Research Report

March 2007

Center for Tourism

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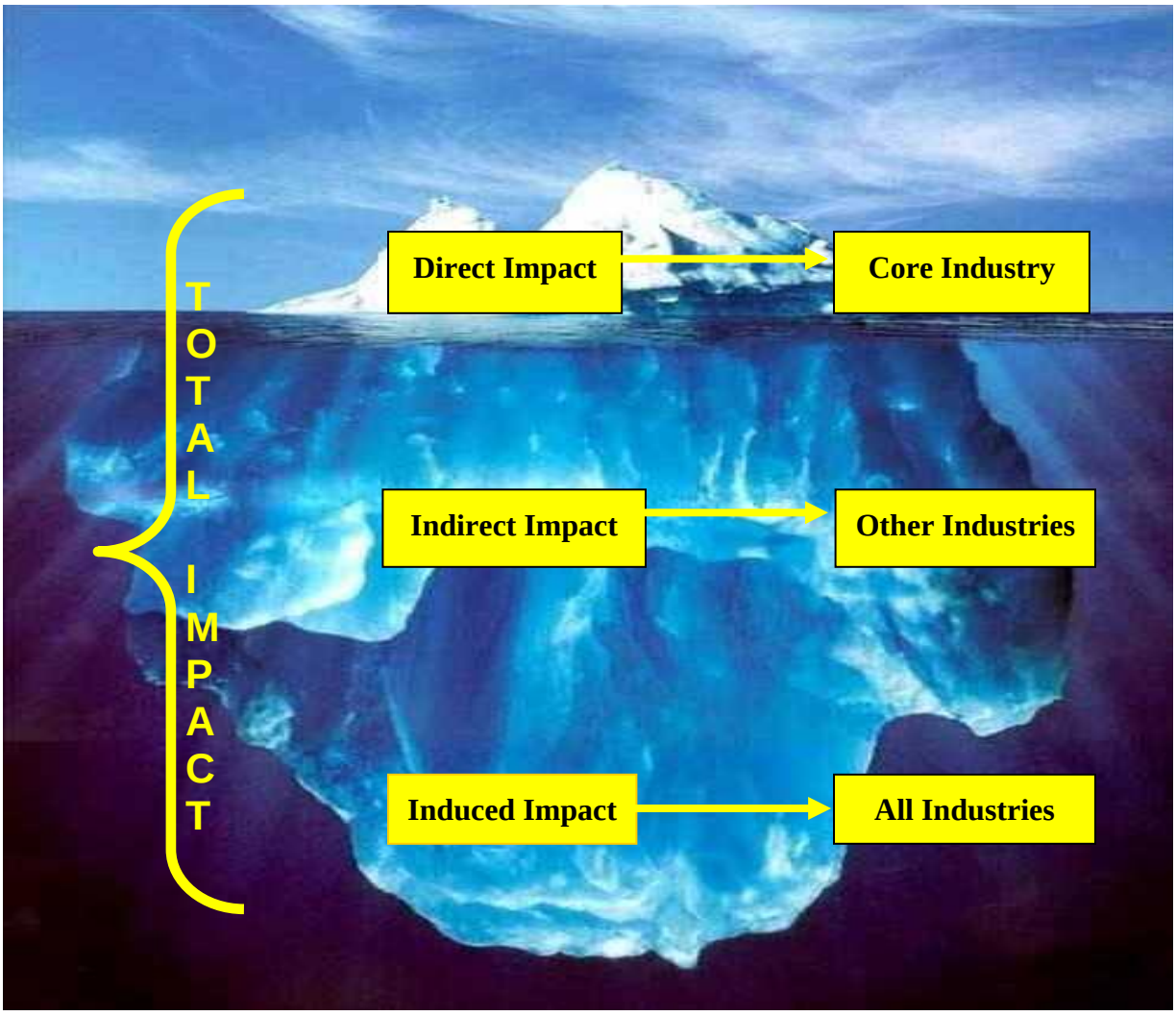
This report was initially released electronically before being printed in hardcopy format

Florida Needs a Better Method to Estimate Tourism's Economic Impact

Current Estimating Method Reveals Only the Tip of the Iceberg



Tourism continues to be the engine of economic growth and prosperity in Florida, despite the tightening of airport security after 9/11 and the wars in Afghanistan and Iraq, which pushed the U.S. tourism sector into its worst slump since World War II.[1] The number of visitors to Florida in 2005 reached nearly 84 million, a record level.[2] A recent study conducted by Florida TaxWatch estimated that this number will climb to between 92.5 million (median estimate) and 100.9 million (optimistic estimate) by 2010.[3]

This *Research Report* highlights the importance of developing a Tourism Satellite Account (TSA) method of estimating tourism expenditure impact on Florida's economy. Because tourism does not exist as a distinct sector and its expenditures are among several sectors, it is difficult to identify its impact on the state economy. The TSA method separates out all tourism-related activity within gross state products (GSP). Developed by the World Tourism Organization, the TSA method is used by over 70 countries, the Bureau of Economic Analysis (BEA) at the national level, and a growing number of states.

Florida TaxWatch strongly recommends developing a Tourism Satellite Account incorporated into a regional input-output model, such as REMI and IMPLAN, to accurately measure the full impact of tourism expenditures on the state economy. A scientifically reliable method, TSA is the official international standard for estimating tourism expenditures. It should be used by the State of Florida to more accurately assess and monitor the tourism sector, and establish policies to mitigate problems and seize opportunities to grow tourism. **TSA can provide policymakers with more reliable information for effective decision-making to guide the future of tourism development.**

Florida's Current Method of Measuring Tourism Impacts

VISIT FLORIDA, the state's tourism marketing agency, tracks four economic indicators to measure the economic impact of visitors: 1) tourism/recreation taxable sales, 2) direct travel-related employment, 3) the car rental surcharge, and 4) local tourist development taxes, i.e., bed taxes. The *2005 Florida Visitor Study* reported that the state collected $3.7 billion in tourism/recreation sales taxes in 2005, which means that $62 billion was infused into the state's economy during the year through tourist expenditures. The study also noted that tourism expenditures supported 948,700 jobs in 2005.[4]

Do our state's tourism-related output and employment estimates accurately capture the full impact of visitor expenditures on the economy? Are they reliable estimates? It is hard to say "yes" to these questions because VISIT FLORIDA uses a tourism/recreation sales category[5] as a

[1] Wilkerson, Chad: Travel and Tourism: An overlooked Industry in the U.S. and Tenth District, Economic Review, Federal Reserve Bank of Kansas City; Third Quarter 2003.
[2] *2005 Florida Visitor Study*, VISIT FLORIDA Research Department.
[3] Florida TaxWatch, *The Impact of Tourism on Florida's Economy: Telling a More Complete Story*, March 2006. To download: http://www.floridataxwatch.org/resources/pdf/TourismReportMarch2006.pdf.
[4] VISIT FLORIDA, 2005.
[5] The tourism/recreation category includes all sales by hotels and motels, bars and restaurants, liquor stores, photo and art stores, gift shops, and jewelry stores, plus admissions, sporting goods, and rentals to visitors and residents.

proxy to calculate tourism expenditures in its estimates, creating several shortcomings. First, this category includes expenditures by both visitors and residents. It inaccurately treats all recreation sales as tourism-related. Second, the tourism/recreation proxy does not include sales for indirect tourism output, such as toiletries for hotel guests, ingredients used to make meals served to airline passengers, and plastic used to produce souvenir key chains. Third, the proxy does not capture induced impact, which is the increased sales within the state from household spending of the income earned in tourism and supporting industries. (A Glossary of Terms is provided on page 14.)

Induced impact is known as a multiplier effect. It means visitor spending has multiple impacts on total expenditures in the state economy. In other words, employees in tourism and supporting industries spend the income they earn from tourism on housing, utilities, groceries, and other consumer goods and services. This generates sales, income and employment throughout the state's economy. Total economic impacts are the sum of direct, indirect, and induced impacts.

Problems in Estimating Tourism's Economic Impacts

Countries around the world have worked hard to accurately estimate the contribution of tourism to their economies and to arrange their policies accordingly. However, there are some serious problems and flaws in the traditional methods used to estimate the economic impact of tourism. A major problem has been inconsistency of methods across regions/countries and/or time. Over the last three decades, countries and states have estimated tourism's economic impact with various measures and definitions. Frechtling (1994) identified eight different methodologies used to estimate tourism expenditures alone.[6] This "pluralistic" approach to measuring the impact of tourism on national and local economies prevents valid comparisons across nations/states as well as comparisons over time within the same economy.

A second problem that arises when measuring the economic impact of tourism is that tourism is not generally treated as a separate "industry." Data for tourism is scattered among various industries. As a result, collection of comprehensive and precise data on tourism expenditures becomes a cumbersome, if not impossible, endeavor. Traditional methods focus on certain aspects of tourism's economic impact and thus fail to provide comprehensive information on tourism's contribution to an economy.

Finally, measures of tourism's contribution to an economy have generally been centered on gross expenditure (demand side). However, expenditure-based measures do not reflect tourism's impact on regional employment or gross value added, or its induced effects on other industries, all of which have to do with the supply side and are of crucial importance for local economies.[7]

The Tourism Satellite Accounts method has emerged as a viable alternative to traditional methods to measure tourism's economic impact in a comprehensive and consistent way.

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[6] Douglas C. Frechtling (1994), "Assessing the Impact of Travel and Tourism – Measuring Economic Benefits," In J. R. B. Ritchie and C. R. Goeldner (eds.) *Travel, Tourism, and Hospitality Research: A Handbook for Managers and Researchers*. New York: Wiley. pp: 367-391.

[7] M. Edmunds (1999), "Tourism Satellite Account," Travel and Tourism Intelligence Occasional Studies, *Travel and Tourism Analyst* No. 3.

What is a Tourism Satellite Account (TSA)?

"Satellite Account" is a concept developed by the United Nations to measure the size of economic sectors that are not defined as industries in the *system of national accounts (SNA)*.[8] The term "satellite" refers to the fact that a TSA is based on the input-output framework of a state/regional economy. It is a subset of general input-output accounting. Tourism is a conglomeration of industries, such as transportation, accommodations, food and beverage services, recreation and entertainment, and travel. Therefore, it is not possible to identify a set of industries, add up their output/employment, and use the result to gauge the impact of tourism in a country or region, much less a state. TSAs offer a solution to this problem by weighing the output/employment of all tourism-related industries by the ratio of tourism expenditures to total expenditures for each industry.[9]

TSAs are the outcome of the collaborative work of multiple national governments as well as international institutions, like the World Tourism Organization (WTO), the Organization for Economic Cooperation and Development (OECD), and the United Nations (UN), to create a *comprehensive* and *consistent* measure of the economic impact of tourism. As early as 1983, the WTO called for the creation of "a uniform and comprehensive means of measurement [of tourism] and comparison with other sectors of the economy."[10] In 1994, the WTO started designing a TSA with the objective of presenting a comprehensive and integrated framework for estimating production, consumption, capital investment, employment, and other variables related to tourism activity.

TSAs start with a solid definition of tourism and delineation of "core" tourism industry. As accepted by the UN and WTO, TSAs define tourism as "*activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes*."[11] TSAs' core tourism industry consists of five broad industries: lodging, restaurants, entertainment, transportation, and retail. TSAs first measure tourism's impact on these industries. They then go beyond core industry and measure tourism's indirect effect on other industries, such as printing/publishing, concrete, utilities, financial services, furnishing & equipment suppliers, food, security, administration, and so on. Thus, TSAs capture the impact of tourism on industries that benefit directly or indirectly from travel and tourism expenditures. A comprehensive list of industries on which tourism's economic impact is measured is shown in the illustration on the following page:

[8] SNA is the conceptual framework that describes the international standards for measuring Gross Domestic Products (GDP).
[9] Smeral, Egon (2006), "Tourism Satellite Accounts: A Critical Assessment," *Journal of Travel Research*, Vol. 45, August 2006.
[10] Quoted in S. L. J. Smith and D. Wilton (1997), "TSAs and the WTTC/WEFA Methodology: Different Satellites or Different Planets?" *Tourism Economics*, 3 (3), p. 250.
[11] United Nations (1994), *Recommendations on Tourism Statistics*, Department for Economic and Social Information and Policy Analysis and World Tourism Organization, United Nations, New York. p. 9.

Source: Adam Sacks (2004), *The Alaska Tourism Satellite Account*

A Tourism Satellite Account (TSA) is linked to a national/regional input-output table. It takes information from such a table based on the estimated share of tourism in the total sales of each industry. There are ways to capture visitor spending and its impact on economy. One way is to track all visitors and ask them how much they spend and what they purchase during their trips. However, this is not a practical way. The other way is to estimate tourism shares in demand and supply of goods and services produced in an economy. Then, link these shares to the input-output table and estimate total direct and indirect tourism output and employment impacts. In a nutshell, this is exactly what a TSA does. The model measures the purchases by visitors of airfares, lodging, meals and beverages, shopping, and other visitor activities, and links these expenditures to the industries that produce them. The shares of tourism demand consist of visitor spending and government tourism related spending. Government spending data will be estimated from various government budget documents. Visitor spending data will be obtained through visitor surveys.

TSAs are based on input-output analysis, which is "the most comprehensive method available for studying the impact of tourism."[12] Input-output accounts map out the full range of commodities that are produced by each industry in a region. An input-output table shows different industries within the national/regional economy and how they are connected through their purchase and sales relationship. TSAs expand the detail for travel and tourism commodities provided in input-output tables. They also provide detailed information on tourism-related employment and tourism-generated taxes.

TSAs provide information on:

- tourism's contribution to Gross Domestic/State Product
- tourism's ranking compared to other economic sectors
- the number of jobs created by tourism in an economy
- the amount of tourism investment
- tax revenues generated by tourism industries
- tourism consumption
- tourism's impact on a nation/state's balance of payments
- characteristics of tourism human resources

Source: WTO, *TSA: Basic Concepts*,
http://www.world-tourism.org/statistics/tsa_project/Basic_concepts_of_the_TSA.pdf

The Travel and Tourism Satellite Account developed by the U.S. Bureau of Economic Analysis for the U.S. economy tracks 32 tourism-related commodities in 27 tourism-related industries as shown in on the following page:

[12] J. E. Fletcher (1989), "Input-output Analysis and Tourism Impact Studies," *Annals of Tourism Research*, 16, pp. 514 - 529.

List of Tourism-Related Commodities and Industries in the U.S. TTSA

Tourism-Related Commodities	Tourism-Related Industries
1. Traveler accommodations 2. Food services and drinking places 3. Domestic passenger air transportation services 4. International passenger air transportation services 5. Passenger rail transportation services 6. Passenger water transportation services 7. Interurban bus transportation 8. Interurban charter bus transportation 9. Urban transit systems and other transportation services 10. Taxi service 11. Scenic and sightseeing transportation services 12. Automotive rental and leasing 13. Other vehicle rental and leasing 14. Automotive repair services 15. Parking lots and garages 16. Highway tolls 17. Travel arrangement and reservation services 18. Motion pictures and performing arts 19. Spectator sports 20. Participant sports 21. Gambling 22. All other recreation and entertainment 23. Gasoline 24. Wholesale trade and transportation margins on gasoline 25. Retail trade margins on gasoline 26. Nondurable PCE commodities other than gasoline 27. Wholesale trade and transportation margins on nondurable 28. PCE commodities other than gasoline 29. Retail trade margins on nondurable PCE commodities other than gasoline 30. All other commodities, except all other trade and transportation margins 31. All other wholesale trade and transportation margins 32. All other retail trade margins	1. Traveler accommodations 2. Food services and drinking places 3. Air transportation 4. Rail transportation 5. Water transportation 6. Interurban bus transportation 7. Interurban charter bus transportation 8. Urban transit systems and other transportation 9. Taxi service 10. Scenic and sightseeing transportation 11. Automotive equipment rental and leasing 12. Automotive repair services 13. Parking lots and garages 14. Toll highways 15. Travel arrangement and reservation services 16. Motion pictures and performing arts 17. Spectator sports 18. Participant sports 19. Gambling 20. All other recreation and entertainment 21. Petroleum refineries 22. Industries producing nondurable PCE commodities, excluding petroleum refineries 23. Wholesale trade and transportation services 24. Gasoline service stations 25. Retail trade services, excluding gasoline service stations 26. All other industries 27. Domestic production at producers' prices

Strengths of TSA Method Compared to Traditional Methods

TSAs avoid, to a great extent, the problems associated with traditional methods of measuring economic impacts of tourism, providing a consistent measure of the economic impact of tourism. TSAs avoid the problem of traditional methods, which collect data from trade associations, state agencies, and consultants who "often use different definitions and vary in terms of quality and timeliness."[13] They allow meaningful comparison of tourism data from different regions and different time periods. With TSAs, governments, entrepreneurs, and citizens are equipped with better data to design and evaluate public policies and business strategies for tourism.

TSAs also provide an opportunity to more reliably compare the tourism sector. For this to happen, tourism impact methods should follow "concepts and definitions consistent with internationally accepted macroeconomic guidelines such as the System of National Accounts (SNA 1993)."[14] TSAs avoid the demand-side bias of traditional measures by introducing a balanced measure of the economic impact of tourism that includes both demand and supply sides. To quote the WTO:

> "The fundamental structure of the TSA therefore relies on the balance existing within an economy between on one hand, the demand for goods and services generated by visitors and by other consumers and on the other hand, the overall supply of these goods and services. The idea is to analyze in detail all aspects of demand for goods and services, which are associated with tourism within the economy, and to measure the relationship with the supply of such goods and services within the same economy."[15]

Standardization of the measures of tourism's economic impact makes data on the tourism sector comparable with other industries. Traditional methods fail to map out tourism's economic relationship with other "non-tourism" industries that supply goods and services to the tourism industry. Thus, an important benefit of using TSAs is "the ability to examine how industries seemingly unrelated to travel and tourism benefit from it."[16]

TSA Limitations

Current TSAs have weaknesses. For example, they have made only limited progress on "non-consumption elements of tourism-related activity," such as capital formation and the treatment of durable goods.[17] Another problem is the "seasonal" nature of some, if not all, tourism-related employment, which might undermine the validity of comparisons of the tourism economy with other industries.[18] In Alaska, for example, summer visitors account for over 80 percent of total

[13] David I. Kass and Sumiye Okubo (2000), "U.S. Travel and Tourism Satellite Accounts for 1996 and 1997," *Survey of Current Business*, 80(7), p. 8.
[14] WTO (2006), *TSA: Basic Concepts*, www.world-tourism.org.
[15] Ibid.
[16] Adam Sacks (2004), *The Alaska Tourism Satellite Account*, Global Insight, p. 17.
[17] Calvin Jones, Max Munday, and Annette Roberts (2003), "Regional Tourism Satellite Accounts: A Useful Policy Tool?" *Urban Studies*, 40(13), p. 2779.
[18] Ibid, p. 2782.

Alaska visitors.[19] However, relatively small seasonal fluctuations in the number of Florida visitors relieve concerns over the seasonality of tourism employment.

A TSA does not measure induced impacts of tourism expenditures. Induced impacts rely on simple *Keynesian multipliers*.[20] Induced tourism effects result from "re-spending" wages—that is, new employees have money to spend as a result of Florida tourism. Regional Economic Models (REMI) and Impact Analysis for Planning (IMPLAN) are two commonly used regional input-output models to estimate induced impacts of tourism. Using the REMI model, the 2005 Florida TaxWatch tourism study estimated that by 2010, tourist expenditures will support between 1.5 and 1.8 million jobs and contribute between $102 and $135 billion to Florida's economy in terms of increased state output.[21]

TSAs in Practice

TSA is rapidly becoming the standard for measuring the economic impact of tourism at national and state levels. Canada was the first country to develop a comprehensive TSA in 1994. Since then, countries like the United States, the United Kingdom, France, Spain, Mexico, Canada, Australia, Norway, Singapore, New Zealand, Switzerland, the Dominican Republic, and Sweden have adopted TSA and are at different stages of TSA development.[22] There are currently 70 countries or territories around the world implementing a TSA.[23]

Global interest in TSAs is not limited to the countries listed above. The United Nations encourages all member countries to implement the system as rapidly as possible. In 2000, delegates representing close to a hundred countries and international organizations attended a meeting on TSAs held at UN headquarters in New York.

The United States was among the first countries to develop a TSA. The Bureau of Economic Analysis (with support of the Tourism Industries Office of the International Trade Administration in the U.S. Department of Commerce) developed a travel and tourism satellite account framework in the early 1990s to analyze the U.S. travel and tourism industry in a *systematic* and *consistent* way that traces travel expenditures to the industries that produce tourism goods and services. Currently, the U.S. Bureau of Economic Analysis (BEA) uses a TSA called Travel and Tourism Satellite Accounts (TTSAs) to measure tourism impact on the

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[19] U.S. Department of the Interior, National Park Service, *Business Opportunity for Concession Operations at Glacier Bay National Park & Preserve*, Gustavus, Alaska, 2004. Available online at: http://www.nps.gov/glba/InDepth/admin/commercial/glba001-2businessopportunity.pdf.

[20] Keynesian multiplier is the effect on demand of any exogenous increase in spending, such as visitor spending, and is a multiple of that increase—until potential is reached. If x amount of money is injected into an economy by visitor expenditures, the people who receive this money then spend most of it on consumption goods and save the rest. This extra spending allows businesses to hire more people and pay them, which in turn allows a further increase consumer spending. This process continues. At each step, the increase in spending is smaller than in the previous step, so the multiplier process tapers off and allows the attainment of equilibrium.

[21] Florida TaxWatch, *The Impact of Tourism on Florida's Economy: Telling a More Complete Story*, March 2006. To download: http://www.floridataxwatch.org/resources/pdf/TourismReportMarch2006.pdf.

[22] Douglas C. Frechtling (1999), "The Tourism Satellite Account: Foundation, Progress, and Issues," *Tourism Management*, Vol. 20, p. 164.

[23] Libreros, Marion, A. Massieu, and S. Meis (2006), "Progress in Tourism Satellite Account Implementation and Development," *Journal of Travel Research*, Vol. 45, August 2006.

economy.[24] TTSA tables for 1998-2005 in the Appendix B present tourism-related output and employment by industry and commodity.

There is also a growing interest in TSAs at the state level. So far, South Carolina, Virginia, Hawaii, Delaware, New Jersey, Rhode Island, Alaska, and North Carolina have developed their own TSAs. Other states that have not yet adopted a TSA at the state level benefit from the national TSA. A 2002 report by the Southern Governors' Association underscored the importance of reliability on the scope of tourism's economic impact and urged all southern states to continue to "support … a National Travel and Tourism Satellite." [25]

Given the above-mentioned advantages of TSAs over other traditional measures of tourism's economic impact, it makes perfect sense for a "tourism state" like Florida to adopt TSA.

How to Develop a TSA for Florida?

Developing a state level TSA is much more difficult than a national one due to the lack of state level demand data. A national accounting system has both supply and demand data. However, state accounts in the U.S. only provide supply data. Developing a TSA for Florida consists of two important steps. The first step is to estimate the various components of tourism demand, including business and government travel spending, tourism-related public and private investment, and out-of-state and in-state visitor spending.[26] The largest share of tourism demand consists of visitor spending. However, this is not the only tourism-related spending. Government spending includes all expenditures for government travel, and individual and collective non-market products, such as parks and museums. Private and public investment includes expenditures for hotels, motels, highways, and other tourism-related investment. For example, a portion of highway investment is due to visitor uses; therefore, it is counted as tourism-related public investment. The sector level demand data and input-output tables can be retrieved from a regional output-input model, such as REMI and IMPLAN. Government spending data will be estimated from various government budget documents. Visitor spending data will be obtained through visitor surveys.

The second step involves the estimate of the supply side of the economy. In other words, it requires quantifying all goods and services, which are used to meet tourism demand in the state. This includes measuring changes in economic output and employment because of direct, indirect, and induced effects of tourism expenditures. It is important to note that the TSA only covers the portion of production that occurs in the state due to visitor spending. For instance, if a product consumed by visitors is produced in another country/state, only a portion of money paid for that product will be retained in Florida, the rest will be paid to the manufacturer. In other words, the value added of visitor spending to the state economy is limited to the retained money. Therefore,

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[24] U.S. Travel and Tourism Satellite Accounts website: http://bea.gov/bea/dn2/iedguide.htm#ttsa. The description of the methodology for the U.S. TTSA is discussed in Appendix A.

[25] Southern Governors' Association Tourism Task Force Report and Recommendations, January 31, 2002. Available online at: http://www.southerngovernors.org/publications/PDF/TourismRpt.pdf.

[26] For a more detailed discussion of methodological issues, please refer to the following papers: 1) "Development of a Simulated Tourism Satellite Account for the State of South Carolina," WEFA, Inc., March 19, 2001. 2) "The 2003 Louisiana Tourism Satellite Account," The Louisiana Research Team.

the TSA will only measure the economic impact of retained money on the state economy. Total value added to the economy due to visitor spending can be estimated from REMI/IMPLAN output-input tables. Likewise, total employment change resulted from visitor spending across all sectors can be estimated from REMI/IMPLAN analysis. Finally, the TSA will also allow measuring tax revenues attributable to visitor spending.

There are two ways for the state to develop a TSA, one through VISIT FLORIDA and the other through contracting with an independent research entity. Other states, like South Carolina and Louisiana, gather the required data and contract with an independent research institute to do the estimates. VISIT FLORIDA already has most of the data required for a TSA. We acknowledge that it might take a year to develop a Florida TSA model. We recommend that VISIT FLORIDA collaborate with an independent research organization to establish a TSA and estimate full economic impact of visitor expenditures. At the development stage of the model, VISIT FLORIDA should receive inputs from government officials, tourism sector representatives, and expert researchers. In order to allow comparison between the current and new estimates, the new model should be used to estimate the economic impact of tourism for the last ten years, and both current and new models should be used during a five-year transition period.

Conclusion

The TSA is a promising method of measuring tourism's contribution to regional, state, and national economies. It alleviates some of the problems associated with traditional methods and provides consistent and comprehensive information on tourism's economic impact. To summarize, estimates provided by TSAs are:

- comparable across countries, regions, and states
- consistent over time
- compatible with the standard measure of a national economy

Tourism plays a vital role in Florida's economy and its contribution to Florida's economy grows yearly. Given the fact that the economic contribution of tourism is spread across different sectors, it is very difficult to accurately identify how tourism contributes to the state economy. It is very important for Florida policymakers to have accurate information on tourism to devise coherent and effective policies. A Florida Tourism Satellite Account will provide *consistent* and *comprehensive* information on Florida's tourism economy.

The development of a TSA can be of real policy value even though we do not know how much different the new tourism economic impact estimates will be from the current ones. A TSA would be particularly useful for Florida policymakers concerned with prospects for, and benefits from, specific industrial sectors. TSA offers a reliable way to measure the size of the tourism industry and document its impact on the economy. This method allows a much more detailed analysis and tracking of tourism expenditures in both core tourism sectors and other tourism-related sectors. It also provides a rigorous and reliable basis for comparing between tourism and other sectors in terms of their contribution to the state economy. Florida TaxWatch strongly recommends developing a Tourism Satellite Account incorporated into a regional input-output model, such as REMI and IMPLAN, to reveal direct, indirect, and induced impacts of tourism on Florida's economy.

Glossary of Economic Impact Terms

Direct tourism employment. Direct tourism employment comprises all jobs where the workers are engaged in the production of direct tourism output (e.g., hotel staff, airline pilots, and souvenir sellers).

Direct tourism output. Direct tourism output comprises all output consumed by visitors (e.g., traveler accommodations, passenger air transportation, and souvenirs).

Indirect tourism-related employment. Indirect tourism-related employment comprises all jobs where the workers are engaged in the production of indirect tourism-related output (e.g., employees of companies that produce toiletries for hotel guests, the various ingredients used to make the meals served to airline passengers, and the plastic used to produce souvenir key chains). Indirect tourism-related employment is estimated using industry-by-industry employment multipliers from the Regional Economic Analysis Division.

Indirect tourism-related output. Indirect tourism-related output comprises all output used as inputs in the process of producing direct tourism output (e.g., toiletries for hotel guests, the various ingredients used to make the meals served airline passengers, and the plastic used to produce souvenir key chains).

Induced tourism impact: Induced tourism impact is the increased sales with the region/nation from household spending of the income earned due to tourism expenditures. For instance, motel and restaurant employees spend the income they earn from visitors on food, utilities, housing, etc. This secondary spending, which is called induced impact, generates sales, income, and employment throughout the region's economy.

Input-output model. An input-output model (I-O) is a representation of the flows of economic activity between sectors within a region. An I-O model captures what each business or sector must purchase from every other sector in order to produce a dollar's worth of goods or services.

Total tourism-related employment. Total tourism-related employment is the sum of direct tourism employment and indirect tourism-related employment.

Total tourism-related output. Total tourism-related output is the sum of direct tourism output and indirect tourism-related output.

Appendix A: Methodology for the U.S. Travel and Tourism Satellite Account [27]

The U.S. Bureau of Economic Analysis established a Travel and Tourism Satellite Account for the U.S. based on seven different tables to estimate tourism output and employment impacts:

Table 1) Production of commodities by industry
Table 2) Supply and consumption of commodities
Table 3) Demand for commodities by type of visitor
Table 4) Output and value added by industry
Table 5) Output by tourism commodity
Table 6) Employment and employee compensation by industry
Table 7) Total tourism-related employment by industry

Table 1 - Production of commodities by industry. The estimates of commodities purchased by visitors and the industries that produce the commodities are from the BEA annual input-output (I-O) accounts.

Table 2 - Supply and consumption of commodities. The estimates of total supply in purchasers' prices are derived by summing domestic production by commodity in producers' prices, imports, wholesale and retail margins, and transportation costs, and adjusting for change in private inventories. Total consumption is the sum of intermediate expenditures (private and government), personal consumption expenditures, gross private fixed investment, government final expenditures, and exports of goods and services.

Table 3 - Demand for commodities by type of visitor. These estimates are based on **survey data on visitor spending behavior** that are used to break down total consumption estimates from the supply and consumption of commodities table into tourism demand by type of visitor. (The surveys used for this estimate include: the Consumer Expenditure Survey of the Bureau of Labor Statistics, the In-Flight Survey of the Department of Commerce's International Trade Administration, and private surveys done by D.K. Shifflet and Associates.) Total tourism demand is the sum of demand by the four types of domestic visitors (resident households, business, government, and nonresidents). Tourism commodity ratios are estimated by dividing total tourism demand for a commodity by total demand for the commodity by all users. A commodity's tourism commodity ratio indicates the share of its output that is sold to visitors.

Table 4 - Output and value added by industry. Tourism industry ratios are calculated from estimates in the production by industry table (Table 1) and from the demand for commodities table (Table 3). The industry output estimates from the production table are multiplied by the tourism commodity ratios from the demand table in order to obtain **tourism industry ratios**. The estimates of tourism output, tourism intermediate consumption, and tourism value added are calculated by multiplying industry output, intermediate consumption, and value added by the tourism industry ratios. An industry's tourism industry ratio indicates the share of its output that is sold to visitors.

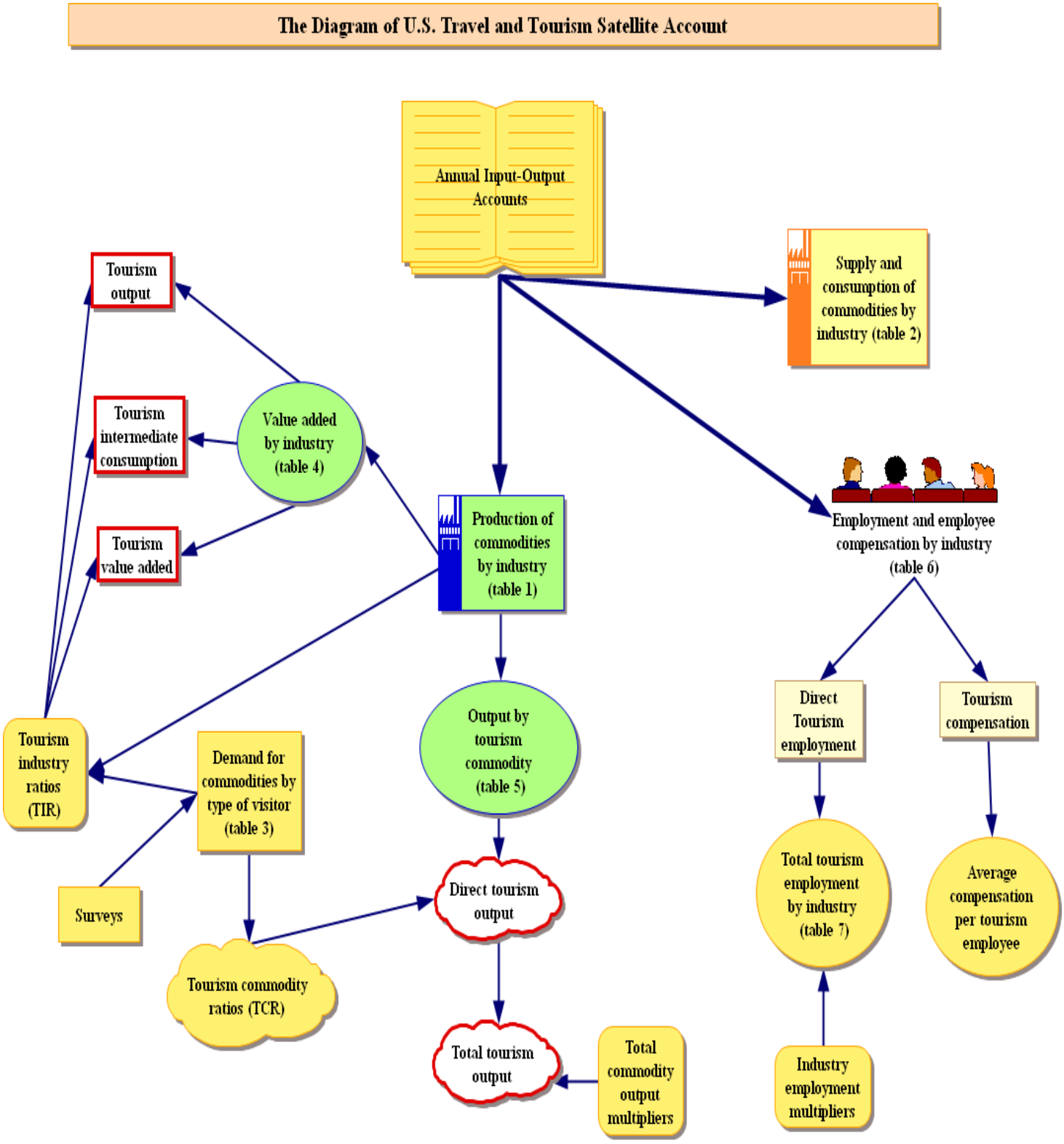
[27] This section is drawn from the following article: "U.S. Travel and Tourism Satellite Accounts for 2001-2004" by Peter D. Kuhbach and Bradlee A. Herauf. Survey of Current Business, June 2005.

Table 5 - Output by tourism commodity. Domestic production is multiplied by the tourism commodity ratio in order to obtain **direct tourism output for each commodity**. Direct tourism output is multiplied by the total **commodity output multiplier** in order to derive **total tourism-related output** for each commodity. For the most recent estimates of the travel and tourism accounts, BEA used output multipliers from the Industry Economics Division to calculate total tourism-related output by commodity.

Table 6 - Employment and employee compensation by industry. The estimates of employment and employee compensation by industry are derived from the annual I-O accounts. These estimates are then multiplied by the tourism industry ratio in order to derive estimates of tourism employment and tourism compensation. Average compensation per tourism employee is calculated by dividing tourism compensation by tourism employment.

Table 7 - Total tourism-related employment by industry. These estimates are derived by multiplying the estimates of tourism employment by total industry employment multipliers. BEA used employment multipliers from the Regional Economic Analysis Division to calculate total tourism-related employment by industry.

The diagram on the following page shows the relationship between tables discussed above:



Source: Florida TaxWatch, 2007

Appendix B: U.S. Travel and Tourism Satellite Accounts Estimates (1998-2005)

Direct Tourism Output
[Millions of current dollars]

Tourism Goods and Services Group	1998	1999	2000	2001	2002	2003	2004	2005
Traveler accommodations	75,666	79,598	88,145	81,249	82,250	86,497	94,615	104,297
Transportation	179,204	188,577	202,210	188,629	181,806	190,309	206,176	226,075
Passenger air transportation	86,837	91,044	100,479	87,263	80,861	86,395	96,827	105,312
All other transportation-related commodities	92,368	97,534	101,731	101,366	100,946	103,914	109,349	120,763
Food services and drinking places	79,112	80,303	83,892	84,636	88,185	94,218	103,055	110,490
Recreation, entertainment, and shopping	125,286	132,426	142,286	138,609	143,122	152,345	168,231	177,948
Recreation and entertainment	50,831	54,962	59,629	60,866	65,154	70,222	76,633	79,804
Shopping	74,455	77,465	82,657	77,743	77,968	82,123	91,598	98,144
All tourism goods and services	459,268	480,904	516,532	493,123	495,363	523,370	572,077	618,810
Percent change at annual rate		*4.7*	*7.4*	*-4.5*	*0.5*	*5.7*	*9.3*	*8.2*

Source: U.S. Bureau of Economic Analysis

Total Tourism-Related Output
[Millions of current dollars]

Tourism Goods and Services Group	1998	1999	2000	2001	2002	2003	2004	2005
Traveler accommodations	117,716	123,833	137,130	126,401	127,959	134,567	147,195	162,259
Transportation	304,160	319,992	343,443	320,420	308,602	323,279	350,370	384,506
Passenger air transportation	147,296	154,432	170,436	148,019	137,159	146,547	164,242	178,633
All other transportation-related commodities	156,864	165,560	173,007	172,401	171,443	176,733	186,128	205,872
Food services and drinking places	148,723	150,962	157,709	159,107	165,780	177,121	193,734	207,710
Recreation, entertainment, and shopping	239,136	252,212	270,703	262,478	270,048	287,047	317,375	336,202
Recreation and entertainment	83,892	90,692	98,357	100,378	107,478	115,813	126,385	131,563
Shopping	155,244	161,520	172,346	162,100	162,571	171,234	190,990	204,638
All tourism goods and services	809,735	846,999	908,984	868,407	872,389	922,014	1,008,674	1,090,677
Percent change at annual rate		*4.6*	*7.3*	*-4.5*	*0.5*	*5.7*	*9.4*	*8.1*

Source: U.S. Bureau of Economic Analysis

Direct Tourism Employment
[Thousands of employees]

Tourism Industry Group	1998	1999	2000	2001	2002	2003	2004	2005
Traveler accommodations	1,318.4	1,357.6	1,408.0	1,371.0	1,322.6	1,319.4	1,327.9	1,347.7
Transportation	1,295.6	1,322.7	1,301.5	1,294.5	1,177.5	1,103.8	1,103.7	1,102.3
Air transportation services	537.9	566.2	599.7	595.5	518.5	476.6	495.8	494.6
All other transportation-related industries	757.7	756.5	701.8	699.0	659.1	627.2	607.9	607.6
Food services and drinking places	1,634.0	1,615.8	1,624.5	1,611.5	1,640.0	1,698.0	1,759.9	1,805.9
Recreation, entertainment, shopping	1,110.0	1,136.8	1,172.3	1,157.6	1,134.8	1,129.8	1,168.5	1,185.9
Recreation and entertainment	520.2	543.2	588.6	600.1	598.0	603.1	636.1	649.7
Shopping	589.8	593.6	583.7	557.5	536.8	526.7	532.4	536.2
All other industries	208.8	206.4	205.2	201.3	198.8	200.9	200.0	203.7
All tourism industries	5,566.8	5,639.2	5,711.5	5,636.0	5,473.7	5,452.0	5,559.9	5,645.5

Source: U.S. Bureau of Economic Analysis

Total Tourism-Related Employment
[Thousands of employees]

Tourism Industry Group	1998	1999	2000	2001	2002	2003	2004	2005
Traveler accommodations	1,622.6	1,670.8	1,732.9	1,687.3	1,627.7	1,623.9	1,634.3	1,658.6
Transportation	2,227.3	2,285.2	2,272.1	2,262.0	2,060.9	1,938.6	1,946.5	1,948.5
Air transportation services	953.2	1,003.3	1,062.6	1,055.3	918.7	844.5	878.5	876.5
All other transportation-related industries	1,274.1	1,281.9	1,209.4	1,206.7	1,142.1	1,094.1	1,068.0	1,072.1
Food services and drinking places	2,185.1	2,160.7	2,172.4	2,155.0	2,193.2	2,270.7	2,353.4	2,415.0
Recreation, entertainment, shopping	1,806.5	1,835.9	1,888.9	1,841.3	1,797.6	1,787.2	1,842.0	1,862.5
Recreation and entertainment	769.5	800.9	868.8	882.3	881.1	888.5	938.0	957.3
Shopping	1,037.1	1,035.0	1,020.1	959.0	916.5	898.7	904.0	905.3
All other industries	358.2	354.0	352.4	345.6	343.5	347.4	347.1	353.9
All tourism industries	8,199.8	8,306.8	8,418.6	8,291.3	8,022.9	7,967.8	8,123.3	8,238.6
Percent change at annual rate		*1.3*	*1.3*	*-1.5*	*-3.2*	*-0.7*	*2.0*	*1.4*

Source: U.S. Bureau of Economic Analysis

Output by Commodity, 2004
[Millions of dollars]

Commodity	Direct tourism output	Total commodity output multiplier	Total tourism-related output
Traveler accommodations	86,779	1.53	132,452
Food services and drinking places	100,731	1.87	188,227
Domestic passenger air transportation services	64,304	1.66	106,623
International passenger air transportation services	28,010	1.66	46,445
Passenger rail transportation services	1,194	1.64	1,954
Passenger water transportation services	6,941	1.93	13,374
Interurban bus transportation	1,374	1.70	2,343
Interurban charter bus transportation	836	1.70	1,425
Urban transit systems and other transportation services	2,653	1.70	4,522
Taxi service	3,682	1.70	6,278
Scenic and sightseeing transportation services	2,361	1.48	3,487
Automotive rental and leasing	21,243	1.63	34,629
Other vehicle rental and leasing	491	1.63	801
Automotive repair services	11,037	1.70	18,778
Parking lots and garages	1,711	1.70	2,912
Highway tolls	563	1.93	1,085
Travel arrangement and reservation services	34,135	1.62	55,282
Motion pictures and performing arts	12,139	1.78	21,647
Spectator sports	4,794	1.64	7,862
Participant sports	11,110	1.61	17,872
Gambling	28,915	1.61	46,510
All other recreation and entertainment	14,543	1.64	23,813
Gasoline	20,478	1.82	37,307
Nondurable PCE commodities other than gasoline	86,391	2.07	179,220
Total	**546,418**		**954,848**

PCE Personal consumption expenditures

Source: U.S. Bureau of Economic Analysis

Employment by Industry, 2004
[Thousands of employees]

Industry	Direct tourism employment	Total industry employment multiplier	Total tourism-related employment
Traveler accommodations	1,321	1.23	1,626
Food services and drinking places	1,655	1.34	2,213
Air transportation services	523	1.77	927
Rail transportation services	8	1.93	16
Water transportation services	29	3.63	105
Interurban bus transportation	23	1.44	34
Interurban charter bus transportation	20	1.44	29
Urban transit systems and other transportation	44	1.44	64
Taxi service	43	1.44	62
Scenic and sightseeing transportation services	18	1.44	25
Automotive equipment rental and leasing	105	2.35	247
Automotive repair services	42	1.54	64
Parking lots and garages	13	2.09	27
Toll highways	3	1.79	6
Travel arrangement and reservation services	205	1.54	314
Motion pictures and performing arts	33	2.17	71
Spectator sports	57	1.70	98
Participant sports	216	1.29	278
Gambling	176	1.42	250
All other recreation and entertainment	118	1.58	185
Petroleum refineries	4	3.31	13
Industries producing nondurable PCE commodities, exclud	151	2.89	436
Wholesale trade and transportation services	127	1.56	199
Gasoline service stations	45	1.20	55
Retail trade services, excluding gasoline service stations	375	1.20	450
All other industries	69	1.96	136
Total	**5,424**		**7,929**

PCE Personal consumption expenditures

Source: U.S. Bureau of Economic Analysis

Special acknowledgment to Bud Nocera, President and CEO of VISIT FLORIDA, and his research team for the data and reports they provided, and for the thorough and timely review of this report.

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About Florida TaxWatch

Florida TaxWatch is a statewide, non-profit, non-partisan taxpayer research institute and government watchdog that over its 28 year history has become widely recognized as the watchdog of citizens' hard-earned tax dollars. Its mission is to provide the citizens of Florida and public officials with high quality, independent research and education on government revenues, expenditures, taxation, public policies, and programs, and to increase the productivity and accountability of Florida Government.

Florida TaxWatch's research recommends productivity enhancements and explains the statewide impact of economic and tax and spend policies and practices on citizens and businesses. Florida TaxWatch has worked diligently and effectively to help state government shape responsible fiscal and public policy that adds value and benefit to taxpayers.

This diligence has yielded impressive results: in its first two decades alone, policymakers and government employees implemented three-fourths of Florida TaxWatch's cost-saving recommendations, saving the taxpayers of Florida more than $6.2 billion -- approximately $1,067 in added value for every Florida family, according to an independent assessment by Florida State University.

Florida TaxWatch has a historical understanding of state government, public policy issues, and the battles fought in the past necessary to structure effective solutions for today and the future. It is the only statewide organization devoted entirely to Florida taxing and spending issues. Its research and recommendations are reported on regularly by the statewide news media.

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About the Center for Tourism

The Florida TaxWatch Center for Tourism conducts objective research and develops research-based policy initiatives to stimulate economic development in Florida's tourism and tourism-related industries, while ensuring taxpayer value for Florida's taxpayers. The Center's core objectives are to: (1) monitor and analyze historical and emergent factors impacting the economic health and viability of Florida's tourism industry and economic development throughout the state; (2) develop and support public policy initiatives, programs and projects which encourage and sustain Florida tourism and other mutually reinforcing industries.

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