

Puerto Rico Tourism Satellite Account, 2002

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## Introduction

The Evaluation Project of the Program of Economic and Social Planning recommended the development of a Tourism Satellite Account (TSA) for Puerto Rico. This report presents a completed initial version of the TSA for 2002. The satellite account presents in detail the production and supply of goods and services available to tourists, purchases by tourists and estimates of the value added and employment related to tourism. These accounts are directly related to the other economic accounts of Puerto Rico, principally the input-output accounts, the industry income accounts and the gross national product accounts.

The tourism accounts separate the expenditures of resident and non-resident visitors from all other expenditures in the national accounts and relate these expenditures to the production of industries producing these tourism related goods and services. These accounts are designed to:

- Identify commodities that visitors typically buy
- Identify tourism industries, those industries producing tourism commodities
- Provide measures of the level of total expenditures by visitors
- Classify visitor expenditures by origin of the visitor, i.e. residents traveling in Puerto Rico, non-residents traveling in Puerto Rico, and residents traveling outside of Puerto Rico,
- Show the relationship between visitor expenditures and the economy including the size and direct contribution of tourism to the economy,
- Provide estimates of employment related to the production of tourism commodities.

The development of these accounts followed the recommendations of the United Nations publication International Recommendations for Tourism Statistics 2008 (Studies in Methods, Series M No. 83/Rev. 1, 2010). While the Puerto Rico TSA follows these recommendations some modifications were required to conform to the current definitions of the Puerto Rico national accounts. Additionally, the accounts are limited to current account measures (production, income and expenditures) and exclude capital expenditures (construction and investment in tourism facilities).

Currently Puerto Rico collects and reports data on expenditures by non-residents traveling to Puerto Rico and residents traveling outside of Puerto Rico. The TSA expands the coverage of tourism expenditures to include all travelers, primarily tourism expenditures by residents within Puerto Rico. Additionally, these accounts relate all traveler expenditures to the other published economic statistics. The TSA identifies an important industry in Puerto Rico, the tourism industry and relates the industry to other economic statistics, however the most important statistic in these accounts are the non-resident tourism expenditures. Non-resident travel to Puerto Rico is an important export of Puerto Rico services to the rest of the world and is an enhancement to Puerto Rico GNP. The measure of the non-resident expenditures by type of expenditure is a key economic indicator of the impact of tourism on the overall economy as well as the impact on particular sectors of the economy.

This paper is divided into five sections: A description of tourism accounts including concepts and definitions; second, presentation of the TSA for Puerto Rico; third, documentation of the initial estimates; fourth, a proposed method for updating these estimates to the current period including incorporating the 2007 input-output estimates and the new travel survey results; finally, recommendations for improving the accounts.

## **Section 1: Concepts and definitions of the tourism accounts**

The activities of travel and tourism are covered in the national economic accounts, but the system underlying the classification of output in the I-O accounts—the Standard Industrial Classification (SIC) system—does not facilitate the separation of tourism from the rest of the economy; the SIC was designed to present industry statistics without regard to the purpose of the purchase of output. A measure of tourism activities would be understated if it included only the output of industries that are typically associated with tourism activities—hotels and air, water, and rail transportation—because it would exclude expenditures on other types of commodities, such as meals and beverages, that represent a relatively important share of tourism expenditures but that cannot be separately identified. On the other hand, that measure would be grossly overstated if it included all the expenditures on eating and drinking because it would also include expenditures by local residents.

The TSA follow the general concepts and definitions developed by the United Nations as the System of National Accounts (SNA) as well as the UN proposals for tourism satellite accounts.<sup>1</sup> While there are numerous differences between the UN recommendations and the Puerto Rico national accounts, the key differences related to the TSA are: the SNA key statistic is gross domestic product (GDP) while the Puerto Rico accounts focus on gross national product (GNP) and second the SNA presents the economy in terms of industries producing commodities purchased by other industries or final purchases (GDP) while the Puerto Rico accounts present the economy only in terms of industries.

A complete development of the SNA and the TSA is contained in the UN documents. This paper provides a summary of the most important concepts and definitions.

**Industry:** The SNA defines industries as a group of establishments engaged on the same, or similar, kinds of production activity. This definition is consistent with the definition of an industry in the Puerto Rico accounts. A tourism industry generally sells a significant portion of its output to visitors, where "significant" indicates that the industries' revenues and profits would be substantially affected if tourism ceased to exist. Examples include airline transportation and hotels.

An industry usually produces both primary and secondary products. Primary products are the major output of the industry and are used as the basis for classifying an industry to a particular SIC. Secondary products are primary products of some other industry. For example the hotel industry sells lodging services as well as gambling services; hotel services are a primary product of the hotel industry and gambling is a secondary product of hotels and a primary product of the amusements industry.

**Commodity:** A commodity is a unique good or service produced by industries and usually defined by its use rather than its method of production (i.e. and industry). Commodities are usually classified into groups of commodities following the classification system used for industries. For the initial estimates, commodities will be defined using the SIC, the primary product of an SIC is the commodity. Updated estimates should use the North American Classification System (NAICS) since the Puerto Rico accounts have changed to this classification system.

Tourism commodities are the commodities that are typically purchased by visitors directly from producers. The identification of tourism commodities partly depends on the locale and the activities of visitors, but several commodities, such as hotels and transportation services, are obvious. Classification

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<sup>1</sup> United Nations publication [System of National Accounts 2008](#), New York, 2009; United Nations publication [International Recommendations for Tourism Statistics 2008](#) (Studies in Methods, Series M No. 83/Rev. 1, 2010)

of tourism commodities in the TSA's is based on a list of predominant activities of visitors that was developed from UN recommendations. The commodities are grouped into the following broad categories: Tourism commodities, such as hotels and lodging, eating and drinking places, other types of leisure activities, and modes of transportation; and non-tourism commodities.

Several commodities are included in order to account for shopping and other purchases and to provide estimates in purchasers' prices (that is, to compute values in producers' prices from the production table). These commodities are trade margins and all commodities that flow to PCE non-durables. Trade margins are classified as tourism commodities because the retailers have direct contact with visitors. Other commodities, while supplying tourism demand such as for shopping, are classified as non-tourism commodities because the producers do not have direct contact with visitors.

The TTSA's exclude a number of commodities that could be viewed as tourism commodities—consumer durables, imputed rents from vacation homes, skiing, health spas, financial services, and retail food (off-premise food consumption); many of these commodities are not separately identified in the I-O accounts. However, two of these commodities—consumer durables and imputed rents from vacation homes and related lodging accommodations, such as time-shares—are important tourism commodities, and their exclusion results in an understatement of travel and tourism activities. Including them would require additional analysis to develop estimates of tourism's share and, in the case of consumer durables, to determine which items to include.

**Visitor:** A visitor is a person who either travels outside of his or her "usual environment" for a period of less than 1 year or who stays overnight in a hotel or motel. The visitor may travel for personal pleasure or on industry or government business. Visitors do not include travelers whose main purpose is to be compensated within the place visited—such as migrant workers, persons traveling to new assignments, and diplomatic and military personnel traveling between their duty stations and home countries. The 1-year time period is consistent with the internationally accepted limit that is usually used to define a "resident."

**Usual environment:** The usual environment is defined as the place of normal (or everyday) activities—such as residence, leisure, study, and work

## **Section 2: The 2002 Puerto Rico Tourism Accounts**

Tourism expenditures by residents (business, government and households) and non-residents in 2002 are estimated to be \$4.6 billion dollars. These expenditures account for 2.8 percent of Puerto Rico gross domestic product, or \$2 billion dollars in 2002. Tourism related employment amounted to 43.6 thousand persons or 3.8 percent of total employment in 2002.

The tourism accounts are presented in four tables: the production account, showing the production of tourism commodities by industries; the supply account, showing the derivation of the supply of tourism commodities in purchaser prices; tourism consumption, the key table for the accounts showing tourism consumption by type of visitor, and finally tourism employment and value added.

Production of tourism commodities: Table 1 shows the 2002 estimates of the production of tourism products by industries (due to the table's size this table is included at the end of the document). The columns are industries and the rows are commodities. The sum of industry production (the column sum) is equal to the industry outputs developed for the 2002 I-O table, except for trade where the new concept of industry output was implemented (trade output of meals and beverages by restaurants is treated as sales of meals rather than margin on food purchases). For example, the output of the hotel industry is \$969,138 thousand; the same level of output as reported in the 2002 I-O table.

Reading down the column shows the commodities produced by each industry. For most industries only one commodity is produced. For selected industries where additional information was available and it was relevant to the production of the TSA the commodities produced by industries were identified. For example, the industry output of hotels is separated into three unique tourism commodities: hotel services is \$560,631 thousand, food and beverage services (i.e. prepared meals and beverages) is \$240,436 thousand, and casinos (other miscellaneous amusements) is \$168,071 thousand; or trade industry output is separated into food and beverage services, trade output and services. The derivation of these estimates is discussed in the next section.

The rows show the commodities produced by industries. The row sum represents to total domestic production of commodities wherever made. For example the output of hotel services commodity is \$750,960 thousand; this value is not the same as industry output for hotels because it only includes hotel services and not the other receipts by hotels for meals and beverages and for casinos. The row for other lodging includes an entry from the all other services industry; this value represents the value of rents received by visitors for the use of condominiums. The commodities include a row not included in the list of industries, the meals and beverage commodity. In the 2002 I-O accounts the production of meals and beverages is classified as part of trade margin. In the TSA meals and beverage production must be separately identified and the output valued as sales rather than margin.

Supply of Tourism commodities: Table 2 shows the derivation of the domestic supply of tourism commodities. Domestic supply represents the total supply of commodities available for consumption within the domestic economy and is the sum of domestic production plus imports less change in business inventories plus trade margins less exports. For example the domestic supply of the air transportation commodity is \$701,867 thousand and adds imports and subtracts exports from domestic production.

Table 2: Domestic Supply of Tourism Commodities, 2002  
(thousands of dollars)

	Domestic production	Imports	Change in business inventories	Trade margins	Exports	Domestic supply
Hotels and lodging places	750,960					750,960
Visitor accommodations other than hotels	292,676					292,676
Food and beverage services	3,538,661					3,538,661
Local passenger transport & Taxicabs	641,655					641,655
Busses	450,817					450,817
Water transportation	212,528				179,336	33,192
Air transportation	490,937	397,981			187,051	701,867
Travel agencies	70,969					70,969
Wholesale & retail trade	14,581,086			-14,581,086		
Automobile rental	309,572					309,572
Motion picture theaters	77,581					77,581
Race tracks and horse owners	95,100					95,100
Other miscellaneous amusement	361,109					361,109
Automobile parking	41,765					41,765
Travel by Puerto Rico residents abroad		928,200				928,200
PCE non-durable commodities	48,558,066	25,622,794	80,071	11,022,084	38,872,993	46,249,881
All other goods	19,595,298	10,991,831	78,325	3,559,002	8,402,252	25,665,554
All other services	54,124,116	1,625,991			1,288,649	54,461,458
Total industry output	144,192,896	39,566,798	158,396		48,930,281	134,671,016

Tourism consumption: Table 3 shows the consumption to tourism commodities by travelers by type of traveler: business and government (intermediate consumption), households and non-residents visiting Puerto Rico. For 2002 the total consumption by travelers was \$4,609,439 thousand. Non-residents make up the biggest share of tourism with 55% of the total travel expenditures. Business and government travel is \$569,714 thousand, and PCE travel is \$1,523,320 thousand with \$595,120 thousand spent domestically and \$928,200 thousand spent outside of Puerto Rico.

The table also shows the travel expenditure share of the supply of tourism commodities. Overall travel expenditures accounts for 3% of total expenditures in the economy.

Table 3: Tourism Consumption, 2002  
(thousands of dollars)

	Total Consumption	Intermediate	PCE	Non-residents	Total travel expenditures	Travel expenditure ratio to total consumption
Hotels and lodging places	750,960	94,498	77,751	578,711	750,960	1.00
Visitor accommodations other than hotels	292,676			292,676	292,676	1.00
Food and beverage services	3,538,661	62,378	51,323	575,196	688,896	0.19
Local passenger transport & Taxicabs	641,655	24,777	20,386	228,473	273,636	0.43
Busses	450,817		3,428		3,428	0.01
Water transportation	33,192					0.00
Air transportation	701,867	365,689	336,178		701,867	1.00
Travel agencies	70,969	22,372	48,597		70,969	1.00
Wholesale & retail trade	0					0.00
Automobile rental	309,572			5,647	5,647	0.02
Motion picture theaters	77,581			22,678	22,678	0.29
Race tracks and horse owners	95,100			44,442	44,442	0.47
Other miscellaneous amusement	361,109		4,631	176,526	181,157	0.50
Automobile parking	41,765					0.00
Travel by Puerto Rico residents abroad	928,200		928,200		928,200	1.00
PCE non-durable commodities	46,249,881		50,333	564,105	614,438	0.01
All other goods	25,665,554					0.00
All other services	54,461,458		2,494	27,951	30,445	0.00
Total	134,671,017	569,714	1,523,320	2,516,405	4,609,439	0.03

**Tourism Employment and Value Added:** Table 4 shows the 2002 estimates of employment and value added directly related to travel expenditures. The estimated number of employees directly related to the production of tourism services is 43.6 thousand or 3.8% of total employment in 2002. These values are estimated by applying the tourism ratio shown in table 3 to the values in the production table (table 1) to estimate the share of each industry's output related to tourism. The industry tourism output is summed and the ratio of tourism output to total output calculated. The ratio is then applied to industry employment and value added to estimate the tourism related employment and value added.

Table 4: Tourism Employment and Value Added, 2002<sup>2</sup>

	Total industry output (thousands)	Tourism output (thousands)	Industry tourism ratio	Industry employment	Tourism employment	Industry value added (thousands)	Tourism value added (thousands)
	(a)	(b)	(b/a)	c	C*(b/a)	d	d*(b/a)
Tourism hotels	969,138	885,383	0.914	9,263	8,462	537,926	491,437
Other hotels and lodging places	190,329	190,329	1.000	3,520	3,520	149,182	149,182
Local passenger transport & Taxicabs	641,655	273,636	0.426	2,718	1,159	433,386	184,819
Busses	450,817	3,428	0.008	7,938	60	233,706	1,777
Water transportation	212,528	0	0.000	2,560	0	55,666	0
Air transportation	490,937	490,937	1.000	7,533	7,533	191,790	191,790
Travel agencies	70,969	70,969	1.000	4,625	4,625	28,729	28,729
Trade	18,583,603	836,195	0.045	236,000	10,619	8,698,482	391,400
Automobile rental	309,572	5,647	0.018	1,301	24	233,061	4,251
Motion picture theaters	77,581	22,678	0.292	1,692	495	22,410	6,551
Race tracks and horse owners	95,100	44,442	0.467	499	233	64,070	29,941
Other miscellaneous amusement	193,038	96,841	0.502	3,180	1,595	74,713	37,481
Automobile parking	41,765	0	0.000	1,640	0	21,834	0
PCE non-durable commodities	48,647,624	645,153	0.013	108,248	1,436	23,470,003	311,253
All other goods	19,595,298	0	0.000	125,907	0	9,960,992	0
All other services	53,622,942	322,489	0.006	636,374	3,827	28,451,196	171,106
Totals	144,192,896	3,888,126	0.027	1,152,998	43,589	72,627,146	1,999,718

**Data Quality:** The estimates of tourism expenditures are primarily based on estimates originally developed by the balance of payments section and modified by the I-O staff to link to I-O industries. These estimates are based a survey of non-resident travelers which measured total expenditures by travelers, with some detail on the type of expenditure. For 2002 estimates were made by balance of payments of the expenditures by type; however these estimates were based on old ratios; there was

<sup>2</sup> The values for value added are from the 2002 I-O table. The values for employment by industry were provided by the I-O staff.



insufficient information to gauge the quality of these estimates. Not until the new tourism survey data are tabulated beginning in 2010 will the quality of the estimates be improved.

The only data available on resident travel within Puerto Rico was collected in the 2000 consumer expenditure survey. However tabulations of these data were not available. Estimates of resident travel were made based on ratios from the non-resident expenditure estimates.

**Section 3: Preparation of Initial Estimates**

The primary source for estimates of the TSA is the 2002 input-output table. The I-O table and its underlying data include important information for the TSA including: industry output, non-resident purchases disaggregated to industries, intermediate and final demand purchases, and margins on transactions. An important additional source of data was the balance of payments estimates of resident travel overseas and non-resident travel to Puerto Rico. Data on resident travel expenditures were collected for the 2000 consumer expenditure survey, but tabulations of these data were not available for this study.

The data available for non-resident visitors is insufficient for preparing the TSA detail. The travel survey that the total expenditures for non-resident travel are based on provides reasonable estimates for total travel expenditures, but does not provide sufficient detail on the composition of those expenditures. The detail provided in the TSA are estimates of expenditures by type originally estimated by the balance of payments and latter disaggregated and assigned to I-O industries by the I-O table staff.

For future estimates, beginning in 2010, the Puerto Rico tourism survey will provide additional data on non-resident travel expenditures providing detailed expenditure estimates that correspond to the TSA commodities.

**A. Identify Tourism Industries and Commodities:**

The first step for establishing the TSA is to identify tourism industries from the industries enumerated in the Puerto Rico national accounts. Tourism commodities are the commodities that are typically purchased by visitors directly from producers. The UN methodology suggests as a typical list of commodities/industries which are shown at table 5.

**Table 5: United Nations Categories of Tourism**

<u>Commodity/Industry</u>
Accommodation services for visitors
Food- and beverage-serving services
Railway passenger transport services
Road passenger transport services
Water passenger transport services
Air passenger transport services
Transport equipment rental services
Travel agencies and other reservation
Sports and recreational services
Country-specific tourism characteristic goods
Country-specific tourism characteristic services

The list of Puerto Rico tourism industries was selected from the list of industries in the 2002 I-O accounts using the UN criteria. Appendix table 1 shows the complete list of I-O industries and the assignment to the TSA categories. The list of TSA industries is shown in table 6.<sup>3</sup>

Table 6. Tourism Commodities/Industries

Industry code	Description	Notes
70110/70120	Hotels and lodging places	Includes all hotels. It is not necessary to separate the different types of hotels in the TSA
	Visitor accommodations other than hotels	These are receipts for lodging services in places other than hotels, primarily condominium rental
	Food and beverage services	In the I-O table and the GNP accounts this activity is included in trade and the food industries. The trade industry shows margin on sales and the food industries show sales of food to persons. In the TSA the activity is shown as meals and beverages sold to persons.
41100	Local passenger transport & Taxicabs	
42000	Busses	
44000	Water transportation	
45000	Air transportation	
47200	Travel agencies	
50000	Wholesale & retail trade excluding meals and beverages	Included because purchases of goods by travelers are from retail establishments.
75100	Automobile rental	
78300	Motion picture theaters	
78500	Race tracks and horse owners	
78600	Other miscellaneous amusement	

<sup>3</sup> The Travel Services industry was not included because its output consists primarily of services not related to the transport of persons.

Industry code	Description	Notes
75200	Automobile parking	Though no travel expenditures are included in the current version of the TSA it is felt that travelers do purchase parking while visiting.
	Travel by Puerto Rico residents abroad	Included to account for all travel expenditures including travel by residents outside of Puerto Rico.
	PCE non-durable commodities	These commodities do not have a direct link to travelers but are included because of the strong link between visitor purchases of goods such as gifts or clothing and the supply of these goods.  The commodities included are those that are likely to be purchased by travelers. They include all commodities from the I-O table that show sales to PCE non-durables.
	All other goods	All other goods producing industries
	All other services	All other services not included above

### **B. Develop Estimates of Commodity Output for the Production Table**

As previously discussed, the TSA make a distinction between industry and commodity output. Industry output is the output of a group of industries classified to a particular industry; the output may include the output of different products, some primary to the industry and some that are primary to some other industry (a secondary product of the industry). For the 2002 TSA it is assumed that most industries produce only the primary product of the industry; either there was no data available or the separation of products was not essential for the construction of the TSA.<sup>4</sup> The industries can be identified in table 1 as those with only a single entry in the column for the industry. These are: Other hotels and lodging places, Local passenger transport and taxicabs, busses, water transportation, air transportation, travel services, travel agencies, automobile rental, motion picture theaters, racetrack and horse owners, other miscellaneous amusement, automobile parking, and all other goods.

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<sup>4</sup> The UN System of National Accounts recommends that for national income accounting that primary and secondary products for all industries be identified and shown in the I-O accounts production table (the Make table).

The other industries: tourism hotels, trade, PCE nondurables, and other services are shown to produce multiple products (multiple entries in the industry column). Each will be discussed separately as to the derivation.

**Hotels:** Tourism hotels frequently produce several different services: lodging services and sometimes meals and beverages, gambling, and other services. Because travelers usually treat these as separate purchases and travel surveys treat these as separate purchases the different services in hotels need to be separated. The data used to prepare the Puerto Rico accounts only provide information on the total receipts of hotels. To separate the receipts the 2002 Economic Census data on hotels in Puerto Rico was used.<sup>5</sup>

The economic census data provide hotel receipts by type. The total receipts for hotels reported by the Census were similar to the 2002 I-O estimate for the output of hotels. The Census receipts by type were used to estimate the receipts by type for the TSA. The values were then entered into the production table column for hotels.

**Table 7: Hotel Receipts by Type, 2002  
(thousands of dollars)**

Description	Census receipts (thousands of dollars)	Percent	Estimated TSA output by type of receipt
Guest room rentals and other receipts	509,535	0.58	560,631
Meals and beverages	218,523	0.25	240,436
Gaming receipts	152,753	0.17	168,071
Total	880,811		969,138

The industry other hotels and lodging places is assumed to produce only hotel services. All of the output of this industry, \$190,329 thousand, is assigned to the accommodation services commodity.

**Trade:** The I-O trade industry includes the prepared meal and beverage output as well as some services. The value of services produced by trade is taken from the I-O final demand table showing trade industry sales to personal consumption expenditures (PCE) services. It is likely that additional services are included in trade output and sold to intermediate industries; however there is no data to make the estimates. The value for services produced by trade is entered in the production table row for all other services and the trade industry output column.

The estimate for meals and beverage sales is derived from Puerto Rico industry data on a NAICS basis. The NAICS classification separates meal and beverage production from other industries. Table 8 shows the estimation of sales.

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<sup>5</sup> 2002 Economic Census of Island areas, Puerto Rico Geographical Area Statistics, Table34. Product Lines and Number of Guestrooms by Commercial Regions for Puerto Rico: 2002

Table 8: Meals and Beverage Output, 2002

Description	Receipts in Thousands of dollars
NAICS 722 Sales	3,180,461
Rent received	1,363
Excise taxes <sup>6</sup>	116,401
Total	3,298,225

The prepared meals and beverage sales include margin which must be removed from the output of trade to avoid double counting of the margin in trade output. The value of margin was estimated from Census data assuming a proportional value of sales. Table 9 shows the split of the total margin to meals and beverages and the rest of trade.<sup>7</sup> Note that output of trade goes up by the value of sales of meals and beverages less the margin on the meals and beverages (3,298,225 thousand less 1,034,143 thousand, or 2,264,082 thousand). This occurs because the definition of output is changed: output of meals and beverages is measured as sales rather than as margin.

Table 9: Estimated Margin on Meals and Beverage Sales, 2002  
(thousand of dollars)

2002 Economic Census data	Census Sales (thousands)	percent	Puerto Rico Accounts output (margin)	Margin shares based on Census sales
Wholesale	16,172,710	0.41		6,755,058
Retail	20,422,975	0.52		8,530,319
meal and beverage	2,475,908	0.06		1,034,143
	39,071,593		16,319,521	
Trade output excluding margin on meals				15,285,378
Meals output				3,298,225
Trade output including meals				18,583,603

<sup>6</sup> The excise taxes appear to be low. The implicit rate is 3.7 percent while the tax rate observed in 2012 is 7 percent on meals.

<sup>7</sup> The I-O table documentation included an estimate for the margin rate on meals and beverages of 185 percent which is impossible. This rate applied to the estimated meals and beverage sales would have an extremely large value for margin. Therefore it was decided to simply apportion the margin based on the relative sales value from the Census data.

**All Other PCE Non-durable commodities:** The printing industry and the petroleum products industry include sales to PCE services. These values were assumed to be part of all other services commodity and not part of the all other PCE non-durable commodity.

**All Other Services:** All other services includes the real estate and rental industry. This industry includes sales to non-resident lodging services. The value of these sales is included in the commodity row for visitor accommodations other than hotels.

### **C. Development of the Supply Table**

The supply table moves the valuation of commodities from local production in producer prices to the value available to be consumed in purchaser prices. Starting with domestic production from the production table imports are added, change in inventories subtracted, trade margins added and exports subtracted.

The values for imports, inventory change and exports are aggregations from the I-O table final demand. The estimates for margins on goods are estimated using data from the I-O table.

The values of each row are summed, domestic supply plus imports less inventory change plus trade margin less exports, to obtain domestic supply. Domestic supply is the value of goods and services available to be consumed within Puerto Rico and is equal to total consumption, intermediate purchases plus PCE (including resident purchases abroad) plus investment plus non-resident purchases.

### **D. Development of the Tourism Consumption Table**

The tourism consumption table is the primary table of the TSA; it shows the estimates of tourism consumption by commodity and the tourism share of total consumption, the tourism ratio. The estimates will be discussed by commodity.

**Hotels:** The values for the hotel services include only receipts for lodging and other services; the output does not include receipts for meals, beverages or gambling. It is assumed that all hotel services are purchased by travelers. This is likely an overstatement; it is likely that some of the receipts for lodging services are not from travelers, but there is no data available to estimate the share.

The preparation of the estimates for hotel services were complex and required several steps to estimate purchases by business, persons and visitors and to balance these estimates with the supply of lodging services. In this analysis it is assumed that the estimates of the domestic supply of lodging services are the more reliable estimates and that the consumption estimates must be adjusted to match the supply.

The I-O estimates for intermediate and PCE consumption of tourism hotel industry output include purchases of meals and beverages and casinos which must be separated. The initial estimates were split using the shares of hotel receipts found in the Economic Census data. Table 10 shows the calculation. It was assumed that intermediate purchases of hotel industry output include lodging services and meals and beverage, but no gambling.

**Table 10: Initial Estimates for Intermediate and PCE Accommodation, 2002**  
(thousands of dollars)

				Tourism Hotels		Other Hotels and Lodging Places		Total	
	Census receipts by type	Percent of total receipts	Percent without gaming	Inter-mediate	PCE	Inter-mediate	PCE	Inter-mediate	PCE
Hotel receipts & other	509,535	0.58	0.70	187,490	15,447	1,506	62,304	188,996	77,751
Meal and beverage	218,523	0.25	0.30	80,409	6,625	0	0	80,409	6,625
Gaming	152,753	0.17			4,631	0	0	0	4,631
Total	880,811			267,899	26,702	1,506	62,304	269,405	89,006
Total without gaming	728,058								

The estimates for visitor expenditures were originally developed by the balance of payments staff then adjusted by the I-O staff. Table 11 shows the initial estimates by the balance of payments. The expenditures include non-resident visitors plus air and sea crew expenditures while in Puerto Rico. The I-O staff assign the balance of payments estimates to I-O industries where possible. Where multiple industries are involved the I-O staff divides the expenditures to industries using weights from the estimates of industry sales to household consumption. In some cases these distributions are adjusted during the balancing of the I-O table, however the adjustments are always made within a balance of payments category.

**Table 11: 2002 Non-resident Expenditures in the I-O Table, 2002**  
(thousands of dollars)

Non-resident expenditures	BOP and I-O table Totals	TSA Commodity Assignment					
		Hotels	Condo-minium	Meals	Amuse-ment	Goods	Trans- portation
Hotels	699,322	699,322					
Other hotels	292,676		292,676				
Meals in hotels	157,367			157,367			
Meals not hotels	233,812			233,812			
Entertainment at hotels	63,406	63,406					
Casino	170,560				170,560		
Gifts	315,491					315,491	
Transportation	234,120						234,120
Other entertainment	74,577				74,577		
Other expenditures	275,074					275,074	
Total	2,516,405	762,728	292,676	391,179	245,137	590,565	234,120

When these initial expenditure estimates were compared to the supply of accommodation services there was an imbalance; expenditures were greater than the supply by \$278,515. Because it is assumed that the supply estimate is the right level, the expenditures were adjusted to fit the supply. Table 12 shows the adjustments. It was assumed that the PCE estimate based on the commodity flow methodology was acceptable and left unchanged. The value for intermediate was originally developed as a residual estimate in the I-O table (supply less PCE and non-resident expenditures and assumed to not be a strong estimate; the I-O based estimate was reduced by half. The remaining adjustment reduced the non-resident expenditure for lodging services. An offsetting adjustment was made to the purchases of meals and beverages (the estimate from table 11, \$391,179 thousand plus \$184,017 thousand, or \$575,196 thousand).

Table 12: Adjustments to Expenditures for Accommodation Services, 2002

(thousands of dollars)

	Initial Estimates	Adjustments	Revised Estimates
Supply	750,960		
Intermediate	188,996	-94,498	94,498
PCE	77,751	0	77,751
Visitors	762,728	-184,017	578,711
Unallocated	-278,515	-278,515	0

**Visitor accommodation other than hotels:** The expenditures by non-residents was used. There are no other purchasers of this commodity.

**Meal and beverage services:** The non-resident purchases of meals and beverages was discussed in the section on Hotels. The value of non-resident purchases is equal to the balance of payments estimate for meal purchases, \$391,179 thousand plus the required adjustment to lodging services.

There was no data available for business or household purchases of meals when traveling. The value of purchases by these groups was estimated using the non-resident ratio of meals to lodging services. Table 13 shows the calculation. While actual data would be better, it is reasonable to assume that all travelers staying in hotels would have similar expenditure patterns for meal purchases.

Table 13: Estimation of Household and Business Purchases of Meals during Travel, 2002  
(thousands of dollars)

	Non-residents	Business	PCE
Meals and beverages	575,196	62,378	51,323
Lodging services (hotels and other lodging)	871,387	94,498	77,751
Ratio of meals to lodging	.66		



**Local passenger transportation and taxicabs:** The estimates for non-resident consumption of this commodity are from the I-O estimates. The estimates for business and household travel are estimated using the ratio of local transportation to total lodging services applied to the business and PCE lodging estimates. These estimates are shown in table 14.

**Table 14: Estimation of Household and Business Purchases of Local Transportation  
(thousands of dollars)**

	Non-residents	Business	PCE
Local passenger transportation and taxicabs	228,473	24,777	20,386
Lodging services (hotels and other lodging)	871,387	94,498	77,751
Ratio of local transportation to lodging	.26		

**Buses:** It is assumed that all of long distance bus expenditures by households represent travel. The intermediate purchases of bus transportation are assumed to be shipping and not travel.

**Water transportation:** It is assumed that all water transportation is local and is not travel related.<sup>8</sup>

**Air Transportation:** It is assumed that all air travel is a travel expenditure. Air travel includes both travel outside of Puerto Rico by residents as well as travel within Puerto Rico. There are no non-resident expenditures for air transportation since it was assumed that all non-residents traveled to Puerto Rico on air carriers not based in Puerto Rico.<sup>9</sup>

**Travel Agencies:** All purchases by business and households are assumed to be travel related.

**Automobile Rentals:** Non-resident expenditure for auto rental is an I-O estimate of a component of the balance of payments transportation expenditures of non-residents. It is assumed that there are no travel expenditures for auto rental by business or households. Residents would tend to use their own vehicles for travel within Puerto Rico.

**Motion Pictures:** Non-resident expenditures are from the I-O distribution of balance of payments estimated entertainment expenditures. While it is likely that a portion of household expenditures for movies is related to travel, no estimates were made due to lack of data. There are no business travel expenditures.

<sup>8</sup> This may be an understatement of travel, but it is not clear that travelers are using water transportation. The estimates for non-resident travel have not indicated that water transport is a usual purchase.

<sup>9</sup> It is likely that non-residents do purchase local air services for trips within Puerto Rico or to other Islands. An estimate should be made when the new tourism survey is tabulated, but at this time there is no estimate.

Table 15: I-O Distribution of Balance of Payments Estimate of Amusement not in Hotels, 2002

Industry	Expenditures (thousands)
Movie theaters	22,678
Race tracks	44,442
Amusements	5,966
Other services	1,491
Balance of payments total	74,577

**Race Tracks:** Non-resident expenditures are from the I-O distribution of balance of payments estimated entertainment expenditures. While it is likely that a portion of household expenditures for race tracks is related to travel, no estimates were made due to lack of data. There are no business travel expenditures.

**Other Miscellaneous Amusement:** Non-resident expenditures include a portion of non-resident expenditures for non-hotel amusements (\$5,966 thousand in table 15) plus the balance of payments estimate for casino expenditure of \$170,560 thousand from table 11 above. The estimate of household expenditure for amusements while traveling is the estimated value of casino expenditures made in hotels shown in table 10.

**Travel by Puerto Rico Residents Abroad:** This estimate is from the balance of payments. The value represents expenditures, excluding airfare, made by Puerto Rico residents while traveling outside of Puerto Rico.

**PCE Non-Durable Commodities Other than Petroleum Products:** The non-resident expenditures are from the I-O estimates of the balance of payments expenditure estimates for gifts, food and all other goods less other services (\$590,365 thousand less \$26,260 thousand). The resident household estimate is estimated as shown in table 16 using the non-resident ratio of non-durable purchases to hotel expenditures applied to the PCE expenditures on hotels.

Table 16: Estimating PCE Travel Purchases of Other PCE Non-Durable Commodities, 2002  
(thousands of dollars)

	Non-Resident Expenditures	PCE expenditures on Travel
Expenditures on PCE Non-Durable during Travel	564,105	50,333
Expenditures on accommodation services	871,387	77,571
Ratio of non-durable expenditures to accommodation	0.647	

**All Other Services:** The non-resident expenditures is from the I-O distribution the balance of payments other expenditures. The estimates for PCE travel applied the non-resident ratio of other services to hotel expenditures to the PCE hotel expenditures to estimate the PCE other services purchases during travel. The calculations are shown in Table 17.

**Table 17: Estimating PCE Travel Purchases of Other Services, 2002**

	Non-Resident Expenditures	PCE expenditures on Travel
Expenditures on other services during Travel	27,951	2,494
Expenditures on accommodation services	871,387	77,571
Ratio of other services expenditures to accommodation	0.032	

### **Tourism Share**

The share of tourism expenditures to all other expenditures shows the importance of tourism to the production and supply of commodities. Those commodities with a high tourism ratio are those that are closely tied to the tourism expenditures. The ratio is calculated by dividing tourism expenditures by the total expenditures. The tourism commodity ratios for 2002 are shown in table 3. The tourism commodity ratios are used to estimate employment related to tourism.

### **Tourism Employment and Value Added**

There are no statistics available to directly measure the employment related to tourism. Employment is estimated by applying the tourism ratio calculated in table 3 to the production table, table 1, and estimating the share of industry output related to tourism. To make this calculation, for each row of the table, the tourism commodity ratio is applied to each row entry in the production table. For example the tourism commodity ratio for other miscellaneous amusement is .5. The ratio is applied to each entry in the production table row for miscellaneous amusement:  $.5 * 168,071$  (tourism hotels industry) = 84,316 thousand,  $.5 * 193,038$  (other miscellaneous amusement industry) = 96,841 thousand. One exception to this rule is for meals and beverages sold at hotels, where the accommodation tourism ratio (1.00) is applied to the meals sold at hotels. It was assumed that all meals and beverages purchased at hotels are by travelers. A second exception is for trade, where the tourism ratio for PCE non-durable goods is applied to the trade margin.

The tourism output is then summed by industry to get the estimated value of industry output related to tourism and the industry ratio calculated as tourism industry output divided by industry output. This ratio is applied to the industry employment to provide an estimate of tourism employment by industry. The ratio is also applied to industry value added to obtain the industry value added attributed to tourism. These calculations are shown in table 18.

### **Section 4: Annual Updates, Benchmarking and Incorporation of New Travel Survey Data**

The TSA for 2002 should be updated to the current period in order to show changes in the tourism expenditures and tourism industry employment. Additionally, since the TSA are closely related to the I-O table, after completion of the 2007 I-O table the TSA needs to be revised to reflect the new I-

O table. The I-O table will change the TSA structure to follow the NAICS definition of industries and incorporate new levels of output and expenditures.

Finally, the development of tourism data from the new survey of tourism needs to be incorporated into the TSA. These new tourism data, beginning in 2010, will substantially improve the quality of the TSA estimates and should be considered as the benchmark data for the TSA. The benchmark data will be used with the initial estimated time series to develop a time series for the TSA.

### **Updating the TSA:**

The process of preparing annual updates follows a five step process: prepare annual estimates of industry output by NAICS industry following the methods used by the I-O section to measure output; estimate the production of tourism industries and commodities (production table), estimate current supply, estimate tourism expenditures and finally tourism employment. Most of these estimates use extrapolation or commodity flow; however the estimates for non-resident travel must sum to the balance of payment estimate (non-resident travel plus crew expenditures) as included in the estimates for PCE in the national accounts.

**Estimate Industry Output by NAICS industry:** The industry income section of the planning board has developed a time series of private industry output components by NAICS industry. The components include private sales, rent received and excise taxes.<sup>10</sup> These components can be used to develop annual measures of industry output following the methods used by the I-O staff to develop output.<sup>11</sup> These industry output measures are then aggregated to the TSA level of industries. A suggested match of TSA industries to NAICS industries is shown in table 19.

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<sup>10</sup> The industry series does not include the estimates of public output. These estimates must be added to output. This is very important for the estimate of land transport since a large part of the output is public transportation.

<sup>11</sup> For trade it is suggested that the sales of trade be used to extrapolate margin output rather than attempting to calculate margin for each trade industry.

**Table 19: Proposed Extrapolators for TSA Industries**

TSA Industry	Extrapolator
Tourism hotels	NAICS 721
Other hotels and lodging places	NAICS 721
Local passenger transport & Taxicabs	NAICS 485 plus public
Busses	NAICS 485
Water transportation	NAICS 483
Air transportation	NAICS 481
Travel agencies	NAICS 5615
Wholesale & retail trade	NAICS 42-45
Meals and beverages	NAICS 722
Automobile rental	NAICS 5321
Motion picture theaters	NAICS 5121
Race tracks and horse owners	NAICS 711-713
Other miscellaneous amusement	NAICS 711-713
Automobile parking	NAICS 8129

**Extrapolate Production Accounts:** Each column of the production table is multiplied by the change in industry output for the NAICS industries.<sup>12</sup> For example if the hotel output changes from 2002 to 2003 by a factor of 1.05 then each column entry in the hotel industry is multiplied by the growth factor (1.05 \* 560,631 (lodging), 1.05 \* 240,436 (food and beverage) and 1.05 \* 168,071 (amusements) ) to obtain the commodity outputs for the hotel industry. This process is continued for each industry, with the exception of trade and visitor accommodations other than hotels. The eating and drinking portion of trade output is extrapolated by the change in the output of NAICS 722, food and beverage industry.<sup>13</sup> The visitor accommodations other than hotels should be extrapolated by the hotel industry extrapolator.<sup>14</sup> Once completed the commodity rows are summed to get the estimates of tourism commodity output.

**Estimate the Domestic Supply Table:** The commodity production estimates are taken directly from the row sums of the production table. The values for exports and imports are an aggregation of the foreign trade estimates to the TSA commodities. The sums of exports and imports must equal the published national account estimates. The change in inventories by TSA commodity must be estimated also. Finally, the margin by TSA commodity is extrapolated by the change in margin commodity output.

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<sup>12</sup> A preliminary evaluation of the NAICS sales compared to TSA industries indicated that the NAICS measure of output may differ substantially from the TSA industry output for 2002. There is not sufficient data available to the author to determine why there are differences. However the year to year change in output should be used for the extrapolation of tourism industry production.

<sup>13</sup> It would be possible to separate the meals and beverage industry from trade for the purpose of updating.

<sup>14</sup> The value represents condominium rentals by travelers and is more likely to be related to the changes in lodging receipts rather than changes in the level of all other services.

The values in the domestic supply table are summed across for each commodity row to obtain the domestic supply of TSA commodities.

**Estimate Tourism Consumption:** Annual updates of tourism consumption prior to the availability of data from the new tourism survey will rely on extrapolation and commodity flow estimates as well as some balancing between domestic supply and consumption as discussed earlier regarding accommodations. Annual estimates of tourism consumption by intermediate and PCE are based on a commodity flow as well as comparisons with the published PCE estimates. The 2002 values of intermediate and PCE tourism consumption are divided by domestic supply to calculate the commodity flow ratio. These ratios are shown in table 20.

**Table 20: Commodity Flow Percentages of Domestic Supply, 2002**

	Thousands of dollars			Commodity flow percent	
	Domestic Supply	Inter-mediate	PCE	Inter-mediate	PCE
Hotels and lodging places	750,960	94,498	77,751	0.126	0.104
Visitor accommodations other than hotels	292,676			0.000	0.000
Food and beverage services	3,538,661	62,378	51,323	0.018	0.015
Local passenger transport & Taxicabs	641,655	24,777	20,386	0.039	0.032
Busses	450,817		3,428	0.000	0.008
Water transportation	33,192			0.000	0.000
Air transportation	701,867	365,689	336,178	0.521	0.479
Travel agencies	70,969	22,372	48,597	0.315	0.685
Automobile rental	309,572			0.000	0.000
Motion picture theaters	77,581			0.000	0.000
Race tracks and horse owners	95,100			0.000	0.000
Other miscellaneous amusement	361,109		4,631	0.000	0.013
Automobile parking	41,765			0.000	0.000
Travel by Puerto Rico residents abroad	928,200		928,200	0.000	1.000
PCE non-durable commodities	46,249,881		50,333	0.000	0.001
All other services	54,461,458		2,494	0.000	0.000

The non-resident travel expenditures are estimated by distributing the total PCE non-resident expenditures using the 2002 shares. This is illustrated in Table 21.

**Table 21: Estimating the Non-resident Travel Expenditures**

	Non-resident Travel Expenditures (thousands of dollars)		
	2002	Share	2003 (estimated)
Hotels and lodging places	578,711	0.23	622,474
Visitor accommodations other than hotels	292,676	0.12	314,809
Food and beverage services	575,196	0.23	618,694
Local passenger transport & Taxicabs	228,473	0.09	245,751
Automobile rental	5,647	0.00	6,074
Motion picture theaters	22,678	0.01	24,393
Race tracks and horse owners	44,442	0.02	47,803
Other miscellaneous amusement	176,526	0.07	189,875
PCE non-durable commodities	564,105	0.22	606,764
All other services	27,951	0.01	30,065
Total <sup>15</sup>	2,516,405		2,706,700

Finally it may be necessary to adjust the consumption of lodging services to agree with the domestic supply. Sum the intermediate, PCE and non-resident consumption of hotels and lodging places and compare the sum with the estimated domestic supply for hotels and lodging places. Any difference should be taken out of non-resident consumption of lodging places and added to non-resident consumption of meals and beverages.

**Calculate Tourism Ratio and Tourism Employment and Value Added:** Following the same method used for the initial estimates calculate the tourism ratio, tourism employment and tourism value added.

### **Revised Estimates Based on the 2007 Input-Output Table**

Upon completion of the 2007 input-output table the TSA needs to be revised substantially to incorporate the revised industry/commodity structure of NAICS and the revised estimates for intermediate and final demand estimated in the I-O tables. The procedure to revise the TSA follow the same steps discussed in the section on the development of the initial estimates. A suggested set of industries/commodities is shown in table 22.

<sup>15</sup> The travel expenditures include non-resident expenditures plus crew expenditures.

**Table 22: Suggested TSA Industries/Commodities using NAICS**

NAICS Code	Description
721	Accommodation
722	Food Services and Drinking Places
481	Air Transportation
483	Water Transportation
485	Transit and Ground Passenger Transportation
5615	Travel Arrangement and Reservation Services
42-45	Trade
5321	Automotive Equipment Rental and Leasing
5121	Motion Picture and Video Industries
7110000	Performing Arts, Spectator Sports, and Related Industries
<b>7121000</b>	Museums, Historical Sites, and Similar Instituti
<b>7131000</b>	Amusement Parks and Arcades
<b>7132000</b>	Gambling Industries
<b>7139000</b>	Other Amusement and Recreation Industries
	PCE non-durable goods
	All other goods
	All other services



### **Incorporation of New Tourism Survey Results**

The new tourism survey will provide substantially improved data on the expenditures of non-residents traveling in Puerto Rico. The categories of expenditures to be tabulated are shown in table 23.

Table 23: New Tourism Survey Expenditures<sup>16</sup>

Airline tickets
Cruise tickets
Car rental
Other mode of transport, such as taxi, bus, train
Accommodations
Food and drink
Shopping for other products
Excursions
Visits to museums and historic sites
Ecotourism
Other aquatic activities
Golf
Other sports activities
Going out at night or to concerts

The availability of these estimates will require revisions to the initial estimates and the extrapolated time series of TSA estimates for tourism expenditures. The estimates for production and domestic supply will not change (tables 1 and 2). Table 3 time series of expenditures by residents and non-residents will change as well as the tourism ratio and the estimates of employment and income related to tourism.

The new tourism survey should provide a new benchmark level for total visitor expenditures. It is assumed that these new benchmark level estimates will require revisions to the time series on non-resident visitor expenditures. Using the revised levels for total visitor expenditures extrapolate the expenditures by type back to a base year, such as 2007 (the year for the I-O table) using the same methods recommended in table 21 above.

### **Section 4: Recommendations to Improve the Accounts**

With the incorporation of the new tourism survey the quality of the estimates for non-resident visitors would be improved substantially. However additional measures are required to improve the quality of statistics for resident travel within Puerto Rico. The current estimates rely on commodity flow estimates or assuming residents have expenditure patterns similar to non-residents. To improve the

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<sup>16</sup> It was suggested by the author that the following items be added to the expenditure questionnaire: gambling, other amusements, gasoline, and parking.

estimates of resident expenditures a survey of residents needs to be conducted to estimate travel expenditures within Puerto Rico.

## Appendix

Appendix Table 1: Industries and Assignment to TSA Industries

Industry Code	Description	Tourism Industry	PCE non-durable	Other goods	Other services
0100	<b>Sugar cane</b>			x	
0200	<b>Other agriculture, forestry &amp; fisheries</b>		x		
0300	<b>Agricultural services</b>				x
11000	<b>Mining</b>			x	
15100	<b>New construction</b>			x	
15200	<b>Repair and maintenance of buildings</b>				x
20100	<b>Meat and meat products</b>		x		
20200	<b>Milk and dairy products</b>		x		
20300	<b>Fruits and vegetables products</b>		x		
20400	<b>Grain mill products</b>		x		
20500	<b>Bakery products</b>		x		
20610	<b>Sugar mills, refineries y confectionary</b>		x		
20840	<b>Alcoholic beverages and malts</b>		x		
20870	<b>Non-alcoholic beverages</b>		x		
20900	<b>Miscellaneous food products</b>		x		
20910	<b>Fish</b>		x		
21000	<b>Tobacco products</b>		x		
22000	<b>Textile mill products</b>			x	
23000	<b>Apparel and accessories</b>		x		
24000	<b>Lumber and wood products</b>			x	
26000	<b>Paper and allied products</b>		x		
27000	<b>Printing and publishing</b>		x		
28100	<b>Petrochemicals</b>		x		
28300	<b>Drugs and pharmaceutical preparations</b>		x		
28400	<b>Other chemical products</b>		x		
29100	<b>Petroleum refining &amp; related products</b>		x		
29200	<b>Other petroleum products</b>		x		
30000	<b>Rubber and plastic products</b>		x		
31000	<b>Leather and leather products</b>		x		
32100	<b>Stone, clay, glass products and cement</b>		x		
33000	<b>Primary metal products</b>			x	

Industry Code	Description	Tourism Industry	PCE non-durable	Other goods	Other services
34000	<b>Fabricated metal products</b>			x	
35000	<b>Machinery, except electrical</b>			x	
36000	<b>Electrical machinery</b>			x	
37000	<b>Transportation equipment</b>			x	
38000	<b>Professional and scientific instruments</b>			x	
39000	<b>Miscellaneous manufacturing industries</b>		x		
41100	<b>Local passenger transport &amp; taxicabs</b>	x			
41200	<b>Motor freight transportation &amp;</b>				x
42000	<b>Busses</b>	x			
44000	<b>Water transportation</b>	x			
45000	<b>Air transportation</b>	x			
47100	<b>Transportation services</b>				x
47200	<b>Travel agencies</b>	x			
48100	<b>Telephone, telegraph and cable</b>				x
48300	<b>Radio and television broadcasting</b>				x
49100	<b>Electric and irrigation services</b>				x
49200	<b>Gas and sanitary services</b>				x
49400	<b>Water and sewerage services</b>				x
50000	<b>Wholesale &amp; retail trade</b>	x			
61100	<b>Commercial banks</b>				x
61200	<b>Mortgage banks and brokers</b>				x
61300	<b>Savings and loans associations</b>				x
61400	<b>Credit unions</b>				x
61500	<b>Security and loan brokers</b>				x
61600	<b>Personal loans</b>				x
61700	<b>Conditional loans sales</b>				x
61800	<b>Other credit agencies</b>				x
63100	<b>Life, accident and health insurance</b>				x
63200	<b>Other insurances</b>				x
63300	<b>Insurance agents, brokers and insurance services</b>				x
65100	<b>Rent and real estate</b>				x
70110	<b>Tourism hotels</b>	x			
70120	<b>Other hotels and lodging places</b>	x			
72100	<b>Laundries</b>				x

Industry Code	Description	Tourism Industry	PCE non-durable	Other goods	Other services
72200	Photographic studies				x
72300	Beauty and barber shops				x
72600	Funeral services				x
72900	Shoe repair, cleaning & other services				x
73100	Advertising				x
73200	Commercial services				x
75100	Automobile rental	x			
75200	Automobile parking	x			
75300	Automobile and miscellaneous				x
78100	Production and distribution of movies				x
78300	Motion picture theaters	x			
78400	Video tape rental				x
78500	Race tracks and horse owners	x			
78600	Other miscellaneous amusement	x			
80100	Physicians and surgeons				x
80200	Dentists				x
80600	Hospitals				x
80700	Medical y dental laboratories				x
80800	Miscellaneous health services				x
81100	Legal services				x
81200	Educational services				x
81300	Engineering & architectural services				x
81400	Accounting and auditing services				x
83000	Non-profit membership organizations				x
88000	Domestic services				x
90100	Commonwealth government				x
90200	Municipal government				x
90300	Federal government				x

Table 1: The Production of Tourism Commodities by Industries, 2002

<u>Commodities</u>	Tourism hotels	Other hotels and lodging places	Local passenger transport & Taxicabs	Busses	Water transportation	Air transportation	Travel agencies	Trade	Auto-mobile rental	Motion picture theaters	Race tracks and horse owners	Other miscellaneous amusement	Auto-mobile parking	PCE non-durable commodities	All other goods	All other services	Total
Hotels and lodging places	560,631	190,329															750,960
Visitor accommodations other than hotels																292,676	292,676
Food and beverage services	240,436							3,298,225									3,538,661
Local passenger transport & Taxicabs			641,655														641,655
Busses				450,817													450,817
Water transportation					212,528												212,528
Air transportation						490,937											490,937
Travel agencies							70,969										70,969
Wholesale & retail trade								14,581,086									14,581,086
Automobile rental									309,572								309,572
Motion picture theaters										77,581							77,581
Race tracks and horse owners											95,100						95,100
Other miscellaneous amusement	168,071											193,038					361,109
Automobile parking													41,765				41,765
Travel by Puerto Rico residents abroad																	0
PCE non-durable commodities														48,558,066			48,558,066
																	0
All other goods															19,595,298		19,595,298
All other services								704,292						89,558		53,330,266	54,124,116
total industry output	969,138	190,329	641,655	450,817	212,528	490,937	70,969	18,583,603	309,572	77,581	95,100	193,038	41,765	48,647,624	19,595,298	53,622,942	144,192,896

Table 18: Tourism Share of Output, Value Added and Employment, 2002

Commodities	Tourism hotels	Other hotels and lodging places	Local passenger transport & Taxi-cabs	Busses	Water transportation	Air transportation	Travel agencies	Trade	Automobile rental	Motion picture theaters	Race tracks and horse owners	Other miscellaneous amusement	Automobile parking	PCE non-durable commodities	All other goods	All other services
Hotels and lodging places	560,631	190,329														
Visitor accommodations other than hotels																292,676
Food and beverage services	240,436							642,089								
Local passenger transport & Taxicabs			273,636													
Busses				3,428												
Water transportation																
Air transportation						490,937										
Travel agencies							70,969									
Wholesale & retail trade								193,712								
Automobile rental									5,647							
Motion picture theaters										22,678						
Race tracks and horse owners											44,442					
Other miscellaneous amusement	84,316											96,841				
Automobile parking																
Travel by Puerto Rico residents abroad																
PCE non-durable commodities														645,103		
All other goods																
All other services								394						50		29,813
Tourism output	885,383	190,329	273,636	3,428	0	490,937	70,969	836,195	5,647	22,678	44,442	96,841	0	645,153	0	322,489
Total industry output	969,138	190,329	641,655	450,817	212,528	490,937	70,969	18,583,603	309,572	77,581	95,100	193,038	41,765	48,647,624	19,595,298	53,622,942
Industry tourism ratio	0.914	1.000	0.426	0.008	0.000	1.000	1.000	0.045	0.018	0.292	0.467	0.502	0.000	0.013	0.000	0.006
Industry employment	9,263	3,520	2,718	7,938	2,560	7,533	4,625	236,000	1,301	1,692	499	3,180	1,640	108,248	125,907	636,374
Tourism employment	8,462	3,520	1,159	60	0	7,533	4,625	10,619	24	495	233	1,595	0	1,436	0	3,827
Industry value added	537,926	149,182	433,386	233,706	55,666	191,790	28,729	8,698,482	233,061	22,410	64,070	74,713	21,834	23,470,003	9,960,992	28,451,196
Tourism value added	491,437	149,182	184,819	1,777	0	191,790	28,729	391,400	4,251	6,551	29,941	37,481	0	311,253	0	171,106

