

Research Report

February 2002

The Economic Impact of Florida's Outdoor Advertising Industry From a Pre- and Post- September 11, 2001 Perspective



Executive Summary: Data Analysis Findings

- Nationally, the outdoor advertising industry annual growth of 5.8% per year is almost double the nation's economic growth. Revenue growth forecasts indicate the industry will experience \$5.5 billion of sales in 2002 with projections of \$12.4 billion for 2009.
- The Florida outdoor advertising industry revenues have also increased significantly over the past two decades with revenues of \$298 million expected for 2002 with 9% growth through 2005 and forecast revenues of \$324 million.
- Direct and indirect output associated with the industry is expected to generate \$488 million in 2002 under normal economic conditions. In addition, for 2002, the outdoor advertising industry generates either directly or indirectly, 10,000 jobs and \$270 million in disposable income.
- The outdoor advertising industry will generate \$14.3 million in state and local taxes (sales, property, corporate and so forth) in 2002. Total federal, state and local taxes are estimated at \$60.7 million.
- The outdoor advertising industry revenues, like other major Florida industries, are experiencing a recession and the effects of the "9/11" tragedy are projected to decrease revenues by 6.2% for 2002. The drop in revenues is expected to range between \$7 million to \$32 million for 2002, but the industry is expected to experience a quick recovery to the previous projected growth path later this year.
- The Florida outdoor advertising industry is expected to experience a decline of 618 jobs and a loss of income of \$16 million for 2002 (directly and indirectly) as a result of the recession and the "9/11" downturn. In addition, a drop of \$1.7 million in state and local taxes and a total of \$3.7 million in all taxes is estimated. The industry is expected to recover from the downturn by 2003.
- In Florida, the number of automobiles, licensed drivers and passenger miles have increased substantially, from 8.5 million licensed drivers in 1981 to 12.2 million in 2002 and from 91.8 million miles driven in 1981 to 150.5 million in 2002. These factors contribute considerably to escalating revenues of the outdoor advertising industry.
- Studies have found that local businesses account for 70 to 80 percent of outdoor advertising revenues, underscoring the critical importance of the outdoor advertising industry to the local economy.

Introduction

Florida TaxWatch was asked by the Florida Outdoor Advertising Association to do an analysis of the economic impact that billboard advertising has on Florida's economy and the future economic outlook. Even prior to the September 11, 2001 terrorist attacks and subsequently, Florida's economy was headed toward a recession. In the midst of that recession, complicated by the economic fallout of "9/11" and ongoing uncertainties regarding the possibility of future acts of terrorism, it is imperative that the State of Florida take extraordinary measures, where necessary, to meet these challenge to the economic health and viability of its citizens. Every prudent step must be taken to shore-up the economic engine that drives the machine of Florida's economy.

Two years ago, a study by the Washington Economics Groups, Inc. employed a **RIMS-II input-output model** (RIMS) to analyze Florida's outdoor advertising industry. Utilizing 1997 federal performance data for industrial sectors, it revealed a \$293 million industry with a \$37 million payroll, yielding \$38 million annually in property taxes and government fees paid directly by outdoor advertisers to state and local governments.¹

The analysis upon which the current study is based was done by the Center for Economic Forecasting and Analysis at Florida State University in consultation with Florida TaxWatch. Employing two different models—REMI and IMPLAN—² it shows the outdoor advertising to be an important component of the machine that drives Florida's economy. The study employs two different models—REMI and IMPLAN—which, like the RIMS model, can estimate the economy's reaction to well-identified changes. These models have certain advantages over the RIMS model. Unlike RIMS, REMI and IMPLAN (1) depend on their own internal database to model the economy; (2) forecast current year data from the most recent federal population and industry statistics (one or two years previous); and (3) can simulate alternative scenarios.

REMI—the most complex of the models—measures more economic variables and the relations between them than do the other models. Most importantly, REMI is a dynamic model. The model is dynamic because it simulates feedback in response to new data. For example, the addition of increased sales may generate increased manufacturing, which may generate increased employment and construction, which, in turn, may spur immigration and increased production capacity, etc. The latter, however, would not be modeled in IMPLAN or RIMS.

¹ This study applied baseline data from the Washington Economic Group study for purposes of making projections and inflated REMI data projections that were expressed in 1992 in order to conform for comparative purposes with 1999 data from the prior study.

² See Appendix A for a more detailed description of the REMI model.

Outdoor Advertising Industry Overview

OA's Importance To The Local Economy

There are numerous indicators of the vital importance of outdoor advertising to the local economy. The decision to use outdoor advertising is cost-effective. On average, it costs \$2 to reach 1,000 people with outdoor advertising. Compared to other media sources, it costs approximately \$5 for radio, \$9 for magazines and \$10-\$20 for newspaper or prime-time television per 1,000 people.³ A study of the performance of the industry in Charlotte, North Carolina found that 77 percent of advertisers were local businesses, and 92% of them (about 70% of all billboard advertisers) had less than 50 employees.⁴ Across industries, the Outdoor Advertising Association reports that local business represents approximately 70% of industry revenues.⁵

Spending on outdoor advertising—bus shelters, street furniture, stadium displays, and mall and airport signs, blimps, skywriting, as well as established billboard and other out-of-home media—is growing by ten percent per year. This growth is faster than traditional media sources such as newspaper and television but not as rapid as cable or the Internet. Public perception of outdoor advertising has also improved over the years. Whereas “other media are fragmenting, new technology has made us [the industry] more creative, and advertisers are seeing billboards in a new light.”⁶

A review of the advertising industry literature shows that people are spending more time in their cars than they have in the past. This translates to there being more exposure to billboard advertising. Daily vehicle trips are up 110 percent, since 1970, and the number of cars is up 147 percent. The majority of road travelers (70 percent) are alerted to a location (hotels, motels and restaurants) due to billboards, according to Jennifer Zeigler (VP Marketing, Holiday Express),⁷ and supported by current analysis that quantifies outdoor advertising by counting the traffic flow past any billboard and applying the gross rating points (GRP) for a campaign. However, a study by Bhargava and Donthu shows that this does not take into account the spatial location of the billboards and the geographic distribution of the target consumers in estimating the reach/frequency.⁸ Although the number of billboards is the most important factor regarding the effectiveness of an outdoor advertising campaign, location and promotional factors also contribute to a campaign's effectiveness. A major finding in the Bhargava/Donthu study is that outdoor advertising produces a short-term sales increase similar to that due to promotional expenditures.⁹

³ Gunther, Mark. March, 1999. The Great Outdoors. *Fortune Magazine*.

⁴ Lilley and Defranco. 1994. *The Economic Impact of Outdoor Advertising in Rural, Small Town America*.

⁵ Martinson, Tom. 1995. *Signs of the City*.

⁶ Gunther, Mark. March, 1999. The Great Outdoors. *Fortune Magazine*.

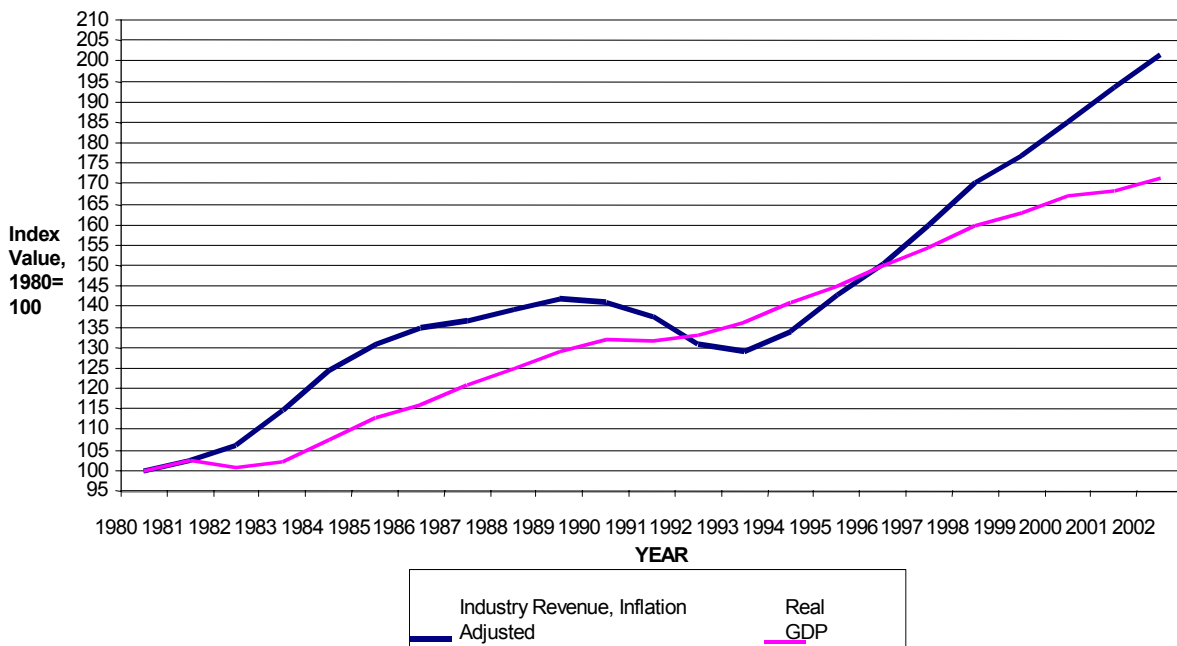
⁷ Walsh, John. August, 2001. Economy Segment Gets Most Out of Billboards. *H&MM*.

⁸ Bhargava, Mukesh and Naveen Donthu. July-August 1999. *Journal of Advertising Research*.

⁹ Ibid.

Nationally, outdoor advertising industry (OA) revenues have grown rapidly over the past two decades (with adjusted uninflated levels in 2002 estimated at a level that is 90% higher than the 1980 level) *outpacing* the general rate of economic growth in the U.S. After adjusting for inflation, industry revenues grew at a 5.8 percent annual pace while U.S. GDP grew at a 3.2 percent per annual rate¹⁰ (Figure 1). Several factors are responsible for the positive performance in the outdoor advertising industry: 1) strong U.S. economic growth; 2) a robust business environment facing outdoor advertiser's traditional customer groups; 3) more firms eager to expand markets for new products and services; and 4) demographic changes and evolving land-use patterns leading to larger numbers of drivers, lengthening of driving times, and the growth of vehicle miles.

Figure 1. Comparison of Outdoor Advertising Industry Growth Economic



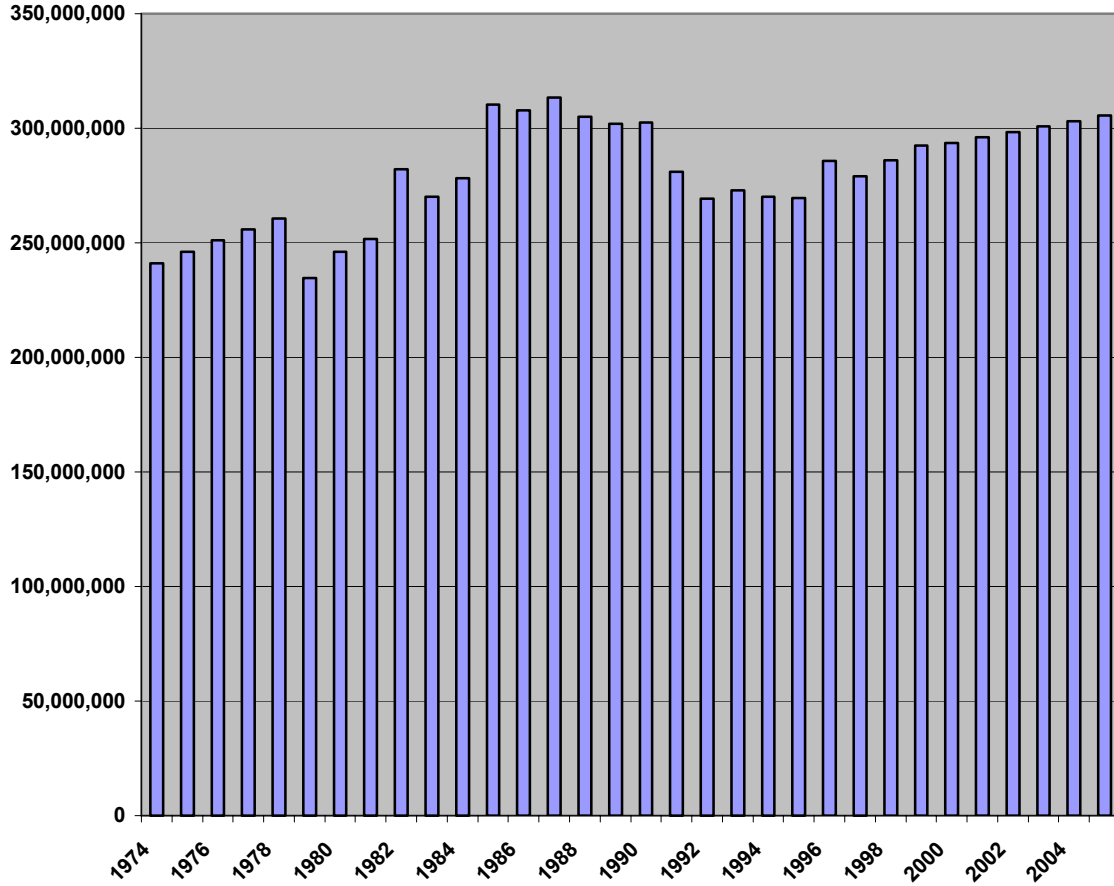
¹⁰ Extrapolated from “The Economic Impact of Florida’s Outdoor Advertising Industry”, prepared by *The Washington Economics Group, Inc.*, April 4, 2000.

OA's Importance to Florida

The Florida OA industry has experienced a similar growth of revenues, employment and wages over the past several decades as well. Figure 2 provides a profile of the historic trend and forecast of future outdoor advertising industry revenues from 1974 through 2005 in constant 2002 dollars.¹¹ In real terms, from 1991 to 2005, OA industry revenues are projected to grow by almost 9% over this period from \$298 million to \$324 million by 2005.

¹¹ Ibid, Washington Economics Group, 2000

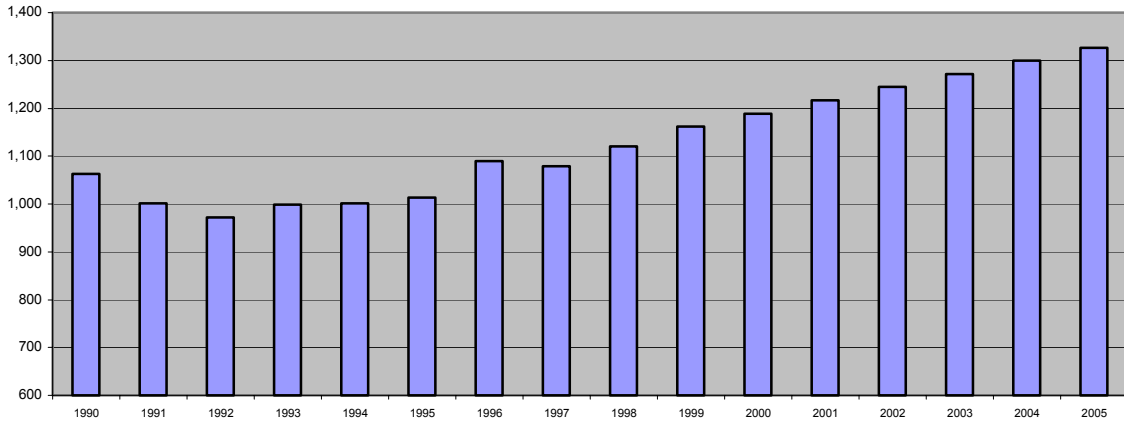
**Figure 2. Florida Outdoor Advertising Industry
Revenues*
(Constant 2002 Dollars)**



Source: Washington Economics Group, 2000. The 1974 to 1997 back forecast values are based on 1998 to 2000 per employee trend analysis 2001 through 2005 are forecast interpolations.

As exhibited in Figure 3, direct OA employment gains have grown steadily, yet even more dramatically than revenues, in the industry since 1991 with estimates of 1,244 employed in 2002 and current forecasted 2005 levels of employment increasing to 1,327 employed (a 33% growth since 1991).

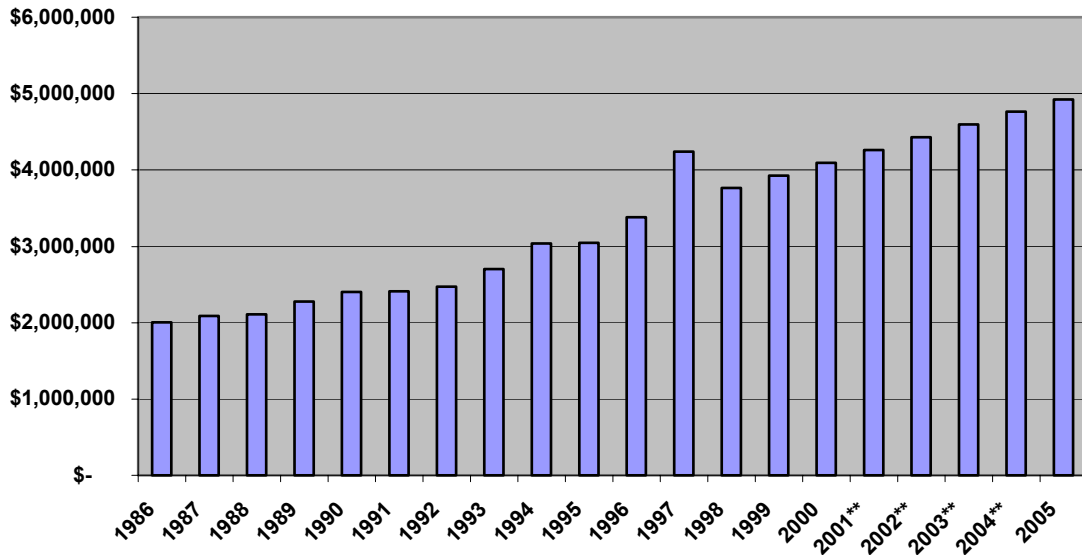
Figure 3. Number of Employees in the Florida Outdoor Advertising Industry*



Source: ES 2002 data, US Department of Commerce and trend forecast based on Washington Economics Group, Inc., 2000.

Similar increases in Florida OA industry direct wages and salary have occurred since 1991. As depicted in Figure 4, annual outdoor advertising direct industry salaries have increased from \$2.4 million in 1991 to an estimated \$4.4 million in 2002. Projected salary increases are expected to climb to \$4.9 million by 2005 (a 104% increase from 1991 to 2005).

Figure 4. Florida Outdoor Advertising Historic and Forecast Annual Payroll (Nominal Dollars)

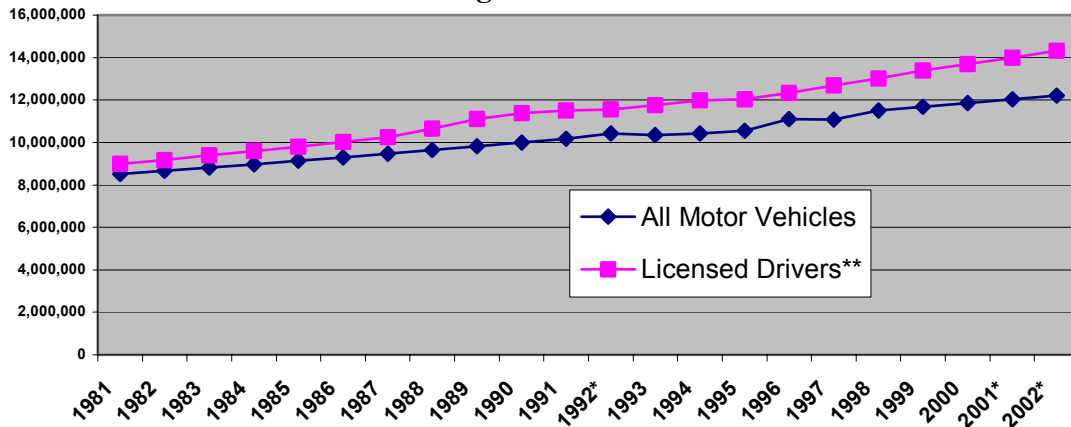


Source: ES 2002 data, US Department of Commerce and trend forecast based on Washington Economics Group, Inc., 2000.

A number of factors are responsible for the growth in the outdoor advertising industry across Florida. Over the past decade the longest post-WWII recovery in history has propelled the Florida economy. The strong growth in the U.S. economy has generated dynamism in the economy that has stimulated the development of new products and services eager to find their way into consumers' spending plans. Advertising provides an important service to the consumers, offering vital information that enables them to make spending decisions. The key customer groups served by outdoor advertisers—entertainment and amusement services, telecommunications, lodging and tourism, and automotive sales—have all witnessed significant increases in their own market demand over the past eight years.¹²

The number of automobiles, drivers and passenger miles driven in Florida (by residents and visiting tourists) has grown considerably over the past several decades. The number of vehicles registered in Florida has steadily increased from 8.5 million to an estimated 12.2 million in 2002.¹³ This represents a 43 percent growth in registered motor vehicles over this period. Similar growth in licensed Florida drivers has occurred over this period. In 1981 Florida licensed 8.98 million drivers and that number grew to an estimated 14.3 million by 2002. This represents a 59.3 percent growth in licensed Florida drivers over this period (Figure 5).¹⁴

Figure 5. Florida Number of Licensed Drivers and Total Motor Vehicles Registered 1981 to 2002*



Source: ES 2002 data, US Department of Commerce and trend forecast based on Washington Economics Group, Inc., 2000.

Finally, Figures 6 and 7 provide an illustration of the historic and forecast growth in vehicle miles traveled in Florida over the 1981 to 2002 time frame. Total vehicle miles exceeded 91.8 million miles in 1981 and are expected to exceed 150.5 million miles this year. That represents a 64 percent increase over these two decades. Note that the number

¹² Ibid, Washington Economics Group, 2000.

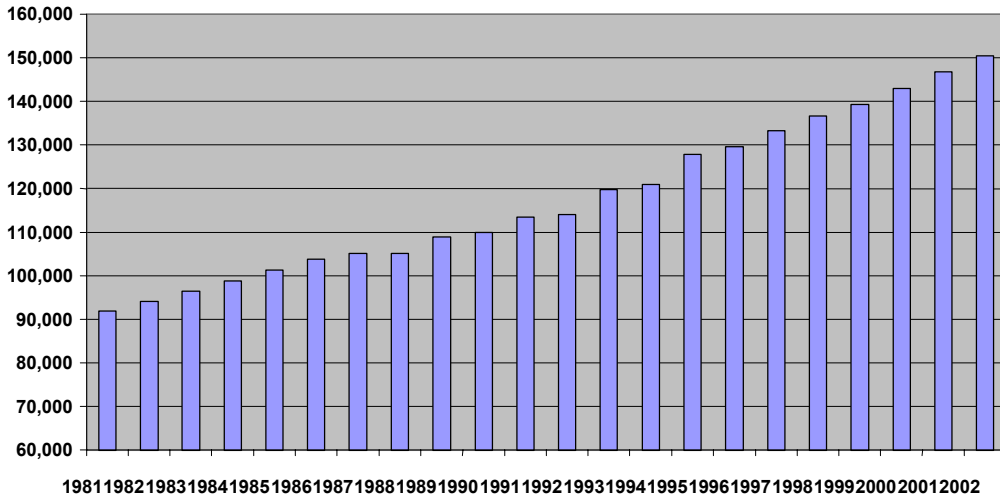
¹³ Florida Department of Transportation with forecasts prepared by CEFA, 2002.

¹⁴ Source: Florida Department of Transportation with forecasts prepared by CEFA, 2002.

of vehicle miles has outpaced both the growth in vehicles and passenger miles. This trend in Florida follows a national trend where the average number of passenger miles per registered driver has increased as the general wealth in our economy has expanded. This represents a 14.3 percent increase in vehicle miles per registered vehicle over this time period.

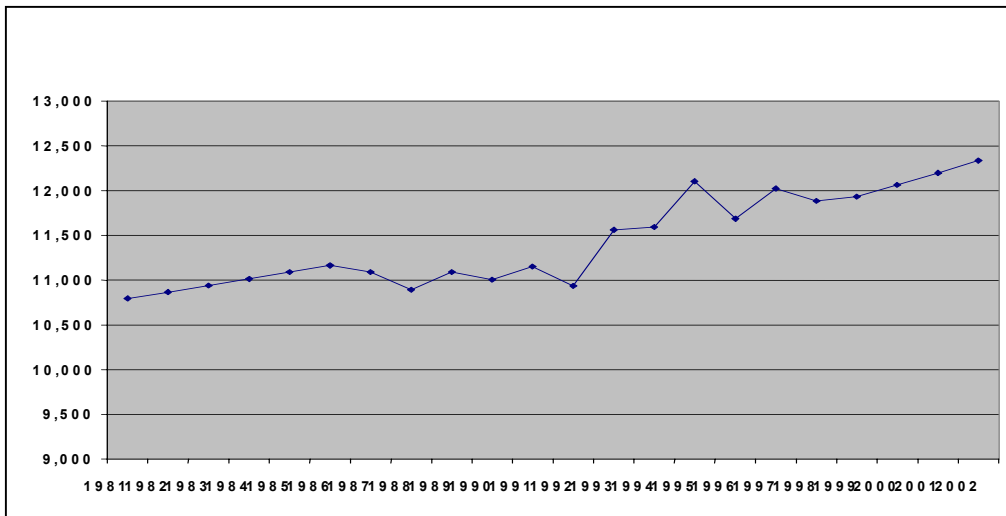
Figure 6. Number of Florida Vehicle Miles Driven in Florida By Residents and Tourists (Millions of Miles)*.

NUMBER OF FLORIDA VEHICLE MILES DRIVEN IN BY RESIDENTS AND TOURISTS (Millions of Miles)*



*Source: Florida Department of Transportation, trend forecast CEFA, 2002.

Figure 7. Average Number of Vehicle Miles Per Year Per Registered Vehicle in Florida.



Source: Florida Department of Transportation, trend forecast CEFA, 2002.

A reflection of these longer Florida driving patterns can be seen in Federal Highway Administration reports. In the mid-1990s the average commuting time in the U.S. via private transportation modes rose to 20.1 minutes (up 14 percent from approximately a decade earlier), and based on past trends the average commuting time is likely to reach 21.2 minutes by 2002. The typical driver spends about one hour and 15 minutes in their vehicle each day of travel in Florida.¹⁵

A recent Outdoor Advertising study completed a survey of the industry and found that:

Outdoor Advertising has the potential to bring valuable product information to a large and important segment of the population. The respondents to an outdoor advertising survey conducted in Florida in 1999 contacted individual firms that accounted for 79 percent of the active billboard permits in Florida.¹⁶ From this survey one can estimate that Florida's outdoor advertisers served approximately 25,000 clients in 1999, and nearly 55 percent of those consumer market clients were businesses with fewer than 25 employees. The survey results are summarized in Table 2.

As set forth in an earlier study, Florida Department of Transportation data indicate that for the year 2000, approximately 1,330 firms or individuals held roadway sign permits in the State of Florida.¹⁷ The outdoor advertising industry survey conducted earlier last year revealed a great deal of diversity within the industry. There were several large firms in the industry, as well as many small businesses.

Table 1. Most Important Advertising Client Groups
Relative frequency of listings within the top five revenue categories

Category	Frequency of Appearance in Top Five Revenue List
Attractions/Entertainment/Lodging	100%
Restaurants/Fast Food	71%
Automotive and Related Sales	57%
Consumer Products	43%
Professional/Medical Services	36%
Retail Sales	36%
Real Estate	29%
Telecommunication products and Services	29%
Financial Services	14%
Miscellaneous	21%

¹⁵ Ibid, Washington Economics Group, Inc., 2000.

¹⁶ Ibid, Washington Economics Group, Inc., 2000.

¹⁷ Ibid, Washington Economics Group, Inc., 2000.

Small businesses made up a large share of the typical firm's client base, with one-half of the survey respondents indicating that businesses employing less than 25 persons made up 57 percent of their client base. Twenty-five percent of the respondents indicated that small businesses accounted for at least 70 percent of their client base.

The survey asked respondents to list their top five customer groups. Tourism-dependent businesses, such as attractions, entertainment and lodging, were mentioned in the “top five” by 100 percent of the respondents. The data from this earlier study served as a point of departure for this current analysis.

REMI Data Analysis: Economic Impact of the Outdoor Advertising Industry in Florida

In order to obtain estimates of the different types of macroeconomic effects of the outdoor advertising scenarios on the Florida economy, we mapped the various revenue changes into the REMI model. The following data was supplied to represent the baseline revenue figures for the REMI model. Revenues were forecast using a linear trend analysis (Table 2).

Table 2. Baseline Outdoor Advertising Industry Revenues from 1995 – 2010.

Year	Outdoor Advertising Industry Revenues
1995	\$ 269,601,833
1996	\$ 285,891,956
1997	\$ 279,182,014
1998	\$ 286,001,563
1999	\$ 292,585,788
2000	\$ 293,638,577
2001*	\$ 296,027,725
2002	\$ 298,416,874
2003	\$ 300,806,022
2004	\$ 303,195,171
2005	\$ 305,584,319
2006**	\$ 307,973,467
2007	\$ 310,362,616
2008	\$ 312,751,764
2009	\$ 315,140,913
2010	\$ 317,530,061

* Baseline figures were obtained from Washington Economics Group study, for years 1999, 2000 and 2005.

**We used a linear trend method to forecast to 2010.

Once the revenues/costs were entered and the analysis was performed, REMI provided numerous economic impacts including effects on the population as well as the economy. The results were expressed in fixed 1992 dollars, thus the dollars were inflated to express them in 1999 dollars, corresponding to the Washington Economics Group study. From the REMI results, the 1999 CPI was 111.866 and the 1992 CPI was 98.786.¹⁸

Economic impact results are for the following data categories (Table 3 & Figures 8 & 9).

Table 3: REMI Economic Impacts of Outdoor Advertising on the Florida Economy			
Year	Employment (Thousands)	GRP (Bil 1999 \$)	Real Disposable Income (Bil 1999 \$)
2001	10.061	0.495	0.264
2002	10.001	0.488	0.270
2003	9.548	0.478	0.274
2004	9.100	0.470	0.279
2005	8.723	0.462	0.283
2006	8.409	0.459	0.289
2007	8.141	0.456	0.294
2008	7.933	0.456	0.301
2009	7.784	0.455	0.306
2010	7.618	0.457	0.311

The results represent the economic impacts on employment, baseline gross revenue product and real disposable income estimates. The employment results are expressed in terms of thousands of jobs and GRP and real disposable income results are expressed in terms of billions of dollars.

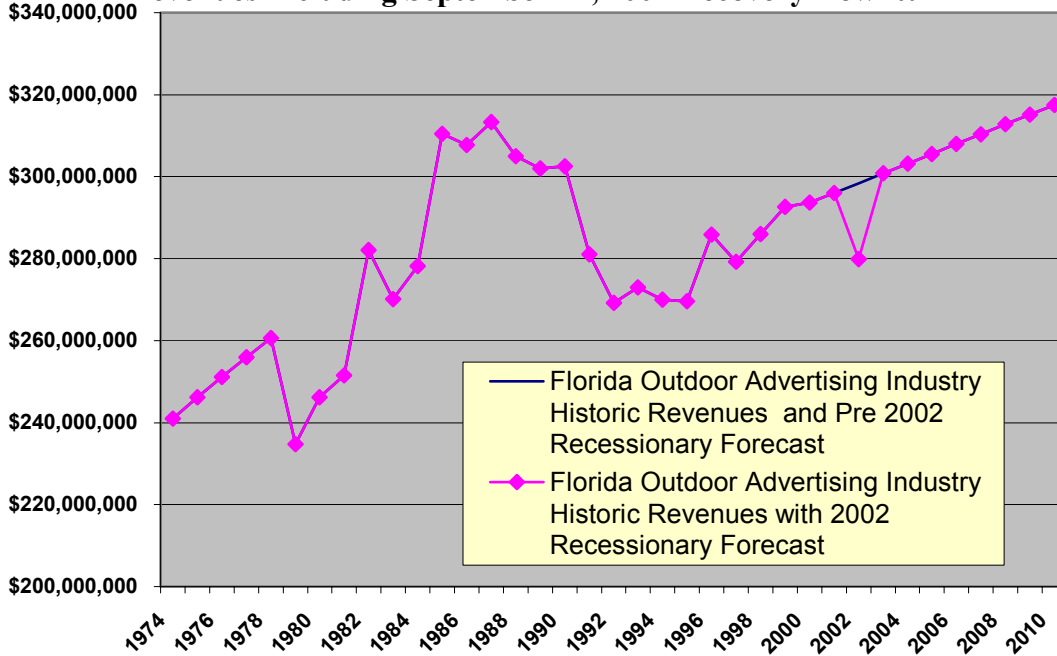
Thus, for the State of Florida, approximately 10,000 jobs in 2001 are supported by the outdoor advertising industry (including both direct and indirect effects). According to the current economic horizon, employment will gradually decline to 7,600 jobs by 2010. The baseline GRP projection for the outdoor advertising industry (including both direct and indirect effects) is approximately \$495 million dollars in 2001, gradually declining to \$457 million in 2010. Interestingly, real disposable income was \$264 million in 2001, rising to \$311 million in 2010.

A REMI analysis was performed that examined the economic impact of the September 11, 2001 tragedy on the outdoor advertising industry in Florida. In order to simulate the post September 11, 2001 economy (with the assumption of no further terrorist activity),

¹⁸ The inflator to convert 1992 dollars to year 1999 dollars was: $(CPI\ 1999)/(CPI\ 1992) = 111.866/98.786 = 1.1324$.

an annual 6.2 percentage reduction in revenues was applied (The 6.2 percentage factor was used based on personal communication with the Florida Office of Economic Demographic Research (EDR)). As captured in Figure 8, the outdoor advertising revenue forecast projects the effect of “9/11,” most notably experienced during 2001 – 2002.

Figure 8. Florida Outdoor Advertising Historical and Forecast Revenues Including September 11, 2001 Recovery Downturn



Since the REMI model operates on an annual basis, we applied the 6.2 percentage reduction in revenues for 2002, expecting the economy to rebound by the Second Quarter, 2002, a view held by many economists.

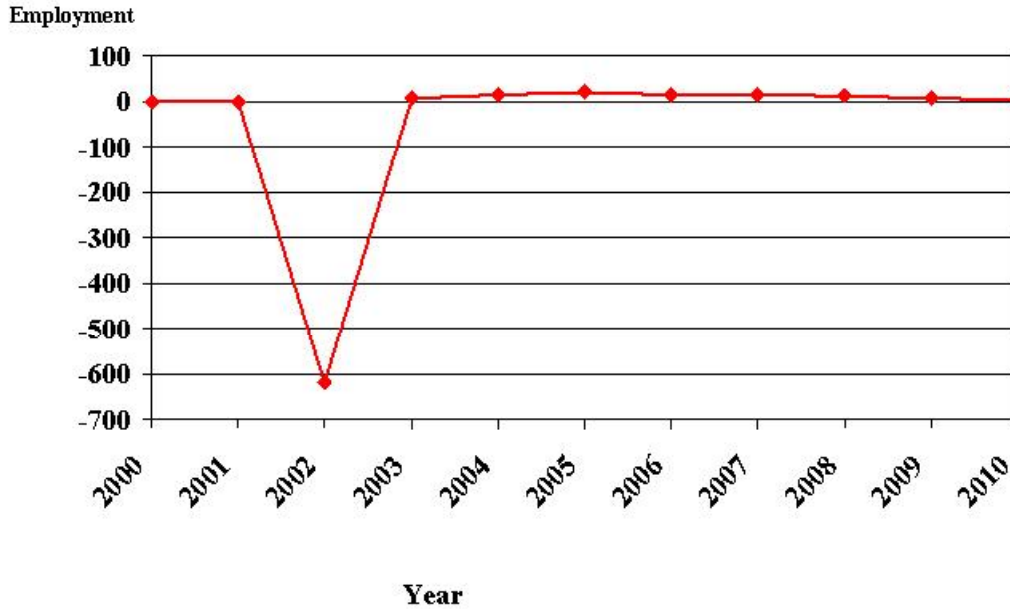
REMI projects that, as a result of the September 11 tragedy, advertising industry employment would be reduced by 618 people in 2002 (including both indirect and direct effects). In subsequent years, once the 618 drop in employment recovers, employment increases would not exceed 21 positions per year (Table 4 and Figure 9).

Advertising industry GRP would initially decline by \$32 million during 2002 and by \$1 million in 2005, 2006 and 2009. The drop in real disposable income would be \$16 million in 2002, and \$1 million in 2003 and 2010, and negligible thereafter. These reductions no doubt indirectly reflect the post-“9/11” drop in Florida tourism traffic, which in turn would negatively impact advertising industry revenues. As Florida TaxWatch reported in its October *Briefings*, Visit Florida, appearing before the Florida Senate Committee on Commerce and Economic Opportunity testified, if nothing were

done to counter 9/11, the state's tourism industry could lose \$7.2 billion or more by the end of June, 2002. That Florida's advertising industry is so dependent on the tourism industry can be interpreted conversely as reflecting the tourism industry's (and tourism's) reliance on advertising, as in turn reflected by advertising industry clients' withdrawal of revenue support, post-9/11.

Table 4: REMI Economic Impacts of Outdoor Advertising on the Florida Economy Post-September 11, 2001			
Year	Employment	GRP (Millions 1999 \$)	Real Disposable Income (Millions 1999 \$)
2000	0	0	0
2001	0	0	0
2002	-618	-32	-16
2003	7	0	-1
2004	16	0	0
2005	21	1	0
2006	17	1	0
2007	15	0	0
2008	12	0	0
2009	9	1	0
2010	4	0	-1

Figure 9. Economic Impacts of the Outdoor Advertising Industry on the Florida Economy Post-September 11, 2001 in Terms of Employment.



IMPLAN Data Analysis: Economic Impact of the Outdoor Advertising Industry in Florida

Table 5 shows the **base case scenario** that the outdoor advertising industry would have experienced without the 9/11 downturn, and **the recessionary scenario** impact resulting from post-9/11.

Scenario	Revenues (in millions) (1999 Dollars)	Employment	Disposable Income (1999 Dollars)
Base Case	498,016,183	5,128	184,624,322
Post-9/11	491,112,055	5,394	194,737,893
Net Effect of "9/11"	-6,904,128	266	10,113,571

Interestingly, the REMI results were very similar to the IMPLAN results regarding base case revenues; \$488 million vs. \$498 million, respectively. The effect of post-9/11 revenues is more striking regarding the REMI results (\$32 million) whereas IMPLAN estimates the effect to the outdoor advertising industry to be approximately \$7 million. This is most likely due to the complexity and dynamic nature of the REMI model, it simply is capturing more intra-industry linkages and effects (negative as well as positive) than the IMPLAN model.

IMPLAN employment results showed that fewer jobs are supported by the outdoor advertising industry (5,128) than did the REMI model (10,000). The post-9/11 effect on employment for REMI and IMPLAN was -618 jobs and 266 jobs, respectively. This difference could be because of REMI's neoclassical production function, differential labor cost cause REMI's labor intensities to differ across states and counties, whereas in IMPLAN labor intensities do not differ. Disposable income results were higher in REMI than IMPLAN, with \$270 million and \$185 million respectively. The overall disposable income effect of post-9/11 was positive (\$10 million) for IMPLAN, and negative (\$16 million) in the REMI results. Again, this is due to the fundamental differences in the two models; REMI being dynamic in nature, and IMPLAN being static.

Overall, the results of the two models show that there is a loss of revenues (direct and indirect effects) experienced by the outdoor advertising industry as a result of post-9/11, ranging from \$7 million to \$32 million. Most notably (as presented in Table 4) the post-9/11 simulation demonstrates how quickly the economy rebounds to continue on the projected growth path.

Florida Outdoor Advertising Impacts on Federal State and Local Government Taxes

In addition to generating considerable direct and indirect state employment, wages and output, the outdoor advertising industry also generates considerable federal, state and local taxes. Table 6 provides a profile of the state and local taxes attributable to the OA industry in Florida. In total the OA industry directly and indirectly generates \$14.3 million in State and local taxes. The two largest components of these taxes are the approximate \$6.8 million generated in sales taxes and \$4.3 million generated in property taxes.

Combined, these taxes provide a considerable base of support for state and local government operations. When federal taxes are added, the OA industry generates over \$60.7 million annually in federal, state and local taxes in Florida (see Appendix C for a complete profile of all federal, state and local taxes generated in Florida).

Table 6: Florida Outdoor Advertising Industry State and Local Tax Impacts					
	Taxes from Employees Compensation	Taxes from Household Expenditures	Taxes from Enterprises (Corporations)	Indirect Business Taxes	Total Taxes
Corporate Profits Tax			\$ 409,296		\$ 409,296
Dividends			\$ 6,124		\$ 6,124
Indirect Bus Tax: Motor Vehicle Lic				\$ 100,611	\$ 100,611
Indirect Bus Tax: Other Taxes				\$ 670,494	\$ 670,494
Indirect Bus Tax: Property Tax				\$ 4,270,559	\$ 4,270,559
Indirect Bus Tax: S/L NonTaxes				\$ 752,827	\$ 752,827
Indirect Bus Tax: Sales Tax				\$ 6,795,786	\$ 6,795,786
Indirect Bus Tax: Severance Tax				\$ 15,647	\$ 15,647
Personal Tax: Estate and Gift Tax					\$ -
Personal Tax: Income Tax					\$ -
Personal Tax: Motor Vehicle License		\$ 274,236			\$ 274,236
Personal Tax: NonTaxes (Fines- Fees)		\$ 487,823			\$ 487,823
Personal Tax: Other Tax (Fish/Hunt)		\$ 16,196			\$ 16,196
Personal Tax: Property Taxes		\$ 97,160			\$ 97,160
Social Ins Tax- Employee Contribution	\$ 75,292				\$ 75,292
Social Ins Tax- Employer Contribution	\$ 305,129				\$ 305,129
Total State / Local Government Taxes	\$ 380,421	\$ 875,415	\$ 415,420	\$ 12,605,924	\$ 14,277,181
January 28, 2002 \ CEFA, FSU	Copyright MIG	Version: 2.0.1017			

The 2001-2002 recessionary downturn will affect the OA industry prospects for generating taxes as well. CEFA estimates suggest for year 2002 that OA sales taxes generated will drop by \$421,339 and property tax collections will drop \$264,775. Overall, federal, state and local tax collections will decline by \$3.7 million for 2002 (see Appendix 3).

Case-Study: The Economic and Federal, State and Local Tax Impacts of Amortizing Billboards in One Florida County*

An IMPLAN analysis was performed to examine the billboards at potential risk in one county if amortized and taken down as required by local ordinance.¹⁹ The 774 sign faces in the county translates to annual revenues of \$10,835,364. At risk are 155 boards (with approximately half being double facing), thus, roughly 232 billboards are potentially at risk (See Table 7).

*Caveat: The data and analysis results from this case-study analysis are suggestive and should not be extrapolated to other Florida counties or used aggregately to project statewide results because the socioeconomic and geographic ecology of individual counties vary and require independent analysis.

¹⁹ Because the analysis was constrained by the "yearly" nature of the IMPLAN models, in order to amortize over the seven years the models were run as if the entire revenue loss was experienced in one year (amortization should be applied accordingly).

Scenario	Revenues (in millions) (1999 Dollars)	Employment	Disposable Income (1999 Dollars)
Single County Impact Example: 232 Boards at Risk	-\$5,325,869	-57.5	-\$2,619,644

Data Source: Florida Outdoor Advertising Association.

As Table 7 demonstrates, IMPLAN employment results for the advertisement boards at risk depict an overall loss of 57.5 jobs. Regarding revenues, approximately \$5.3 million would be lost due to the number of reduced billboards. Likewise, disposable income would be reduced by about \$2.6 million.

The results of the tax impact of a reduction of the 232 billboards are itemized in Table 8. The loss of billboards would result in state and local government and non-education tax collections dropping by \$130,548. Overall, federal, state and local tax collections would decline by \$651,450 for 2002.

Table 8. Florida Outdoor Advertising State and Local Tax Impacts for One Florida County.

	Taxes from Employee Compensation	Taxes from Household Expenditures	Taxes from Enterprises (Corporations)	Indirect Business Taxes	Total Taxes
Corporate Profits Tax			\$4,146		\$4,146
Dividends			\$62		\$62
Indirect Bus. Tax Motor Veh. Lic.				\$909	\$909
Indirect Bus. Tax Other Taxes				\$6,056	\$6,056
Indirect Bus. Property Tax				\$38,574	\$38,574
Indirect Bus. Tax S/L Non Taxes				\$6,800	\$6,800
Indirect Bus Tax Sales Tax				\$61,383	\$61,383
Indirect Bus. Tax Severance Tax				\$141	\$141
Personal Tax Estate and Gift Tax					
Personal Tax Income Tax					
Personal Tax Motor Veh. Lic.		\$2,918			\$2,918
Personal Tax Non Taxes (fines, fees)		\$5,109			\$5,109
Personal Tax Other Tax (fish/hunt)		\$172			\$172
Personal Tax Property Taxes		\$1,018			\$1,018
Social Ins. Tax Employee Contrib.	\$645				\$645
Social Ins. Tax Employer Contribution	\$2,615				\$2,615
Total State/Local Gov. Taxes	\$3,260	\$9,217	\$4,208	\$113,863	\$130,548

Conclusions

OA Post-9/11 and Economic Recession Ramifications

This study has shown that the ramifications of post-9/11 on the advertising industry are likely not as substantial or long-lived as originally predicted. This is good news for both the industry and for Florida's economy. Although a large part of advertising relies on the tourist industry, and the economy was experiencing a mild recession pre-9/11, the current Blue Chip consensus forecast expects a 1.3 percent annualized fall in economic output growth in the last three months of 2001, and 0.4 percent growth in the first quarter of 2002. The Dow Jones Industrial Average has hovered around the 10,000 mark; it is up 20 percent from the September low, and the Nasdaq is up 40 percent. Spending has held up extremely well, particularly regarding automobile purchases (due to the zero percent interest financing offers).

Historically, other things being equal, the American economy rebounds strongly. Since 1945, growth of five-to-seven percent is common in the year following a downturn. House sales have rebounded, and real construction spending rose in October—the first rise in nine months. The lowest interest mortgages rates seen in a decade and warm weather also have been good for the housing sector. Demand for manufactured goods was in a slump since mid-2000 but is currently stabilizing.

Notwithstanding the good news, there are other factors that could be associated with a slower recovery. First, there is consumption. The upsurge in recent spending is borrowing from next year's demand; for instance, there is a limit to how many cars Americans will buy. In addition, the labor market is weakening significantly. Unemployment rose to 5.7 percent in November, and more than one million Americans have lost their jobs since September 11, 2001.

A general rule of thumb for economists concerning a definition of a recession is that unemployment typically rises by 3.2 percentage points over a period of 18 months. At the current rate of rise in unemployment, the jobless rate would continue to rise until March, 2002 (7.1 percent). Higher unemployment places a major constraint on consumption. Lastly, the low household savings that Americans have experienced will most likely not continue through the post-9/11 period. Business investment likely will assist in the recovery effort. However, it is difficult to predict when businesses will desire to make longer term investments, such as in factories and equipment. Another positive sign is that government spending is on the rise, and the economic stimulus bill might fuel the economy back on the recovery path. Whether Congress will approve, a major stimulus package, and the President sign it into law, is unclear at this time.

OA's Prospective Contributions to Florida's Economy

Other things being equal, what are the contributions of Florida outdoor advertising to the future of Florida's economy? The prospects are good because, as noted, outdoor advertising has a competitive advantage over other advertising media due to it being far less expensive. The industry also is highly lucrative, with national revenues approaching \$5.5 billion in 2000, and projected to be \$12.4 million in 2009 (Paul Kagan Associates, Inc.).

Technology continues to grow in the industry, potentially abetting advertising efficiency by reducing costs and effectiveness in reaching more consumers. Advertisers can now better tap potential consumers by location, demographics, and time of day, and this is vital for the future success of the industry. To cite just one example, there currently are two companies offering wireless taxi cabs; Vert Inc., and Eller Media. The screen on top of the cab changes as the taxi passes certain destinations. When a taxicab passes a college, an ad for a nightclub appears on top; should it pass through a Brazilian part of town, an ad in Portuguese pops up.²⁰

As noted, the prospect for future growth in outdoor industry revenues—both Florida and nationally—is good. Should the industry continue to prosper, it nationally will generate \$14.3 million in state and local taxes in 2002. The dependency of the Florida outdoor industry on revenues generated by the small business community is clear. This dependency vouchsafes, conversely, the importance of outdoor advertising to small businesses and to the continuing prosperity of Florida's local economy. The growing dependency of Floridians on the automobile and reliance of Florida tourists while in Florida on travel by automobile contributes to ongoing critical importance of the industry to Florida's local economy.

As long as the outdoor advertising industry remains healthy, it should continue to make a significant contribution to Florida's local economy, thereby, positively affecting the health and prosperity of Floridians, the business community and the tourism industry alike.

²⁰ Guterman, Jimmy. August, 2001. Outdoor Interactive.

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This study was conducted by Tim Lynch, Ph.D. and Julie Harrington, Ph.D., Center for Economic Forecasting and Analysis, Florida State University, with and under the direction of Keith G. Baker, Ph.D., Senior Vice President and Chief Operating Officer. Steve Evans, Chairman; Dominic M. Calabro, President and Publisher

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P.O. Box 10209

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OR

E-mail: floridataxwatch.org

Appendices

Appendix A

The REMI Model

The REMI model, as Bolton 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 a diverse 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.

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.

The output block contains the input-output component of the model. Final demands drive the output block. Production uses factor inputs, labor, capital and fuel, and intermediate inputs. Coefficients of the production functions are based on national input-output tables produced by the Bureau of Labor Statistics. Intermediate inputs are used in fixed proportions. Factor input use is governed by Cobb-Douglas functions in Block 2. The relative factor intensities respond to changes in relative factor costs (i.e., wage rate changes, cost-of-capital changes, and changes in fuel prices).

Labor supply in Block 3 responds positively to wage rates because of migration. Also, the ratio of residence-adjusted employment to the potential labor force influences migration. Place-of-work income also is adjusted for place of residence to obtain disposable income. The interaction of labor demand calculated in Block 2 and of labor supply calculated in Block 3 determines wage rates in Block 4. Migration induces government spending through additional taxes paid and consumer spending through increased wage and non-wage income. The increase in real disposable income derived from migration also stimulates residential investment. Nonresidential investment is stimulated by increased capital demand by businesses.

Wage rates affect the competitiveness of local firms relative to firms in other regions in Block 5. Regional competitiveness affects the shares of local and exports markets (market shares) that local firms capture. The proportion of the local market captured is known as the regional purchase coefficient (RPC), and the proportion of the export market is known as the interregional and international coefficient. Also, the RPC, which is a measure of self-sufficiency, increases as a region grows because of agglomeration effects.

Endogenous consumption, investment, and government expenditures plus exports are the final demands that drive the output block. The endogenous RPC gives the proportions of local expenditures satisfied by imports or local production. Solution values for the endogenous variables in the REMI model must satisfy the equations in all five blocks simultaneously.

By suppressing certain endogenous responses in the REMI model, multipliers comparable to those computed from an input-output model can be obtained. If the responses of labor intensities, labor supply, wage rates, industry RPCs, and endogenous final demands are suppressed, Type I input-output multipliers are obtained. By allowing consumption to be endogenously determined, Type II multipliers are obtained. Complete endogeneity in the REMI model produces what is referred to as Type III multipliers. This Type III multiplier differs from standard Type III input-output multipliers because of the endogeneity of export and propensity to import responses in the REMI model.

The detailed structure of the REMI model requires an extensive amount of data. The input-output component is non-survey based, using national technical coefficients. Of particular importance are data on employment, income, and output. Also, because complete regional accounts consistent with the National Income and Product Accounts are not routinely available, they must be constructed.

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 program in March of each year.

Confidentiality requirements produce many suppressions in the data. Where suppressions occur, the number of establishments and the ranges of the number of employees for each establishment are supplied by CBP. REMI fills in the suppressions based on the hierarchical structure of the BEA data within regions and within industries. First, all two-digit S.I.C. industries are made consistent within the corresponding one-digit industries for each state simultaneous with all two-digit industries summed to the major region two-digit totals. Second, for counties REMI uses the ES-202 data, if available, and CBP data if ES-202 data is not available. Whichever data set is selected, it is made consistent with BEA one-digit county totals and state two-digit totals.

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 to reflect differences in regional production costs. The ratio of real regional value added per unit of input relative to U.S. value added per unit of input is the REMI relative total factor productivity.

Comparing the REMI and The IMPLAN Models*

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. The Type III multiplier differs from the standard Type II multiplier because it takes into account that (1) the consumption function is nonlinear; that is, the marginal propensity to consume is not constant, decreasing as income in the region rises and (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, The IMPLAN procedure for fining in suppressions in the 1985 model parallels the REMI procedure, except the ES-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 the implicit assumption of uniform value added-to-earnings ratios across counties within a state parallel the REMI procedure. However, REMI adjusts real value added in U.S. dollars reported by BEA for differences in regional unit factor costs.

*Rickman, Dan and R. Keith Schwer. 1993. "A Systematic Comparison of the Remi and IMPLAN Models: The Case of Southern Nevada," *The Review of Regional Studies*, pp. 148-149.

Appendix B

