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COMPOSITION AND RECENT EVOLUTION OF THE EXTERNAL TRADE IN AGRICULTURAL AND FOOD PRODUCTS OF PUERTO RICO

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RESUMEN. El comercio exterior, muy importante para la economía de Puerto Rico, ha evolucionado de una situación deficitaria permanente a una situación de superavit en la Balanza de Pagos en la última década. Como es natural el comercio está dominado por los Estados Unidos a donde van el 85% de las exportaciones y se originan el 90% de las importaciones. El 50% de las exportaciones y el 40% de las importaciones al resto del mundo van y se originan en América Latina y el Caribe. La implementación de un esquema de libre comercio para el Hemisferio Occidental tendría importantes efectos en el comercio exterior de la isla. En cuanto al comercio exterior de productos agropecuarios y alimenticios, la situación es muy diferente pues Puerto Rico exhibe un deficit permanente tanto en productos de origen vegetal y animal como en productos frescos del mar. Este deficit es parcialmente compensado por las exportaciones de productos de mar elaborados, aunque la ventaja competitiva en esta área parece estarse deteriorando. Durante la última década se han operado cambios significativos en los productos comerciados y en el origen y destino de este comercio.

INTRODUCTION

Trade has become increasingly important for the economy of Puerto Rico during the last two decades. Strictly speaking, shipments to and from the United States cannot be considered foreign trade because of their special status. Nevertheless, that commerce supports the notion that the levels of employment and welfare in Puerto Rico are highly dependent on supply and demand conditions outside the island. External trade, whether foreign or not, has played a pivotal role in the economic development of Puerto Rico. Appendix Table 1 illustrates this point and shows some comparative figures with selected countries in the Western Hemisphere.

This paper provides an analysis of the recent evolution of the external trade of Puerto Rico, with special emphasis on the agriculture and food sectors. It is the first component of a USDA/CSREES Special Grants in Tropical/subtropical Agriculture Research sponsored study aimed at assessing changing Caribbean trade flows-brought about by future trade liberalization and the potential resumption of U.S. trade with Cuba-and their potential impact on Puerto Rican agriculture.

EVOLUTION OF PUERTO RICO'S EXTERNAL TRADE

The economy of Puerto Rico has experienced profound and significant changes during the last half-century. An impressive rate of economic development has been achieved through programs and policies aimed at encouraging foreign investment. The following features were some of the catalysts for foreign investment: tax incentives led by Section 936 of the IRS code; low energy costs; a well-educated labor force, coupled with salaries significantly lower than those in the mainland; and last but not least, free

acces to the U.S. market. The Puerto Rican economy was transformed from an agriculturally based system to a system that primarily relies on the manufacturing industry and services, mainly exports to the United States. The island's gross domestic product increased from about $500 million in the mid-1940's to $42 billion in 1995.

Puerto Rico's external trade underwent a transformation parallel to that of its general economic development, increasing from a total of about $1 billion in the mid-1950's to a total of about $42 billion in 1996. The country's trade volumes surpass those of most larger and better resource-endowed countries in Latin America. Only two countries in Latin America-Mexico and Brazil-export more than Puerto Rico, and only three countries- Mexico, Brazil, and Argentina-import more (appendix Table A-2).

This substantial trade increase was accompained by a shift from the secular trade deficit that existed prior to the mid-1980's to the healthy surplus that has existed ever since. This shift was influenced, among other things, by "structural changes in industry and consistently low raw material prices during the last decade" (Thompson and Taylor, 1992b). Figure 1 illustrates the evolution of Puerto Rico's trade balance in the last 40 years.

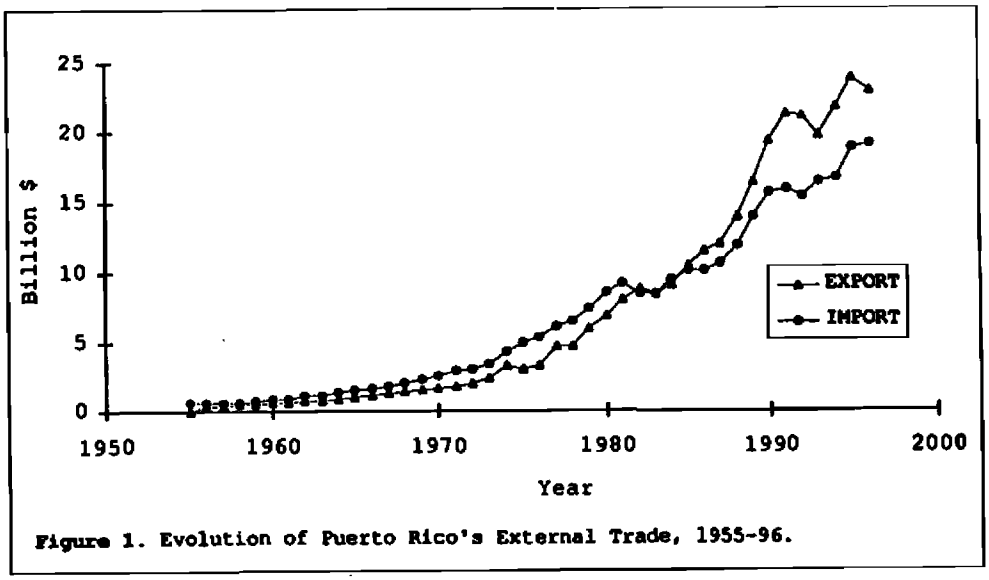

Figure 1. Evolution of Puerto Rico's External Trade, 1955-96.

As one would expect, Puerto Rico depends heavily on the United States for its external trade. This is particularly true in the case of its exports, about 90 percent of which are absorbed by the U.S. market; among the rest of the world, Europe-followed by the Caribbean- is the most important destination. The rest of the Western Hemisphere absorbs less than 2 percent of total exports, and Asia absorbs about 1 percent.

For its imports, Puerto Rico depends less on the United States, where 67 perecnt of them originate. Other important suppliers are Europe and Asia with about 9 percent each; South America with about 6.4 percent; the Caribbean with about 4.4 percent; and

the rest of the Western Hemisphere with about 2 percent. Puerto Rico's trade with the rest of the Caribbean is surprisingly low, both in absolute and relative terms. If one considers that the Dominican Republic accounts for about 75 percent of the trade with the Caribbean and Trinidad-Tobago accounts for another 10 percent, it is easy to see that trade with the rest of the region is almost negligible.

The positive trade balance of the last decade, illustrated in Figure 1, consists of a substantial surplus with the United States and a growing deficit with the rest of the world. The composition of Puerto Rico's external trade reflects the nature of its economy; about 94 percent of all imports and 99 percent of all exports are manufactured products. Also, 66 percent of all imports are raw materials and intermediate products; 9 percent are capital goods; and 25 percent are consumer goods (35-40 percent of which are durables and 60-65 percent of which are nondurable).

REVIEW OF THE RECENT EVOLUTION OF AGRICULTURE

Brief Background: The evolution of external trade in agricultural and food products has been influenced, to a great extent, by the general behavior of the agricultural sector; therefore, it should be observed within the framework of the significant decline of this sector during the past half-century. Thompson and Taylor (1992b) provide a detailed analysis of the production face of Puerto Rico's agriculture; thus, this paper only includes a brief synopsis of the sector's evolution during that period. The agricultural sector in Puerto Rico, has experienced a significant and continuous decline in terms of area planted and total production. Its importance as a source of employment and value added has also deminished. The sector's decline is illustrated in Table 1.

The agricultural decline has occurred primarily in the crop subsector, where the harvest area has diminished by 70 pecent as shown by the figures in Table 1. About 75 percent of the decrease in crop area can be explained by the decrease in areas planted with what were formerly the three main crops on the island-sugar cane, coffee and tabacco. The area planted with sugar cane decreased from 392,000 cuerdas (1 cuerda = 0.93 acre = 0.43 ha) in 1952 to its current level of about 39,000 cuerdas; the area planted with coffee decreased from 152,000 to 81,000 cuerdas during the same period; and the 36,000 cuerdas of tabacco have decreased to almost nothing.

Several factors, which attributed to this agricultural decline, have been discussed in detail by other authors (for example, Thompson and Taylor, 1992a; the Department of Agriculture); thus, these factors will only be briefly discussed here. The first factor is physical, namely soil erosion caused by many years of deforestation and the minimal practice of conservation techniques. The second factor is the lack of a good system of technology transfer. The large technological gaps between the potential and actual productivity of all the factors of production can be attributed to this factor. A third factor relates to government policy, both at the federal and local levels; it has been erractic and paternalistic (Department of Agriculture), contributing to, among other things, an increase in relative wages and adversely affecting the competitive advantage of agriculture (Thompson and Taylor, 1992a).

Table 1. Decline of Agriculture in Puerto Rico

Year	Cropland	GDP	Employment
	-thousand cuerdas-	----------%----------	
1952	902	19.4	36
1962	745	10.1	23
1972	540	3.4	10
1982	335	2.6	6
1987	325	1.4	4
1992	273	0.8	3

Source: Cropland - Departmento de Agricultura, Oficina de Estadisticas Agricolas, Amarios Estadisticos; Percent of GDP and Employment – (1950, 1960, 1970) Thompson and Taylor, (1980, 1990, 1995) Planning Board, Economic Report to the Governor 1994-95.

The traditionally unequal pattern of land distribution that prevails in Puerto Rico, a classic example of what is known as a bimodal pattern of land ownership (illustrated in Figure 2.), lies beneath and contributes to each of the factors mentioned above. Roughly speaking, 50 percent of the farms own less than 5 percent of the land, while less than 5 percent of the farms own 60 percent of the land.

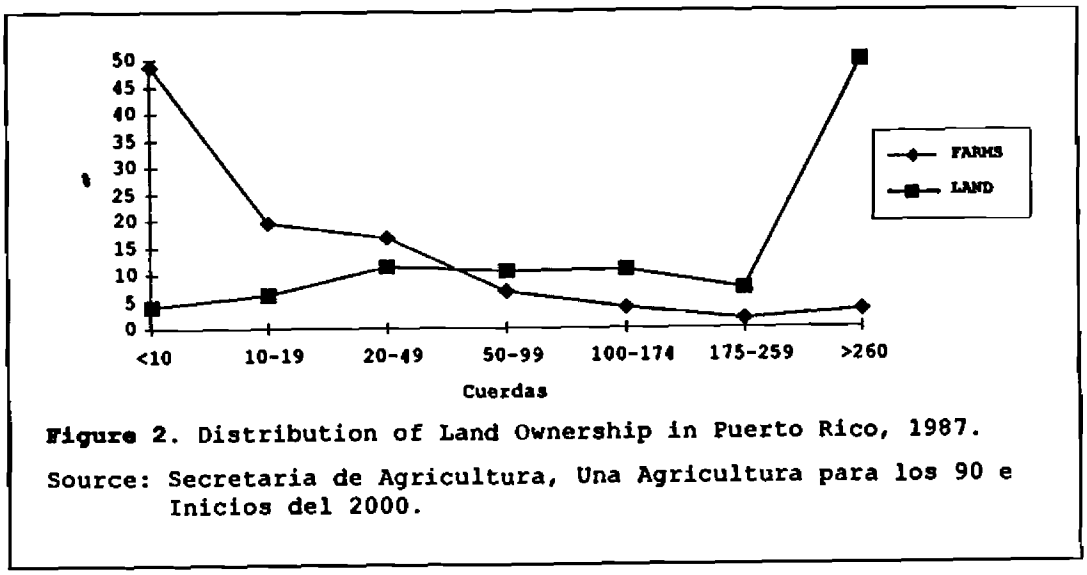

Figure 2. Distribution of Land Ownership in Puerto Rico, 1987.

Source: Secretaria de Agricultura, Una Agricultura para los 90 e Inicios del 2000.

There is no reason to believe that the agricultural sector will undergo a reversal any time in the near future. In terms of land potential, according to Thompson and Taylor, (1992a): "The consensus of most post-war studies appears to be that Puerto Rico has only around 240,000 acres of sustainably fertile land". This area is equivalent to 247,000 cuerdas, or roughly 10 percent less than the land planted with crops in 1994. Furthermore, the recent Department of Agriculture, study estimates that viable agriculture

in Puerto Rico in the year 2010 will use a total of 873,000 cuerdas- of which 450,000 will be used for livestock production (beef and dairy); 250,000 for forests; and 4,000 for aquaculture, leaving only 169,000 cuerdas for crop production.

Puerto Rico's Trade In Agricultural and Food Products: Puerto Rico's external trade in agricultural and food products has characteristics quite different than those of its total trade. The main difference is a perennial trade deficit that has recently been increasing. Figure 3 illustrates the evolution of Puerto Rico's external trade balance in all agricultural and food products, both raw and processed. Both exports and imports increased during the 1980's reaching a peak in 1989; during that period the trade deficit fluctuated between $477 million and $700 million.

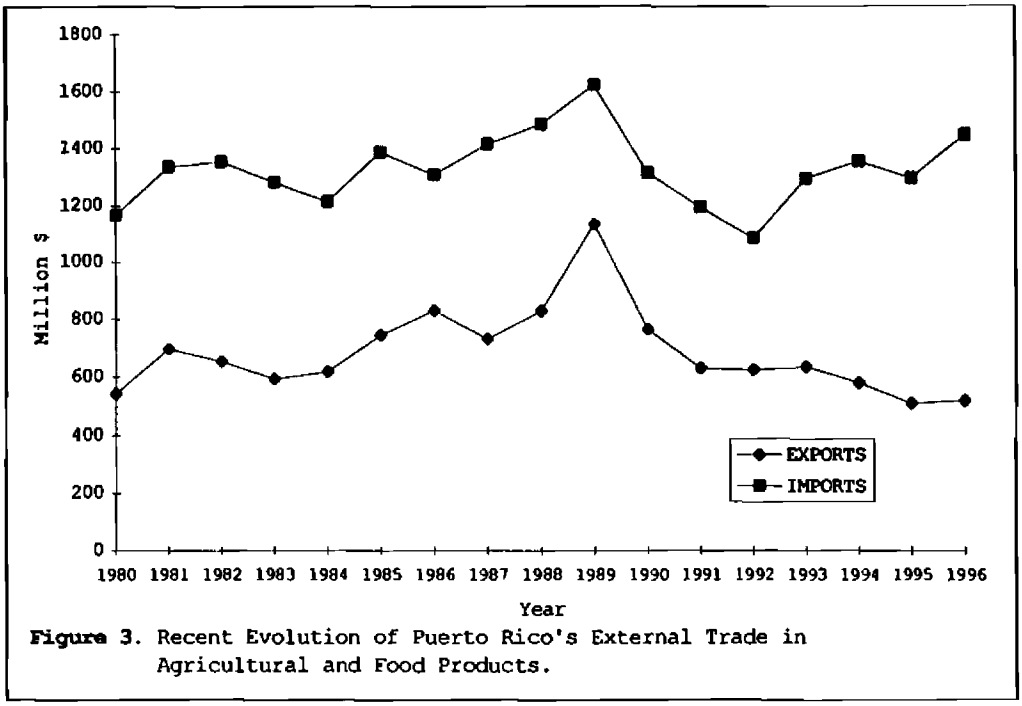

Figure 3. Recent Evolution of Puerto Rico's External Trade in Agricultural and Food Products.

In 1990, both exports and imports began to decline. The decline in exports has continued, but the decline in imports reversed in 1993, causing the trade balance to deteriorate to its current deficit level of $928 million, the highest level in recent times.

In the early 1980's, Puerto Rico depended on the United States for 88 percent of its exports and 69 percent of its imports; the figures for the 1994-96 period are 82 and 63 percent, respectively. As trade is liberalized within the Western Hemisphere, these figures will probably continue to decrease.

Trade in Products of Vegetable Origin: Trade in products of vegetable origin is a small portion of total agricultural and food trade, comprising about 22 percent of exports, 33 percent of imports, and 30 percent of total trade. Some important features that have affected the evolution and composition of this trade should be noted. The trade deficit

has increased from an average of about $250 million in 1980-82 to an average of $330 million in 1994-96, as illustrated in Figure 4. An important contributor to the increase in this deficit has been the trade in sugar and derived products, which decreased from a positive balance in the early 1980's to a deficit that reached $135 million in 1995 and $496 million in 1996. Exports of raw sugar and sugar syrups have disappeared, no doubt as a result of the general decline of the sugar industry.

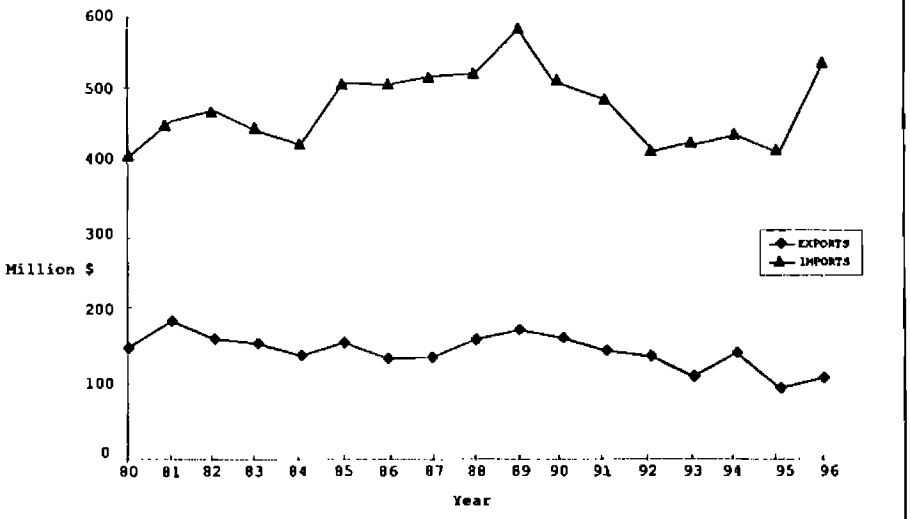

Figure 4. Recent Evolution of Puerto Rico's External Trade in Products of Vegetable Origin.

The value of exports in all broad vegetable categories declined during the 1980-96 period. Not even the emergence of new export lines helped compensate for the decline. In the fruit category, Puerto Rico lost ground in its export of melons- important products in the early 1980's- to other Central and South American exporters. As a result, it discontinued its export of the fruit. Those exports have been replaced by tropical fruit, mainly mangoes and guavas.

In the edible vegetable category, there was a significant increase in tomato exports for the U.S. winter market, which compensated for a decline in the export of dry beans. The export of live plants, but disappeared, and in the cereal category, new exports of wheat flour partially compensated for a decline in rice exports.

The largest import category and one which experienced an increase of almost 60 percent during the period is the cereal category, with more than 95 percent of cereals being imported from the United States. Within this category, the imported value of raw grains-such as, rice and corn, has decreased, but the value of elaborated products-such as, rolled and flaked grains and flours, has increased significantly. A decrease in the value of imported edible vegetables was partially compensated by the increase in cereal imports; within this category, the most important products continue to be potatoes and tomatos from the United States. Dasheens and yams from other countries have also become important. The value of fruit and nut imports was halved between 1980 and 1996; the main products continue to be apples and grapes from the United States and pineapples and, recently, avocados from the other countries. Imports of lacs, gums and

resins have recently averaged more than $10 million per year, and oilseeds and products have become important, primarily as a result of increased imports of soybean meal and cake, an important ingredient used in feed for a growing poultry industry. Finally, once an exporter of live trees, Puerto Rico has become an importer, averaging more than $4 million annually.

Trade in Products of Animal Origin: Products of animal origin dominate the external agricultural and food trade of Puerto Rico; they account for 78 percent of all exports and 67 percent of all imports of agricultural and food products. It is no surprise that the evolution in the trade balance of these products during the period under consideration is very similar to that of the total trade in agricultural and food products discussed before. The value of both exports and imports increased from 1980 to the end of the decade, with exports increasing at a much faster pace, and the negative value of the trade balance was reduced significantly during that period. After 1989, both exports and imports began to decline; the decline in exports has continued, while the decline in imports only lasted three years. Since 1993, imports have increased steadily, causing the trade balance to deteriorate to a deficit of $518 million in 1996, the highest deficit in recent history. The evolution of the trade balance in products of animal origin is illustrated in Figure 5.

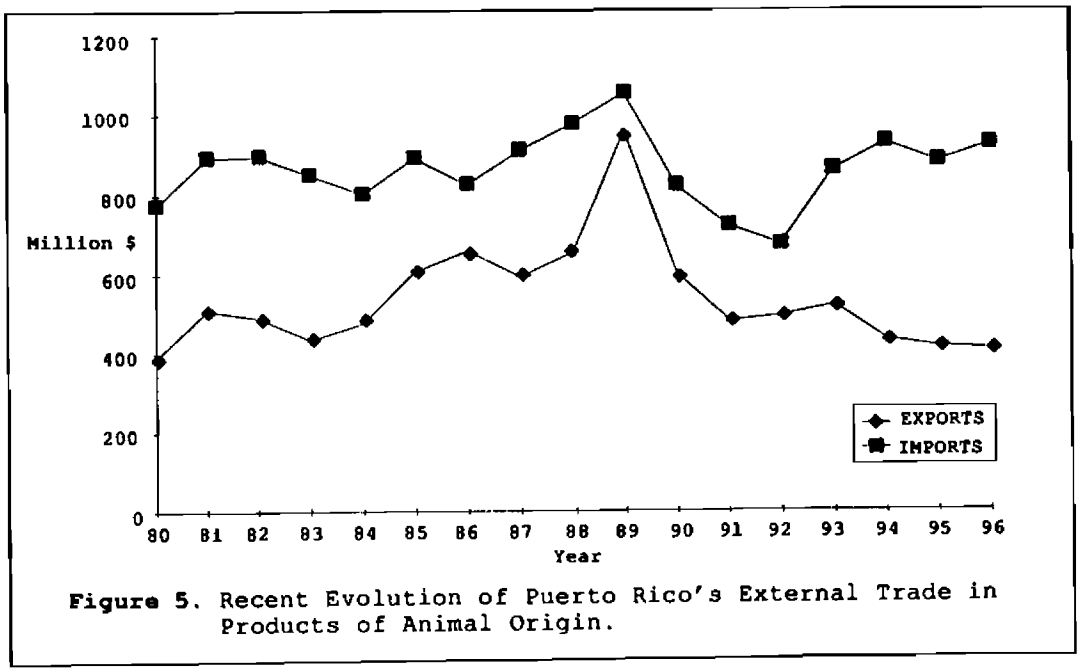

Figure 5. Recent Evolution of Puerto Rico's External Trade in Products of Animal Origin.

The behavior of this category of products has been greatly influenced by fish and shellfish trade, which accounts for 92 percent of exports and nearly one -third of the imports of products of animal origin. Had it not been for this subcategory, the external trade deficit would have been much larger. This situation seems to be changing. Figure 6 shows that, while imports have remained fairly stable, the value of exports has declined significantly, reducing the trade surplus to a mere $43 million in 1996.

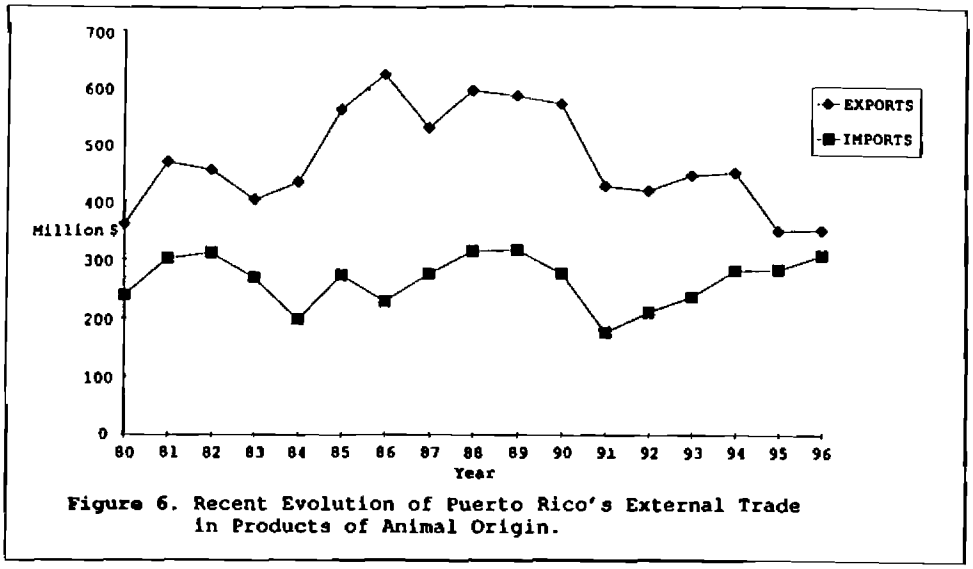

Figure 6. Recent Evolution of Puerto Rico's External Trade in Products of Animal Origin.

This may reflect problems of capacity or an inability to compete in the U.S. and foreign markets with countries like Ecuador, Peru, and Mexico.

Exports to the United States, with the exception of hide and skins, have declined substantially; fish products, which account for 98 percent of the value of all shipments, have declined by 21 percent. Exports to other countries have increased due primarily to a significant increase in hides, skins, and leather, as well as in fish products; this increase, however, has not been enough to compensate for the loss in the value of products shipped to the United States.

The largest increase in imports occurred in the meat and meat products category, in which the total value of imports increased by almost 25 percent. At the level of aggregation used in this paper, the main inference that can be made is that imports of poultry products declined significantly, while imports of other meats, both fresh and processed, increased by more than the above percentage. This is consistent with growth in the domestic poultry industry.

The value of imports of dairy products and eggs declined by slightly more than 10 percent; within this category, a larger decline took place in fluid milk and cream, while imports of cheeses increased. This is consistent with changing consumption patterns and the fast development of the fast-food industry. The decline in the value of imports of animal fats and greases is also consistent with the changing food consumption patterns of the population. The increase in the value of imported eggs might indicate that most of the increase in the poultry industry has been in broiler production. The value of imports of fish products remained practically stable. An increase in imports from other countries compensated for a decrease in imports from the United States.

Implications for Trade Liberalization and the need for Further Research: In order to estimate the potential impact of hemispheric trade liberalization on Puerto Rico's external agricultural and food trade, a more detailed analysis of trade patterns is needed. That involves building trade matrixes for the main commodities traded in the area. Other considerations would have to include future trends in urbanization, industrialization, wages, farm sizes, adoption of technology, and the development of other sectors of the economy, among other things. What happens in Cuba and in those U.S. states that

produce competitive commodities, such as Florida, is also important. The next step in this research will be the examination of those factors. In the mean time and based on the information generated to date, one can only speculate with caution about the future of Puerto Rico's external agricultural trade.

Appendix Table A-1. Importance of Trade for Puerto Rico, Comparison with Selected Countries in Western Hemisphere.

Total Trade per Cápita		Trade as Perent of GDP		
Country	Merchandise	Agricultural/ Food	Merchandise	Agricultural/ Food
	----------$----------		----------%----------	
Puerto Rico	11,000	472	100	4
United States	4,410	262	17	1
Mexico	893	105	23	3
Argentina	885	227	12	3
Brazil	409	82	14	3
Colombia	473	89	31	6
Venezuela	1,159	80	40	3
Chile	1,444	160	46	5

Source: Calculated by the author from World Bank, FAO, and USDC data.

Tendencies toward increased industrialization and urbanization are likely to continue as are the pressures on wages; progress-in terms of technology that would increase agricultural productivity across the board-seems to be slow; and there is a tendency toward smaller average sized farms. Thus, the decline in importance of the agricultural sector will most likely continue, with cropland area stabilizing at about 200,000 cuerdas. Production will probably be focused on those commodities that are highly perishable and more difficult and expensive to ship in the case of the local market. Thus, one might expect further declines in imports of edible vegetables and dairy products, particularly fluid milk and cream.

For the export market, one might expect an increase in the production of those commodities for which there is a natural competitive advantage, such as tropical fruits, and in certain commodities where state-of-the-art technology is easy to transplant, as has been the case of tomatos for the U.S. winter market. A lot will depend on the possibility of the Cuban embargo being lifted since Cuba was an important supplier of those commodities to the United States, prior to the imposition of the embargo.

Puerto Rico will probably continue to be a good market for cereals, both raw and processed; fresh, frozen and processed meats; certain specialty edible vegetables; and fruit from temperate climates. As poultry aand other types of animal production are further developed, increased imports of vegetable meal and cake, particularly soybean, can be expected.

Appendix Table A-2. Ten Largest Trading Countries in Latin America (1994).

Country	Imports	Exports	Total Trade
	million $		
Mexico	86,400	53,600	140,000
Brazil	54,400	50,700	105,200
Argentina	31,400	21,000	52,400
Puerto Rico	16,700	21,800	38,500
Venezuela	16,000	19,100	35,100
Chile	16,000	14,900	30,900
Colombia	16,300	12,400	28,700
Panama	7,800	7,600	15,400
Peru	9,200	6,000	15,200
Costa Rica	4,000	3,400	7,400

Source: World Bank, World Development Report 1996; Puerto Rico, Planning Board, Economic Report to the Governor, 1995.

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