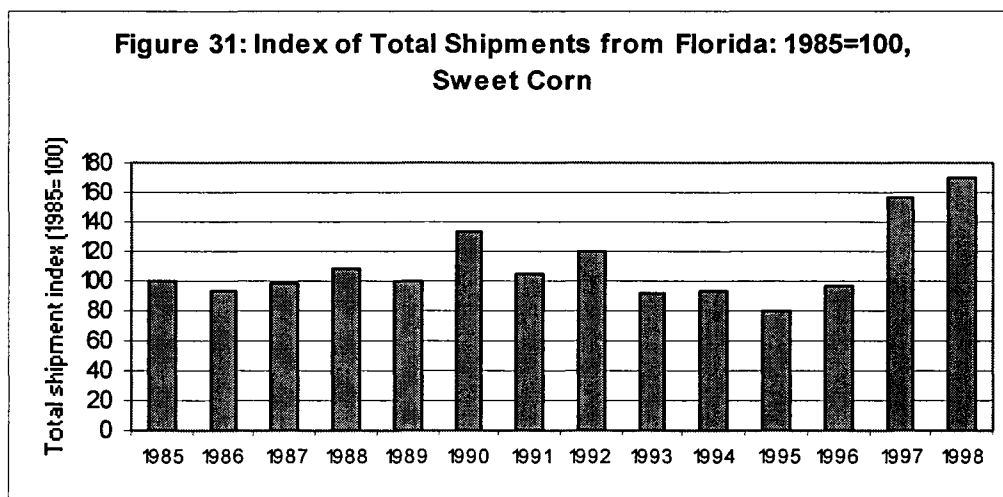
Across the period, the seasonal pattern of Florida's Squash shipments remained unchanged, see Figure 30.

Figure 30: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Squash

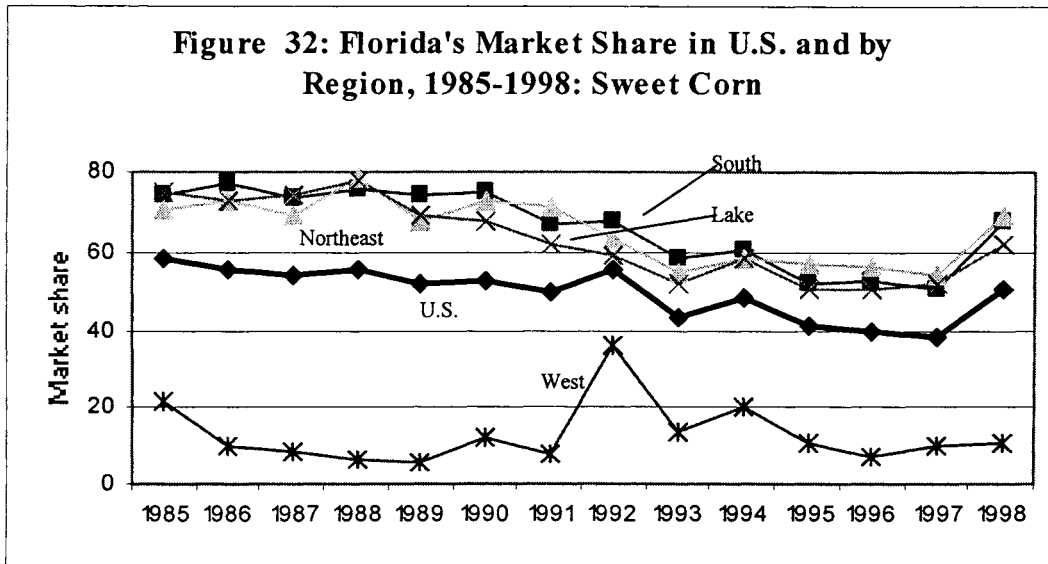


SWEET CORN

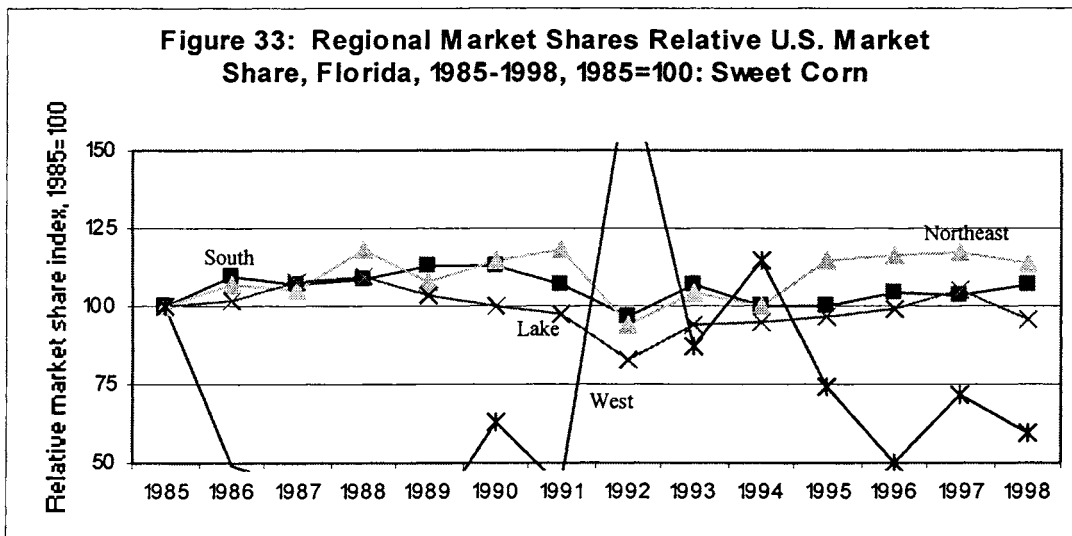
In 1985, Sweet Corn accounted for 4.5 percent of all Florida produce shipments. Until 1995 there were some variations in shipments, but no real trend, see Figure 31. From 1996 through 1998, however, shipment levels grew rapidly and in 1998, 7.6 percent of all the state's produce shipments were Sweet Corn.



Despite a 70 percent increase in shipments between 1985 and 1998, Florida's market share in the U.S. for Sweet Corn fell from 59 percent to 50 percent, see Figure 32. This is due the fact that Sweet Corn shipments from all sources doubled over this period.

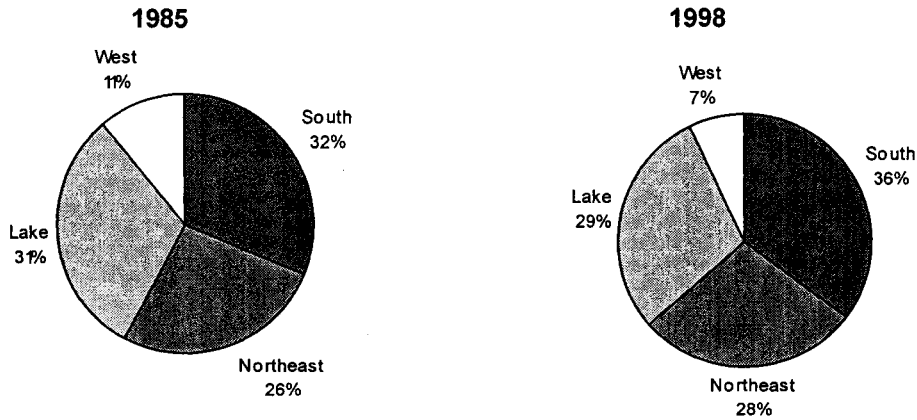


With the exception of the highly volatile shipments to the West, trends in Florida's regional market shares for Sweet Corn closely followed that for the nation as a whole, see Figure 33.



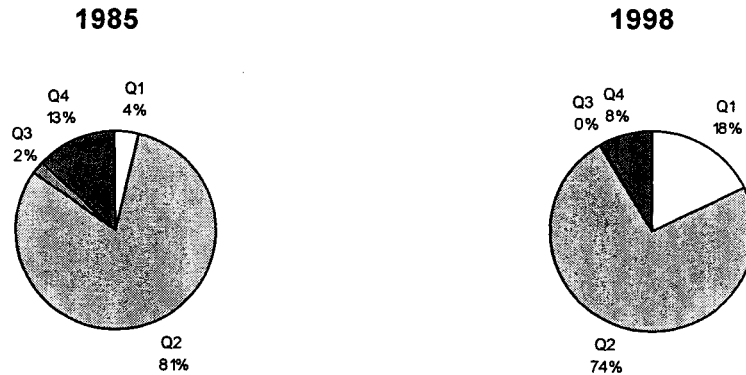
With few differences regarding market share trends, it is not surprising that the distribution of Florida's Sweet Corn shipments across the regions remained essentially unchanged, see Figure 34.

Figure 34: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: Sweet Corn



In 1985 and 1998, the very large majority of Florida's Sweet Corn shipments were made during Q2, see Figure 35. The most significant change was a sharp increase in the percentage of shipments during Q1, from 4 percent in 1985 to 18 percent in 1998. The share of shipments during Q4 declined over the period by just over a third.

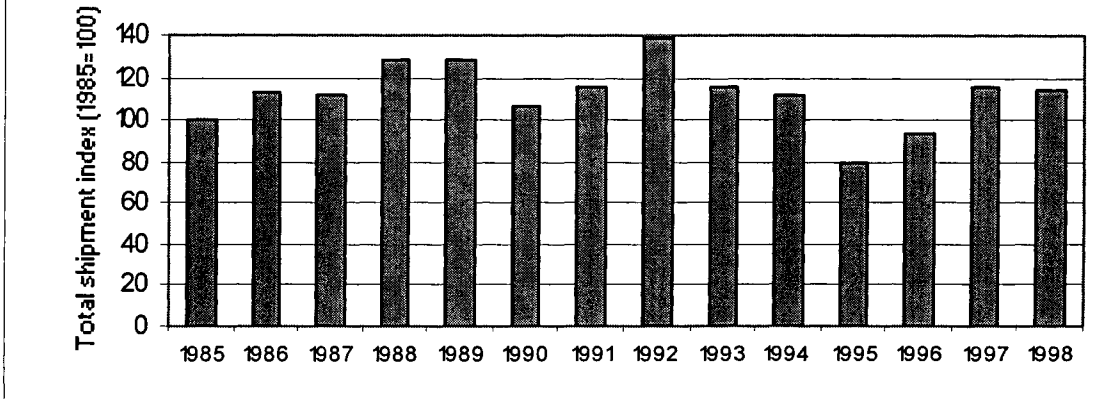
Figure 35: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Sweet Corn



TOMATOES

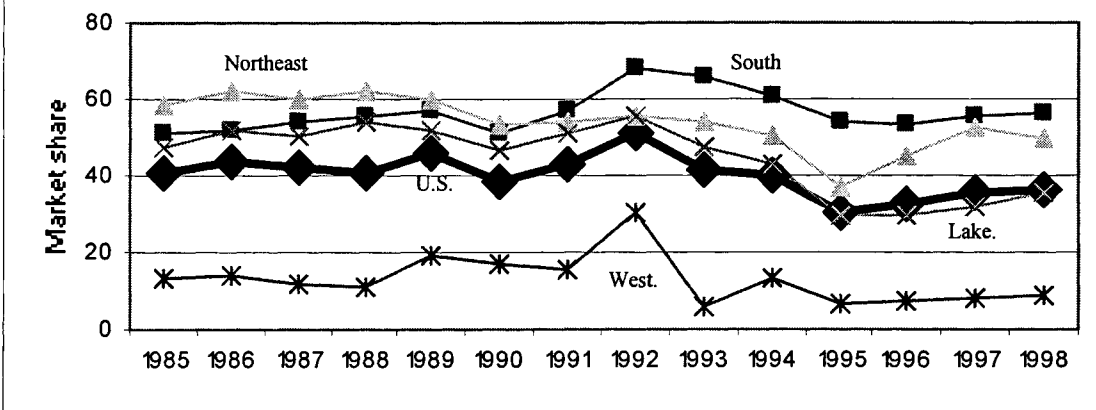
Florida's most important fresh vegetable is Tomatoes. In 1998, Tomatoes accounted for 19 percent of all Florida produce shipments, up from 17.5 percent in 1985. As can be seen from Figure 36, total shipments of Florida Tomatoes have oscillated up and down, ranging from 80 percent to 140 percent of the 1985 level. Florida's Sweet Corn shipments in 1998 were 13 percent higher than in 1985.

Figure 36 : Index of Total Shipments from Florida: 1985=100, Tomatoes

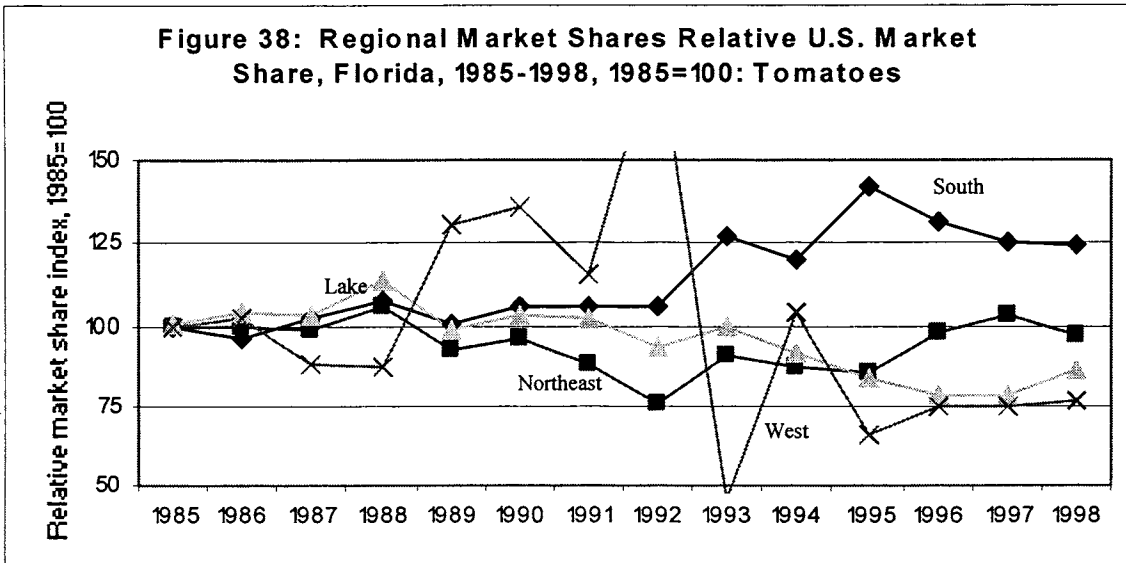


Due to increased shipments of Tomatoes from all sources and despite the state's increased Tomato shipments, its national market share fell from 41 percent in 1985 to 36 percent in 1998, see Figure 37. Until the early 1990s, Florida's market shares in the South, Northeast, and the Lake States were virtually identical. In recent years, Florida's market share for Tomatoes in the South has tended to be the highest. Also after the early 1990s, Florida's market share in the West fell from 16-to-20 percent, on average, and stabilized between 6 percent and 8 percent.

Figure 37: Florida's Market Share in U.S. and by Region, 1985-1998: Tomatoes

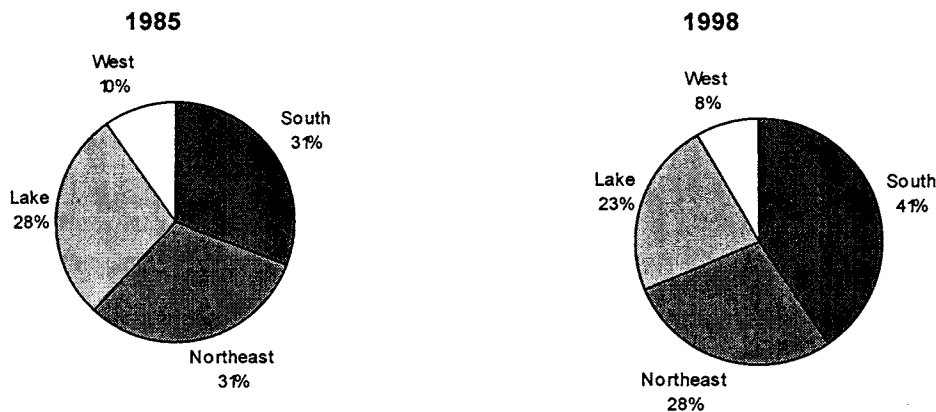


Analysis of Florida's regional market share trends, relative to its national market share, confirms that Florida has fared relatively well in the South and relatively poor in the Lake States and the West, see Figure 38. Relative to Florida's national market share, that for the Northeast ended the period virtually unchanged from the start.



The just-discussed market share movements and the relatively rapid population growth in the South and West are reflected in changes in the distribution of Florida's Tomato shipments. Between 1985 and 1998, the percent of all Florida Tomatoes shipped to the South jumped from 31 percent to 41 percent, see Figure 39. The drop in Florida's market share in the West was partially offset by increased total demand, due primarily to population growth. The percent of all Florida Tomato shipments to that region fell modestly from 10 percent in 1985 to 8 percent in 1998. There were declines in the percentages of Florida Tomato shipments going to both the Northeast and the Lake States, with the latter realizing the largest decline both absolutely and as a percent of the Florida 1985 market share.

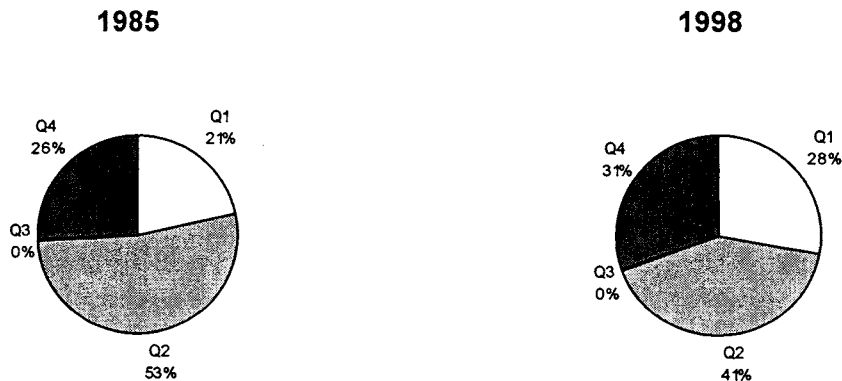
Figure 39: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: Tomatoes



Comparing 1985 with 1998, it appears that Florida is moving toward a more even distribution of Tomato shipments across the Q1, Q2, and Q4, see Figure 40. In 1985, over half of

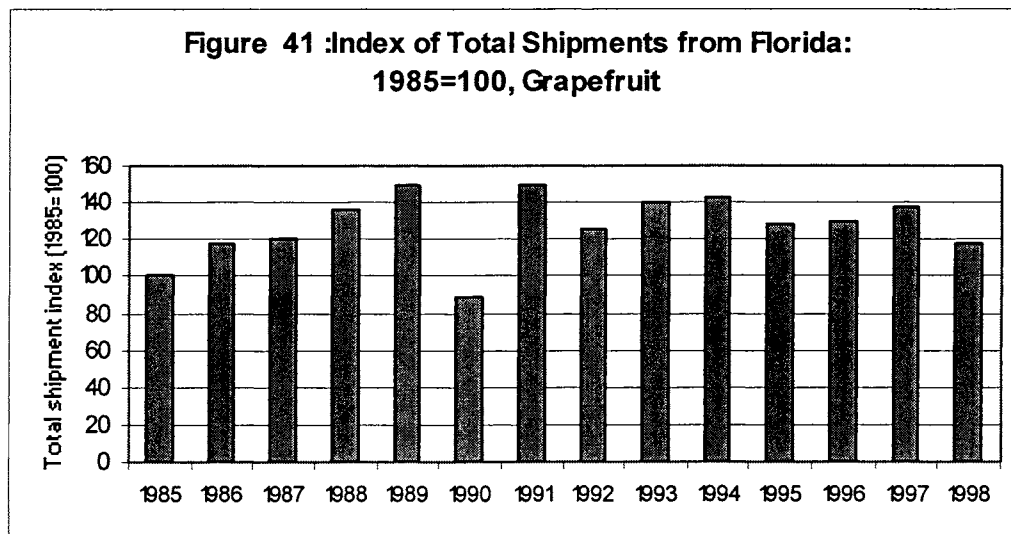
all shipments were during Q2, with virtually all the remaining shipments split between Q1 and Q4. By 1998, Q2 shipments had fallen to 41 percent.

Figure 40: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Tomatoes

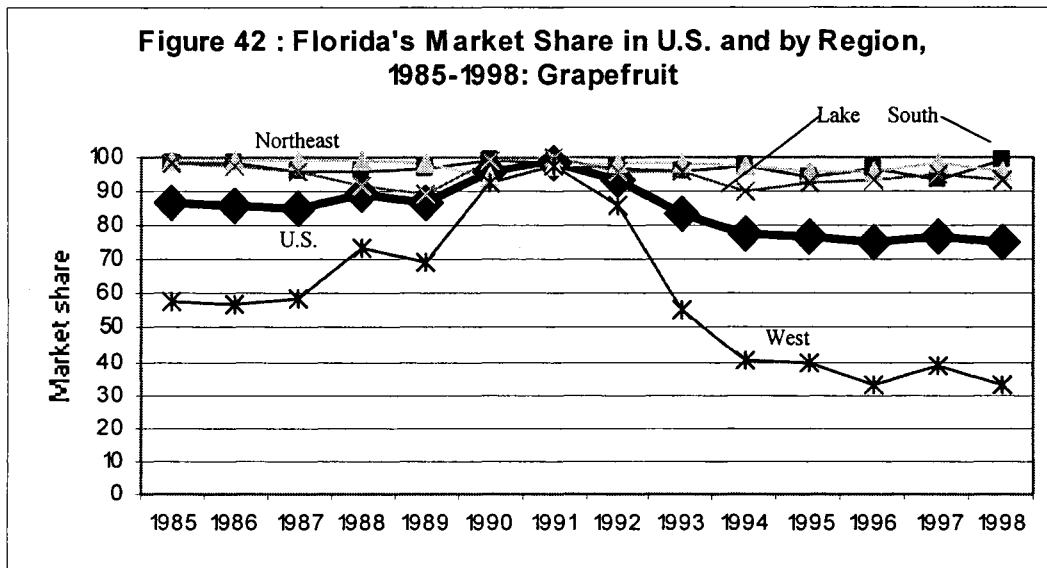


GRAPEFRUIT

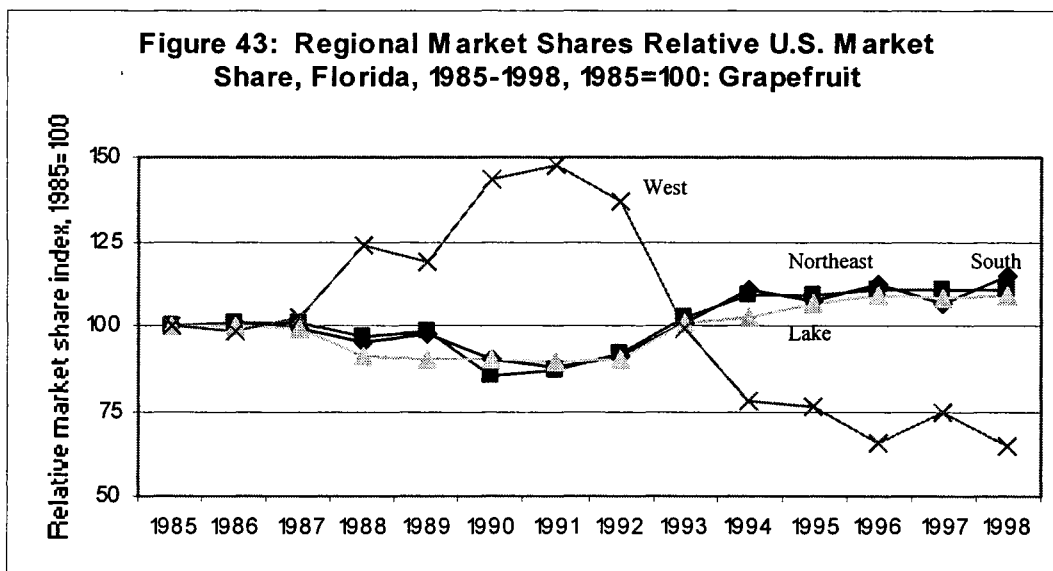
In 1985 and 1998, respectively, Grapefruit accounted for 19 and 21.5 percent of all Florida produce shipments. During the latter half of the 1980s, Florida's Grapefruit shipments rose steadily, increasing by half between 1985 and 1989, see Figure 41. In 1990, shipments fell dramatically. In the next year shipment levels recovered, but thereafter shipments followed a slow downward trend. It should be borne in mind that a large and variable percentage of Florida Grapefruit shipments are exported. Therefore, a rise or fall in total shipments does not necessarily mean a corresponding change in volumes going to the domestic market.



Florida completely dominates domestic Grapefruit markets in the South, Northeast, and Lake States, see Figure 42. Beginning in the mid-1980s, Florida's market share in the West increased and by the early 1990s, Florida also dominated that region. This trend reversed itself and by 1998 Florida accounted for only about a third of Grapefruit shipments to the West.

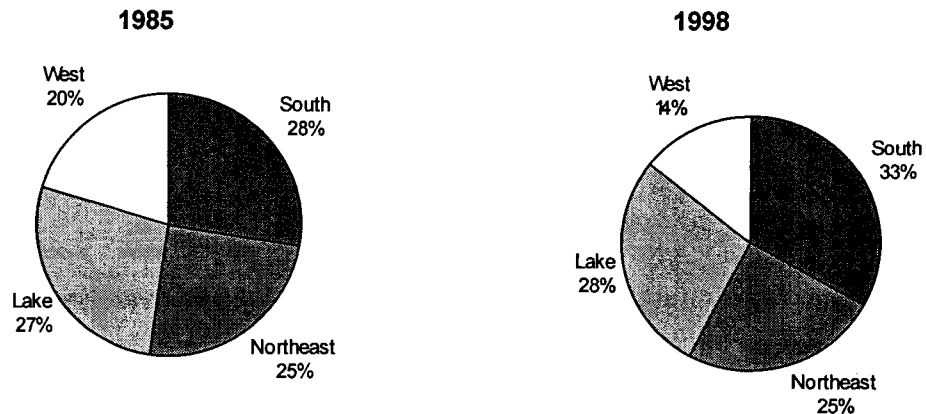


The regional market shares in relation to the national market share mirrors the only major change over the period, the rise and decline of Florida's market share for Grapefruit in the West, see Figure 43.



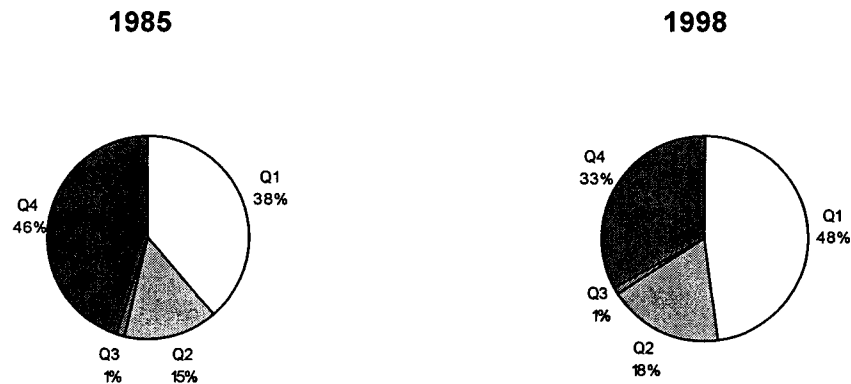
Reflecting Florida's near total dominance of the U.S. Grapefruit market in 1985, Florida Grapefruit shipments were distributed almost evenly across the four regions, see Figure 44. With the slide in Florida's market share in the West during the 1990s, by 1998 the share of all Florida Grapefruit shipments to that region had shrunk from 20 to 14 percent.

Figure 44: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: Grapefruit



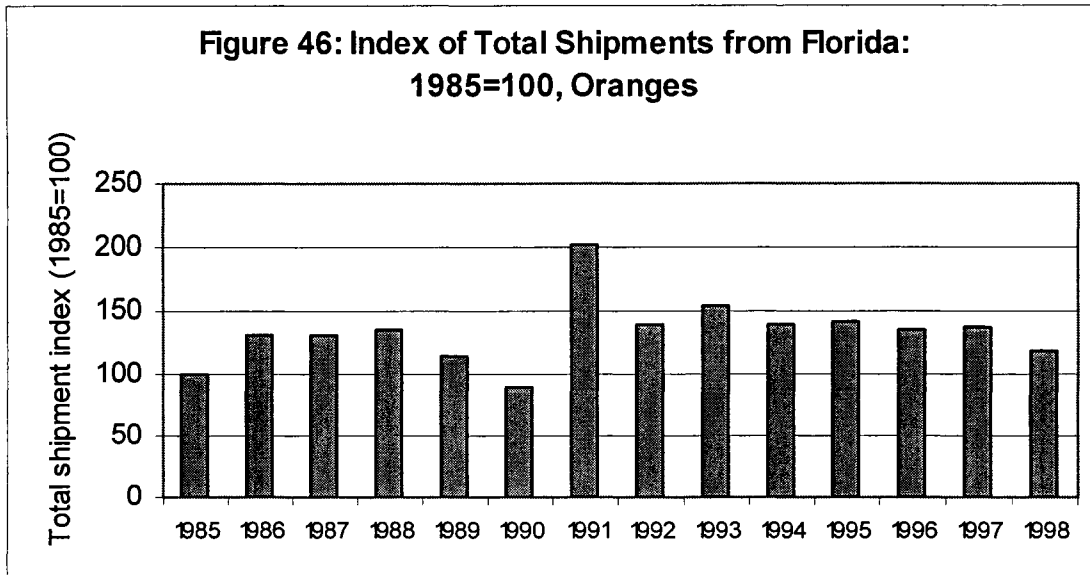
Over 80 percent of Florida's Grapefruit shipments are made during Q1 and Q4, see Figure 45. Comparing 1985 and 1998, Q1 and Q4 have reversed their order of importance to the benefit of the former.

Figure 45: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Grapefruit



ORANGES

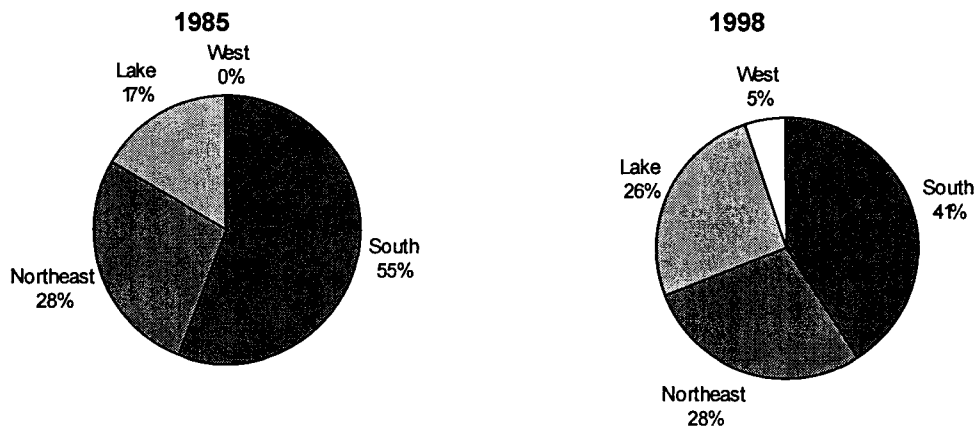
In 1985, Oranges accounted for just over 8 percent of all Florida produce shipments. By 1998 this had increased slightly to 9.5 percent. Not surprisingly, the pattern of shipments of Florida Oranges over the period was similar to that for Florida Grapefruit, see Figures 41 and 46. As with Grapefruit, there was growth during the latter half of the 1980s, a sharp decline in 1990, followed by a quick recovery and a slow downward trend throughout much of the 1990s.



Due to missing data in SHIPMENTS, it was not possible to estimate Florida's market shares for Oranges.

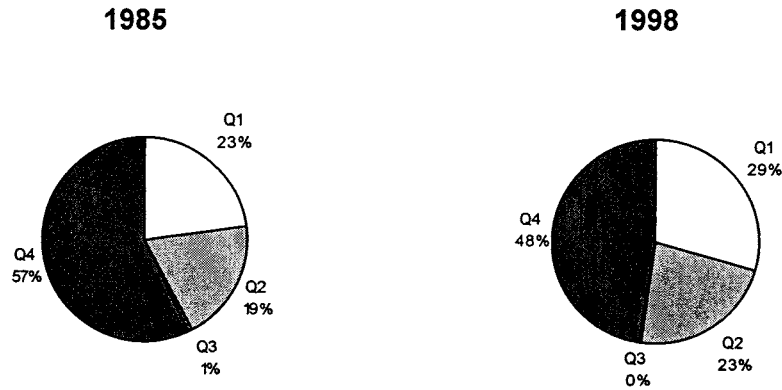
Analysis of the regional distribution of shipments indicates that, while the South remained the single most important destination, it lost ground to the Lake States and West, see Figure 47.

**Figure 47: Regional Distribution of Florida Shipments in the U.S.
for 1985 and 1998: Oranges**



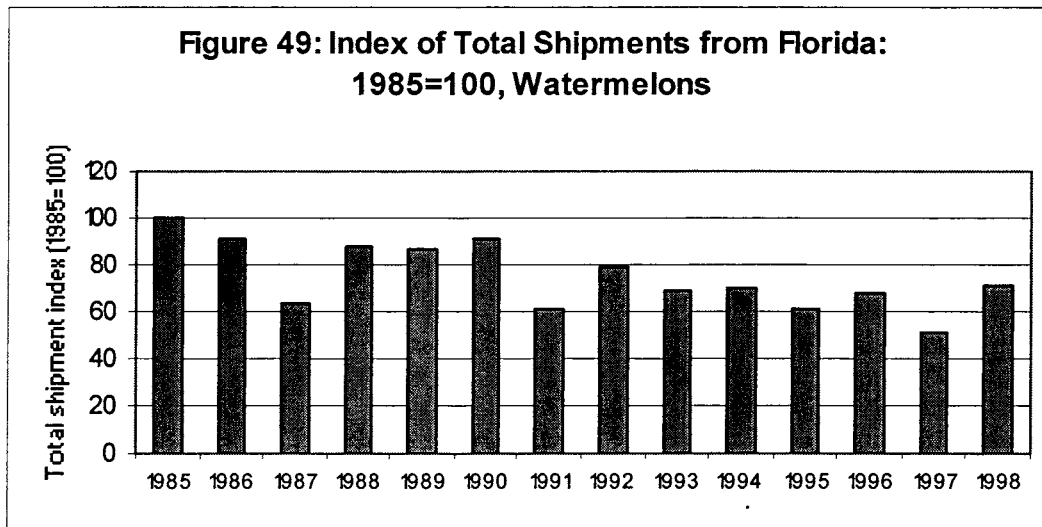
Q4 is the most important quarter for shipments of Florida Oranges. While maintaining this dominance, between 1985 and 1998 the percentage of shipments during Q4 shrank in favor of Q1 and Q2, see Figure 48.

Figure 48: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Oranges



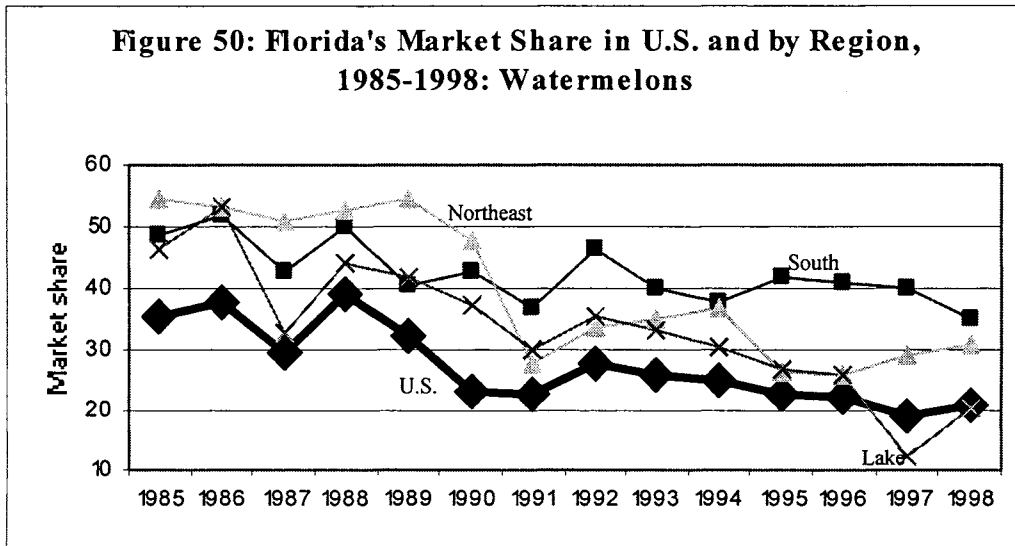
WATERMELONS

Between 1985 and 1998, Watermelons went from just over 12 percent to 8.6 percent of all Florida produce shipments. This decline, as a percent of all shipments, was reflected in a slow erosion over much of the period in total shipments of Watermelons, see Figure 49. During the latter half of the 1990s, however, the decline ceased and there was a modest recovery.



Given the decline in total volumes shipped, it is not surprising that Florida's market share for Watermelons declined for the U.S. and in each region, see Figure 50. As very few Watermelon shipments are made from Florida to the West, that region's market share is not shown. For the same reason (i.e., very low share in the West), Florida's market shares in the three other regions tend to be above its U.S. average.

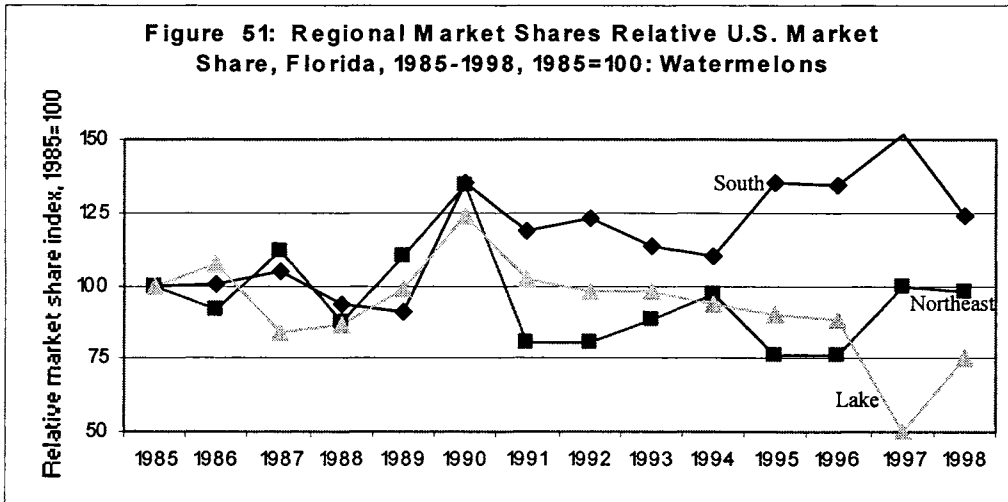
Figure 50: Florida's Market Share in U.S. and by Region, 1985-1998: Watermelons



Note: West not shown due to low volume of shipments to the region.

Analysis of trends in Florida's regional market shares for Watermelons, relative to its U.S. market share, indicate gains in the South, no change in the Northeast, and losses in the Lake States, see Figure 51.

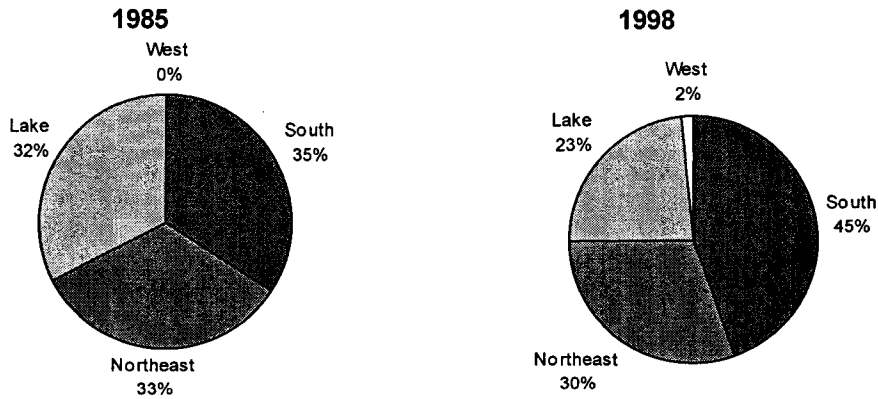
Figure 51: Regional Market Shares Relative U.S. Market Share, Florida, 1985-1998, 1985=100: Watermelons



Note: West not shown due to low volume of shipments to the region.

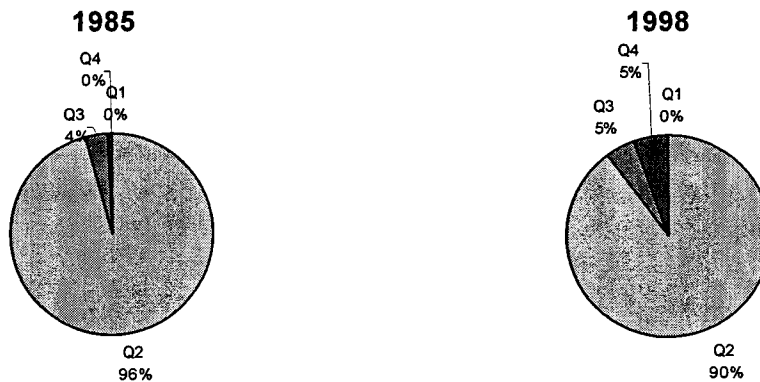
Given the just-described changes in market shares and considering the rapid growth of the South's population, relative to the Northeast and Lake States, it would be expected that by the end of the period a larger percentage of Florida Watermelons would go to the South, a somewhat smaller percentage to the Northeast, and that there would have been sharp declines for the Lake States. This is exactly what is shown in Figure 52.

Figure 52: Regional Distribution of Florida Shipments in the U.S. for 1985 and 1998: Watermelons



Q2 is by far the primary quarter for shipments of Florida Watermelons, see Figure 53. The results for 1998 suggest that Florida may be having some success in extending their shipping season into Q3 and Q4.

Figure 53: Seasonal Distribution of Florida Shipments in the U.S. for 1985 and 1998: Watermelons



SUMMING UP

Shipments of Florida produce from 1985 through 1998 have been examined. Despite increased foreign competition, conversions of land out of agriculture, and often adverse weather conditions, Florida has maintained the total volume of produce shipments and realized only a slight decline in its overall market share. While most of Florida's commodities have remained close to their 1985 market share, Celery, Cucumbers, and, to a lesser extent, Squash and Watermelons have realized declines in both total volumes shipped and market shares. Despite increased competition, particularly from Mexico, the volume of Tomato shipments from the state was 17.5 percent higher in 1998 than in 1985. As more Tomatoes in total were marketed in the U.S. in 1998 than in 1985, Florida's share of the U.S. Tomato market declined slightly. A more dramatic example of this is Sweet Corn. Between 1985 and 1998, Florida increased the volume

of shipments by 70 percent, but as total volumes in domestic markets doubled, Florida's market share actually fell.

Regional market shares and distributions of Florida shipments were also examined. For all Florida commodities combined there were few changes between 1985 and 1998. However, for several individual commodities, such as Sweet Corn, Tomatoes, and Watermelons, there were notable shifts. Regrettably, as USDA ceased publishing ARRIVALS after 1998, other approaches will be needed to examine market penetration levels at region levels.

Seasonal distributions of shipments were addressed. Again, aggregating all produce shipments, there were few changes across the period. However there were some important changes regarding individual commodities. For example, for both Grapefruit and Oranges, the percentage of shipments in the fourth quarter has declined in favor of the first and second quarters.

REFERENCES

Beilock, R., R. Espinel, and S. NaLampang "The Non-Event of Produce and NAFTA" *Estey Journal of International Law and Trade Policy* (2002): forthcoming.

Beilock, R. and K. Portier "Using USDA Fresh Fruit and Vegetable Arrivals to Determine the Distribution of a State's Production" *Northeast Journal of Agricultural and Resource Economics* 18(1989):35-45.

Beilock, R., K. Portier, T. Shell, R. Mack, K. Casavant, and J. Dunn *Movements of Fresh Fruits and Vegetables in the United States* Southern Cooperative Series Bulletin S-182 Transportation of Southern Perishables, Gainesville FL, 1990.

United State Department of Agriculture *Fresh Fruit and Vegetable Arrivals in Eastern Cities*, Agricultural Marketing Service, United States Department of Agriculture, Washington DC, annual volumes 1985-1998.

United State Department of Agriculture *Fresh Fruit and Vegetable Arrivals in Western Cities*, Agricultural Marketing Service, United States Department of Agriculture, Washington DC, annual volumes 1985-1998.

United State Department of Agriculture *Fresh Fruit and Vegetable Shipments by Commodities, States, and Months*, Agricultural Marketing Service, United States Department of Agriculture, Washington DC, annual volumes 1985-1998.