Chapter Three

An Overview of the Shrimp Trade and Processing Industry in the Gulf of Mexico and South Atlantic Region

3.1 Imports

Numerous reasons are often cited to explain why U.S. imports of shrimp are known to be large and growing. These reasons include, but are not limited to, increased farm-raised production of shrimp, favorable economic conditions in the U.S. vis-a-vis other, primary importing countries, and an increasing U.S. population and demand for more seafood. While the reasons provided are all to some extent accurate, there is one overriding explanation as to why U.S. imports of shrimp have nearly quadrupled during the past two decades. The explanation is that U.S. fishermen cannot provide adequate supplies at prices that can compete with imported product. In fact, domestic production would be insufficient (relative to total usage at current prices) even if prices to domestic fishermen were to increase by a significant amount. Simply stated, domestic supply is relatively fixed in the long run with annual fluctuations reflecting changes in environmental conditions from one year to the next. Hence, the price of the harvested product could increase substantially and this increase would not translate into any increases in domestic production. By comparison, world production of shrimp is not stagnant and has advanced substantially since the early 1980s; in part, the result of successful farming activities throughout many Latin American and Asian countries. This has allowed for an increasing amount of product to be placed in the world trade market, destined primarily for high-income countries. The purpose of this section of the report is to provide a review of the world shrimp market, with emphasis placed on the U.S. market.

3.1.1 International Shrimp Market

Shrimp is produced throughout the world, with more than one hundred countries reporting at least some production, of which approximately 60% currently enters the world trade market. Utilization of the world shrimp harvest, while diverse, tends to be concentrated among a relatively few, highly developed countries. Among these countries, the United States and Japan generally account for slightly less than one-half of the total world shrimp use, with European Union countries accounting for an increasing share in recent years. Much of the remaining world production is largely consumed in the country of origin.

World exports of shrimp, valued at approximately $10 billion, constituted almost 20% of the $56 billion international market in fisheries commodities in 2001 and were the single largest item in seafood trade. Trade in shrimp has expanded considerably since the 1980s, in response to increased world production of the commodity, primarily from farming activities, and to favorable economic conditions. To examine the implications of this increased trade, including its impact on U.S. wild shrimp prices, some basic production trends are first considered for the 1980-2001 period. Then, attention is given to the trade market for shrimp, with emphasis being placed on the U.S. market. Finally, the competition between U.S. imports, particularly farmed product, and domestic wild product is considered.

3.1.1.1 World Shrimp Supply

Shrimp production, as with many other seafood commodities, is a combination of wild harvest and farming activities. Estimated total annual warm-water shrimp production (i.e., captured and farmed product) throughout the world, as indicated in Figure 3-1, expanded from 3.4 billion pounds (live weight) in 1980 to about 7.8 billion pounds (live weight) by 2001. Overall, the increase in world shrimp production during the 1980 through 2001 period translates into a growth rate of about 220 million pounds per year.[1] To place this annual growth rate in perspective, Gulf and South Atlantic annual shrimp harvests generally fall in the 220-million-pound to 280-million-pound (live weight) range. Hence, annual growth in world production of warm-water shrimp can, in some years, approximate total U.S. production of warm-water shrimp.[2] Evaluated in another manner, 2001 Gulf and South Atlantic shrimp production, equal to 280 million pounds (live weight), accounted for less than five percent of total world production.

Much of the growth in world shrimp production since 1980 has been the result of successful farming activities throughout the world, particularly in Asia, and to a lesser extent, in South and Central America. World production of farmed shrimp in 1980 equaled about 160 million pounds (live weight), which accounted for approximately five percent of total world production at the time. By 2001, farmed production had advanced to 2.8 billion live weight pounds, or more than 35% of total world warm-water shrimp output. Overall, warm-water farmed shrimp production increased by approximately 130 million pounds per year during the 1980-2001 period. Primary producers of farmed shrimp in 2001 included Thailand (620 million pounds), China (220 million pounds), India (220 million pounds), Indonesia (200 million pounds), Bangladesh (120 million pounds), and Vietnam (95 million pounds). Because of a virus in the ponds, Ecuador's production, which had been averaging more than 200 million pounds during much of the 1990s, fell to less than 50 million pounds in 2001.

Wild warm-water shrimp output equaled about 3.2 billion pounds in 1980 (Figure 3-1). Though there has been growth in this sector since 1980, it has been substantially less than the growth in farmed production. Specifically, at an annual growth rate of about 85 million pounds per year, production of wild warm-water shrimp advanced to almost 5.0 billion pounds in 2001.

[1]Putting this annual growth rate into perspective, total Gulf and South Atlantic shrimp production averaged only 265 million pounds annually during 1997-2001. Hence, the average annual increase in world warm-water shrimp production during the 1980-2001 period equals in excess of the total Gulf and South Atlantic annual production.

[2]The U.S. also has a cold-water shrimp fishery. Production of cold-water shrimp, while fluctuating widely on a year-to-year basis, is generally less than 70 million pounds (live weight).

3.1.1.2 World Exports and Imports

World exports of fresh and frozen shrimp (the two categories constituting the overwhelming majority of trade) equaled about 850 million pounds (product weight) in 1980 (Figure 3-2). By 2001, exports had almost quadrupled to 3.6 billion pounds. A minimum of 60% of the total world shrimp production currently enters the trade market.

The value of world exports in 1980 equaled $2.3 billion, or about 15% of the total world trade in seafood products. By 2001, the current value of the world shrimp trade in fresh and frozen product had increased to about $8.4 billion.[3] Much of the apparent increase in current value is, of course, due to currency inflation. After adjusting for inflation, the value of the world shrimp trade advanced by about 70% (from $4.97 billion to $8.42 billion). This 70% increase is considerably less than the 240% increase in export quantity, suggesting a sharp decline in the real (i.e., deflated) price of exported product. Overall, the $2.87 constant dollar per pound price of exported product in 2001 reflects a 50% decline from the $5.82 per pound price in 1980 and about a 40% price decline from the prices observed as recently as the 1986-88 period (Figure 3-2). Given the relatively high increase in world income during the 1990s, the decline in price would tend to suggest that growth in shrimp supply has exceeded growth in demand, resulting in a downward pressure on real price.

The five largest shrimp (fresh and frozen) exporters by value in 1980, as indicated in Table 3-1, were Mexico ($495 million), India ($233 million), China ($180 million), Indonesia ($178 million), and Australia ($131 million). By 2001, Mexico had fallen from being the largest exporting country to being only the fifth largest, while Thailand, which was not even among the five largest exporters in 1980, replaced Mexico as the largest shrimp exporter.[4] All of the world's largest exporters in 2001 had significant shrimp farming activities, and much of the product exported from these countries was a farm-based product (much of the Mexican exports are, reportedly, wild rather than farmed).[5]

Increased farmed shrimp production, of course, allowed for more product to enter the international trade market. However, it is important to recognize that increased trade flow reflects not just increased production in total, but also the source (i.e., farmed production versus wild production) of the increased output. As noted by Csavas (1994), farm-raised shrimp is of greater importance than wild product in world trade. Reasons cited by the author include:

[3]In addition to the increase in fresh and frozen trade, there has been a sizeable increase in trade in "prepared or preserved" shrimp, which equaled about $2.0 billion in 2001. Almost one half of this total originated from Thailand.

[4]In addition to the $1.2 billion in fresh and frozen shrimp exports, Thailand also exported nearly one billion dollars of "prepared and preserved" product.

[5]Not included in the list of largest exporters is Ecuador. As mentioned, Ecuador experienced considerable mortality in shrimp stock as a result of a virus. Ecuador would have been included in the list in many of the other years during the mid-1980s through late 1990s.

(a) farm-raised product has greater consistent quality than wild product; (b) farmed product is less seasonal in nature, and more reliable, than its wild counterpart[6]**;** (c) species and sizes can be controlled better in a farm-based system than in a wild-based system; and (d) the current trend toward vertical integration in the farming system lends itself to better adaptation to consumer needs.

Table 3-1. World Exports of Fresh and Frozen Shrimp by Principal Countries, 1980 and 2001 (ranked by value of export sales)

Country	Million Pounds	$ Million
----------1980----------		
1. Mexico	96.1	495.0
2. India	105.3	233.3
3. China	47.9	180.2
4. Indonesia	67.2	177.9
5. Australia	12.1	130.7
----------2001----------		
1. Thailand	318.9	1,232.2
2. Indonesia	251.5	884.7
3. India	306.9	802.7
4. Vietnam	192.1	777.8
5. Mexico	87.1	437.3

While the primary exporters of shrimp are many and have changed substantially over time, two countries – the United States and Japan – have long dominated the import market. These two countries combined account for upwards of 50% of world shrimp imports, by value. The European Union represents a significant portion of the remaining import market; particularly if limited to warm-water shrimp trade.

[6]As noted by Csavas (1994), the seasonal nature of the wild-based product results in idle capacity among processing establishments over extended periods of time and increased storage costs for importers and exporters, who must keep higher supplies to satisfy consumer needs.

3.1.1.3 U.S. Imports: A Closer Look

Annual U.S. shrimp imports, expressed on a headless shell-on equivalent weight basis, more than quadrupled over the 22-year period ending in 2001, from about 260 million pounds to almost 1.2 billion pounds (Figure 3-4). The 2001 imports of 1.18 billion pounds constitute a 15% increase from the previous year and are consistent with an 11% increase in world farmed production of warm-water shrimp in 2001. While 2002 figures are preliminary, they appear to be in the neighborhood of seven percent above the 1.18 billion pounds reported for 2001. Data are not currently available to allow one to determine the increase in world farmed production for 2002.

The value of imports increased from about $720 million in 1980 to $3.6 billion in 2001 and equaled $3.4 billion in 2002. After adjusting for inflation, the increase in value was about 115% (from a base of $1.54 billion in 1980 to $3.35 billion in 2002), significantly less than the nearly quadrupling in poundage during the period. The difference in growth between poundage and deflated value represents, of course, a reduction in the deflated price of imported product.

The deflated price of imported product is presented in Figure 3-5. Given the relatively high proportion of the world export market which is destined for the United States, one would anticipate a close relationship between the world export price (Figure 3-2) and the U.S. import price. Comparing the two price trends suggests a clear relationship.[7] Like the world export price, the U.S. import price has been gradually trending down over time, with the 2001 and 2002 import prices being particularly low.

The major exporters to the U.S. market have changed since the 1980s. As Table 3-2 suggests, a significant shift in U.S. imports by country has occurred. Mexico was by far the dominant importer in 1980, accounting for about 45% of total U.S. shrimp imports by value and 35% by poundage (product weight). By 2001, Mexico's share of U.S. imports had fallen to about 15% in terms of value, and less than eight percent when examined on a poundage basis.

By comparison, Thailand, which was not among the largest five exporters to the U.S. market in 1980, was ranked first in 2001.[8] The country's share of total U.S. imports in 2001 equaled more than a third in terms of both value and poundage. Similarly, Vietnam, which was not among the five largest exporters of shrimp to the United States in 1980, exported 73 million pounds in 2001. India's exports to the United States, equaling 13 million pounds in 1980, increased by a factor of four to 72 million pounds in 2001.

[7]Since the U.S. import price is expressed on a headless shell-on basis, one would expect that it would generally be somewhat higher than the world export price, which is given on a product weight basis.

[8]U.S. imports of shrimp from Thailand in 1980 equaled 8.8 million pounds valued at $16.6 million. Based on value, this would have placed Thailand as the eighth largest exporter to the U.S. market.

In general, all of the largest 2001 exporters of shrimp to the United States produce significant quantities of farmed product.[9] Farmed product is often preferred in the world market for reasons already cited. As such, it constitutes a large proportion of world trade in shrimp; including the U.S. market. Furthermore, comparison of the information in Table 3-2 with that in Table 3-1 suggests that the overwhelming amount of product exported from Thailand and Mexico in 2001 was destined for the U.S. market. By comparison, Indonesia, which was the second largest world exporter of shrimp in 2001, was not among the five principal U.S. importers. This reflects the fact that Japan is the primary market for Indonesian-produced shrimp; it imported 123 million pounds from the country in 2001. Japan also imported almost 80 million pounds of shrimp from Vietnam and 95 million pounds from India. Both of these countries also represent major exporters to the U.S. market.

While examination of the growth in U.S. imports during the 1980-2001 period helps to explain the slow, but relatively steady, demise of the Gulf and South Atlantic commercial shrimp industry, the picture is at best incomplete. In addition to the broader import base, the composition of the imports has been changing. Specifically, value-added products, particularly peeled product, have represented an increasing share of total imports. In 1980, for example, headless shell-on shrimp imports, equaling 139 million pounds (product weight), represented 63% of total imports, expressed on a product weight basis (Figure 3-4). Peeled product (raw and other), equaling 76 million pounds and representing 35%, accounted for almost all of the remaining imports. While imports of headless, shell-on product increased throughout the period of analysis to 456 million pounds in 2002, its share fell to 48% of the total import base. By comparison, the share of the total import base represented by peeled product increased to 50%. Peeled imports in 2002 equaled 477 million pounds. Breaded imports, which had been negligible throughout most of the time period, equaled about 10 million pounds in 2002. While still representing only a very small proportion of total imports (less than one percent), the rapid growth in breaded imports should certainly send out a "red flag."[10]

In general, while there has been a steady growth in peeled product during the 1980-2002 period, growth since the early 1990s can best be defined as explosive. Specifically, U.S. imports of peeled product have advanced by nearly 200% since 1990, from 164 million pounds to 476 million pounds. The increase is being fueled by developing countries attempting to garner additional hard currency via value-added activities. As discussed below, the changing import composition has significant ramifications with respect to the domestic processing sector.

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[9]While production of farmed shrimp in Mexico equaled about 70 million pounds in 2001, the majority of its exports to the United States are believed to be wild product. Most farmed product is consumed within the country.

[10]While covering only the first five months, the increasing import trend shows no sign of reversal. For the period January through April 2003, imports totaled 277 million pounds, an increase of 18% from the 235 million pounds reported during the same period in 2002. Shell-on imports totaled 132 million pounds during the first four months of 2003 compared to 113 million pounds through April 2002. Peeled shrimp imports advanced to 138 million pounds from 117 million pounds, an increase of 17%. Breaded imports totaled 6.3 million pounds, an increase equal to 80% when compared to comparable 2002 figures (3.5 million pounds through April).

Table 3-2. U.S. Imports of Shrimp by Principal Countries, 1980 and 2001 (ranked by value)

Country	Million Pounds (product wt.)	$ Million
----------1980----------		
1. Mexico	76.1	316.8
2. Ecuador	20.2	68.1
3. Panama	13.7	46.2
4. India	13.0	20.9
5. Nicaragua	5.6	20.8
6. Others	90.7	246.5
TOTAL	219.3	719.3
----------2001----------		
1. Thailand	300.0	1266.1
2. Vietnam	73.3	381.5
3. Mexico	66.1	381.0
4. India	72.5	264.7
5. Ecuador	59.0	224.3
6. Others	311.7	1109.2
TOTAL	882.6	3626.8

3.1.1.4 The Current Situation

At the risk of stating the obvious, the Gulf and South Atlantic shrimp fishery is in a dire financial strait. No single factor has transpired to bring about this malignant condition; rather, the confluence of a number of events, when taken together, has resulted in some of the lowest dockside prices in decades. These events are briefly summarized below. While the previous discussion has focused on long-run trends, this section focuses on more recent events; primarily those since mid-2002, which represent the most recent period of declining price.

Given the discussion to this point, one might claim that the increase in world warm-water farmed shrimp production is the culprit. Certainly, the 11% increase in world farmed shrimp production between 2000 and 2001, representing an additional 280 million pounds of shrimp (live weight) or approximately the total poundage produced annually in the Gulf and South Atlantic, has had an impact.[11] While large, this increase does not come close to setting a record.

[11]While 2002 farmed production is not available, it may well also show a significant increase compared to the 2001 data.

For example, the increase between 1986 and 1987 was just shy of 400 million pounds. More recently, world farmed production increased by about 350 million pounds between 1990 and 1991. Hence, while it is safe to say that it is difficult for the world trade market to absorb an additional 300-plus million pounds in any given year, the simple fact is that it has and without the unprecedented decline in price now being observed.

To a large extent, the unprecedented decline in the Southeast dockside price reflects a general malaise in the world economy, in conjunction with increased world shrimp production. As stated in the January/February 2002 United States Department of Agriculture Outlook Report: "By November 2001 it was official. The U.S. economy was in recession—and had been since March. The recession ended a decade-long expansion, the most durable on record (p.2)."

What brought on this recession? The U.S.D.A. report states that there were three separate stages leading to the recession. Initially, "[t]he collapse of the technology sector inaugurated the first of three stages (broad economic developments) that eventually led to a full-fledged recession. In the first stage, collapse of the technology sector quickly reverberated through the financial markets, wholesale trade, and manufacturing sectors. In stage two, increasing energy prices combined with tighter credit and falling U.S. exports to cause a drop in manufacturing profits, output, and jobs. The third stage was the spread of the recession in the manufacturing sector to the larger services sector, making the downturn economy wide (p.3)." The index of industrial production, taken from the U.S.D.A. report, is reproduced in Figure 4-6. The decline in dockside shrimp price closely mirrors this index.

However, it was not just the U.S. economic downturn that led to the recent decline in the Southeast shrimp dockside price. One could argue, in fact, that a recession in the U.S. should lead to a reduction in the demand for imported shrimp[12] when, in fact, imports have been increasing at a near-record pace since 2000. Again, one could argue that the answer lies with the increased world production of farmed shrimp. While certainly a partial answer, the complete answer requires evaluating the world economy. Specifically, as noted, there are three primary importers of shrimp: the United States, Japan, and the European Union (EU). Much of the shrimp not imported by these three countries (regions) is consumed in the country of origin. While the U.S. economy has been weak since mid- to late 2000, it has been relatively strong when compared to the economies of Japan and the European Union.[13] In addition, "Japan's recession, coupled with the decline in U.S. computer equipment demand, resulted in a slowdown of Asian economic growth in 2001 almost as sharp as in the Asian financial crisis during 1997-98 (p.5)." Hence, while the U.S. demand for imported shrimp has likely lessened during the past

[12]This is particularly true in light of the fact that shrimp is consumed primarily in the away-from-home market. This market is particularly negatively impacted by economic downturns.

[13]As noted in the U.S.D.A. report, "[a] strong dollar exacerbated the recession in U.S. goods production. The dollar, expected to fall in value against the yen and euro, instead appreciated in 2001. Japan, expected to pick up in 2001, instead went into full recession, causing the yen to fall in value relative to the dollar. Similarly, when European Union growth fell below expectations, the euro declined. For the farm sector overall, slow economic growth and a strong dollar kept commodity prices relatively low. Some markets, such as textiles, simply collapsed with sharp drops in world cotton prices (p.5)."

two-plus years as a result of economic conditions, demand in other countries weakened even more so. The end result: shrimp destined for these other countries during more favorable economic periods was redirected to the U.S. market. These increased imports exacerbated an already weakened demand for U.S. domestic output, the result of recessionary conditions.[14]

Finally, at least two other factors have contributed to the increase in U.S. shrimp imports in recent years. The first factor relates to tariffs while the second factor relates to Sanitary and Phytosanitary (SPS) measures. Consistent with most other seafood products, the United States imposes no tariffs on shrimp products. Under its Generalized System of Preferences (GSP), the European Union had provided to Thailand a voluntary, unilateral reduction on its import tariff equal to 4.7% for fresh and frozen shrimp in 1997. Revisions in the GSP resulted in Thailand no longer being considered a developing country. As a result, the preferential treatment given to Thailand by the European Union ended in 1999 and the tariff rate on fresh and frozen product reverted to the "bound rate," equal to 12% (i.e., the rate agreed upon under the GATT Uruguay Round).

As a result of this increased tariff, shrimp exports from Thailand to the EU reportedly fell by a sizeable amount (some sources claim by up to 60%) with much of the product likely being diverted to the U.S. market. Given the fact that shrimp exports from Thailand to the EU have historically been relatively minor compared to exports to the U.S., it is debatable as to the extent that the restructuring of the tariff rate impacted Thai product being directed to the U.S. market.[15]

The issue of SPS recently came to the fore when the EU, in January 2002, temporarily banned imports of shrimp from China after detecting traces of the antibiotic chloramphenicol. Subsequently, another antibiotic, nitrofuran, was detected in shrimp coming to the European Union from many of the leading Asian-producing nations, including Thailand, Vietnam, Indonesia, and Bangladesh.

The EU has a "zero tolerance" for these two antibiotics. Furthermore, so that products testing positive for either of these two antibiotics did not indirectly find their way into the European Union food chain, contaminated products are destroyed at the European Union port of entry with no avenue for appeal by the exporters. For a short period of time, the European Union imposed 100% inspection on all shrimp arriving from identified countries.

Like the EU, the United States also has a "zero tolerance" for these two antibiotics. However, due to the methodology employed by the Food and Drug Administration (FDA), detection of the antibiotic chloramphenicol was only accurate down to 5ppb. The EU, by comparison, could detect as low as 3ppb.

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[14]Overall, Japan's shrimp imports peaked in 1996 and current imports are approximately 15% below this peak. Stagnation, including four recessions, best explains the Japanese economy over the past several years.

[15]Overall, shrimp exports from Thailand to the United States increased by almost 50 million pounds between 1998 and 1999. How much of this increase was the result of the change in the tariff rate as opposed to (1) increased shrimp production in Thailand, (2) a very strong U.S. economy, and (c) a softening of the Japanese economy, is unknown.

As a result of EU actions, including a finer ability to detect banned antibiotics vis-a-vis the United States and a policy to destroy product found to be contaminated, many Asian suppliers have, reportedly, curtailed exports to the EU, with the product redirected to the U.S. market.

In summary, the confluence of a large number of factors has contributed to the most recent deterioration in financial conditions of the Southeast U.S. shrimp fishery. Without government intervention, it is unlikely that conditions will improve by any appreciable amount in the absence of a rebound in the world economy. Whether this will occur within the foreseeable future is, of course, a matter of speculation.

3.2 Processing

Shrimp represents the primary component of the Southeast seafood processing industry, generally contributing more than 80% of total edible production activities by value. The Southeast U.S. processing industry, using a combination of domestic raw material and imported raw material, generated sales of $1.1 billion in 2001. A brief review of the processing sector is contained in this section of the report.

3.2.1 Firms and Production Activity

The number of firms engaged in Southeast shrimp processing activities has declined almost by half, from 173 to 89, during the 1980-2001 period (Figure 3-7). As indicated, the decline has been relatively steady, with a reduction of more than 50 firms in the last decade (1991 through 2001). This compares with a reduction of only about 20 firms during the decade of the 1980s. While most agricultural commodities have observed consolidation in recent years, consolidation in the Southeast shrimp processing sector is, at least in part, tied to an increasing import base, including increasing imports of value-added products (primarily peeled raw and cooked shrimp). Overall, the number of processors in the Gulf fell by about 40%, from 124 to 72, while the reported number of South Atlantic processors fell from 49 to 17, or by almost two-thirds (Figure 3-7).

Despite sharp reduction in the number of reported Southeast shrimp processing establishments, the quantity processed, expressed on a headless shell-on equivalent weight basis, has remained relatively stable since the mid 1980s, fluctuating in the 250-million-pound to 310-million-pound range (Figure 3-8). Overall, Gulf processors have historically accounted for an average of about 85% of this total production. Its share, which equaled about 90% during the early 1980s, fell to about 70% during the mid-1990s, stabilizing at about 80% in recent years.

It is well known that there has historically been a deficit in domestic landings relative to Southeast shrimp processing needs (see, for example, Prochaska and Andrew, 1974; Roberts et al., 1992; and Keithly and Roberts, 1995). Given the significant increase in imports since the early to mid-1980s, therefore, one might expect an increasing share of imports being used by the Southeast shrimp processing sector. While processing activities derived from imported product are not routinely collected by NMFS, some information can be gleaned by comparing total processing activities to domestic landings. Doing so will provide a true estimate of import usage

if all domestic production is utilized by the processing sector. Based on analysis by Keithly and Roberts (1995), this assumption appears plausible.

In 1980, imports accounted for an estimated 50 million pounds of total Southeast shrimp processing activities (Figure 3-3). Import usage increased rapidly thereafter, most likely in association with increased Ecuadorian-cultured shrimp exports to the U.S. market. By 1986, estimated imports accounted for about 100 million pounds, or one-third, of total domestic Southeast shrimp processing activities. During the 1992-94 period, import usage as a percentage of total processing activities equaled almost 50%, indicating that almost as much imported shrimp was used by the processing sector as domestic shrimp. This period can be characterized as very high import usage relative to total processing activities. Since this peak period, however, import usage has fallen, averaging slightly more than 110 million pounds annually since 1995 (approximately 40% of the total).

To determine why Southeast shrimp processing activities have not increased in relation to imports, the value of Southeast shrimp processing activities will be examined first. As the information in Figure 3-9 suggests, the current value of Southeast shrimp processing activities, while fluctuating widely on a year-to-year basis, has exhibited no long-term upward trend since the mid-1980s. When adjusted for inflation, the trend has been decidedly downward. Overall, the deflated value of processing activities during the 1999-2001 period averaged only 70% of that estimated during the 1983-85 period. This 30% decline, while significant in and of itself, came during a period of time in which pounds processed increased by more than 20%. This suggests that the deflated price of the processed product fell sharply during the 1980-2001 period.

Overall, the deflated price of the processed product fell from well over $7.00 per pound (headless shell-on equivalent weight) during the early 1980s to less than $4.00 per pound during the late 1990s and into the next decade (Figure 3-10). The decline has been, for the most part, steady with no sign of abatement.

3.2.2 Estimated Marketing Margins

Evaluating only the output price may not provide an accurate depiction of the potential changes in profitability in the Southeast shrimp processing sector. Specifically, the price of the raw material (i.e., the raw shrimp product) being used in processing activities may be declining by an equivalent amount. If this is the case, the marketing margin, defined as the difference between the output price and the price of the raw material being used in the production process, would remain constant; suggesting that there may be no change in profitability.[16] Unfortunately, the price of the raw product used in processing activities is not collected by NMFS.

[16]The marketing margin is not a direct measure of per-unit profitability. Rather, profitability, along with all other production/marketing costs, such as labor and transportation, comprise the marketing margin. Subtracting all production and marketing costs from the marketing margin would result in an estimate of profitability. These costs, however, are not readily available.

While the price of the raw product, which includes both domestic landings and imports, is not collected by NMFS, the dockside price of the domestically harvested product is readily available. To the extent that this price also adequately reflects the price of imported product used by the processing sector, we can derive a meaningful estimate of the marketing margin.

The difference between the dockside price (expressed on a headless weight basis) and the processed price (expressed on a headless shell-on weight equivalent basis) is illustrated in Figure 3-10. Overall, the "estimated" marketing margin has declined substantially, with most of the decline occurring since the early 1990s. This is certainly one indication that per-unit profitability is falling and provides a rationale for the substantial exit behavior observed since the early 1990s.

3.2.3 Coping With a Declining Marketing Margin

The Southeast shrimp processing establishments have coped with this decline in per-unit profitability by producing, on average, a substantially higher amount of product per firm than they did during the 1980s. Overall, production averaged about 1.3 million pounds per firm during the early 1980s (Figure 3-8). By 1999-2001, this average had increased to more than 3.2 million pounds. The deflated value of output per firm averaged about $9.5 million during the 1980-82 period and advanced to over $12 million during 1999-2001. This most recent three-year average, however, is substantially above that observed during the previous two decades (by about $2 million), and only additional observations will indicate whether it can be maintained.

Taking the analysis one step further, we can examine changes in the average gross marketing margin per processing firm, defined as total deflated processed shrimp sales less the cost of raw material. Prior to the early 1990s, the deflated gross margin per firm, with few exceptions, averaged from about $2 million to$3 million per year (Figure 3-11). This fell substantially during most of the 1990s before increasing substantially during the most recent year of analysis.

3.2.4 A Closer Look at the Deteriorating Marketing Margin and Products Produced

The Southeast shrimp processing sector marketing margin deteriorated throughout the 1980-2001 period and particularly since the early 1990s. While the increasing import base has certainly contributed to the decline in marketing margin, the changing composition of imports has been as relevant, if not more so. To see why this is the case, let's examine Southeast shrimp processing activities in some additional detail. Specifically, let's look at the individual products being produced. For purposes of analysis, four products – headless shell-on, peeled (raw or cooked), breaded, and "other" products – are considered.[17]

3.2.4.1 Headless Shell-on Shrimp

The number of firms producing the four product forms is presented in Figure 3-12. As indicated, the number of firms producing headless shell-on product fell from more than 120

[17] "Other" products include, primarily, specialty products such as shrimp used in soups and dried products.

during the early 1980s to less than 70 in recent years. While not shown in the figure, the number of firms producing headless shell-on product in the Gulf increased from 83 in 1980 to a maximum of 99 in 1983 before falling to an average of about 55 in recent years. In the South Atlantic, the number of firms reporting the production of headless shell-on product fell from 41 in 1980 to between 10 and 15 in more recent years. With some notable exceptions, the decline in the number of firms producing headless shell-on product in the South Atlantic has been steady.

Production of headless shell-on product by Southeast processors varied from a high of 127 million pounds in 1986 to a low of 66 million pounds in 2001 (Figure 3-15). There is certainly no upward trend in the production of headless product, and it is worth noting that the 100 million pound mark has not been exceeded since 1990. By comparison, the 100 million pound mark was reached in seven of the 11 years during the 1980-90 timeframe (Figure 3-15). Furthermore, there was a relatively strong relationship between Southeast U.S. landings prior to the early 1990s and headless shell-on production. This relationship has since become considerably weaker.[18]

The relationship between landings and headless shell-on production is lessening, and overall production of headless shell-on product has apparently declined since the early 1990s. To understand why this is occurring, it is important to recognize that shell-on production is derived, almost exclusively, from domestic product. Thus, one would not anticipate any long-term increase in headless shell-on output in the absence of a concomitant increase in landings. However, the domestic product (i.e., landings) used in the production of headless shell-on product is also used in the production of other processed products, primarily the peeled product. Hence, there is competition for the raw product, and the amount that would be used in headless shell-on activities would be directly related to economic conditions in both the headless shell-on sector as well as in the peeling sector.

While total Southeast headless shell-on production has declined since the early 1990s, production per firm has shown a moderate increase since the early 1990s (Figure 3-16), the outcome of a declining number of firms. The deflated price of the headless shell-on product, as indicated in Figure 3-17, fell from between $7.20 to more than $8.00 per pound during the early 1980s to about $5.50 per pound in the early 1990s. Since the early 1990s, however, the price has remained in a relatively narrow range from about $4.90 to $5.50, with the exception of 2001 when it fell to $4.45 per pound. The 2001 decline in price may help to explain record low headless shell-on production in that year (see Figure 3-15).

The sharp decline in the headless shell-on product price during the 1980s likely reflects, primarily, the large increase in headless shell-on imports during the period (328 million pounds in 1990 compared to about 140 million pounds in 1980). Imports of headless shell-on product during the 1990s and through 2000, by comparison, were relatively stable, helping to explain the observed stability in the headless shell-on processed price. With a 100 million pound increase in

[18]As just one example, Southeast landings in 1986 reached a record 195 million pounds and headless shell-on processing output, equal to 128 million pounds, was also a record (going back to 1980). While landings of 182 million pounds in 2000 were also well above average (second only to 1986), Southeast headless shell-on output for the year equaled only 85 million pounds.

headless shell-on imports in 2001, however, and a decline in the domestic processed headless shell-on price was inevitable. Given the weak economy in 2001, one might have anticipated an even greater reduction in price, which equaled 10%.[19]

3.2.4.2 Peeled Shrimp

Southeast U.S. firms reporting the production of peeled product advanced from just over 50 during the early 1980s to a maximum of 70 in 1988 before falling to under 50 in recent years (Figure 3-12). The number of peelers in the Gulf advanced from 41 in 1980 to 64 in 1987 and 1988 before falling to less than 50 since the early 1990s. In the South Atlantic, the number of peelers fell from an average of about 10 in the early 1980s to less than five in the early 1990s before advancing to an average of about eight in more recent years.

Production of peeled shrimp by Southeast U.S. processors has expanded significantly since the early 1980s (Figure 3-15). During the 1980-82 period, for example, output of peeled shrimp averaged 46 million pounds (product weight) annually. By 1999-2001, output had expanded to average in excess of 105 million pounds.

In general, there was a rapid rise in peeling activities during the 1980s. From 1990 through 1998, annual peeled output was relatively stable, with annual production falling in the relatively narrow range from just less than 80 million pounds to about 90 million pounds. The 1999-2001 period can be characterized as one of record production.

What explains these observed changes? First, raw material supply has obviously increased. This increase reflects both domestic landings, which would otherwise have gone primarily into headless shell-on activities, as well as imported product.[20] Furthermore, as imports of peeled product expanded, the marketing margin for the domestically peeled product undoubtedly narrowed. To maintain a given level of profitability in the face of a narrowing marketing margin required higher output per firm. Output per firm did, in fact, increase significantly during the 1980-2001 period (Figure 3-16). While the increase in output per firm was observed throughout the period of analysis, it was particularly heightened during the most recent three years. This likely reflects, primarily, the extremely large increase in imported peeled product and, hence, reduction in marketing margin which, for a given level of profitability in the domestic sector, required a large increase in output per firm.

The price of the Southeast U.S. peeled product is presented in Figure 3-17. While it fell significantly during the decade of the 1980s, it remained relatively stable from 1990 through 1997, ranging from about $3.80 to $4.20 per pound (product weight). In three of the four years since 1997, however, the price was below $3.60 per pound, and in 1999 it was just over $4.00.

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[19]Overall, the reduction in the headless shell-on processed price in 2001 closely reflects the reduction in the Southeast U.S. dockside price for the same year.

[20]The increased raw material, which would be derived primarily from headless shell-on imports, helps also to explain the increased number of peelers during the 1980-88 period. The relative stability in headless shell-on imports during the 1990s, in conjunction with the increase in peeled imports (and narrowing of the marketing margin), helps to explain the reduction in reported peelers during the 1990s.

Finally, it is worth noting that throughout the 1980s and into the early 1990s, the Southeast processed price exceeded the imported peeled price, though the differential was narrowing during the period. Since 1993, the imported peeled price has exceeded the domestic price sometimes in excess of $1.00 per pound. This most recent differential (where the imported price exceeds the domestic price) likely reflects larger Asian product being peeled prior to export to the U.S. market.

3.2.4.3 Breaded Shrimp

The reported number of breaders in the Southeast U.S. fell from 30 in 1980 to less than 20 in recent years (Figure 3-12). In 1980, the Gulf had a total of 21 firms reporting breading activities, while the South Atlantic reported nine breaders. By 2001, the reported number in the Gulf had fallen to 13, while the reported number in the South Atlantic had fallen to six.

The Southeast U.S. output of breaded product (product weight) has, since the early 1990s, consistently fallen in the relatively narrow range of 95 million pounds to 105 million pounds (Figure 3-15), a considerable increase from that observed in the early 1980s. According to Keithly and Roberts (1995), virtually all breading activities use imported material in the production process.

When evaluated on a per-firm basis, production of breaded product averaged 7 million pounds in 2001, which is a significant increase when compared to the average of about 2.3 million pounds to 3.2 million pounds produced in the early- to mid-1980s (Figure 3-16). Much of the increased output per firm has transpired since the late 1980s, which coincides with increased Asian exports, including peeled product, to the United States. This imported peeled product is used extensively in the domestic breading sector (Keithly and Roberts, 1995).

The inflation-adjusted price of the domestically produced breaded product has fallen from well over $6.00 per pound in the early 1980s to $3.32 per pound in 2001 (Figure 3-17). The 2001 price, however, actually exceeded the price observed in many of the other years dating back to 1993.

3.2.4.4 Other Shrimp Products

The number of producers of "other" products has fallen from almost 30 in earlier years to only about 10 currently (Figure 3-12). Virtually all of these firms have historically been located in the Gulf of Mexico.

As with the number of firms, the output of "other" products has fallen sharply since 1980 (Figure 3-15). Overall, production of "other" products averaged less than four million pounds since 1999 compared to more than 10 million pounds produced during many of the years in the early 1980s.

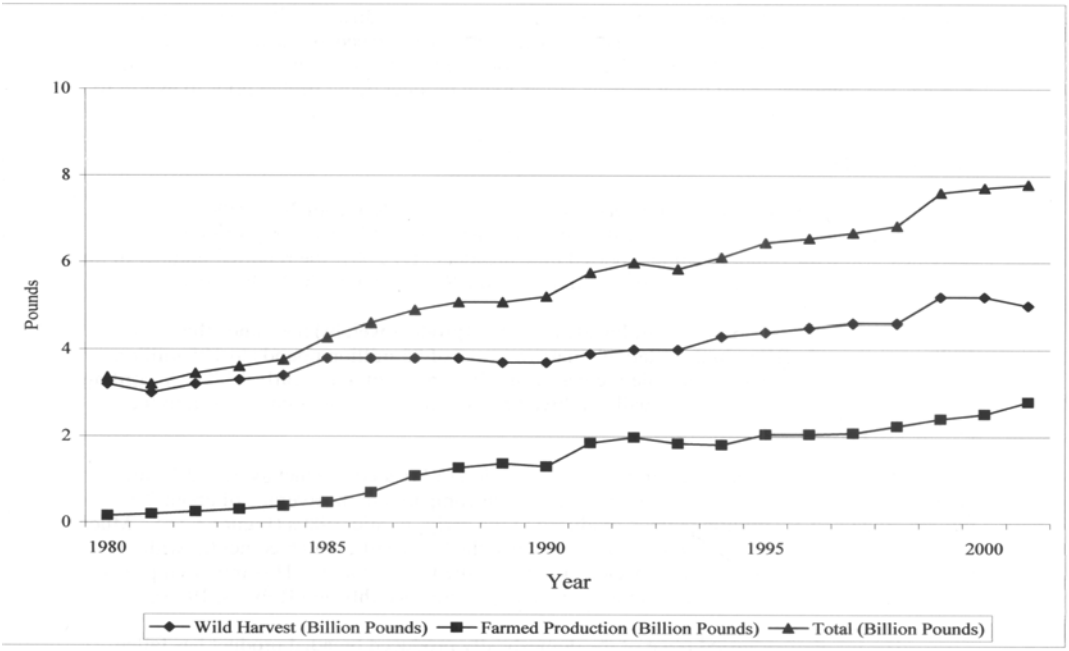

Figure 3-1. Estimated World Production of Warm-water Wild and Farmed Shrimp (Live Weight), 1980-2001

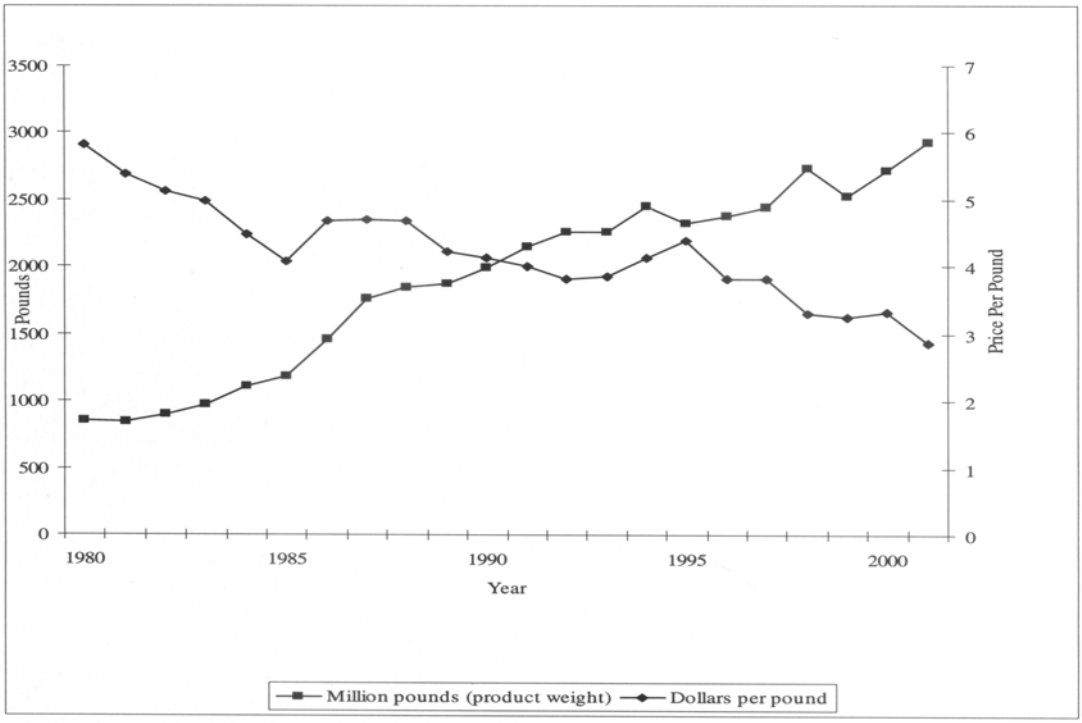

Figure 3-2. Estimated World Exports of Fresh and Frozen Shrimp and Deflated Export Prices (2001 U.S. CPI) 1980-2001

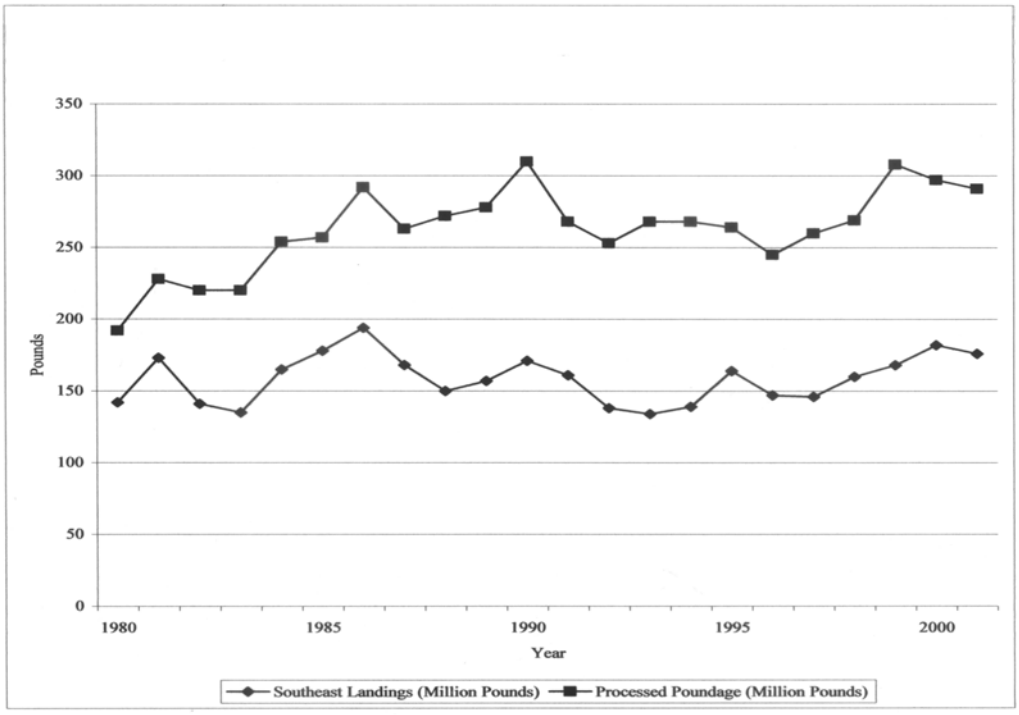

Figure 3-3. Estimated Relationship Between Southeast U.S. Processed Shrimp Poundage (Headless Shell-on Weight) and Southeast Landings (Headless Weight), 1980-2001

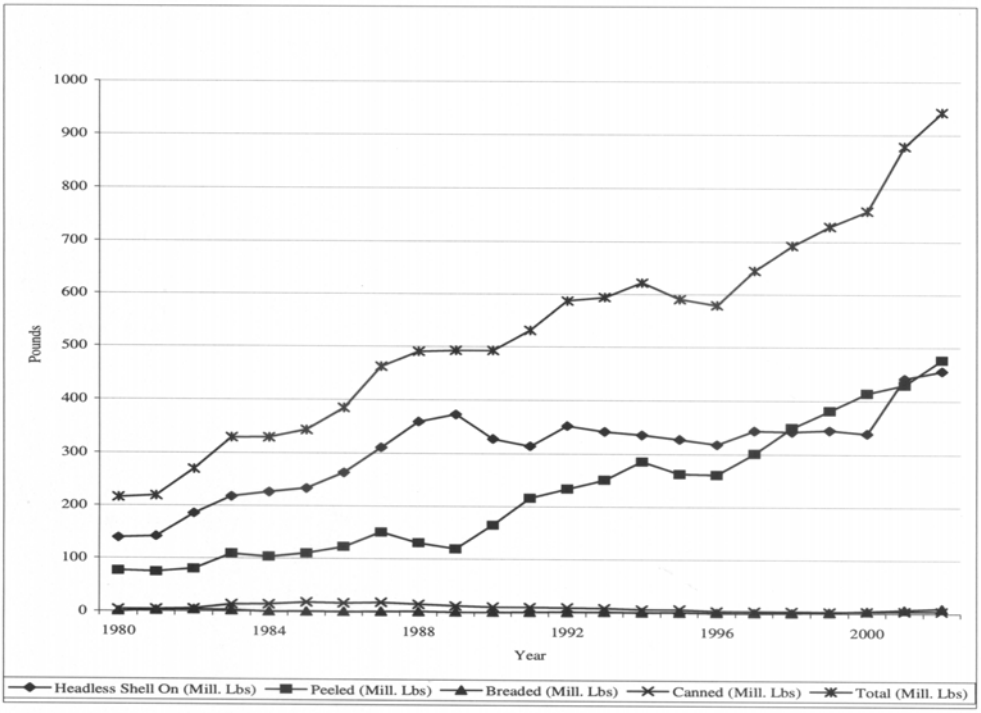

Figure 3-4. United States Imports of Shrimp by Product Form (Product Weight), 1980-2002

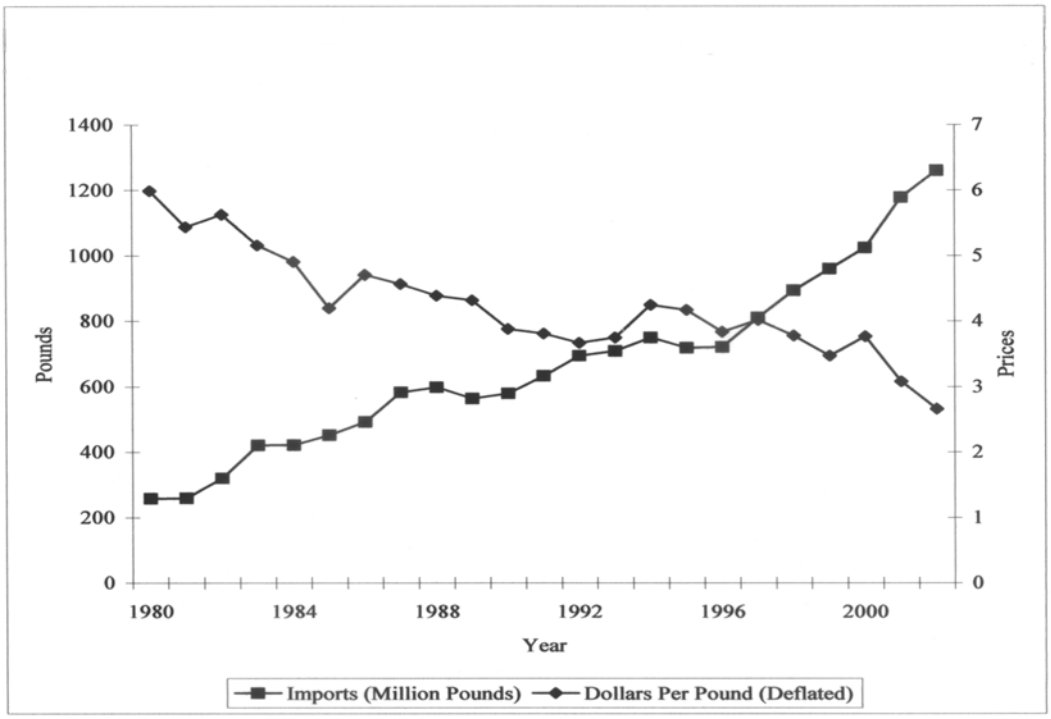

Figure 3-5. United States Imports of Shrimp (Headless Shell-on Weight) and Deflated Import Price (U.S. 2001 CPI), 1980-2002

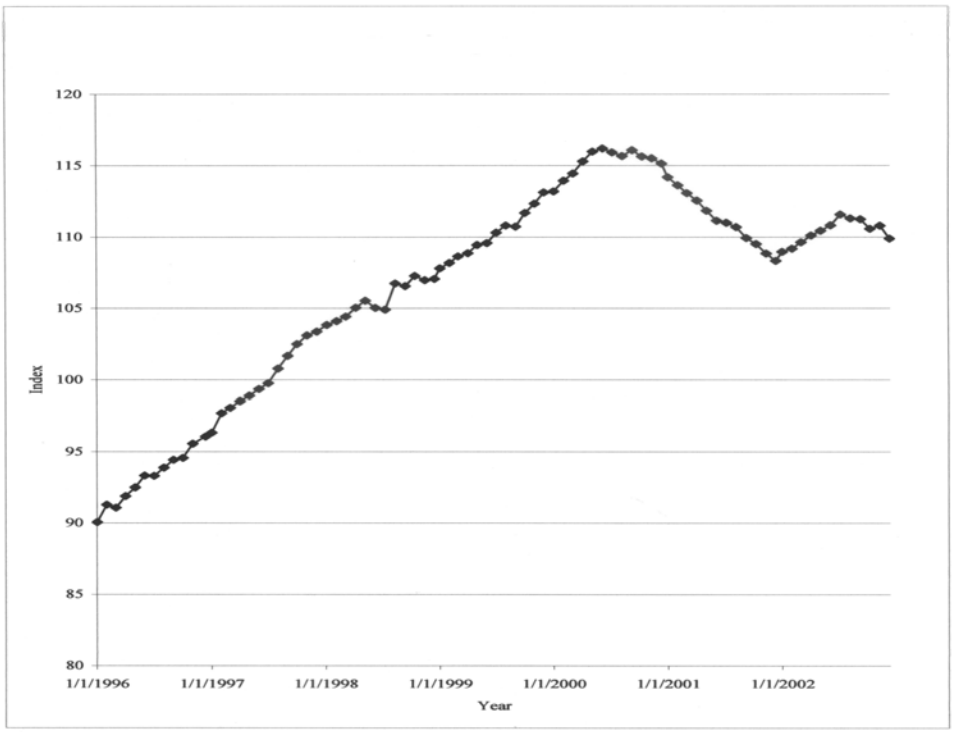

Figure 3-6. Industrial Production Index Falls Sharply from September 2000 Foreshadowing Recession (1997=100, Source: Modified from ERS Agricultural Outlook, January-February 2002)

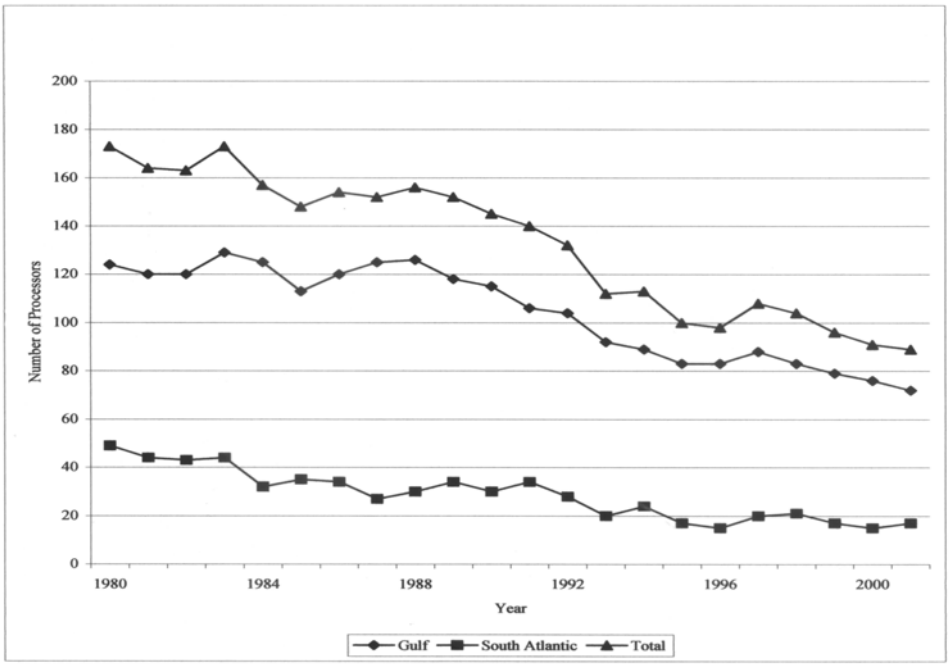

Figure 3-7. Reported Number of Southeast U.S. Shrimp Processors, 1980-2001

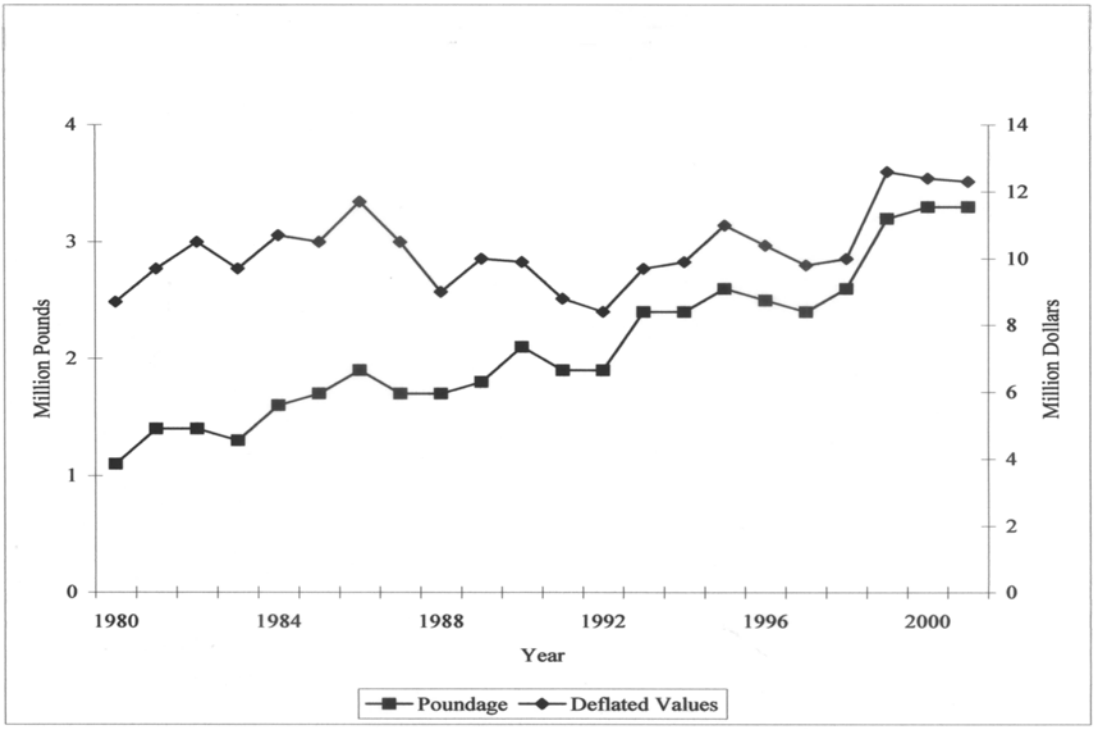

Figure 3-8. Average Production and Deflated Value per Southeast U.S. Shrimp Processing Firms, 1980-2001

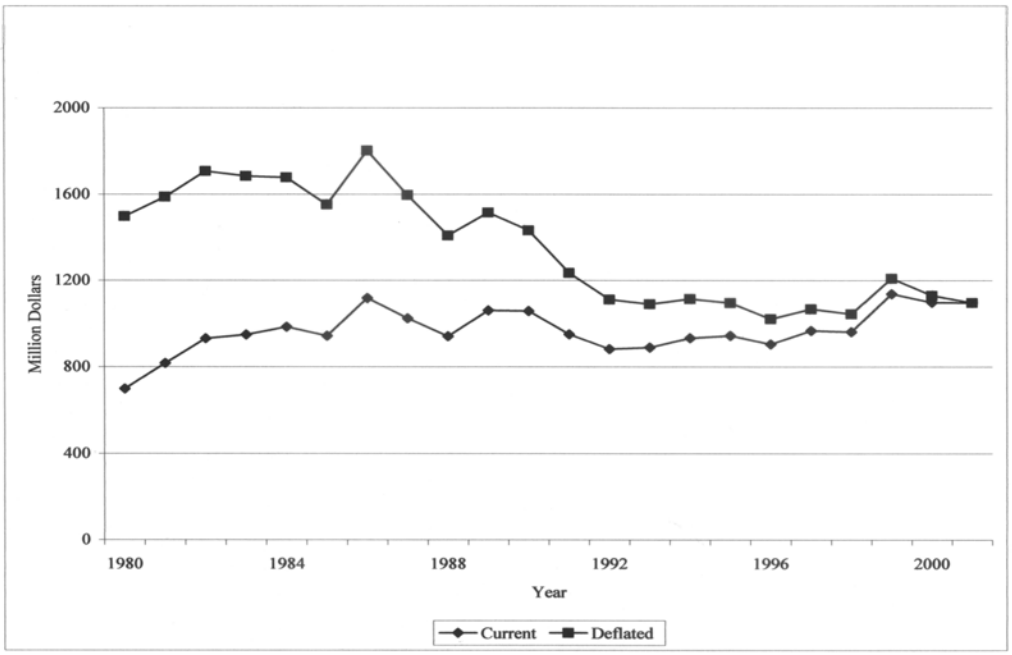

Figure 3-9. Current and Deflated Value (2001 U.S. CPI) of Southeast U.S. Shrimp Processing Activities, 1980-2001

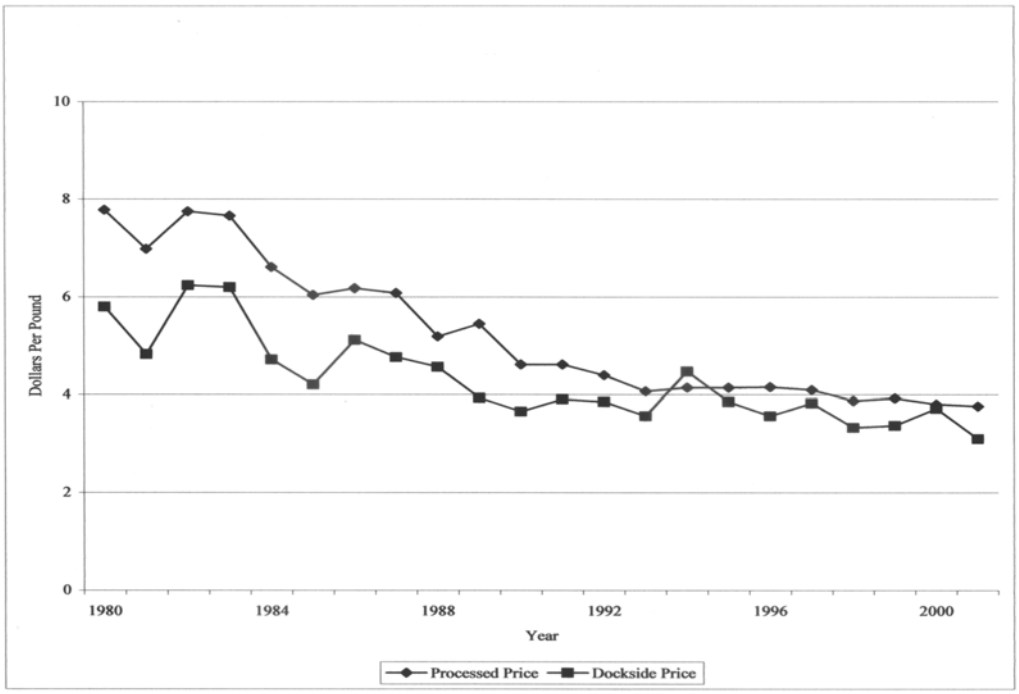

Figure 3-10. Deflated Southeast U.S. Shrimp Processed Price (Headless Shell-on Weight) and Dockside Price (Headless Weight), 1980-2001

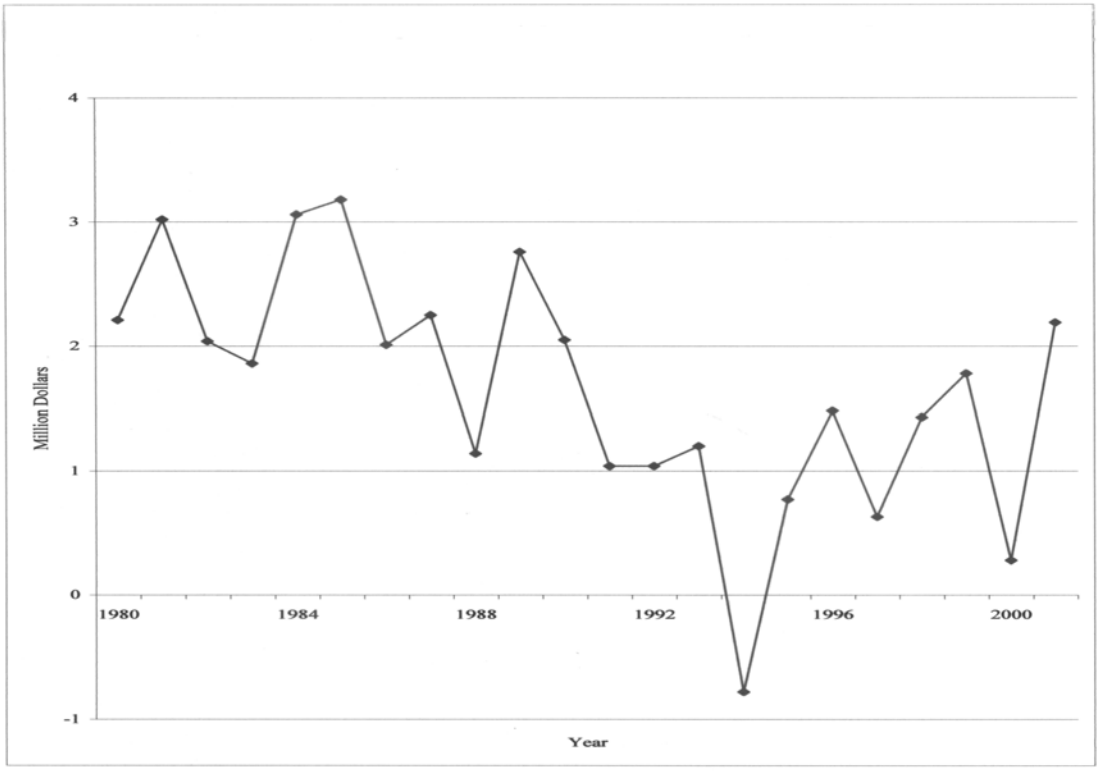

Figure 3-11. Estimated Average Gross Margin per Firm in the Southeast U.S. Shrimp Processing Sector, 1980-2001

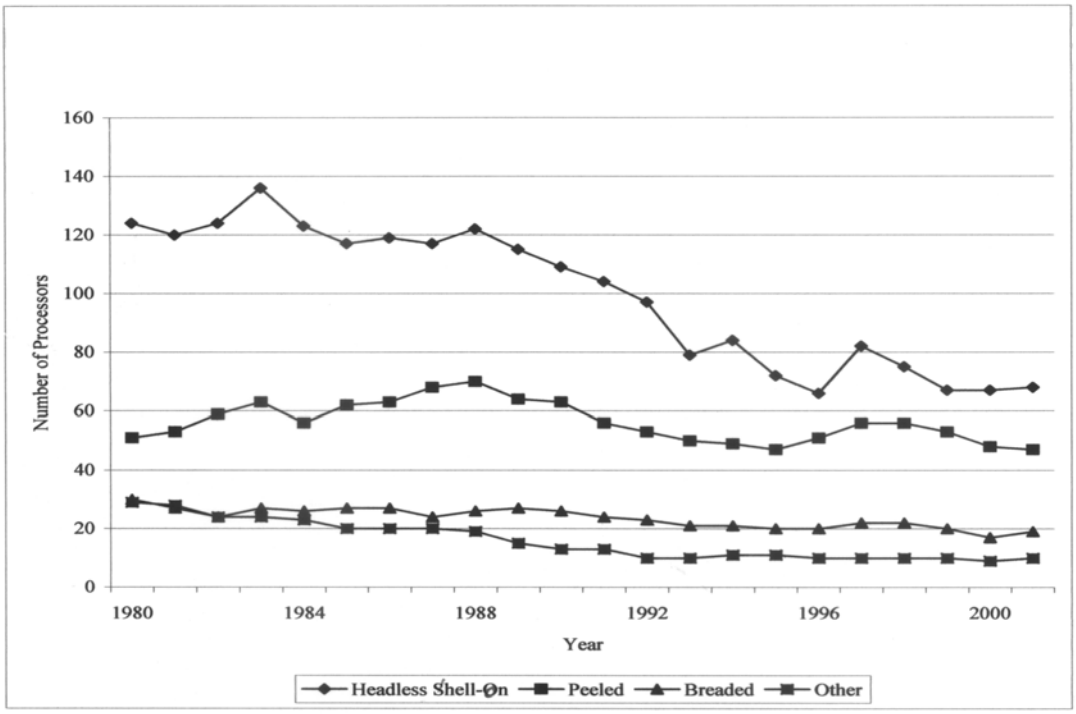

Figure 3-12. Reported Number of Southeast United States Shrimp Processors by Product Type, 1980-2001

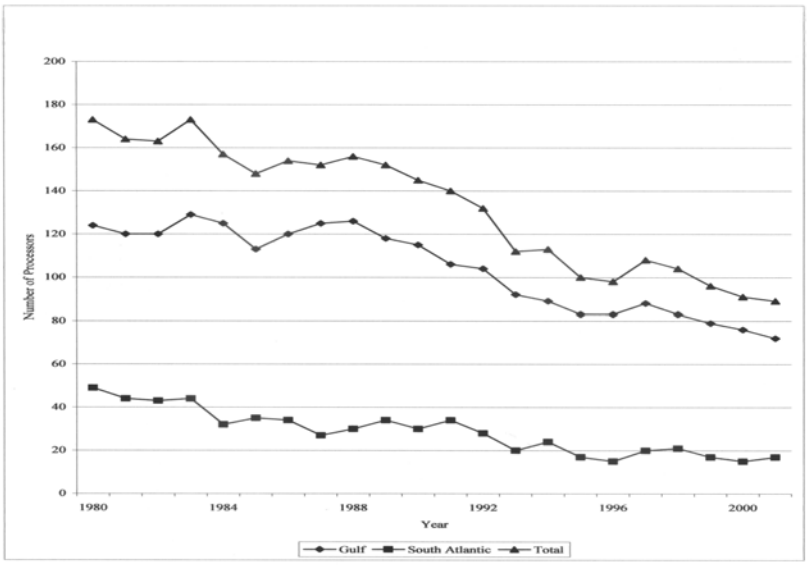

Figure 3-13. Reported Number of Southeast U.S. Shrimp Processors, 1980-2001

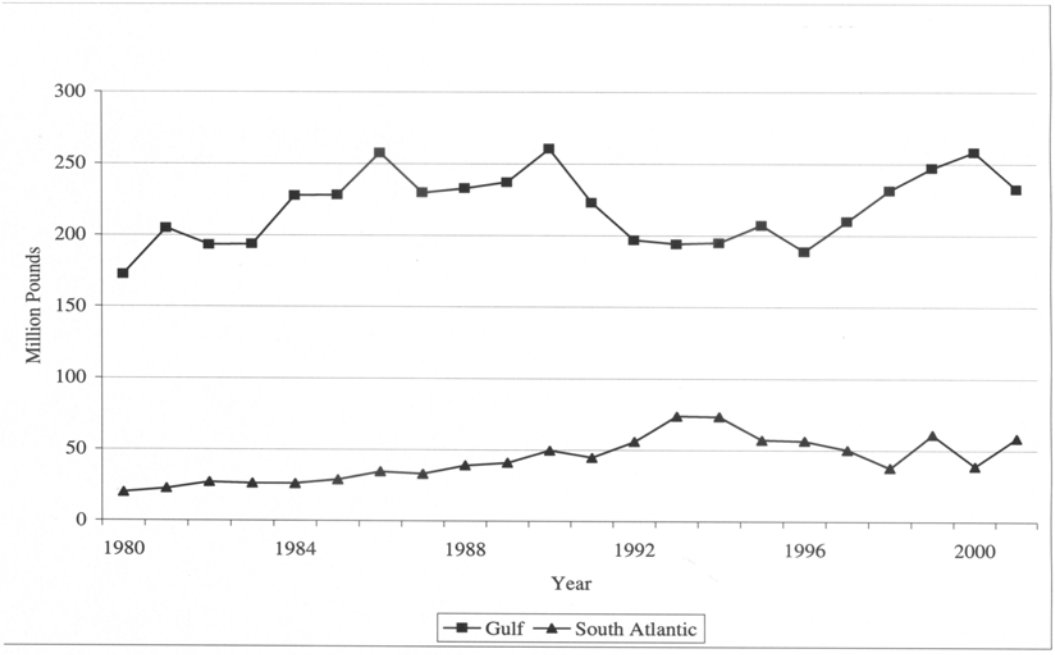

Figure 3-14. Processed Poundage (Headless Shell-on Weight) in the Southeast U.S., 1980-2001

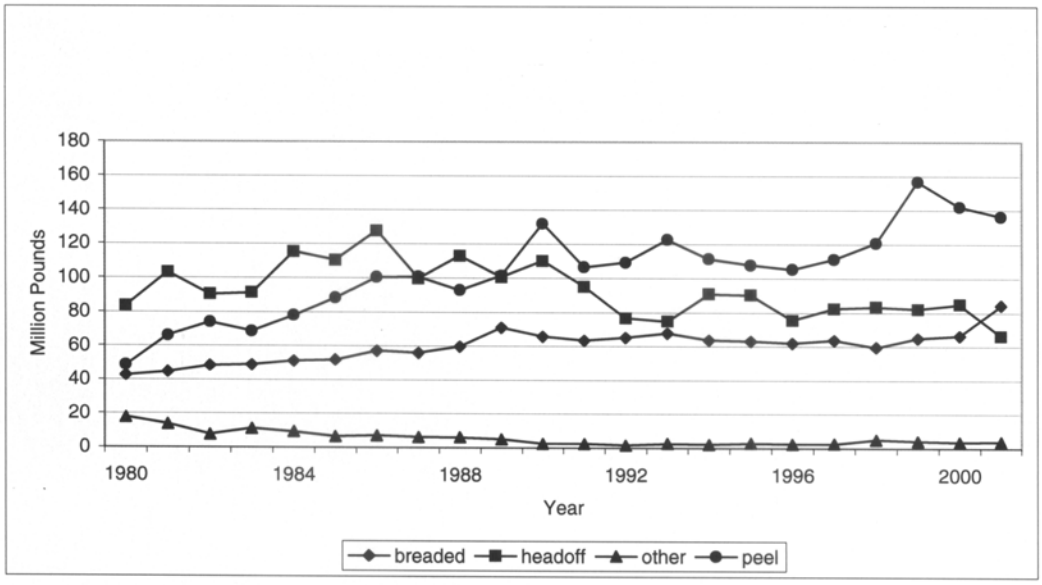

Figure 3-15. Processed Poundage by Product Type by Southeast U.S. Shrimp Processing Firms

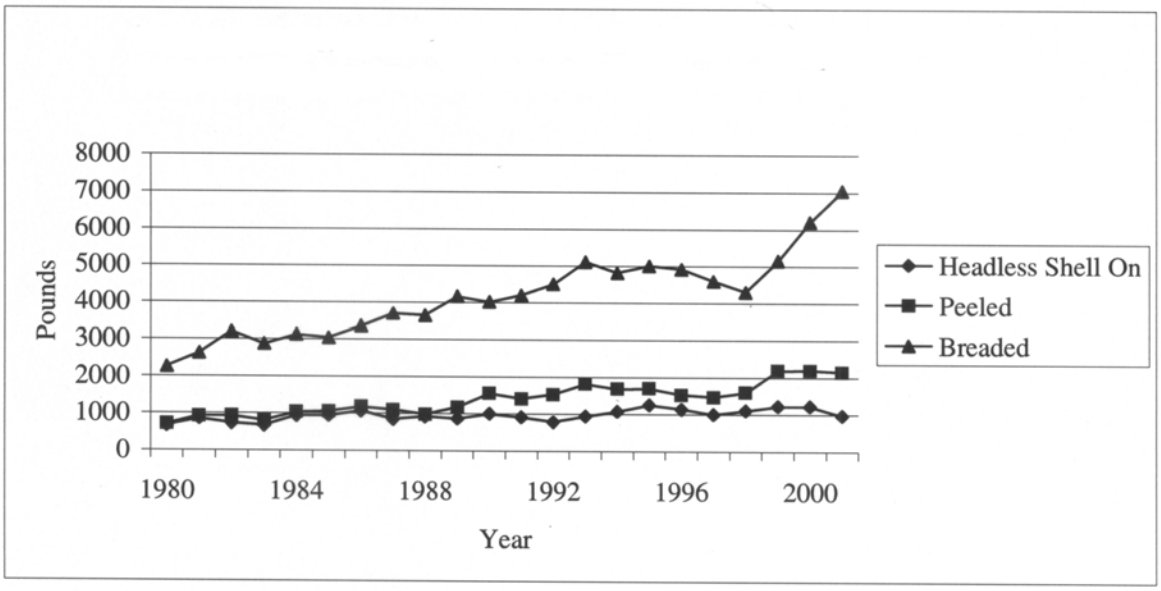

Figure 3-16. Average Per Firm Production of Headless Shell-on, Peeled, and Breaded Shrimp, Southeast U.S. 1980-2001 (Thousand Pounds, Product Weight)

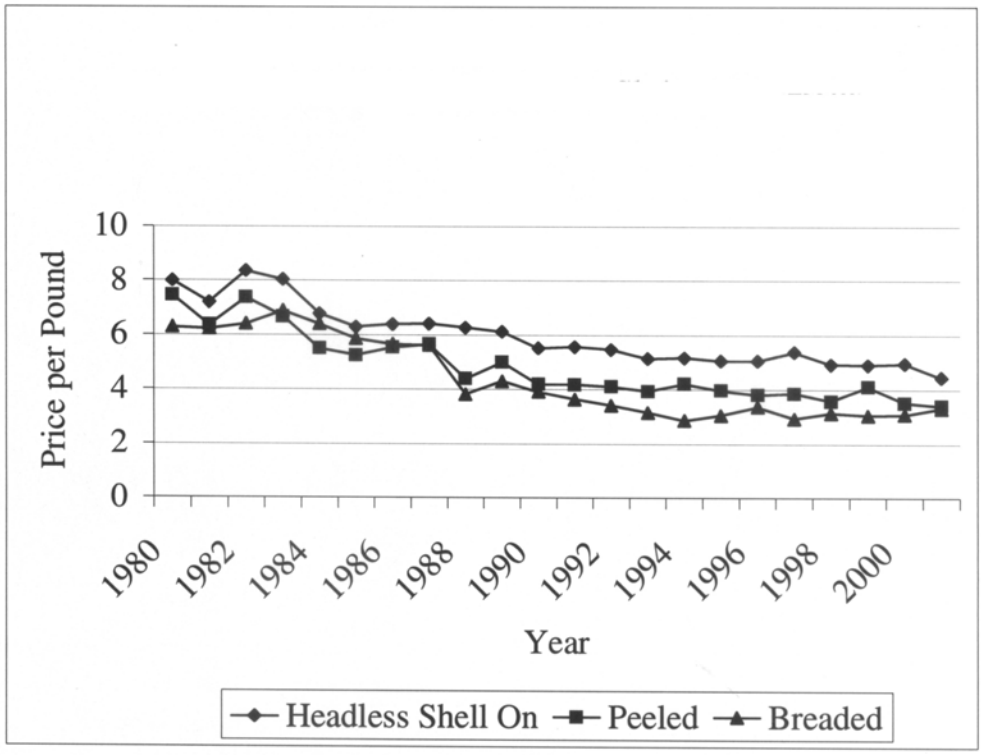

Figure 3-17. Deflated Prices (Product Weight) for Products Produced by the Southeast Shrimp Processing Sector, 1980-2001