

**THE BENEFITS AND COSTS OF
TOURISM TO FLORIDA**



August 2000

Executive Summary

This study by Florida TaxWatch began as an attempt to analyze the costs and benefits associated with tourism and the quality of life in Florida. A concerted effort was made to obtain data for the purpose of doing a bono fide cost-benefit analysis of tourism. Unfortunately, current data suitable for cost-benefit analysis purposes for measuring/juxtaposing tourism-related costs with benefits and, in turn, for developing cost-benefit ratio(s), were not to be found (See Appendix A and Appendix B for telephone numbers, e-mail addresses and web sites of individuals and organizations contact by Florida TaxWatch staff for cost data and/or data source references.). TaxWatch must conclude, therefore, that there is a compelling need to generate and maintain tourism cost and benefit data on an ongoing basis in order to explicitly address the Florida tourism industry's data needs generally and tailored to meet the specific needs of major sectors--recreation, attractions, entertainment, etc.--of the industry.

The study begins with an overview of the direct tourism benefits associated with employment, spending by tourists and state consumption taxes. It shows that

significant direct benefits accrue from tourism to Florida residents and to the state's economy generally. In lieu of the dearth of tourism cost-related data suitable for cost-benefit analysis, TaxWatch employed sophisticated forecasting and simulation models to capture, in time and longitudinally, the multiplier effects of tourism benefits. The models reveal there to be very significant indirect benefits resulting from tourism as well as direct benefits. This can be attributed to several factors, including the number of tourists visiting Florida by ground and air transportation, from annual spending by tourists generally and from tourism-explicit spending on entertainment, shopping, lodging, food and transportation.

The forecasting models also show there to be significant state tax revenues generated from travel and tourism activities in Florida as a function of direct and indirect earnings. Projections show too that there will be substantial annual employment in tourist-related jobs between the years 2001 and 2010 (net present value in 1999 dollars). These jobs will be very important to the ongoing viability of Florida's economy and to the prosperity and quality of life of Florida residents.

Key Findings

1. Direct travel employment related to tourism totaled 818,700 jobs in 1998, 12.3% of the total state non-agricultural employment.
2. Total state employment, including indirect jobs created by the multiplier effect, exceeds 1,398,000, 20.9% of non-agricultural employment in 1999.
3. The average wage rate for all tourism related jobs (direct and indirect) 1999 was \$42,866, significantly above the state average for all non-agricultural jobs of \$32,035.
4. Total wages for all tourism related jobs exceeded \$59.9 billion out of total personal income of \$218.8 billion in 1999.
5. Gross State Product (output) resulting from tourism related activities exceeded \$102.3 billion in 1999.
6. Tourism/recreational taxable sales in 1998 exceeded \$43.1 billion.
7. State tax revenues resulting from tourism activities exceeded \$6.9 billion out of a total of \$21.9 billion in state tax revenue in 1999.

Faced with the aforementioned tourism cost data limitations, TaxWatch's conclusions regarding cost data, for the most part, are of *prima facie* value. Whereas any associations--implied or otherwise inferred in this study--between tourism cost data and the quality of life in Florida are presented nonetheless as intuitively correct and useful for heuristic

purposes, they are inferential or inconclusive at this point and require further data and analysis. Be that as it may, several categories of tourism-related cost data--seasonality of employment; unemployment compensation; traffic congestion; public safety; health care; transportation; and the environment--are discussed in this study.

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Introduction

This study, in behalf of Visit Florida, attempts to analyze the impact that tourism is having on the quality of life in the State of Florida, as compared to the perceptions of Florida residents. Textbooks on cost-benefit analysis typically call for the calculation of *all* costs and *all* benefits of tourism's impact. However, in the real world of cost-benefit analysis, it is possible to calculate only those costs and benefits that are capable of being taken into account; *e.g.*, those benefits and costs for which data are available.¹ It was anticipated, and acknowledged in the research design of this study, that some of the costs and some of the benefits of tourism's impact on the quality of life in Florida may be unaccountable due to several potentially uncontrollable factors: inaccurate or incomplete data; research cost-related and time-based limitations should data not be readily available; the incomparability of cost versus benefit measures for the purpose of juxtaposing benefits and costs; and, thereby, disabling the calculation of net benefits or net costs.

In addition to being a relatively data-intensive form of analysis, cost and benefit data can be very context-specific. Thus, any conclusions generated by the application of one's cost-benefit methodology often are only very narrowly applicable to a single case or to time-specific incidences or effects. In the latter case, in order to be useful, cost-benefit data must be current.

TaxWatch's search for timely, Florida-specific cost-benefit tourism data reveals that tourism studies and related data collection efforts by-and-large have been directed more toward the benefit rather than the cost side of the cost-benefit equation. There appear to be three major reasons for this imbalance of data coverage.² First, benefit-related economic impacts are relatively easy to measure whereas physical and social cost-related impacts, particularly the latter, are difficult to subject to numerical measurement because they are difficult to quantify.

Second, relatively explicit data are required to measure the economic costs and benefits of tourism; tourism employment and tax-related revenue data, etc. are more easily collected than those related to cost-consequences.

Third, an historical emphasis on the economic and related benefits of tourism may reflect a widely and deeply held belief or bias among tourism advocates that tourism *ceteris paribus* yields a considerable return on investment and per force is a positive net influence in providing jobs and improving the prosperity of all citizen taxpayers overall. Conversely, these reported benefits may not be perceived by Florida residents because of the lack of widely disseminated information in the media.

Optimally, but subject to the availability of data, a cost-benefit analysis of Florida tourism would assign quantitative values (discrete indexes and/or dollar measures) to the benefits/costs of Florida tourism on the quality of life in Florida. Ideally, costs and benefits would also be adjusted to reflect the time-value of money, multiplier effects and other macroeconomic cost/benefit impacts of Florida tourism on the quality of life in Florida.

Florida TaxWatch's search for tourism cost-benefit data reveals that, while tourism benefits are "visible" in the form of jobs, earnings, business output and tax revenues, explicit data with which to measure tourism costs are relatively "invisible" or indistinguishable from other cost-related impacts. This is because they tend to meld with and are difficult to separate (for analysis purposes) from more general social and quality-of-life aspects of Florida residents. Traffic congestion, health care needs and costs, public safety and other such issues are all part of the

daily existence of Floridians. To what extent these are increased by tourists to the state is difficult to isolate. On the other hand, a recent Florida household government benefits and tax burden study done for Florida TaxWatch by Drs. Keith G. Baker and Craig E. Reese shows that Florida tourists consume/use far less than do Florida residents in a variety of government services arenas. For example, the cost-to-government side of the equation is decidedly weighted against individual Florida resident households and favors Florida tourists when it comes to the consumption/use of state/local prisons, Medicaid, public schools and post-secondary colleges and universities, and Aid to Families with Dependent Children.³

Despite the aforementioned data analysis problems, Florida TaxWatch finds ample evidence showing tourism to be a very significant sector of Florida's economy. Recent estimates indicate that more than 48.6 million visitors came to Florida in 1998.⁴

Visitors To Florida			
	1996	1997	1998
Air Visitors	25,265,499	26,468,490	27,082,875
Auto Visitors	19,491,583	20,485,439	21,615,861
Total Visitors	44,757,082	46,953,929	48,698,736

Source: Visit Florida, 1998 Florida Visitor Study.

The benefits of tourism to Floridians and the economy are presented in this report in terms of their direct and indirect impacts on personal income, employment and increases in Florida's consumption tax revenues. The tourism industry provides a number of economic and other benefits to Floridians. Of prime importance are the employment opportunities and the increased business income generated by tourist expenditures (direct and induced). Tourism also contributes to state and local tax revenues. Tourist expenditures help to finance public and private infrastructure, cultural, recreational and entertainment activities that the state's resident economy alone could not support at current levels of taxation.

Florida Tourism Benefits

Tourist expenditures represent a direct injection of "imported" funds into the Florida economy. The direct effect of the expenditure of tourist funds creates income (personal and business) and employment for those residents who sell their goods and services to tourists. Most evident is the employment impact.

Employment

Increased employment has always been regarded as one of the primary benefits of tourism⁵ and represents more than twelve percent of Florida's total non-farm employment in 1998.



Source: Visit Florida, 1998 Florida Visitor Study

Table 1
Direct Travel-Related Employment in Florida

Employment Category	1997	1998	Percent Change
Air Transportation	70,900	72,900	+2.8
Eating and Drinking Establishments	444,300	452,300	+1.8
Hotels and Lodging	146,600	150,300	+2.5
Amusement and Recreation	137,700	143,200	+4.0
Total Travel-Related Employment	799,500	818,700	+2.4
Total Non-Agricultural Employment	6,427,400	6,677,300	+3.9
Total Travel-Related Employment as a % of Total Non-Agricultural Employment	12.4%	12.3%	(0.1%)

Source: Florida Dep. Of Labor and Employment Security as reported in Visit Florida, 1998 Visitor Study.

While not officially designated an "industry," tourism contributes significant employment opportunities for Floridians. These opportunities are expanded through the multiplier effect (ancillary and support businesses) discussed later in this study.

Spending and State Consumption Taxes

Tourism and recreational activities of Florida residents generated more than \$43.0 billion in taxable (sales tax) transactions in Florida in 1998. **Table 2** reports that portion of taxable sales most influenced by tourism.

An important benefit of tourism to the residents of the state of Florida is its contribution to tax revenues. In so far as this contribution exceeds the additional government expenditures required to service tourists, it represents a source of revenue to the state other than taxes levied on Florida residents. This permits a higher level of government services to be enjoyed by Florida's residents than would be possible without tourism, or a lower level of taxes to be paid by Florida residents. In effect, a portion of the cost of government services is "exported" to tourists.

The Florida's Department of Revenue collected \$21.7 billion in 1999-2000 fiscal year in the form of taxes, fees, and licenses imposed on consumption, wealth, and income in some form or the other. Approximately 80% of these are in the form of taxes on consumption. An advantage of consumption taxes is that they are levied on consumption expenditures in our state regardless of the residency of the purchaser. Thus, tourists will pay some portion of these taxes. The major consumption taxes (sales, gasoline, beverages, and cigarettes) are also taxes to which tourists can be expected to make their major contribution.

By far, the most important tax levied on the expenditures of tourists (as well as residents) is the general sales tax, which amounts to over 60 percent of the consumption taxes paid by both groups. Other high tourist consumption tax sources include: gasoline, alcohol, beer and cigarettes.

Table 2
Tourism/Recreation Taxable Sales by Category

Sales Categories	1997	1998
Restaurants/Lunchrooms	\$15,907,967,271	\$16,722,327,478
Taverns, Night Clubs	1,952,239,802	2,044,330,605
Jewelry, Leather	2,699,794,198	2,592,468,935
Hotels, Apartment Houses	9,547,855,820	10,128,645,419
Cigar Stands, Tobacco Supplies	76,824,306	81,370,648
Photographers, Photo Supplies	921,684,554	911,835,339
Gift, Card, Novelty Shops	1,887,652,715	1,983,059,405
Newsstands	61,715,751	54,013,581
Admissions	4,630,029,658	4,201,528,747
Holiday Season Vendors	11,604,154	12,081,401
Retail of tangible property	3,639,652,440	4,031,937,111
Parking lots, Boat Dockings	313,358,273	335,805,838
Total	\$41,380,387,942	\$43,099,404,507

Source: Division of Economic and Demographic Research, Joint Legislative Management Committee, Florida Legislature, as reported in *Visit Florida 1998 Florida Visitor Study*.

Investments in Transportation

It is generally acknowledged, but historically not always appreciated by all Florida residents, that Florida tourism creates increased congestion on state and local streets and highways. Whereas problems of transportation congestion are highly visible to many Florida residents, especially in the more densely populated areas of the state, there are long-term, transportation-related employment benefits (far beyond construction-period jobs) realized by Florida residents from state and local investments in transportation that are not always recognized or fully appreciated. Clearly, some of the investments resulting in better streets and highways utilized by Florida residents throughout the year would not have been necessary nor exist were it not for the seasonal, peak-load traffic attributable to tourists.

The most important and comprehensive measure of return on transportation investments are related benefits received by transportation users—namely, time savings, lower vehicle operating costs, and improved safety. Research conducted by the Center for Urban Transportation Research at the University of South Florida shows that for each \$1.00 invested in state and local roads just to maintain current conditions, user benefits total \$2.86. Absent tourism-specific data, it is not possible to isolate the portion of those benefits attributable to tourism-related improvements. However, these are benefits that flow to every part of the economy, creating improved productivity and business competitiveness, higher real wages, and stronger overall economic expansion. Focusing on increased transportation-related business productivity, the research shows that each \$1.00 invested in capital improvements to transportation facilities results in annual growth of \$0.35 in Florida's Gross State Product—a rate of return of 35 percent. A significant but indeterminate amount of these benefits clearly would be attributable to Florida tourism.

Florida Tourism's Multiplier Benefit Effects Over Time

Florida's total economy is a beneficiary of tourism. In addition to the direct benefits of tourism discussed previously, it is possible to model the additional impacts (indirect) on employment and output (Gross State Product) resulting from the "multiplier" effects that the tourism industry has in Florida. Direct impacts can be assessed through the application of economic-demographic forecasting and simulation models developed by IMPLAN Pro Inc. and both direct and indirect impacts through the REMI (Regional Economic Models, Inc.) Model. It is entirely appropriate that REMI be applied to assess both the direct and indirect impacts of tourism on Florida's total economy inasmuch that Florida's Office of Economics, Demographics and Research employs the model in behalf of the State Legislature's Revenue Impact Conference and for individual State Legislators, upon request. In this report, TaxWatch employs both the REMI and IMPLAN models (see **Appendix C** for an explanation of each model). The initial step in the forecasting process is determining the number of tourists coming to Florida. The economic model simulations in this report were conducted by the Center for Economic Forecasting and Analysis at Florida State University, Dr. Tim Lynch, Director.

Florida Air and Auto Tourists

Chart 1 shows the historic and forecast number of Florida tourists. Beginning with the 1998 actual number of 48.7 million visitors (27.1 million air visitors and 21.6 million auto visitors), the projected number of visitors grows to more than 92.0 million by the year 2011. Of significance is the higher annual growth rate for air visitors (6.7%) as compared to that of auto visitors (3.9%). With approximately a 20.0 million visitor average each for auto and air for each year between 1990 and 1996, air visitor growth is forecast to exceed 58.0 million visitors by the year 2011, while auto is forecast to grow to only 34.0 million visitors by 2011, 37.0% of total visitors. This has added significance because air travelers, on average, spend more per visit than auto visitors [\$1,164 air; \$793 auto (1998 data)⁹].

Annual Tourist Spending

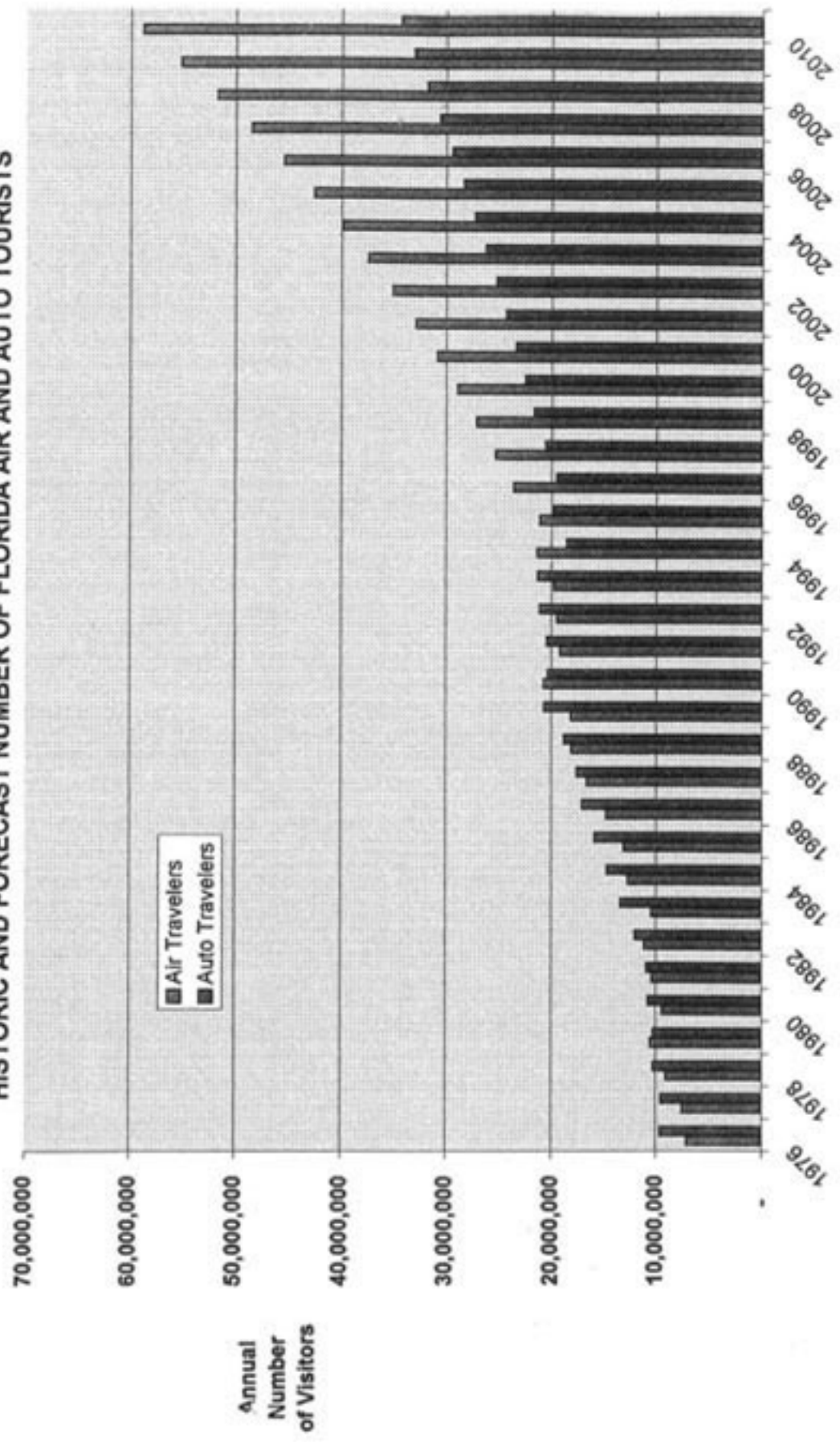
In 1998, tourist spending exceeded \$43.0 billion. Utilizing the data generated in **Chart 1** for air and auto travelers and the average per-day expenditures by type of tourist (see tables immediately below), total tourist spending is forecast to exceed \$98.0 billion (1999 dollars) in 2011 (**Chart 2**). This can be further broken-down into major expenditure categories for each type of traveler (**Chart 3**).

AIR TRAVELER	
Average per person expenditures per day:	\$157.30
Transportation	56.10
Food	26.90
Room	32.00
Shopping	17.80
Entertainment	18.30
Misc.	6.20
Average length of stay:	7.4 nights

AUTO TRAVELER	
Average per person expenditures per day:	\$87.20
Transportation	11.90
Food	20.50
Room	21.10
Shopping	13.80
Entertainment	15.70
Misc.	5.20
Average length of stay:	9.1 nights

Source: Visit Florida, 1998 Florida Visitor Study.

Chart 1
 HISTORIC AND FORECAST NUMBER OF FLORIDA AIR AND AUTO TOURISTS



* Forecast tourist growth rate based on twenty two year air and auto averages of 6.7% and 3.9% respectively

Chart 2
Total Annual Florida Tourist Expenditure For All Visitors
(1999 Dollars)

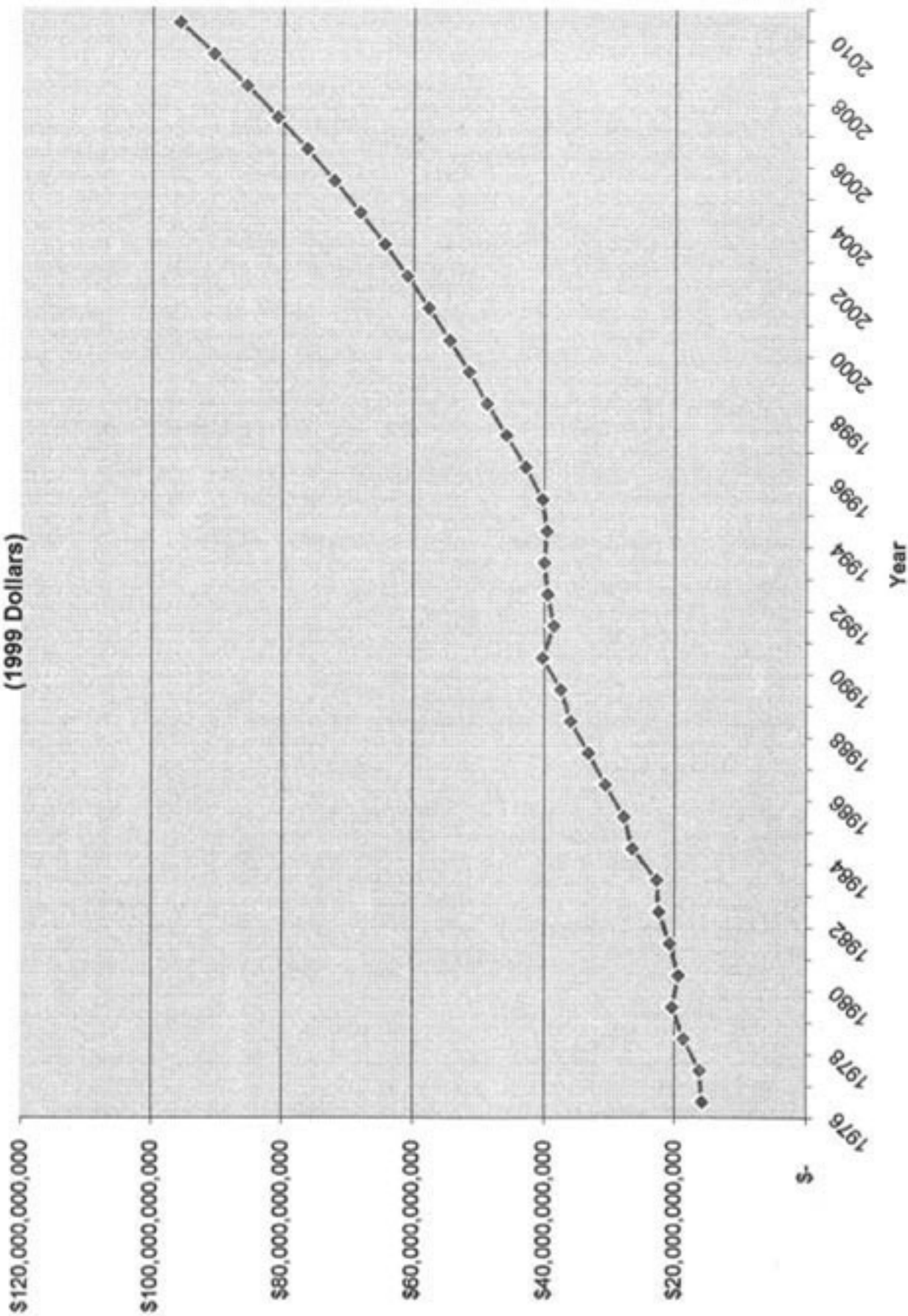
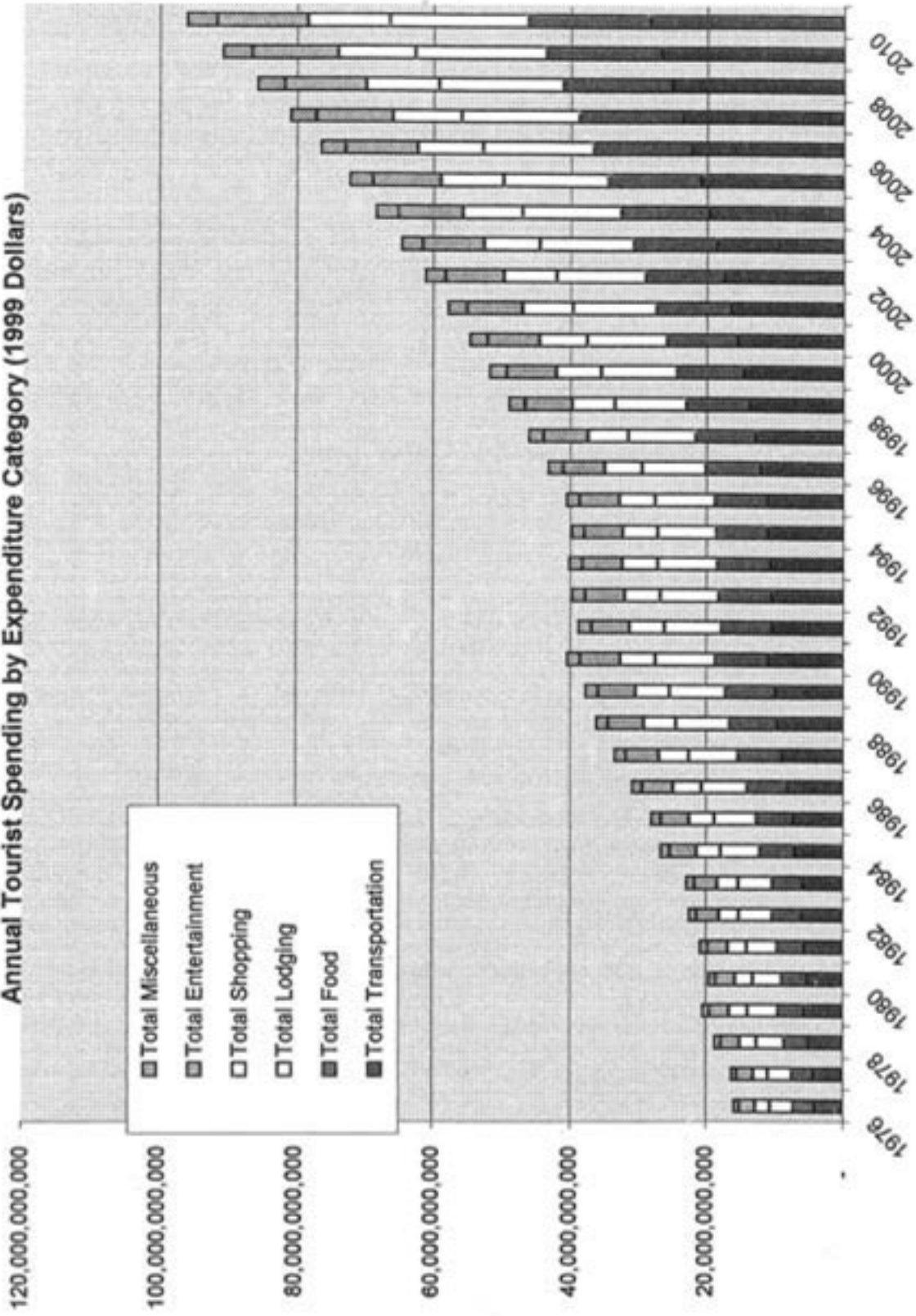


Chart 3
Annual Tourist Spending by Expenditure Category (1999 Dollars)



Source: Center for Economic Forecasting and Analysis, Florida State University and Florida TaxWatch, August 2000

The Multiplier (Indirect) Effects of Tourism on Florida's Economy

Employing the direct inputs of travel related employment and tourist spending identified previously, the first-year (1999) "multiplier effect" on Florida's economy are significant. **Table 4** reflects the direct and multiplier effect (indirect) impacts that the tourism industry has on Florida's economy, in terms of Output (Gross State Product), Wages and Employment. Both models (IMPLAN and REMI) produce comparable results, although the REMI model, being a dynamic tool, generates somewhat higher values versus the static IMPLAN model.

Table 4
Florida Tourism Employment, Earnings and Output Impacts
(1999 Only)

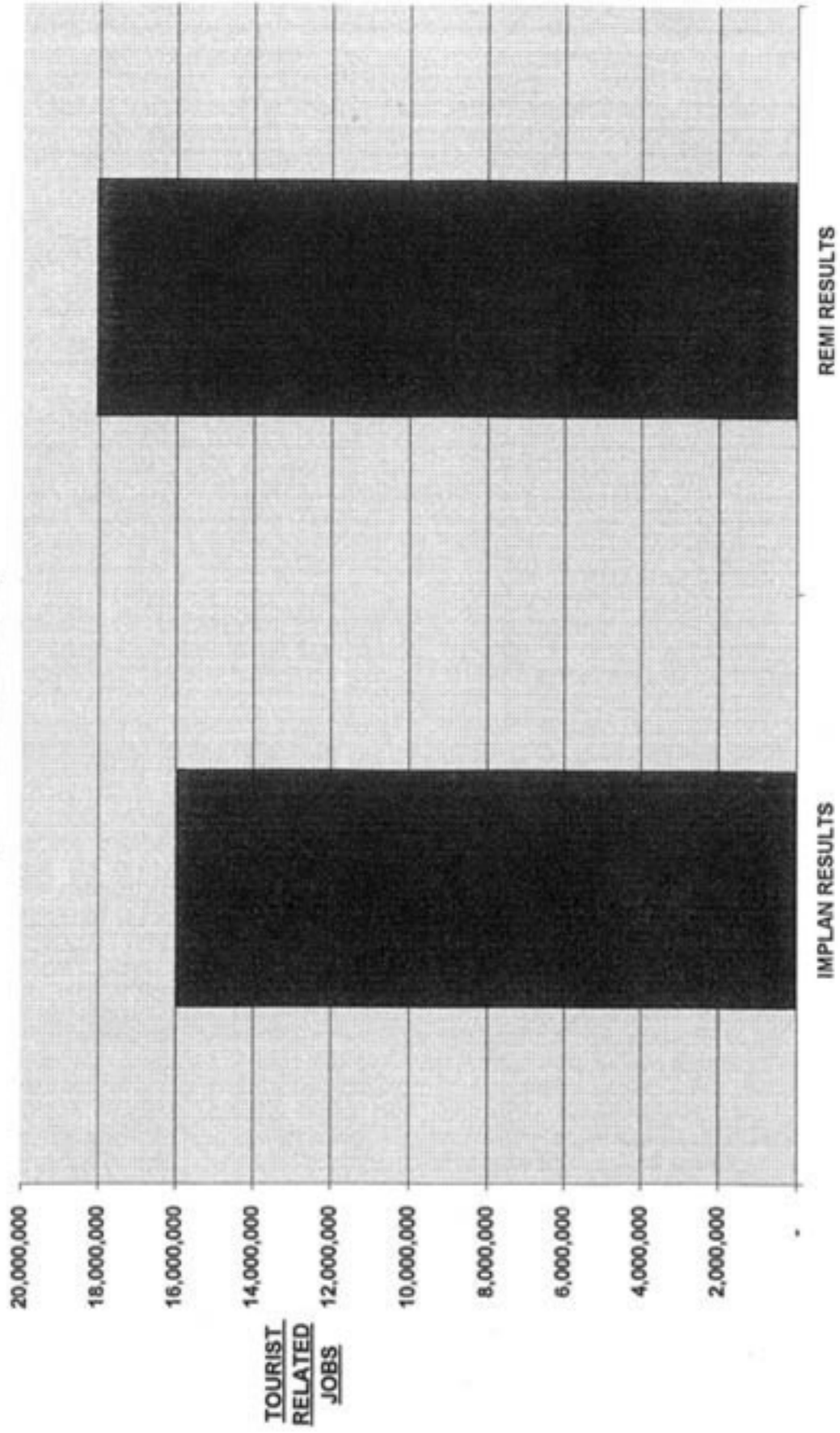
Impacts/Model	IMPLAN	REMI
Employment	1,375,303	1,398,000
Wages	\$48,279,829,589	\$59,926,990,839
Average Wage Rate	\$35,105	\$47,866
Output	\$90,197,062,711	\$102,389,006,342

Source: Florida TaxWatch REMI and IMPLAN Analysis Results, August 2000

The multiplier effect generates additional employment opportunities for Floridians. While direct travel related employment in Florida for 1998 represented 12.3% of the total non-agricultural employment (see table 1), this is increased to 20.6% - 20.9% (IMPLAN and REMI values respectively) of the total non-agricultural employment through the addition of indirect jobs created in the total Florida economy. The industries with the largest employment impact (REMI) are: Construction (101,500 jobs), Retail Trade (496,400 jobs) and Services (542,300 jobs). Of particular note is the high average wage rate of tourism related jobs (direct and indirect) as compared to the total state average of \$32,035 (Florida TaxWatch from the "Florida Economic Forecast," Florida Legislature Economic and Demographic Research, October 1999).

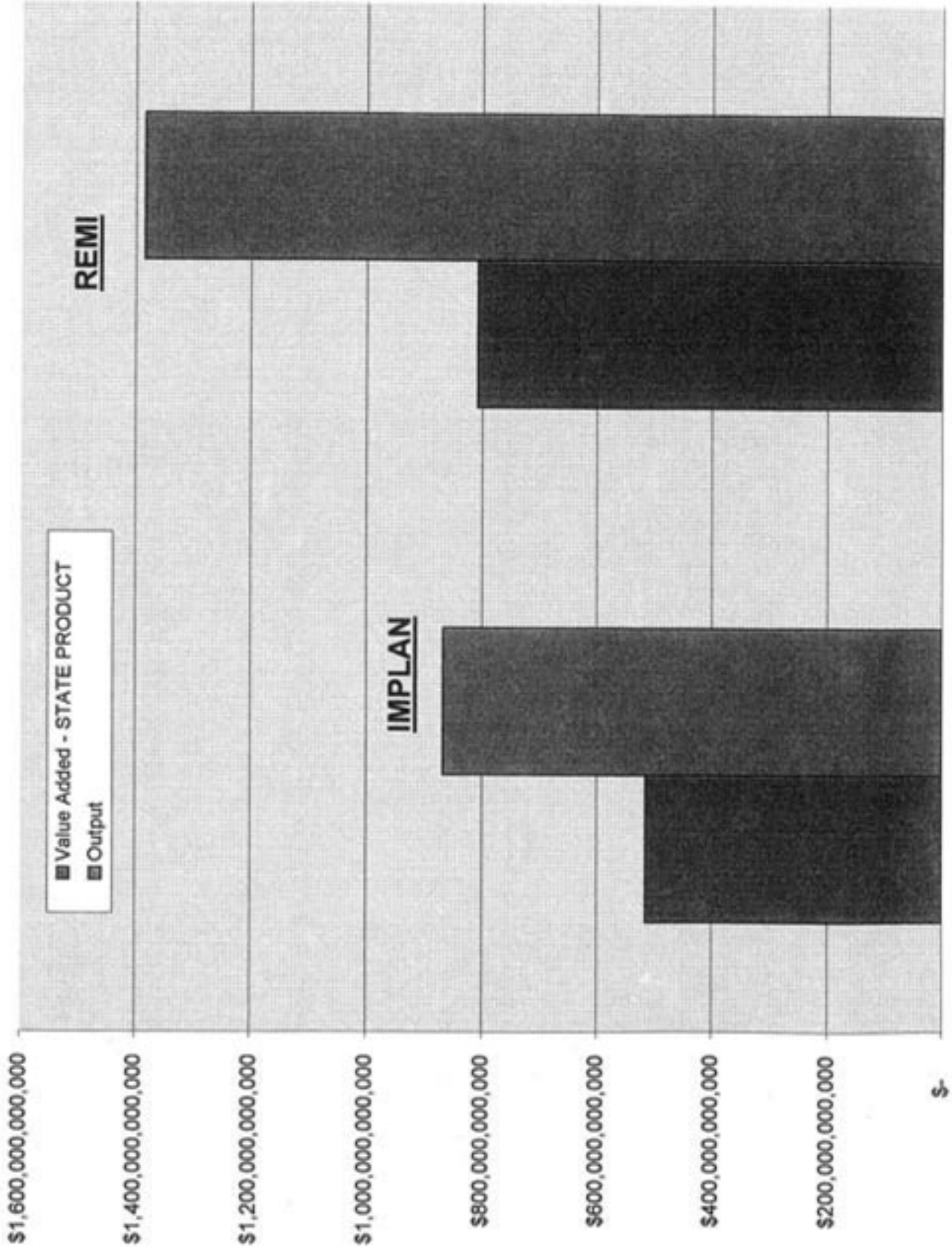
Charts 4 and **5** report the cumulative economic impacts (direct and indirect) over the ten-year period 2001 through 2010 (net present value in 1999 dollars). Since these are cumulative over the period, care must be taken in interpreting the data. For example, the cumulative tourist related jobs for IMPLAN and REMI is 16,000,000 and 18,000,000 respectively. However, a more appropriate view of the data would be on an average annual basis. This indicates that, on average, over the ten-year period, employment in tourist related jobs would be 1.6 million and 1.8 million respectively. The same annual average over the ten-year period can be calculated for earnings and output for the two models.

Chart 4
TEN YEAR COMPARISON OF REMI AND IMPLAN FLORIDA TOURIST ECONOMIC IMPACTS
(2001 THROUGH 2010)



Source: Center for Economic Forecasting and Analysis, Florida State University and Florida TaxWatch, August 2000

Chart 5
**NET PRESENT VALUE TEN YEAR COMPARISON OF REMI AND IMPLAN FLORIDA TOURIST
 ECONOMIC IMPACTS (2001 THROUGH 2010)**



Source: Center for Economic Forecasting and Analysis, Florida State University and Florida TaxWatch, August 2000

Governmental Revenues

Economic activity generates tax revenues through the purchase of goods by consumers, corporate profits and other transactions. The following is the state tax revenues attributable to travel and tourism activities in Florida, as a function of direct and indirect earnings for 1999, as determined by the REMI and IMPLAN economic models, respectively:

Model	1999 General Revenues
REMI	\$6,911,379,853
IMPLAN	\$5,568,112,746

Source: Florida TaxWatch REMI and IMPLAN Analysis Results, August 2000

Although a similar economic projection can be developed for the 10-year period (2001-2010), the resulting output would be exceedingly problematic due to potential changes in tax law, incidence and administration, thus such an analysis is not included in this study.

[Note: The economic projections presented in this section are based upon data that does not include the effects (if any) that the recent dramatic increase in gasoline and airline fuel costs may have on travel and tourism.]

Florida Tourism Costs

It is understood that tourism is not without "cost." The question that is relevant to this analysis is whether or not the cost of tourism outweighs the benefits. Earlier in this report it was noted that tourism provides Floridians with economic benefits that would not necessarily be available without tourism. More employment opportunities, higher paying jobs, a shifting of a portion of the state's tax burden to tourist, and other similar benefits accrue to Floridians from the tourist industry. However, tourism may be perceived by Florida residents to have some negative impacts, even if not quantifiable. The following discusses some of these cost factors.

Seasonality of employment

An unintended consequence of tourism is the uncertainty of continuous, year-round employment. There also are seasonal fluctuations in the demand for services and the stresses imposed on residents by the presence of a substantial inflow of non-residents. The seasonal fluctuation in demand for tourist services causes seasonal fluctuations in the industry's demand for labor. While certain occupations are more affected by seasonality, in general, Florida's total employment has been strong over the last five years when compared to the U.S. unemployment rate.

Year	Florida	U.S.
1995	5.5	5.7
1996	5.1	5.4
1997	4.8	4.9
1998	4.3	4.5
1999	4.0	4.2

Source: As reported in the "STATE OF FLORIDA COMPREHENSIVE ANNUAL FINANCIAL REPORT" for the fiscal year ended June 30, 1999, Office of the Comptroller.

Public Safety

Historically, there has been the perception generally that tourism has an impact on crime, and there are several intuitive -- and logic-based explanations for this. First, the tourist population, like society as a whole, may include individuals with criminal intentions. Though small in numbers, any criminal elements among the tourist population may be active while in the state. Second, tourists carry valuable personal property with them while visiting the state, thus they may be the target for criminals. Third, the population density of tourist areas increases dramatically during the tourist season, enhancing the "opportunity" for criminal activity.⁷ Although there is some evidence that the crime rate increases during the tourist season, in general, Florida's crime rate has shown a dramatic decrease over the last ten years while tourism has notably increased, as shown in the table to the right. Notwithstanding the inconclusiveness with which the extent of crime may justifiably be assigned to tourists, the declining rates may account in part for why a recently released Marketing Metrics poll of Floridians (commissioned by Visit Florida) shows an impressive 66.0 percent of respondents not associating tourists with crime. This finding is good news for Florida tourism and related industries.

Transportation

Florida's tourism is heavily dependent on a strong transportation system; visitors will return only if they can count on safe, convenient and efficient travel into and out of Florida. Half of Florida's visitors arrive by air and the other half by highway.

As tourism continues to grow, it assists in exacting a heavy price in terms of "unmet need" on Florida's transportation system. While Florida ranks fourth in the nation in population, it ranks 10th in the nation in the number of highway miles.

Violent Crime Rates 1989 - 1999

Year	Crime Rate per 100,000
1989	1137
1990	1221
1991	1199
1992	1200
1993	1189
1994	1137
1995	1062
1996	1050
1997	1025
1998	931
1999	841

Source: FDLE Uniform Crime Report Data

<u>State</u>	<u>Highway Miles - 1997</u>
Texas	296,651
California	170,598
Illinois	137,785
Kansas	133,540
Minnesota	130,815
Missouri	122,766
Michigan	119,183
Pennsylvania	119,129
Ohio	114,801
Florida	114,572

Source: U.S. Census Bureau, Statistical Abstract of the United States: 1999.

Failure to meet these needs will jeopardize Florida's economic momentum and attractive quality of life. The problem is especially acute in the following areas:

◆ **Highways** - Over the next 10 years, demand (vehicle miles traveled) is expected to outpace supply (new roads or additional lanes) by almost a six-to-one margin. The Center for Urban Transportation Research (CUTR) reports that failure to preserve the current quality of service on our roads will result in an average annual increase of \$219 for every licensed driver - the cost of longer delays, more crashes, and higher vehicle upkeep.⁸

◆ **Seaports** - Florida's 14 deepwater ports generate about \$25 billion annually in economic activity and create over 300,000 jobs, producing state and local tax revenues in excess of \$600 million annually. Yet they face serious and immediate road and rail access needs and capacity shortages totaling \$2.5 billion. Although seaports are primarily utilized for the transportation of goods, the rapidly growing cruise line industry will also be affected.

◆ **Airports** - Despite downward national trends, Florida's air traffic demands are growing, and the state faces an estimated \$6 billion in airport capacity improvement needs over the next 10 years. Sixty percent of Florida's airports are operating near capacity, with traffic delays costing airlines over \$124 million per year - costs that are passed on the traveler. Without aviation system improvements, those costs are projected to nearly quadruple over the next 10 years to \$473 million per year.

Traffic Congestion

As pointed out earlier, over-crowded roads have long been a complaint of Floridians. The previously referenced Marketing Metrics poll shows that 70.8 percent of Floridians perceive tourism as creating traffic congestion. Either driving their own cars to visit Florida, or renting cars when arriving by air, the additional drivers on Florida's roads do cause increased congestion. However, before blame can be objectively assigned as to the cause of traffic congestion, the question must be asked "Is there a traffic problem per se, that is, other things being equal?" Moreover, how does Florida traffic congestion compare to that in other parts of the country and to the nation-as-a-whole in terms of congestion costs? The following table shows the annual (1996) congestion cost (delay and fuel cost) per driver in selected urbanized areas in Florida as compared to a national selection of over 70 urbanized areas.

<u>Urbanized Area</u>	<u>Annual Congestion Cost per Driver</u>
Ft. Lauderdale-Hollywood-Pompano	\$625
Jacksonville	\$830
Miami-Hialeah	\$905
Orlando	\$660
Tampa	\$610
National Average	\$630

Source: Texas Transportation Institute, College Station, Texas: *Roadway Congestion in Major Urban Areas*, as reported by the U.S. Census Bureau, Statistical Abstract of the United States: 1999.

Florida's 1996 congestion cost per driver fits well within the national average, especially when compared to Atlanta, Georgia (\$1,095/driver), Detroit, Michigan (\$1,095/driver) and Washington, D.C. (\$1,290/driver). While it cannot be denied that tourists add to Florida's traffic congestion, the average cost per driver in Florida is not much different from other urban areas. In addition, the Census Bureau in its Statistical Abstract of the

United States: 1999 reports the average travel time to work for Floridians is 21.8 minutes (1990), while the national average is 22.4 minutes; again showing the nominal effect of tourism when compared to the national average.

The Environment

Tourism's impacts typically are generally grouped into three categories: economic, socio-cultural, and environmental/ecological.⁹ Although the effect of tourism development on the environment has been studied, economic analyses of costs have been difficult to ascertain. Assessments of economic impacts usually are context-specific and, therefore, are not suitable for data analysis which seeks to generalize costs (or benefits); e.g., the risk of methodologically committing the so-called ecological fallacy.

For example, studies of the potential costs and benefits of greenways and trails are very site-specific and lacking in their generalizeability. They typically subject data analysis to a variety of notable ecological, human and cultural benefits (*viz.* improving and maintaining native biodiversity, protection of endangered/threatened species, reduced fragmentation of habitat, maintenance/protection of the hydrologic system, reduction/avoidance of air and water pollution, improved physical health and fitness, opportunities for education, opportunities for scientific research, intergenerational benefits of non-use, increased community pride, aesthetic beauty, time-savings, etc.). It is also common practice for important cost considerations (*viz.* spread of disease/fire, invasions of exotics, increased hybridization, increased predation and soil erosion, barriers to biological movement, increased noise, lessened privacy, increased crime, increased traffic, etc.) to be taken into account, but again, site specifically rather than generally.

However, it would be practically imprecise, theoretically tenuous and methodologically unacceptable to extrapolate such site-specific results to the larger, more generalized Florida context. Evaluations of site-specific attributes of the costs (or benefits) of open space cannot without grave difficulty and prohibitive expense take into account the full range of impacts attributable to open space and, their results consequently would be skewed and misleading. Jered B. Carr, et al. concur in their attempt to understand the benefits and costs of the conservation corridors associated with greenways and trails, pointing out that a "'boiler-plating of the costs and benefits outlined by other studies is inappropriate and leads to flawed and misleading evaluations.'"

The EPA Model

Travel, tourism and recreation are important to Florida and the nation's quality of life and economy. Because environmental protection plays an essential role in sustaining travel, tourism and recreation resources, the U.S. Environmental Protection Agency (EPA) recently has been working to identify and assess the interrelationships among the environment, recreation and economic health, and to educate industry, governments and recreation participants about these links. An EPA model for assessing the economic impacts of the travel and tourism industry was scheduled to be released May, 2000.

The travel and tourism industry (inclusive of recreational activities) is actually comprised of numerous sectors dispersed throughout the economy. The industry is most often defined by its share of the economic outputs (and environmental impacts) of many supply sectors, including but not limited to transportation, communications, power, wholesale and retail trade, hospitality, manufacturing and construction. Considerable work has been completed to date on the impacts of each of the supply sectors.

The approach EPA has taken is considerably more inclusive as it accounts for the impacts of the supply sectors as well as the impacts of the activities themselves. EPA has identified activity-based subsectors that provide a

better understanding of relatively small segments of the industry that may have similar economic and environmental impacts. Considering the industry in this way also allows a careful examination of the drivers and barriers that influence environmental protection decisions within particular subsectors. For each activity subsector, direct impacts are assessed for the associated travel, lodging, meals, and the activities themselves.

Initially, the subsectors being analyzed are:

- | | |
|------------------------------|-------------------------------|
| ◆ boating | ◆ amusement/theme parks |
| ◆ urban/cultural attractions | ◆ casino gambling |
| ◆ hunting | ◆ conferences and conventions |
| ◆ skiing and snowboarding | ◆ waterside activities |
| ◆ golfing | ◆ fishing |

The model uses economic and environmental indicators to assess the direct impacts of each subsector. In its current state, the model uses one economic indicator -- expenditures on tourism and recreation and seven environmental indicators -- water use, energy use, air emissions (carbon monoxide, NO_x, and hydrocarbons), solid waste generation, wastewater generation, greenhouse gas emissions and acres of land use. These indicators are used alone and in combination with other subsector-specific data such as participation rates to provide as much useful information as possible.

The model can be used to examine individual subsectors by, for example, establishing baselines, emissions reduction goals, and measures of progress. It can also be used to compare across subsectors. For example, the model can be used to determine which aspects (travel to a site, staying at the sight, the activity itself, etc.) of a particular recreational activity have the most and least environmental and economic impacts. Thus, the model is a tool that can help EPA and the industry prioritize and focus attention on the issues of greatest concern.

Because it includes a limited set of environmental indicators and only direct impacts, the current model has a somewhat restricted view of the sustainability issues associated with each subsector. Nevertheless, it can be a powerful tool in EPA efforts to examine the travel and the tourism industry and to identify areas for cooperative programs or improving environmental performance. Eventually, the model can be augmented with additional indicators of sustainability to enhance its value.

Conclusions

Despite the virtual dearth of cost data suitable for cost-benefit or economic impact analysis of the costs and benefits of tourism, this study shows there to be significant direct and indirect benefits to Floridians from tourism. It projects as well that there will be significant state tax revenues generated from travel and tourism activities in Florida as a function of direct and indirect earnings. Notwithstanding the possible complacency among Floridians about employment opportunities due to the currently tight labor market, this study's projections of rosy prospects for employment in tourist-related jobs through the year 2010 (net present value in 1999 dollars) should, from an economic perspective, be reassuring both to current residents and to prospective in-migrating citizen-taxpayers.

The significance of the study's finding that Florida's total economy benefits indirectly as well as directly from tourism should not be discounted, by resident populations, future residents or public policy-makers at the state and local levels. More than 20 percent of the jobs in Florida, from entry-level through executive-level, are

associated directly or indirectly with the tourist or tourist-related industries. This is a major, if not the major, employer in Florida, and resident populations need to recognize the substantial contribution that tourism makes to their own socioeconomic well-being.

Florida policy-makers and citizens alike should not take the positive contributions of tourism to the Florida economy for granted. Nor should they be oblivious to the costs associated with this major economic force in the state's economy. Unfortunately, as noted in the Executive Summary, current and relevant Florida-specific tourism data are not readily available, either for cost-benefit analysis or social/economic impact analysis purposes. It is important, therefore, that a concerted effort be made to assure that both the public and Florida's political leaders are fully informed as to the contributions--both positive and negative--that can be attributed to tourism and travel-related industries. This requires that a sizeable effort be made to assure that suitable data be available for analysis and decision-making purposes on a continuing basis. It will take a dedicated effort on the part of the state to guarantee their usefulness, availability and public dissemination.

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Appendix B

List of Websites Used

WEB SITE ADDRESS	ORGANIZATION OR UNIVERSITY
http://www.msu.edu/course/prr/840/econimpact/	Michigan State University Impact Page
http://home.att.net/~bartlnet/tour.html	Top 50 state Tourism sites
http://gocalif.ca.gov/	California Tourism
http://www.dra-research.com/	Dean Runyan Associates
http://www.dot.state.fl.us/moreDOT/phone.htm	FDOT Phone book page
http://www.epa.gov/ispd/define.htm	EPA Impacts of Tourism
http://www.forestry.umt.edu/itr/	University Of Montana
http://www.tourism.umn.edu/	University of Minnesota
http://tourism.ttr.msu.edu/	Michigan State University
http://www.123world.com/	Tourist Info site
http://www.panynj.gov/aviation/jfkaboutframe.html	JFK Airport info
http://www.ttra.com/	Travel & Tourism Research Assn
http://www.world-tourism.org/	World Tourism Organization
http://www.tourismstatistics.com/	Tourism Stats on the Web
http://www.co.broward.fl.us/sunny.htm	Ft. Lauderdale Visitors
http://www.facvb.org/	Florida Visitors Bureaus
http://www.fishkind.com/	Fishkind & Associates
http://www.miami-airport.com/	Miami International Airport

REMI and IMPLAN Models

The REMI model is developed by Regional Economic Models, Inc. of Amherst, Massachusetts (Treyz and Shao 1992). The REMI model specifies commodity-trade and personal-income flows between the regions. Production is categorized into 49 non-farm private industries (primarily at the two-digit S.I.C. level), three government sectors, and the farm sector. Economic relationships are given by an industry-based input-output component combined with an econometric component. Also, the model is dynamic, which allows it to be used for forecasting in addition to use as an impact model.

IMPLAN, an input-output model, was developed by the Forest Service of the U.S. Department of Agriculture (U.S. Forest Service 1989). For this study, the 1997 IMPLAN version is used. The greatest level of disaggregation of the model is 528 sectors. However, the industries that do not exist in the region are automatically eliminated during user construction of the model. In addition, industries of the IMPLAN model can be aggregated into desired categories. Therefore, the industries of the IMPLAN model are aggregated to match the industry classifications of the REMI model. Also, IMPLAN uses an industry-based technology to derive its input-output coefficients. Finally, IMPLAN is a static model and cannot trace the time path of economic impacts or be readily used for forecasting as REMI can.

REMI Model

The REMI model, as Bolton (1985) states in his review of econometric models, "is a world apart in complexity, reliance on interindustry linkages, and modeling philosophy" from other econometric models. The REMI model is more than an econometric model, though. It may better be described as an eclectic model that links an input-output model to an econometric model. If the econometric responses are suppressed, the model collapses to an input-output model. The econometric specifications are derived from economic theories that are generally neoclassical in nature. The notion of regional equilibrium is central to the model's long-term portrait of regional economic growth.

Although a detailed description of the model is impossible within the scope of the present study, an outline of the basic structure facilitates the evaluation of model performance. Conceptually, the model consists of five basic blocks: (1) output, (2) labor and capital demands, (3) population and labor supply, (4) wages, prices, and profits, and (5) market shares.

REMI uses three sources of employment and wage and salary data: the Bureau of Economic Analysis (BEA) employment, wage, and personal income series, ES-202 establishment employment and wage and salary data, and County Business Patterns (CBP) data published by the Bureau of the Census. The BEA data are annual averages and are reported at the two-digit level for states and at the one-digit level for counties. The ES-202 data, the foundation for the BEA data, are collected monthly in conjunction with the unemployment insurance program at the two-digit level for counties and states, and they are the foundation for the BEA data. CBP data are collected in conjunction with the Social Security programing in March of each year.

Output measures are based on regional employment data, the BEA Gross State Product series, and national output-to-employment ratios. REMI begins by applying the national output-to-employee ratio to employment by industry. This application is adjusted by regional differences in labor intensity and total factor productivity. Regional differences in labor intensity are given by the industry production function and the unit factor costs. Total factor productivity calculations depend on industry value added in production reported in real U.S. dollars by BEA and on adjustments by REMI to the BEA numbers.

IMPLAN Model

In contrast to REMI, IMPLAN is exclusively an input-output model. It is non-survey based, and its structure typifies that of input-output models found in the regional science literature. Similar to REMI, IMPLAN assumes a uniform national production technology and uses the regional purchase coefficient approach to regionalize the technical coefficients.

The model generates two types of multipliers: Type I multipliers and what IMPLAN refers to as Type III multipliers. The difference between IMPLAN's Type I and Type III multipliers is an induced consumption effect. Their Type III multiplier differs from the standard Type II multiplier because the consumption function is nonlinear, that is, the marginal propensity to consume is not constant, decreasing as income in the region rises. 2 Population completely responds to employment changes and drives consumer spending. Multipliers are generated for employment, output, value added, personal income, and total income.

Similar to REMI, IMPLAN builds its data from top to bottom. National data serve as control totals for state data. In turn, state data serve as control totals for county data. The primary sources of employment and earnings data are County Business Patterns data and BEA data. Furthermore, IMPLAN's procedure for finding in suppressions in the 1997 model parallels REMI's, except the S-202 data set is not a primary source of data for counties.

IMPLAN estimates output at the state level by using value added reported by BEA as proxies to allocate U.S. total gross output. Also, IMPLAN allocates state total gross output to counties based on county employment earnings. The use of the BEA Gross State Product series for states, and implicit assumption of uniform value added-to-earnings ratios across counties within a state, parallels REMI's procedure. However, because of REMI's neoclassical production function, differential labor costs cause REMI's labor intensities to differ across states and counties. In addition, REMI adjusts real value added in U.S. dollars reported by BEA for differences in regional unit factor costs.¹

¹ Adapted from *Dan S. Rickman and R. Keith Schwer, "REMI AND IMPLAN Models: The Case of Southern Nevada,"*

Citations

IMPLAN Professional, (Version 1.1) will be used for this analysis. IMPLAN (Impact Analysis for PLANning) was originally developed by the U.S. Department of Agriculture's Forest Service in cooperation with the Federal Emergency Management Agency and the U.S. Department of Interior's Bureau of Land Management to assist the Forest Service in land and resource management planning. The software has been upgraded and is presently sold and maintained by the Minnesota IMPLAN Group, Inc.

Minnesota IMPLAN Group, Inc. 1997 (Feb). IMPLAN Professional User's, Analysis and Data Guide. Stillwater, MN: MIG.

REMI, Regional Economic Models, Inc., Treyz, George, I., President, Amherst, Mass.

These assumptions are described in the IMPLAN Users, Analysis and Data Guide, pages 87,88.

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