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Tampa Bay economy 05/02 (Winter 2005/2006)

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Jobs and Wealth Creation in Florida

By Norman Blake, Graduate Research Assistant,
Center for Economic Development Research

The purpose of this article is to update the *Florida Technology Development Index*, which CEDR originally promulgated in October 2003. Here we complete the update of the portion of the *Index* titled “Jobs and Wealth Creation.” In previous issues of this journal Michael Bernabe reported on “High-Tech Jobs in Florida” (Winter 2004) and “High-Tech Establishments in Florida” (Summer 2005).

In his Winter 2004 article Bernabe points out that the original *Index* relied on a list of high-tech industries compiled by the U.S. Bureau of Labor Statistics (BLS) and described by the BLS according to the Standard Industrial Classification (SIC) system. Subsequently, the SIC system was replaced by the North American Industry Classification System (NAICS). Hence, the “Jobs and Wealth Creation” metrics CEDR presented in the original *Index* for 1997 through 2000 are not directly comparable with the metrics of this update for 2001 through 2004.

Wages are a measure of Florida’s wealth creation potential. In this update, we extend the assessment of the trend in Florida’s average annual wages for all employees, for manufacturing jobs, and for high-tech jobs for the years 2001 through 2004. We base the average manufacturing wage on jobs in industries designated by NAICS codes 31, 32, and 33. We base the average high-tech wage on jobs in industries delineated in Bernabe’s Winter 2004 report.

Table 1, Panel A, highlights Florida’s overall average annual wage, average manufacturing wage

and average high-tech wage. **Table 1, Panel B**, depicts the percentage change year over year for the average annual wage, the average manufacturing wage and the average high-tech wage.

Florida’s average wage was \$35,110 in 2004, an increase of \$1,823 over 2003. The average annual wage grew 14.15% from 1997 to 2000 and 12.18% from 2001 to 2004. Florida’s average wage has shown constant growth from 1997 through to 2004.

The average manufacturing wage in Florida in 2004 was \$42,473, a \$1,547 or 3.78% increase over 2003. From 2001 to 2004, Florida’s average manufacturing wage grew at an average annual rate of 3.79%, which was 0.13% less than the average annual growth rate of Florida’s overall average annual wage (3.91%).

Florida’s average high-tech wage was consistently higher than both the average annual wage and the average manufacturing wage. The high-tech wage was 29.67% greater than average manufacturing wage and 56.86% greater than Florida’s average overall wage in 2004. This translates to nearly a \$20,000 difference compared to the average wage and a \$12,604 difference as compared to the average manufacturing wage for that year.

Chart 1 is a visual growth comparison of Florida’s average annual wage, average manufacturing wage and average high tech wage. Measured in nominal dollars, Florida’s average wage overall has increased consistently.

(Continued on page 3)

The Tampa Bay Economy

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University of South Florida

From the Editor...

This is the third issue of *The Tampa Bay Economy* (TBE) published solely in electronic form.

“Jobs and Wealth Creation in Florida” is the lead report in this issue. This article updates the *Florida Technology Development Index*, specifically the portion of the *Index* titled “Jobs and Wealth Creation,” which was originally published by CEDR in October 2003.

The article “How to Do Economic Impact Studies for Events” summarizes a presentation by Dr. Dennis Colie at the Florida Festival and Events Association’s 11th Annual Convention and Trade Show held in Sarasota on July 13-15, 2005.

Another article “Housing Affordability in Central and Southwest Florida” addresses and measures home affordability in four major metropolitan statistical areas (MSAs) in Florida. They are Tampa-St Petersburg-Clearwater, Sarasota-Bradenton-Venice, Orlando, and Cape Coral-Fort Myers.

We conclude this issue of *The Tampa Bay Economy* with an “Update on CEDR’s Data Center.”

To help us make the journal add even more value to Tampa Bay’s economic development community, we ask the journal’s readers to send their comments to cedr_tbe@coba.usf.edu with the subject line “Journal Comments.”

USF’s Basic Economic Development Course

The new dates for the Basic Economic Development Course (BEDC) have been set. The BEDC will be held April 23 – 28, 2006 at Double Tree Guest Suites Tampa Bay. For more information on registration or any related question, please contact Nolan Kimball at (813) 905-5854.

(Continued from page 1)

Table 1
FLORIDA AVERAGE ANNUAL WAGES

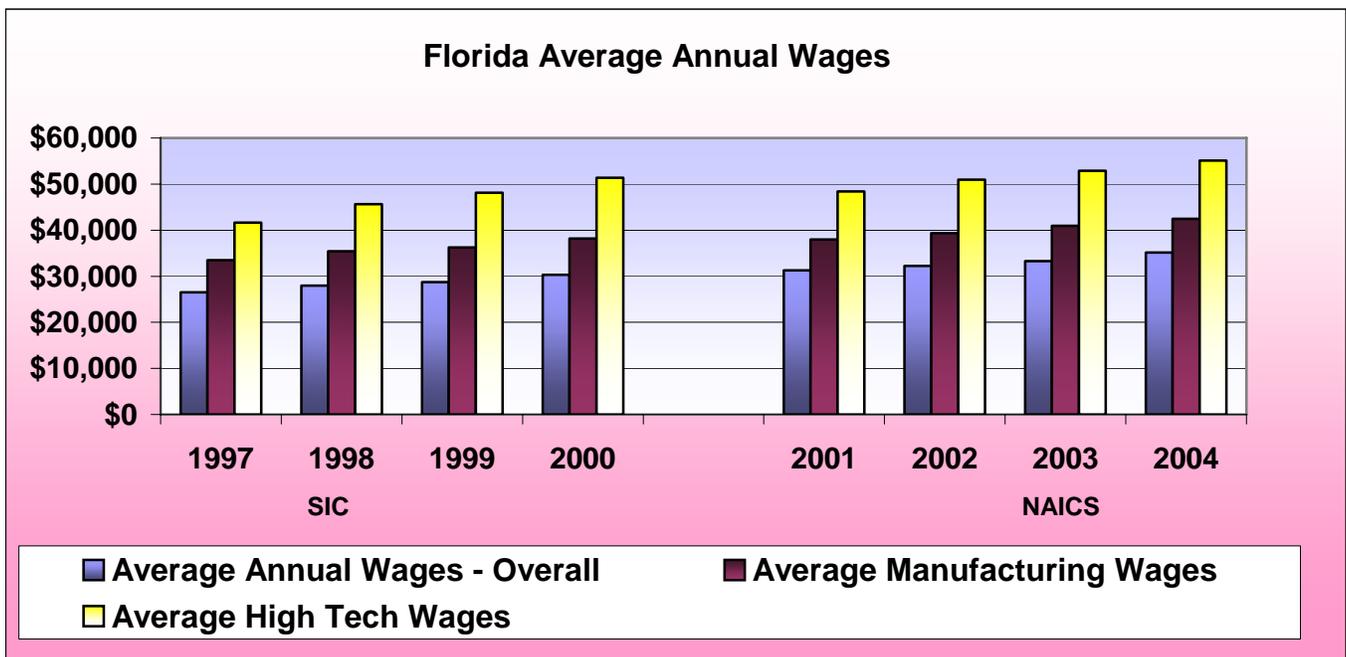
Panel A
Wage & Salary Disbursement per Job (nominal \$)

	SIC – Standard Industrial Classification				NAICS - North American Industry Classification System			
	1997	1998	1999	2000	2001	2002	2003	2004
Avg Annual Wages – Overall	\$26,539	\$27,988	\$28,714	\$30,296	\$31,297	\$32,215	\$33,287	\$35,110
Avg Manufacturing Wages	\$33,491	\$35,404	\$36,217	\$38,191	\$37,985	\$39,389	\$40,926	\$42,473
Avg High-Tech Wages	\$41,645	\$45,672	\$48,149	\$51,352	\$48,382	\$50,957	\$52,883	\$55,077

Panel B
Wage & Salary Disbursement per Job (year to year growth)

	SIC – Standard Industrial Classification				NAICS - North American Industry Classification System			
	1997	1998	1999	2000	2001	2002	2003	2004
Avg Annual Wages - Overall		5.46%	2.59%	5.51%		2.93%	3.33%	5.48%
Avg Manufacturing Wages		5.71%	2.30%	5.45%		3.70%	3.90%	3.78%
Avg High-Tech Wages		9.67%	5.42%	6.65%		5.32%	3.78%	4.15%

Chart 1



Personal income is the current income received by persons from all sources, including investment income and transfer payments, minus their personal contributions for social insurance. In this update, we extend the assessment of personal income per capita for all Florida versus all U.S. residents for the years 2001 through 2004. We also add a metric for Disposable Personal Income per Capita, which was not included in the original *Index*. Personal income is a Bureau of Economic Analysis concept. It is the sum of wage and salary disbursements, other labor income, proprietors' income, property income, i.e. rents, dividends and interest, and transfer payments, less personal contributions for social insurance. Disposable personal income is personal income less certain tax and non-tax payments. The tax payments are payments (excluding social insurance that is already deducted for calculation of personal income) for income tax, estate and gift taxes, and property taxes. Non-tax payments include passport fees, fines and penalties, donations, and tuition and fees paid to government schools and hospitals. Disposable personal income is generally associated with spending power and household consumption of private sector goods and services.

Table 2 shows personal income per capita for the United States and Florida. Personal income per capita is an often-used measure of the wealth of the population of a geographic region. The personal income per capita for Florida is defined as Florida's total personal income divided by Florida's total population. There is a similar measurement for the personal income per capita for the United States. It is defined as the United States population's total personal income, divided by the total U.S. population.

Florida's personal income per capita grew by 28.40% from 1997 to 2004, or an increase of \$6,958 during the period. The fastest growth occurred during the late 1990's economic boom. From 1999 to 2000, Florida's average personal income per capita increased by 6.01% or \$1,614. This rate of increase slowed to 2.66% from 2000 to 2001, 1.48% from 2001 to 2002 and an even slower 1.40% from 2002 to 2003. This was followed by a 4.46% increase in Florida's personal income per capita from 2003 to 2004.

Florida's personal income per capita continues to lag behind that of the United States. In fact, this per capita income difference has grown over time; as growth in the U.S. income per capita has outstripped the growth in Florida's income per capita by 0.24% from 1997 to 2004. The overall differences in Florida's income per capita and U.S. income per capita grew from \$832 in 1997 to \$1,581 in 2004. From 2000 to 2001 and 2001 to 2002 Florida's personal income per capita grew an average of 0.46% faster than the U.S. personal income per capita for the same period. Excluding these years the U.S. personal income per capita grew an average of 0.51% faster than the growth in Florida's personal income per capita.

The U.S. personal income per capita grew by 30.42% from 1997-2004. The fastest year over year gains occurred from 1999 to 2000, when income grew by 6.82%. In contrast, the slowest growth in income per capita occurred during the U.S. economic recession of 2002, when personal income per capita grew by 0.78% per year in the country as a whole. Overall U.S. personal income per capita grew by an average of 3.89% from 1997 to 2004.

Chart 2 presents a visual growth comparison of Florida's and the United States' personal income per capita. There has been a steady growth in both Florida's and U.S. personal income per capita from 1997 to 2004. The graph illustrates the lag in personal income per capita experienced by the average Floridian as compared to the average American.

Table 3 provides a comparison of the disposable personal income per capita between the United States and Florida. Disposable personal income measures the remaining income that household and non-corporate businesses have after tax deductions. From 1997 and 2004, Florida's disposable personal income per capita increased by 32.79%, while disposable personal income per capita for the United States increased by 34.32%. The disposable personal income difference highlights the continuing disparities of the disposable income per person in Florida as compared to the United States. This difference more than doubled (110.98%) from 1997 to 2004.

Table 2
PERSONAL INCOME PER CAPITA

Panel A
Personal Income Per Capita (nominal \$)

	1997	1998	1999	2000	2001	2002	2003	2004	% Change 97 - 04
USA	\$25,334	\$26,883	\$27,939	\$29,845	\$30,575	\$30,814	\$31,487	\$33,041	30.42%
Florida	\$24,502	\$25,987	\$26,894	\$28,509	\$29,268	\$29,700	\$30,116	\$31,460	28.40%
Difference (U.S. – FLA)	\$832	\$895	\$1,045	\$1,336	\$1,307	\$1,114	\$1,371	\$1,581	90.02%

Panel B
Personal Income Per Capita (year to year growth)

	1997	1998	1999	2000	2001	2002	2003	2004
USA		6.11%	3.93%	6.82%	2.45%	0.78%	2.19%	4.93%
Florida		6.06%	3.49%	6.01%	2.66%	1.48%	1.40%	4.46%
Difference (U.S. – FLA)		0.05%	0.44%	0.82%	-0.22%	-0.70%	0.78%	0.47%

Source: Compiled by CEDR from U.S. Department of Commerce
Bureau of Economic Analysis, Regional Accounts Data,

Chart 2

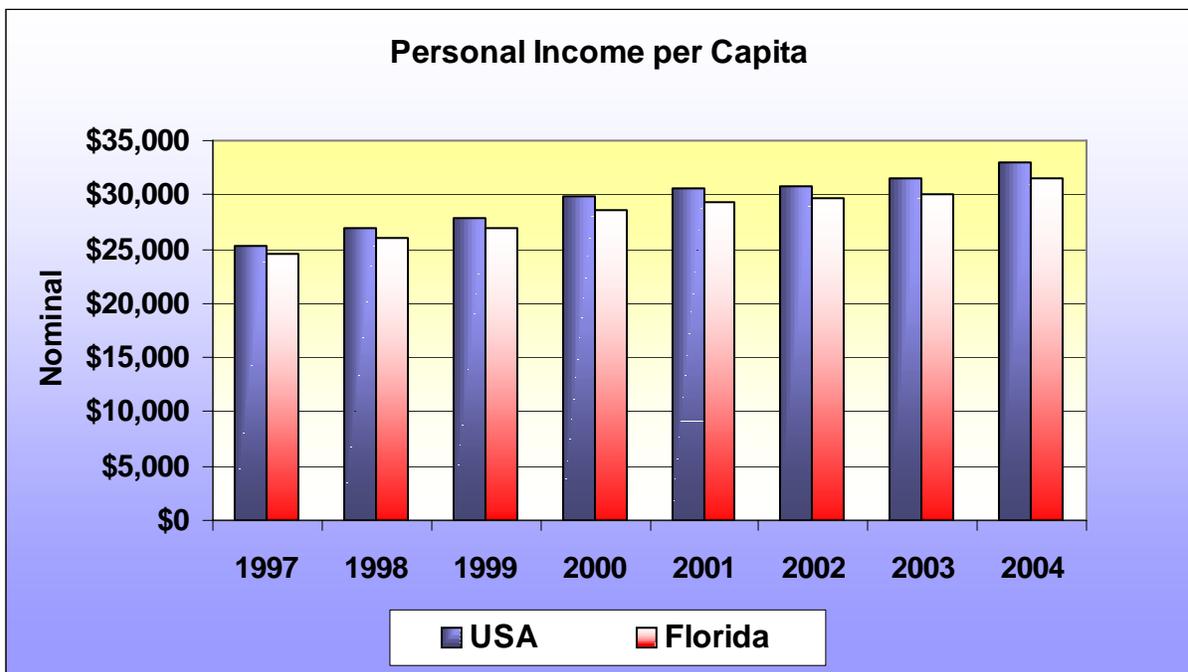


Table 3

Disposable Personal Income Per Capita

	1997	1998	1999	2000	2001	2002	2003	2004	% Change 1997 - 2004
United States	\$21,941	\$23,163	\$23,974	\$25,471	\$26,240	\$27,165	\$28,052	\$29,472	34.32%
Florida	\$21,513	\$22,728	\$23,509	\$24,810	\$25,612	\$26,575	\$27,325	\$28,569	32.79%
Income Difference (U.S. – Florida)	\$428	\$435	\$465	\$661	\$628	\$590	\$727	\$903	110.98%
Florida's Disposable Personal Inc as % of U.S.	98.05%	98.12%	98.06%	97.40%	97.61%	97.83%	97.41%	96.94%	-1.11%

Chart 3

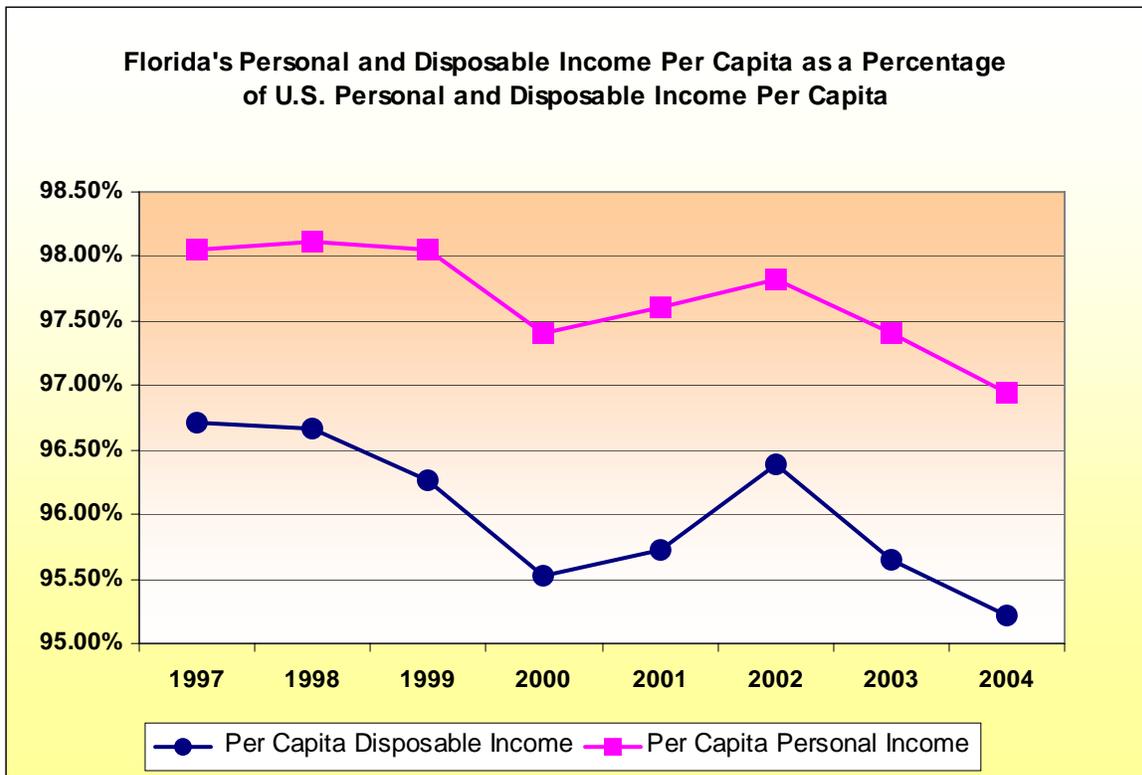


Table 4**Comparisons of the Differences in Personal and Disposable Income Per Capita**

	1997	1998	1999	2000	2001	2002	2003	2004	% Change 97 - 04
Difference U.S. Personal and Disposable Income Per Capita (U.S. Personal Income - U.S. Disposable Income)	\$3,393	\$3,720	\$3,965	\$4,374	\$4,335	\$3,649	\$3,435	\$3,569	5.16%
Difference Florida's Personal and Disposable Income Per Capita (FL Personal Income - FL Disposable Income)	\$2,989	\$3,259	\$3,385	\$3,699	\$3,656	\$3,125	\$2,791	\$2,891	-3.28%
Difference in Amount (U.S. - Florida)	\$404	\$460	\$580	\$675	\$679	\$524	\$644	\$678	67.57%
Percentage Change in Difference of U.S. Personal and Disposable Income Per Capita		9.62%	6.60%	10.32%	-0.90%	-15.83%	-5.85%	3.88%	
Percentage Change in Difference of Florida's Personal and Disposable Income Per Capita		9.05%	3.86%	9.28%	-1.17%	-14.53%	-10.68%	3.57%	

Table 5**Disposable Income per Capita as Percentage of Personal Income Per Capita**

	1997	1998	1999	2000	2001	2002	2003	2004	% Change 97 -04
USA	86.61%	86.16%	85.81%	85.34%	85.82%	88.16%	89.09%	89.20%	2.99%
Florida	87.80%	87.46%	87.41%	87.02%	87.51%	89.48%	90.73%	90.81%	3.42%

Chart 3 illustrates the disparity between Florida's disposable personal income and the U.S. disposable personal income. Florida's disposable income per capita was 98.05% of U.S. disposable income per capita in 1997; and fell to 96.94% in 2004. Over the 7 years the gap widened fell by 1.11%. However, Florida's personal income per capita outgrew that of the United States by 0.22% from 2000 to 2001 and 0.70% from 2001 to 2002.

Obviously, the amount of disposable personal income per capita closely tracks the amount of personal income per capita. However, in Table 4, when we report the difference in the United States' and Florida's disposable personal income per capita; this difference favors Floridians.

Table 4 shows the difference in the Florida's and U.S. personal and disposable income per capita. The larger U.S. amount in the differences of personal and disposable income per capita means that the average Floridian retains a higher percentage of their personal income as compared to the average American. This difference represents the average amount personal income per capita is reduced by deductions. In 1997 the average Floridian retained \$404 more of their personal income than the average American. That amount has increased to \$678 in 2004, which is a 67.57% increase from 1997 to 2004. The average Floridian retained more personal income from 1997 to 2004 (5.16%); the average American retained less disposable income as a percentage of their personal income over the same period (-3.28%). From 1997 to 2000, the average American and the average Floridian both retained less disposable income as a percentage of personal income. This began to change in 2001 as Florida received a 1.17% boost in disposable income as a percentage to personal income while the U.S. percentage increased by only 0.90%. The boost in disposable income as a percentage of personal income could be attributed to the tax cuts in early 2001 and 2002.

Table 5 reinforces the Table 4 findings that the average Floridian keeps a higher percentage of their personal income as compared to the average American. In 1997 the average Floridian's disposable

income was 87.80% of personal income, while the average American's disposable income was 86.61% of personal income. This descending trend continued until 2001 when U.S. disposable income was 85.82% of personal income and Florida's disposable income was 87.51% of personal income.

By 2004 disposable income per capita as a percentage of personal income per capita had increased to 90.81% for Florida and 89.20% for the United States. From 1997 to 2004, disposable income as a percentage of personal income increased by 3.42% in Florida and 2.99% in the United States.

In conclusion, measures of wealth creation in Florida differ from the overall U.S. during the period 1997 through 2004. Florida's average manufacturing wage, average high-tech wage and average annual wage have consistently increased from 1997 to 2004. During the same period, the fastest wage growth occurred in Florida's average high-tech wage. The average growth rate of Florida's average high-tech wage from 1997 to 2001 was 7.24% and from 2001 to 2004 the average growth rate was 4.52%. Florida's average annual wage grew at a slightly slower pace averaging 4.52% from 1997 to 2000, and 3.91% from 2001 to 2004. From 1997 to 2004 Florida's average manufacturing wage grew at a slower pace compared to both the average high-tech wage and the average annual wage; it grew an average of 4.49% from 1997 to 2000 and 3.80% from 2001 to 2004.

From 1997 to 2004, Florida's personal income per capita was on average 3.98% less than U.S. personal income per capita. During the same period, Florida's disposable income per capita was on average 2.32% less than the disposable income per capita for the U.S., but on average Floridians retain a larger proportion of personal income than the national average. Both personal income per capita and disposable income per capita for the United States and Florida consistently increased from 1997 through 2004.

How to Do Economic Impact Studies for Events

By Dennis G. Colie, Ph.D., Director, and Alex McPherson, Economist, Center for Economic Development Research

This article summarizes a presentation by Dr. Dennis Colie at the Florida Festival and Events Association's 11th Annual Convention and Trade Show held in Sarasota on July 13-15, 2005. Dr. Colie is the Director of the Center for Economic Development Research, College of Business Administration, University of South Florida.

One purpose for preparing an Economic Impact Study is to demonstrate the level of economic contribution an event may bring to a region in order to gain local support and funding assistance. An Economic Impact Study answers the question: "How much does a festival or event contribute to the local economy?"

An impact is the effect of a well-defined change in the structure of a region. An *economic impact* refers to a change in production, distribution, or consumption in a region. Examples of a change in the structure of a region are the relocation of a business into or out of a region, the *establishment of a festival or event*, or an increase in the minimum wage. When an activity is already established in a region, application of the counter-factual approach to determining an economic impact is necessary. The counter-factual approach virtually removes the output of an established activity from the regional economy to measure the economic contribution.

The measures of economic contribution are jobs, labor income, and output (which is akin to sales). There are several levels of effects that are measurable. The direct effect is the economic contribution of the activity of interest, or the first round of output. The indirect effect is the second and subsequent rounds of output to supply factor inputs for lower numbered rounds. The induced effect is the second and subsequent rounds of output to supply households' increased consumption demands resulting from labor income earned in the production of direct and indirect output. The secondary effect refers to the indirect

effect, plus the induced effect if included in the model. The total effect is the sum of the direct effect and the secondary effect. The total effect is often calculated as the product of the direct effect and a multiplier. Similarly, an implied multiplier is the total effect divided by the direct effect.

Several widely-used models are available to estimate the measures of economic contribution. These include RIMS II, IMPLAN ProfessionalTM Social Accounting and Impact Analysis Software, and REMI Policy InsightTM.

The RIMS II Regional Input-Output Modeling System is a set of multiplier tables, which are customized for a particular region and produced by the Bureau of Economic Analysis (BEA), U.S. Department of Commerce. RIMS II yields estimates of indirect and total effects. The BEA updates its multipliers annually based on national-average performance data for each industry. The two types of RIMS II multipliers are Final Demand Multipliers, which are used when expenditures or sales are known, and Direct Effect Multipliers, which are used when only the number of jobs is known. The price of a set of RIMS II multiplier tables for 473 detailed North American Industrial Classification System (NAICS) industries and 60 industry aggregations is \$275 per region. One county is the smallest region available.

The NAICS was developed jointly by the U.S., Canada, and Mexico to provide comparability in statistics about business activity across North America and defines all categories of economic activity.

Table 1, on page 10, depicts an example applying RIMS II. In the hypothetical MyRegion, USA, we use Final Demand Multipliers in Panel A to estimate the total effect of an Arts, Entertainment, or Recreation Event, where output (or sales) is \$2,322,000. The RIMS II multiplier for output in this case is 1.6963, for earnings it is 0.3254, and for jobs it is 10.8068 per \$1M of output.

Table 1
Estimating Impact of Arts, Entertainment, or Recreation Event

MyRegion, USA

Panel A

Final Demand Multipliers

Measure of Impact	Sales	RIMS II multiplier	Impact
Output	\$2,322,000	1.6963	\$3,938,809
Earnings		0.3254	\$755,579
Jobs		10.8068	25.0934
Avg. Annual Wage			\$30,111
Output per Worker			\$156,966

Panel B

Direct Effect Multipliers

Measure of Impact	Jobs	RIMS II multiplier	Impact
Jobs	10	2.509	25.090
Avg. Annual Wage			\$30,111
Output per Worker			\$156,966
Earnings			\$755,477
Output			\$3,938,277

While the RIMS II multiplier concept is timeless, results are generally interpreted to represent one year's economic activity. An event can last for any length of time, but in this example, we suppose a one-week event, or 1/52 of a year.

We show the results using Final Demand Multipliers in the Impact column of **Panel A** of Table 1. Panel A shows that the event's sales contribute total output of \$3,938,809 in MyRegion, USA. Workers producing the \$3,938,809 of output will earn \$755,579 for their work. Most of the total output of \$3,938,809 will be produced during the week of the event because the direct output of \$2,322,000 in event sales occurs in the one-week event period. The indirect output of \$1,616,809 (\$3,938,809 minus \$2,322,000) can be produced before, during, or after the event. The RIMS II multiplier results also indicate that to produce the \$3,938,809 of output about 25.0934 workers will be required to work for a full

year. If all of the total output were produced during the week of the event, then about 1,305 workers (25.0934 workers x 52 weeks) are needed during the one-week production period. It is unlikely that all of the indirect output will be produced during the week of the event, so the 1,305 jobs form an upper bound of total jobs that are needed to produce the total output.

We obtain the Average Annual Wage by dividing the total Earnings by total Jobs. Similarly, Output per Worker is determined by dividing total Output by total Jobs.

One drawback of the RIMS II method is that there is no determination of the industries that contribute to the indirect effects. Another drawback is there is no straightforward breakdown in the number of jobs that contribute to the direct and indirect effects. Only the total jobs required for the total (direct plus indirect) output are calculated.

We exemplify the Direct Effect Multiplier for jobs in **Panel B** of Table 1. In this case, the analyst knows the number of annualized direct jobs required for the event. The RIMS II Direct Effect Multiplier is 2.509, so total annualized jobs created by the event will be slightly more than 25 (2.509×10 jobs). Supposing that the event is held for a one-week period, about $25.090 \times 52 = 1,304.68$ (or about 1,305) jobs form an upper bound on total jobs.

We can calculate the Average Annual Wage and Output per Worker based on the Final Demand Multipliers. Because of the way RIMS II is designed, for a given industry or industry aggregation, these amounts are constant at any level of sales. So, using any arbitrary sales level, say \$1,000,000, will produce the amounts already shown in Panel A of Table 1. In our example, the Average Annual Wage is \$30,111 and Output per Worker is \$156,966. We enter these amounts in Panel B of Table 1. And, because the total jobs impact is 25.090 (annualized), total Output is 25.090 times \$156,966 or \$3,938,277.

The IMPLAN Professional™ Social Accounting and Impact Analysis Software is a closed, static input-output model yielding estimates of indirect, induced, and total effects. The model includes data for each county in a state. The current price of the Florida model, including all 67 counties, is \$1,750. Data is updated annually, so an updated model can be purchased each year.

We provide an example of the use of IMPLAN to estimate the economic impact of an event in **Table 2** and **Table 3**, on page 12. Table 2 shows IMPLAN results of an analysis using anticipated sales as input to the model, similar to using RIMS II Final Demand Multipliers. IMPLAN results of analysis using predicted employment as input to the model, shown in Table 3, are comparable in concept to the use of RIMS II Direct Effect Multipliers.

In Table 2, we report the economic contribution to Florida of a hypothetical week-long event with sales of \$5,000,000. Direct output is the \$5,000,000 sales. Sixty persons work year-long to produce the direct output. These 60 workers earn over

\$1.7 million of labor income. Suppliers of inputs to the direct production process generate an additional \$1.9 million of output. Just over 19 workers in these indirect industries would be needed to produce the \$1.9 million of output. These 19 workers earn almost \$700,000 of labor income. Spending of the income earned by the direct and indirect workers creates the induced effect. Almost 27 more jobs are induced by this spending to produce over \$2.4 million of output. Workers in these 27 induced jobs earn over \$850,000 of labor income. Total Employment, Labor Income, or Output is the sum of the Direct, Indirect, and Induced effects for each measure. We show the implied multiplier below the total effect of each measure. We calculate the implied multiplier by dividing the total effect by the direct effect. For instance, the Employment Multiplier of 1.76 shown in Table 2 is found by dividing Total Employment of 105.8 jobs by Direct Employment of 60 jobs.

Like the RIMS II multiplier concept, IMPLAN is timeless. IMPLAN multipliers are derived from annual data, so we must adjust employment for short duration events to use Employment as the input variable. Table 3 shows results of analysis using 60 direct jobs as input for the model. The method we show in Table 3 is used when only direct jobs are known. In this case, due to rounding, the 60 workers (3,120 week-long jobs / 52 weeks = 60 year-long jobs) can produce output of approximately \$5 million. In Table 3, we develop implied multipliers of the total effect for each measure of economic contribution.

In these examples, we use IMPLAN Sector 478, “Other Amusement, Gambling, and Recreation Industries” to model the contributions of the event. This IMPLAN Sector includes NAICS industries 7131, 7132, 71391, 71392, 71393, and 71399.

Table 2

Results of Analysis

Week-long Event with Sales \$5,000,000 in Florida

IMPLAN Sector 478

Other Amusement, Gambling, and Recreation Industries

	Employment	Labor Income (2002\$)	Output (2002\$)
Direct	60.0	\$ 1,704,991	\$ 5,000,000
Indirect	19.1	694,633	1,918,220
Induced	26.7	854,716	2,439,345
Total	105.8	\$ 3,254,340	\$ 9,357,565
Multiplier	1.76	1.91	1.87

Table 3

Results of Analysis

Week-long Event with 60 Employees in Florida

IMPLAN Sector 478

Other Amusement, Gambling, and Recreation Industries

	Employment	Labor Income (2002\$)	Output (2002\$)
Direct	60.0	\$ 1,705,702	\$ 5,002,083
Indirect	19.1	694,923	1,919,019
Induced	26.8	855,072	2,440,361
Total	105.9	\$ 3,255,697	\$ 9,361,463
Multiplier	1.77	1.91	1.87

Other IMPLAN Sectors, with associated NAICS, which may be related to festivals and events are:

- Sector 471, “Performing Arts Companies”, NAICS 7111
- Sector 472, “Spectator Sports”, NAICS 7112
- Sector 473, “Independent Artists, Writers, and Performers”, NAICS 7115
- Sector 474, “Promoters of Performing Arts and Sports Agents”, NAICS 7113 and 7114
- Sector 475, “Museums, Historical Sites, Zoos, and Parks”, NAICS 712
- Sector 476, “Fitness and Recreational Sports Centers”, NAICS 71394
- Sector 477, “Bowling Centers”, NAICS 71395

An advantage of IMPLAN over RIMS II is that IMPLAN reports contributions by industry. We show an example in **Table 4**, which indicates direct, indirect, and induced components of Output Impact for the week-long event with direct sales of \$5,000,000 for industries aggregated to the 2-digit NAICS. Similar reports are available from IMPLAN for the Employment and Labor Income measures of economic contribution. More detailed reports are also available. We show a sample of these detailed results in **Table 5**, which indicates the direct, indirect, and induced components of the Output Impact to the Retail Trade Division of the economy.

Table 4
IMPLAN Output Results, Aggregated to 2-Digit NAICS



Copyright MIG 2005

Output Impact

May 25, 2005

IMPACT NAME: ArtsEvent\$5m		FL02-Arts.iap MULTIPLIER: Type II			Aggregated Report	
<u>Industry</u>		<u>Direct*</u>	<u>Indirect*</u>	<u>Induced*</u>	<u>Total*</u>	<u>Deflator</u>
1 11	Ag, Forestry, Fish & Hunting	0	7,595	12,929	20,524	1.00
19 21	Mining	0	6,418	4,288	10,706	1.00
30 22	Utilities	0	112,916	56,595	169,511	1.00
33 23	Construction	0	82,005	16,131	98,136	1.00
46 31-33	Manufacturing	0	88,289	112,758	201,047	1.00
390 42	Wholesale Trade	0	71,488	136,058	207,546	1.00
391 48-49	Transportation & Warehousing	0	94,411	73,359	167,770	1.00
401 44-45	Retail Trade	0	33,859	297,100	330,959	1.00
413 51	Information	0	181,799	89,777	271,576	1.00
425 52	Finance & Insurance	0	157,886	244,473	402,359	1.00
431 53	Real Estate & Rental	0	307,544	164,483	472,027	1.00
437 54	Professional- scientific & tech svc	0	244,114	97,299	341,413	1.00
451 55	Management of companies	0	86,019	26,523	112,542	1.00
452 56	Administrative & Waste Services	0	160,926	58,721	219,647	1.00
461 61	Educational svcs	0	1,336	31,559	32,895	1.00
464 62	Health & Social Services	0	350	378,976	379,326	1.00
475 71	Arts- entertainment & recreation	5,000,000	73,728	41,831	5,115,559	1.00
479 72	Accommodation & food services	0	24,863	139,516	164,379	1.00
482 81	Other services	0	87,690	124,367	212,058	1.00
495 92	Government & non NAICS	0	94,984	332,602	427,586	1.00
30001	Institutions	0	0	0	0	1.00
	Total	5,000,000	1,918,220	2,439,345	9,357,565	

Table 5
IMPLAN Detailed Output Results, Retail Trade Division Only



Copyright MIG 2005

Output Impact

October 10, 2005

FL02-Arts.iap

IMPACT NAME: ArtsEvent\$5m

MULTIPLIER: Type II

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
401 Motor vehicle and parts dealers	0	6,546	60,450	66,996	1.00
402 Furniture and home furnishings store	0	1,546	13,908	15,454	1.00
403 Electronics and appliance stores	0	1,873	10,782	12,655	1.00
404 Building material and garden supply	0	2,854	26,886	29,740	1.00
405 Food and beverage stores	0	4,753	47,842	52,595	1.00
406 Health and personal care stores	0	2,791	19,905	22,696	1.00
407 Gasoline stations	0	1,209	12,567	13,776	1.00
408 Clothing and clothing accessories sto	0	2,173	23,284	25,457	1.00
409 Sporting goods- hobby- book and	0	662	8,534	9,196	1.00
410 General merchandise stores	0	4,954	38,678	43,632	1.00
411 Miscellaneous store retailers	0	2,736	15,889	18,625	1.00
412 Nonstore retailers	0	1,763	18,375	20,138	1.00

REMI Policy Insight™ is a dynamic economic forecasting model for regions down to the county level. The total effect is the sum of the direct effect and the secondary effect. Currently, the regional model licensed to USF-CEDR includes the 13 principal component counties of the Florida High-Tech Corridor plus the Rest of Florida, and costs \$12,100 per year. REMI's dynamic properties allow general equilibrium tendencies and adjustment time paths, so an analysis moves beyond the static approach of RIMS II and IMPLAN.

We show an example of the use of REMI by considering a week-long event with sales of \$3,000,000 in Sarasota County. To perform the analysis, we first select the Policy Variable where the \$3 million sales is input. As illustrated in **Figure 1**, we can choose the variable "Industry Sales/International Exports (amount)" for a particular industry. For instance, we selected three industries: 1) Performing arts, spectator sports, 2) Museums et al,

and 3) Amusement, gambling, recreation. Continuing our example, in **Figure 2**, we show the variable and industries selected for Sarasota County and input of sales of \$3,000,000 in the Performing arts, spectator sports industry for the year 2005. Then, we run the model. We show results of this run in **Figure 3**, which indicates a total of 176 year-long jobs will be needed to produce about \$5.1 million of total output. The \$5.1 million of Total Output includes the event sales of \$3 million. Workers in the 176 jobs will earn about \$2.4 million of personal income in 2005.

We also show a portion of the detailed employment results in **Figure 4**, which indicates that about 149 year-long jobs in the Performing Arts, spectator sports industry are created to primarily produce the direct event sales. If this were a week-long event, approximately 7,748 workers (149 year-long jobs x 52 weeks = 7,748 week-long jobs) are needed to produce output of \$3,000,000.

If the event is planned to occur annually over a period of years, we can use REMI to consider the long-term economic contribution of the event. In REMI, an analyst can consider impacts in any year up to 2050. In **Figure 5**, we show REMI inputs for the illustrated event for the years 2005 through 2008. In this example, we presume that sales are the same in each year. **Figure 6** shows REMI results in each year of the event.

The significant variety of policy variables available for analysis and the level of detail of calculated results combine to make REMI a very powerful analytical tool.

In conclusion, we present examples of three commonly used models for determining an economic contribution. These models are the RIMS II multiplier method, IMPLAN Professional™ Social Accounting and Impact Analysis Software, and REMI Policy Insight™. The RIMS II model consists of a series of

multipliers that an analyst uses to determine generalized estimates of the total effect of an economic change to the level of jobs, income, and output. A set of RIMS II multipliers for a region, down to the county level, can be purchased from the U.S. Department of Commerce for a moderate price, and are applicable to a single year. IMPLAN is a static input-output model and is more elaborate, and more expensive to obtain, than the RIMS II model. A typical IMPLAN model consists of a series of input-output matrices that have been custom developed for each county in a state for a particular year. The IMPLAN model provides the analyst significant flexibility in the level of aggregation of input parameters and presentation of results. REMI is a dynamic general equilibrium model that is more powerful than the other two models, but costs more too. REMI provides the user with a substantial number of input variable options and very detailed analytical results.

Figure 1. REMI Policy Variable Selection

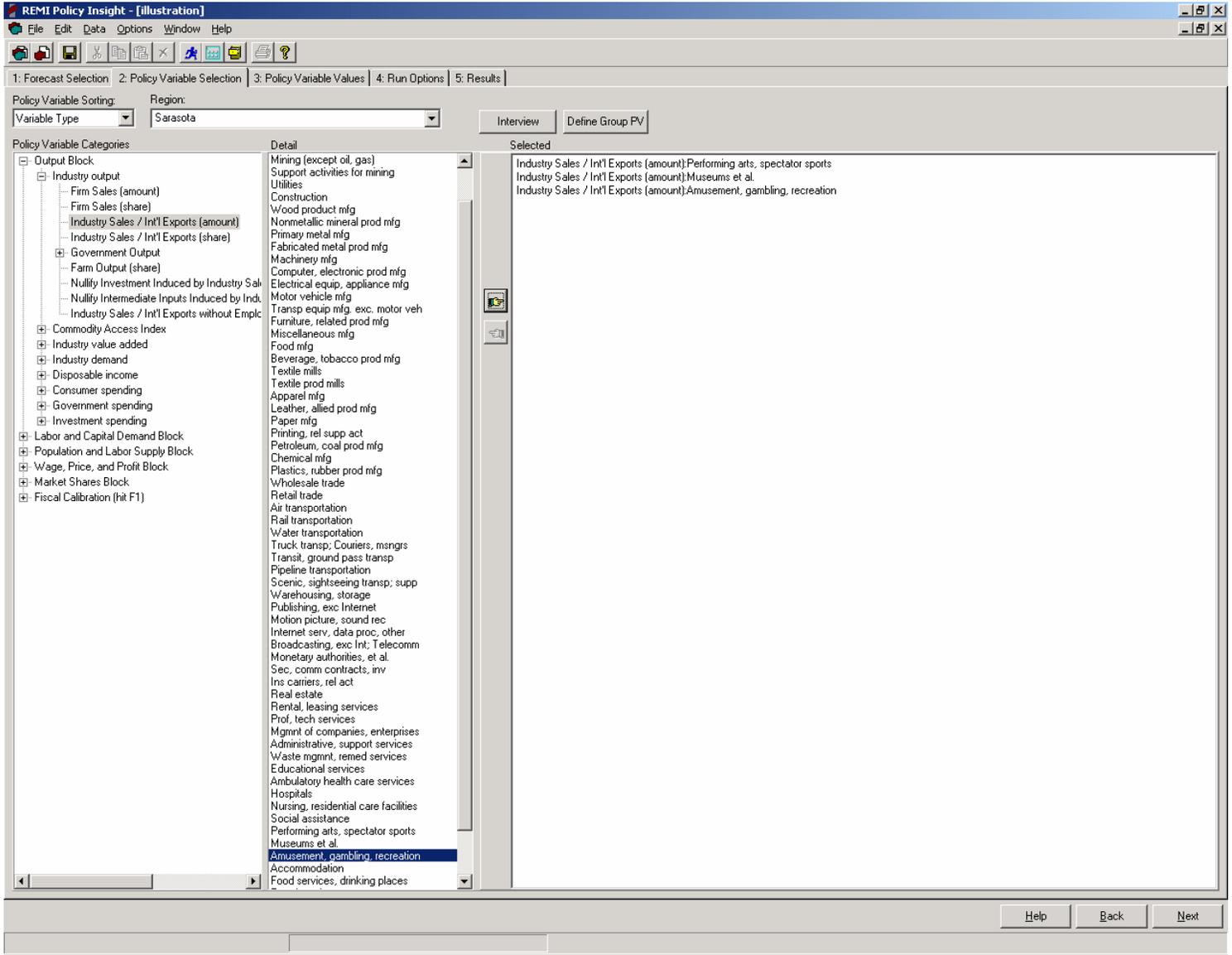


Figure 2. REMI Policy Variable Values

REMI Policy Insight - [illustration]

File Edit Data Options Window Help

1: Forecast Selection | 2: Policy Variable Selection | 3: Policy Variable Values | 4: Run Options | 5: Results

Region: Sarasota

Variable	Detail	Units	Number	2002	2003	2004	2005	2006	2007	2008
Industry Sales / Int'l Exports (amount)	Performing arts, spectator sports	Nominal \$ (Units)	5458	0	0	0	3000000	0	0	0
Industry Sales / Int'l Exports (amount)	Museums et al.	1996 Fixed National \$ (M)	5459	0	0	0	0	0	0	0
Industry Sales / Int'l Exports (amount)	Amusement, gambling, recreation	1996 Fixed National \$ (M)	5460	0	0	0	0	0	0	0

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Figure 3. REMI Results

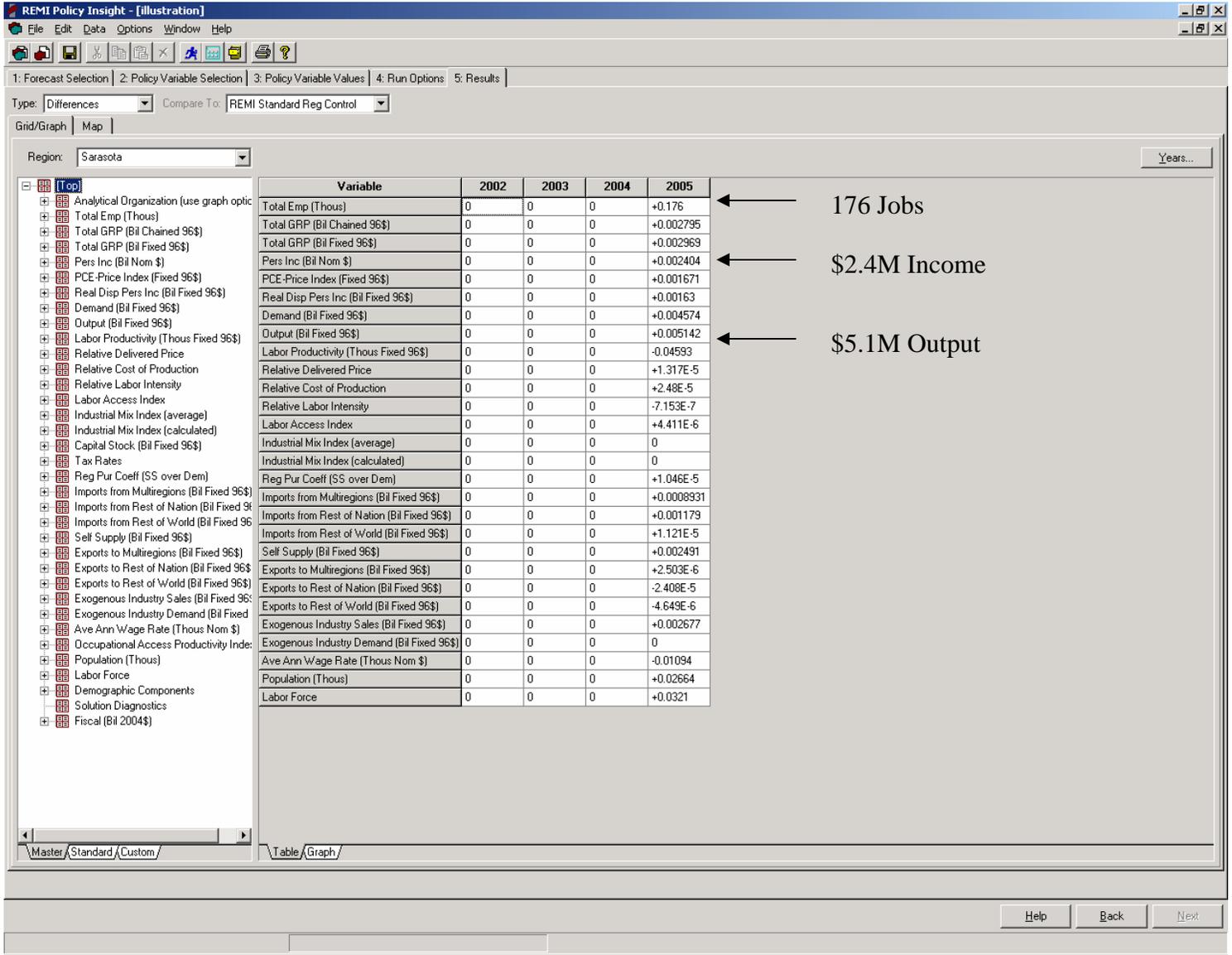


Figure 4. REMI Employment Results

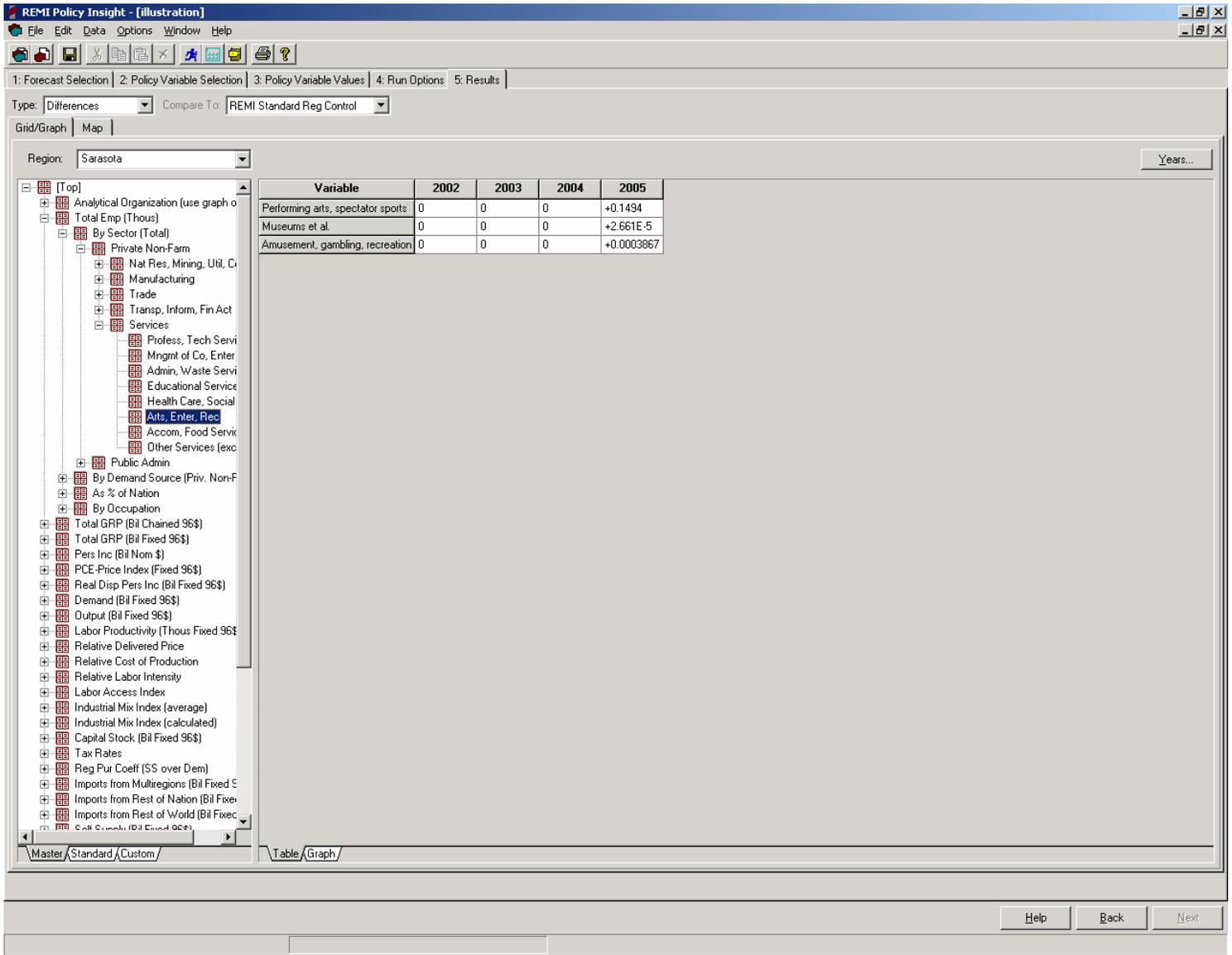


Figure 5. REMI Annual Event Input

REMI Policy Insight - [illustration]

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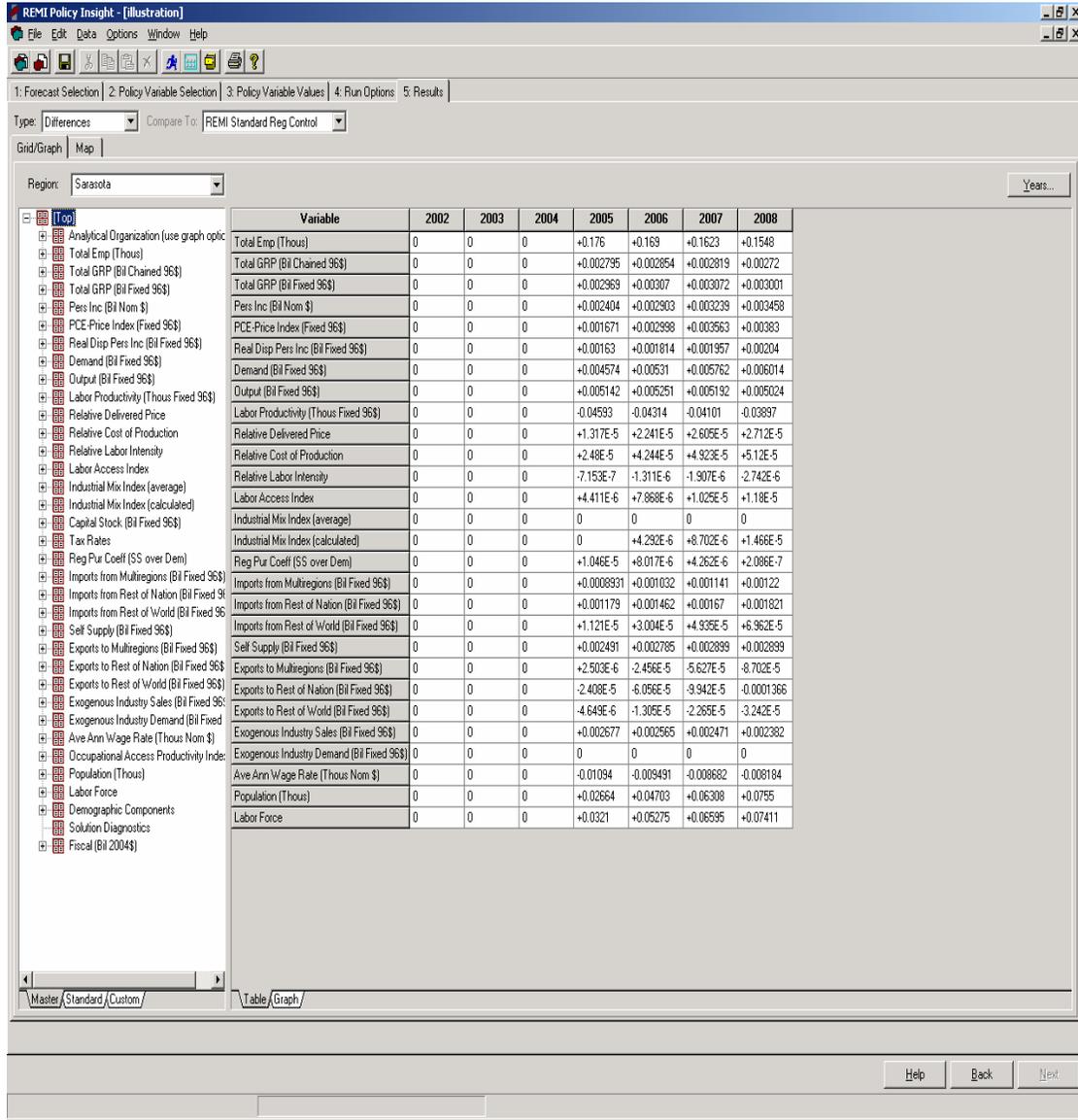
1: Forecast Selection | 2: Policy Variable Selection | 3: Policy Variable Values | 4: Run Options | 5: Results

Region: Sarasota

Variable	Detail	Units	Number	2002	2003	2004	2005	2006	2007	2008
Industry Sales / Int'l Exports (amount)	Performing arts, spectator sports	Nominal \$ (Units)	5458	0	0	0	3000000	3000000	3000000	3000000
Industry Sales / Int'l Exports (amount)	Museums et al.	1996 Fixed National \$ (M)	5459	0	0	0	0	0	0	0
Industry Sales / Int'l Exports (amount)	Amusement, gambling, recreation	1996 Fixed National \$ (M)	5460	0	0	0	0	0	0	0

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Figure 6. REMI Annual Event Results



Housing Affordability in Central and Southwest Florida

*By Norman Blake, Graduate Research Assistant,
Center for Economic Development Research*

The U.S. Department of Housing and Urban Development (HUD) defines “affordable” as housing that costs no more than 30 percent of a household's monthly income. That means rent and utilities in an apartment or the principal and interest payments on a monthly mortgage for a homeowner should be less than 30 percent of a household's monthly income to be considered affordable. Families who dedicate more than 30 percent of their income for housing are considered cost burdened and may have difficulty affording necessities such as food, clothing, transportation and medical care.

Low interest rates have boosted home ownership levels to record highs. A vibrant job market, a growing population and an increasing investment attraction to real estate have converged in Florida's property markets, propelling prices to historic levels. These high prices along with now increasing mortgage rates have eroded home affordability in many parts of the state.

This article addresses and measures home affordability in four major metropolitan statistical areas (MSAs) in Florida. They are Tampa-St Petersburg-Clearwater, Sarasota-Bradenton-Venice, Orlando, and Cape Coral-Fort Myers. Our data captures the latest information (3rd Quarter 2005) from the National Realtors Association's quarterly reports and the U.S. Census Bureau household incomes (2002-2004). Additionally, we use the median household incomes for the past four years (2000-2004) to project the median household income for 2005. This was done in order to have income data coincide with the available reports from the National Association of Realtors. CEDR projections are straight-line trends based on historic values.

This article proceeds as follows. In Section 1 we provide statistics on the median sales price of

existing single-family homes, median household incomes and compare the measures of prices and incomes, as well as their growth rates. In Section 2 we introduce measurements of housing affordability. Our conclusions are in Section 3.

Section 1: Single-Family Home Prices and Median Household Incomes

The purpose of this section is to provide historical information on median single-family home prices and median household incomes.

Existing Home Prices and Median Household Incomes

Table 1 highlights the median sales price of an existing single-family home in central and southwest Florida. The Sarasota-Bradenton-Venice MSA experienced the fastest increase in median home prices from 2002 to the 3rd Quarter 2005. In Sarasota-Bradenton-Venice, the median price for a single-family home jumped by 110.22% (\$185,500). A close second was the Cape Coral-Fort Myers MSA where home prices increased by 108.25% (\$144,300). From 2002 to the 3rd Quarter of 2005 home prices rose 91.29% (\$124,700) in the Orlando MSA and 59.93% (\$80,000) in the Tampa-St Petersburg-Clearwater MSA.

Chart 1 is a graphical comparison of the growth of single-family home prices in central and southwest Florida. In the 3rd Quarter of 2005, the median price of a single-family home in Sarasota-Bradenton-Venice was \$76,200 greater than the median priced home in Cape Coral-Fort Myers, \$92,500 greater than Orlando's prices and \$140,300 greater than the median price home in Tampa-St Petersburg-Clearwater.

Table 1
Median Sales Price of Existing Single-Family Homes

Metropolitan Statistical Area	2002	2003	2004	2005 Q3	% Change 02-05 Q3
Tampa-St Petersburg-Clearwater	\$133,500	\$138,100	\$159,700	\$213,500	59.93%
Sarasota-Bradenton-Venice	\$168,300	\$193,300	\$255,700	\$353,800	110.22%
Orlando	\$136,600	\$145,100	\$169,600	\$261,300	91.29%
Cape Coral-Fort Myers	\$133,300	\$151,900	\$187,200	\$277,600	108.25%

Source: National Association of Realtors

Chart 1

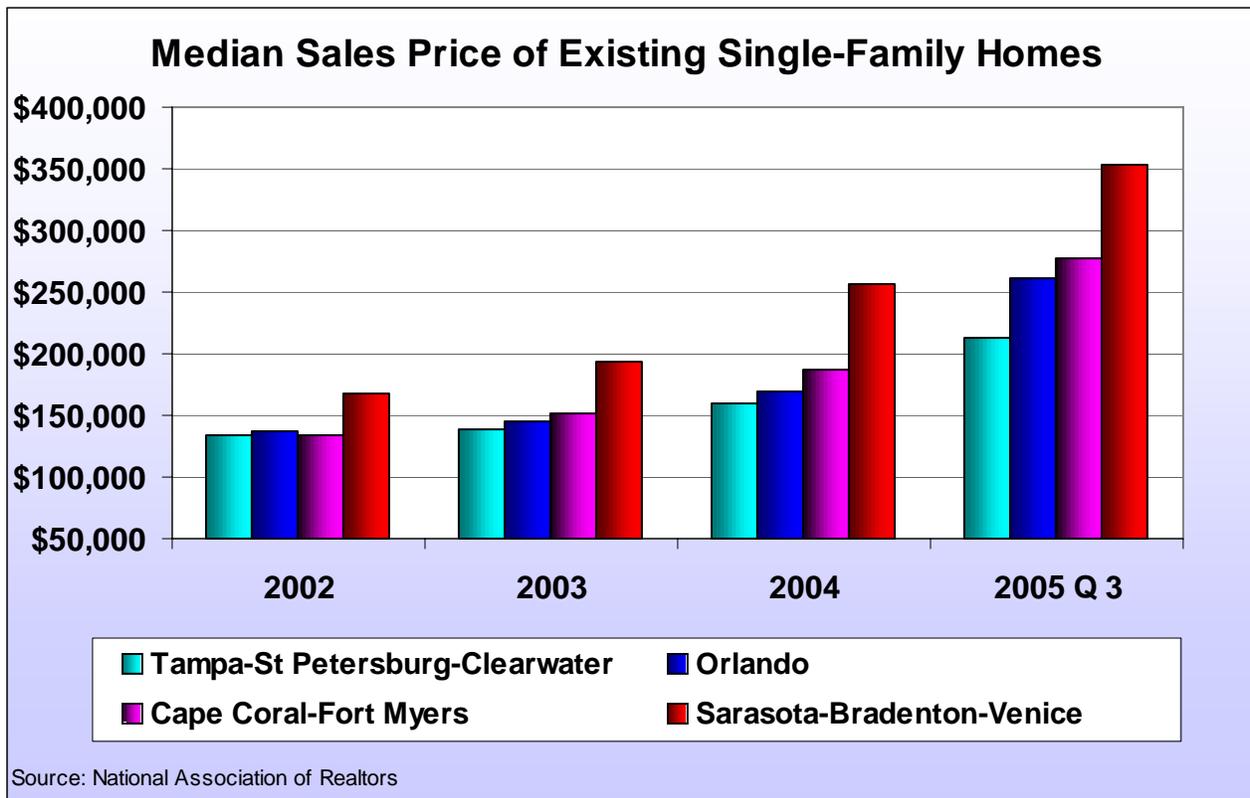


Table 1A provides a comparison of the growth rates of existing single-family home prices in central and southwest Florida. According to the National Association of Realtors, from 3rd Quarter 2004 to 3rd Quarter 2005 prices increased by an average of 34.71% for all four MSA's. The Orlando MSA had the greatest percentage price increase at 44.76%, which translates to an \$80,800 increase in the median sales price. The Tampa-St Petersburg-Clearwater MSA had the slowest increase in the median sales price of its homes. From the 3rd Quarter of 2004 to the 3rd Quarter of 2005 median home prices in the Tampa-St Petersburg-Clearwater MSA increased by \$46,500.

By also examining income levels and growth, we next demonstrate the growing dichotomy between median existing home prices and median household income. **Table 2** shows the median household income for the four MSAs. The Sarasota-Bradenton-Venice MSA had the highest home prices, but the second lowest median household income. However, the Cape Coral-Fort Myers MSA, which had the second highest home prices, had the highest median household income. A comparison of both of these MSAs shows that the Sarasota-Bradenton-Venice home prices are, at the median, 21.53% greater than those in Cape Coral-Fort Myers, but median household income is projected to be 5.58% less than the median household income in Cape Coral-Fort Myers.

The link between median home prices and median household income is strongest in the Tampa-St Petersburg-Clearwater MSA, which has both the lowest median household income and the lowest median home prices of all four MSA. In 2004, households in the Cape Coral-Fort Myers MSA had the highest income of the four MSAs. This is projected to continue in 2005, when in Cape Coral-Fort Myers the median household income will be \$1,706 greater than it's closest counterpart, Orlando.

Chart 2 highlights median household income in central and southwest Florida. From 2002 to 2005 all four MSAs, Tampa-St Petersburg-Clearwater (4.17%), Sarasota-Bradenton-Venice (4.43%), Cape Coral-Fort Myers (2.25%) and Orlando (1.72%) are projected to have positive growth in their median household incomes. However, median household income in Cape Coral-Fort Myers declined by 7.88% (\$3,406) from 2002 to 2003. Along with the greatest price per median single-family house (\$353,800), Sarasota-Bradenton-Venice is also projected to have the highest annual growth rate of median household income (4.43%).

Table 1A
Median Sales Price of Existing Single-Family Homes

Metropolitan Statistical Area	2004 Q3	2005 Q3	% Annual Change	Price Increase
Tampa-St Petersburg-Clearwater	\$167,000	\$213,500	27.84%	\$46,500
Sarasota-Bradenton-Venice	\$285,900	\$353,800	23.75%	\$67,900
Orlando	\$180,500	\$261,300	44.76%	\$80,800
Cape Coral-Fort Myers	\$194,800	\$277,600	42.51%	\$82,800

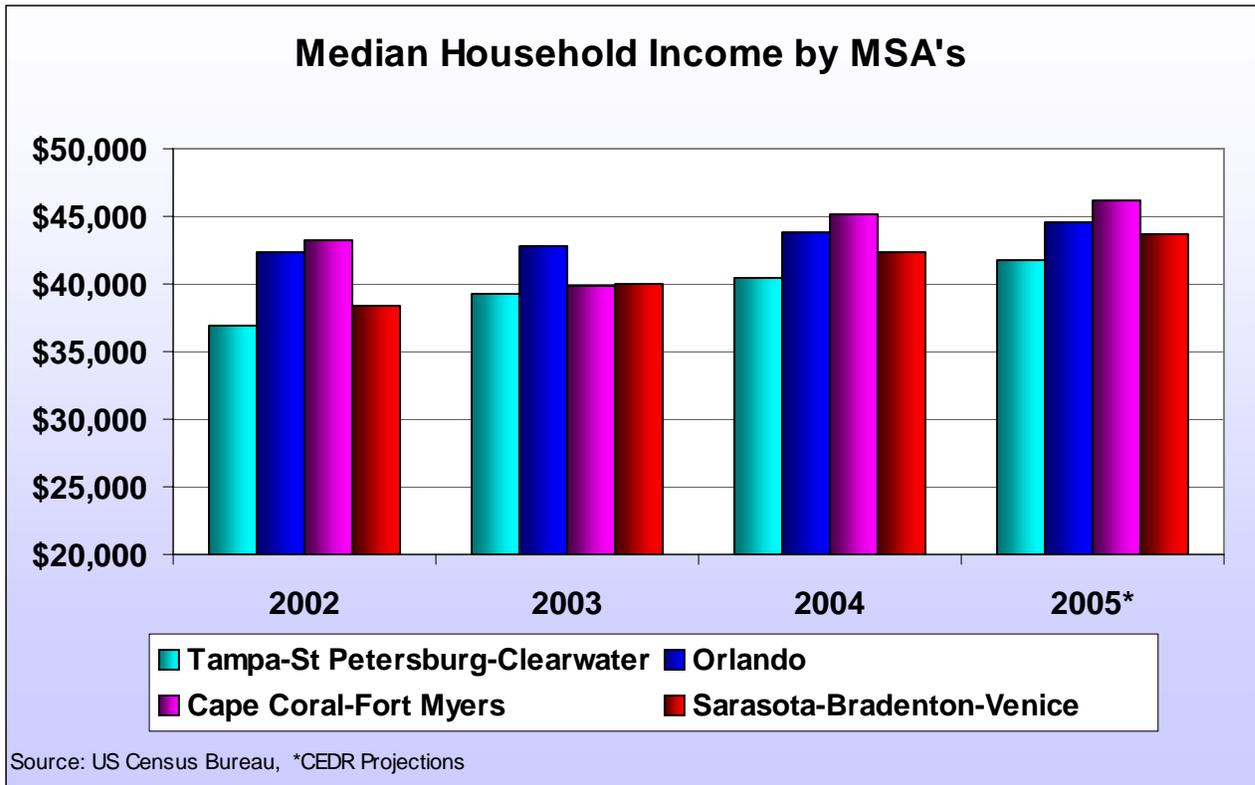
Source: National Association of Realtors

Table 2
Median Household Income

Metropolitan Statistical Area	2002	2003	2004	2005*	Annual Growth Rate %
Tampa-St Petersburg-Clearwater	\$36,930	\$39,286	\$40,508	\$41,747	4.17%
Sarasota-Bradenton-Venice	\$38,320	\$40,027	\$42,412	\$43,642	4.43%
Orlando	\$42,293	\$42,797	\$43,885	\$44,518	1.72%
Cape Coral-Fort Myers	\$43,242	\$39,836	\$45,077	\$46,224	2.25%

*CEDR Projections, Source: US Census Bureau

Chart 2



Annual Growth Rates and Income to Asset Ratios

Table 3 reports the annual growth rates of the price of a median single-family home and median household income. The growth rates of house prices have significantly outpaced the growth rates of incomes. Single digit growth rates of median household income pale in comparison to the double-digit growth rates of the median priced single-family house.

Cape Coral-Fort Myers is projected to have the greatest disparity between income growth and home price appreciation. From 2002 to 2005 Cape Coral-Fort Myers median household income is projected to grow by 2.25% annually, while the median sales price of an existing single-family home grows by 27.70% annually. This creates a 25.45% difference over the past 3 years as the growth of home prices outstrips the growth of median household income. While the Cape

Coral-Fort Myers MSA has the greatest growth difference, Tampa-St Petersburg-Clearwater is projected to have the least difference, 12.77%. The Sarasota-Bradenton-Venice MSA had the largest annual growth rate in both median household income (4.43%) and median single-family home price (28.10%). This still creates a difference of 23.67% in growth rates of both measurements. Orlando is close with a projected 22.41% difference in income and home price growth rates.

To further illustrate the divergence of median household income and the median price of an existing single-family home, we computed and compared the median home price to median household income ratio for the past four years. We show these ratios in **Table 4**.

Table 3
Comparison of the Annual Growth Rates of Median Household Income and Median Price of Existing Single-Family Home

Metropolitan Statistical Area	Annual Growth Rate (Housing) 02-05(Q3)	Annual Growth Rate (Income) 02-05*	Difference (Housing-Income)
Tampa-St Petersburg-Clearwater	16.94%	4.17%	12.77%
Sarasota-Bradenton-Venice	28.10%	4.43%	23.67%
Orlando	24.14%	1.72%	22.41%
Cape Coral-Fort Myers	27.70%	2.25%	25.45%

*Based on CEDR 2005 Income Projections

Table 4
Median Home Price To Median Household Income Ratios
Full Price (0% Down Payment)

Metropolitan Statistical Area	2002	2003	2004	2005*	Growth Rate 04-05*	Annual Growth Rate %
Tampa-St Petersburg-Clearwater	3.61	3.52	3.94	5.11	29.69%	12.26%
Sarasota-Bradenton-Venice	4.39	4.83	6.03	8.11	34.49%	22.67%
Orlando	3.23	3.39	3.86	5.87	52.07%	22.03%
Cape Coral-Fort Myers	3.08	3.81	4.15	6.01	44.81%	24.89%
Average	3.57	3.88	4.49	6.27	39.91%	20.46%

* Based on CEDR 2005 Income Projections

The median home price to median household income ratios reveal how many years of median household income would be needed to purchase the median priced single-family home without a mortgage. The fastest annual growth in home price to household income ratio was in the Cape Coral-Fort Myers MSA (24.89%). In 2002 the median home price in Cape Coral-Fort Myers required 3.08 times the median household income, in 2005 it is projected to require 6.01 times median household income. The greatest ratios are projected to occur in 2005, with the Sarasota-Bradenton-Venice MSA (8.11) and the Cape Coral-Fort Myers MSA (6.01) leading; Orlando and Tampa-St Petersburg-Clearwater follow with 5.87 and 5.11 respectively.

The average ratio for all four MSAs in 2004 was 4.49 and is projected at 6.27 for 2005. Using the average ratio we note that the median home price to income ratio in Sarasota-Bradenton-Venice is 1.54 or 34.29% higher than the average for all four MSAs in 2004. This ratio is projected to increase to 1.84 or 29.34% higher than the average for all four MSAs in 2005. This suggests that although Sarasota-Bradenton-Venice had the greatest divergence of income to home prices, the ratio's rate of growth has slowed. Conversely, the ratio's rate of growth has increased in other MSAs, particularly Orlando and Cape Coral-Fort Myers where there is a projected 52.07% and 44.81% increase from 2004 to 2005. Home affordability, which has declined in Sarasota-Bradenton-Venice, is also declining in both Orlando and Cape Coral-Fort Myers, but at a faster rate.

A comparison of median home price to household income ratios for U.S. cities in 2003 by M.A. Anari at the Texas A&M University's Real Estate Center highlights the extremes of the national market¹. They varied from a high of 8.95 for Santa Ana, CA, to low of 1.47 for Pittsburgh, PA. In 2003 San Francisco had the highest median house price (\$597,493) but also one of the nation's highest levels of household income (\$67,809) with a resulting price-to-income ratio of 8.81. Nationwide, the average ratio of home prices to household income was 3.59 in 2003. The average for the four MSAs in 2003 was 3.88, 8.07% greater than the national average.

Section 2: Affordability Measurements

In the preceding section we compared median household income to the median price of an existing single-family home. In this section we introduce two measurements of housing affordability.

1. **Income for Housing Remaining After Mortgage Payment.** We calculated the required apportioned amount for "affordable housing" as defined by HUD. We then deducted the required mortgage payment based on average mortgage interest rates and the median price of a single-family home from the "affordable housing" amount.
2. **Mortgage Rates as An Affordability Measurement.** We calculated the required mortgage interest rate a buyer would need based on the median household income and median single-family home price for the payments to be considered affordable.

To derive our affordability measurements we assume the buyer has already accumulated a 20% down payment for the home. The 20% down payment is a typical purchase requirement. For contrast, we also make measurements assuming 0% down payment. These amounts are the minimum cost to the borrower, because the amounts only include principal and interest payments on the loan. Additional costs, such as homeowners' insurance and property taxes would increase homeowner's periodic costs.

Income for Housing Remaining After Mortgage Payment

In **Table 5** we show the calculation of the maximum amount of annual income available for housing based on HUD's affordability definition. According to HUD, the maximum allotted amount for housing expense is 30% of gross monthly income. In **Table 5A** we show the calculations of monthly income available for housing.

Table 5
Annual Income Available For Housing

Metropolitan Statistical Area	2002	2003	2004	2005*
Tampa-St Petersburg-Clearwater	\$11,079	\$11,786	\$12,152	\$12,524
Sarasota-Bradenton-Venice	\$11,496	\$12,008	\$12,724	\$13,093
Orlando	\$12,688	\$12,839	\$13,166	\$13,355
Cape Coral-Fort Myers	\$12,973	\$11,951	\$13,523	\$13,867

*Based on CEDR 2005 Income Projections

Table 5A
Monthly Income Available For Housing

Metropolitan Statistical Area	2002	2003	2004	2005*
Tampa-St Petersburg-Clearwater	\$923	\$982	\$1,013	\$1,044
Sarasota-Bradenton-Venice	\$958	\$1,001	\$1,060	\$1,091
Orlando	\$1,057	\$1,070	\$1,097	\$1,113
Cape Coral-Fort Myers	\$1,081	\$996	\$1,127	\$1,156

*Based on CEDR 2005 Income Projections

Table 5B
Average Annual Mortgage Rates

2002	2003	2004	2005*
6.54%	5.83%	5.84%	5.83%

*Average for 11 months Ending Nov, Source: Freddie Mac

Table 5B lists national average annual mortgage rates based on data from the Federal Home Loan Mortgage Corporation (Freddie Mac). We use these rates to calculate monthly mortgage payments based on the median price of an existing single-family home. Although there are regional differences in mortgage rates, historical regional rates were unavailable.

Table 6 and **Table 6A** show the minimum required monthly payments based on a 30-year fixed

rate mortgage at the national average mortgage rate. The amounts in Table 6 are the minimum monthly payments required, if the purchaser were to finance the full purchase price of a median single-family home. The amounts in Table 6A are the minimum monthly payments required if the purchaser finances 80% of the purchase price of the home.

Table 6
Monthly Mortgage Payments Based on Average Annual Mortgage Rates
(Full Price) 0% Down Payment

Metropolitan Statistical Area	2002	2003	2004	2005*
Tampa-St Petersburg-Clearwater	\$855	\$822	\$950	\$1,269
Sarasota-Bradenton-Venice	\$1,078	\$1,150	\$1,522	\$2,103
Orlando	\$875	\$863	\$1,009	\$1,553
Cape Coral-Fort Myers	\$854	\$903	\$1,114	\$1,650

*Based on CEDR 2005 Income Projections

Table 6A
Monthly Mortgage Payments Based on Average Annual Mortgage Rates
20% Down Payment

Metropolitan Statistical Area	2002	2003	2004	2005*
Tampa-St Petersburg-Clearwater	\$684	\$657	\$760	\$1,015
Sarasota-Bradenton-Venice	\$863	\$919	\$1,217	\$1,682
Orlando	\$700	\$690	\$807	\$1,242
Cape Coral-Fort Myers	\$683	\$722	\$891	\$1,320

*Based on CEDR 2005 Income Projections

Table 7 gives the remaining amount of income for housing after subtracting the minimum monthly mortgage payment. This is calculated by subtracting the monthly mortgage payment assuming no down payment (Table 6) from monthly income available for housing (Table 5A). The red figures signify the amount over the limit of monthly affordability a family earning the median household income would be required to spend for a median priced single-family home.

Note the remaining amount in Sarasota-Bradenton-Venice is red and negative for all years studied. In 2002, 2003, 2004 and 2005 a household with the median income in the Sarasota-Bradenton-Venice MSA could not afford the full mortgage payments on the median priced home based on HUD's affordability standard. They would spend \$120 more per month than the allotted amount in 2002, \$148 more in 2003, \$461 more in 2004 and a projected \$1,012 more per month in 2005.

Chart 3 displays our findings of affordability. A household in Sarasota-Bradenton-Venice with no down payment and earning the median income could not afford the median single-family home in that MSA. While affordability was evident in three of the four MSA's in 2002, they are all projected to lose the affordability attribute in 2005.

Table 7A assumes the purchaser will pay 20% down and finance 80% of the home's price. As expected, the amounts show the median single-family home is more affordable after the down payment. The Sarasota-Bradenton-Venice MSA still has the least affordability based on median household income in 2004 and 2005. In the Tampa-St Petersburg-Clearwater MSA, the median price single-family home is projected to remain affordable to a household earning the median income and financing 80% of the purchase price.

Table 7
Income for Housing Remaining After Mortgage Payment
(Full Price) 0% Down Payment

Metropolitan Statistical Area	2002	2003	2004	2005*
Tampa-St Petersburg-Clearwater	\$68	\$160	\$63	-\$225
Sarasota-Bradenton-Venice	-\$120	-\$149	-\$462	-\$1,012
Orlando	\$182	\$207	\$88	-\$440
Cape Coral-Fort Myers	\$227	\$93	\$13	-\$494

*Based on CEDR 2005 Income Projections

Chart 3

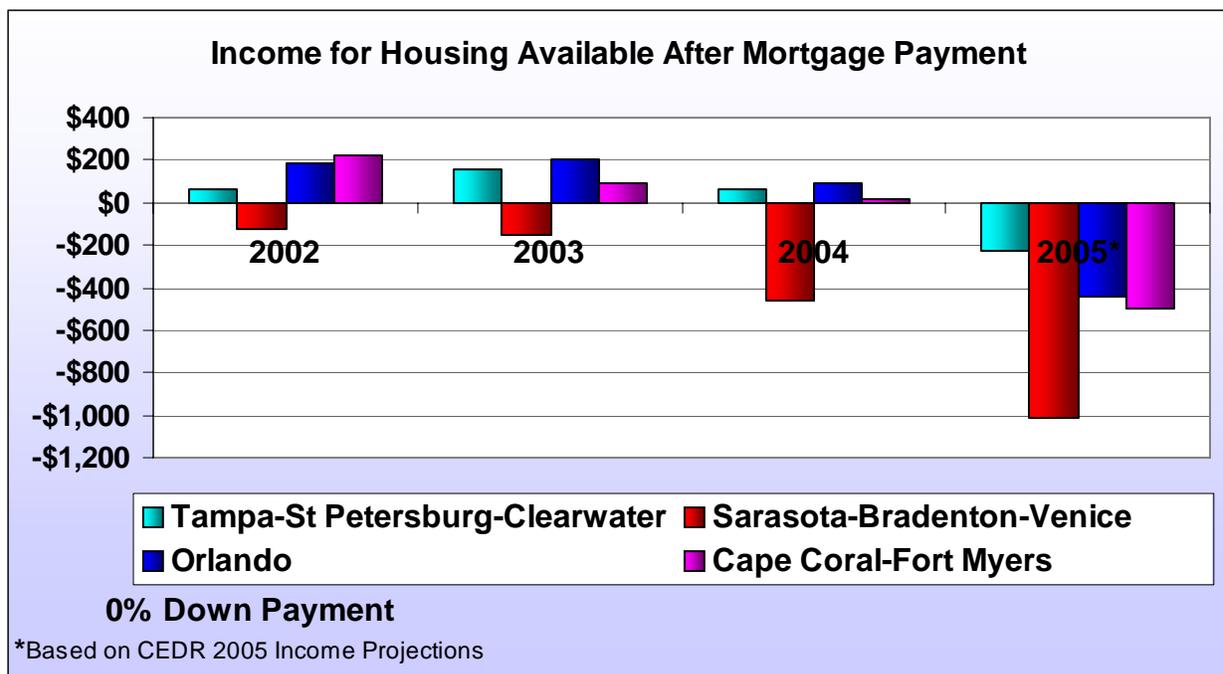


Table 7A
Income for Housing Remaining After Mortgage Payment
20% Down Payment

Metropolitan Statistical Area	2002	2003	2004	2005*
Tampa-St Petersburg-Clearwater	\$239	\$325	\$253	\$29
Sarasota-Bradenton-Venice	\$95	\$82	-\$157	-\$591
Orlando	\$357	\$380	\$290	-\$129
Cape Coral-Fort Myers	\$398	\$274	\$236	-\$164

*Based on CEDR 2005 Income Projections

Chart 4

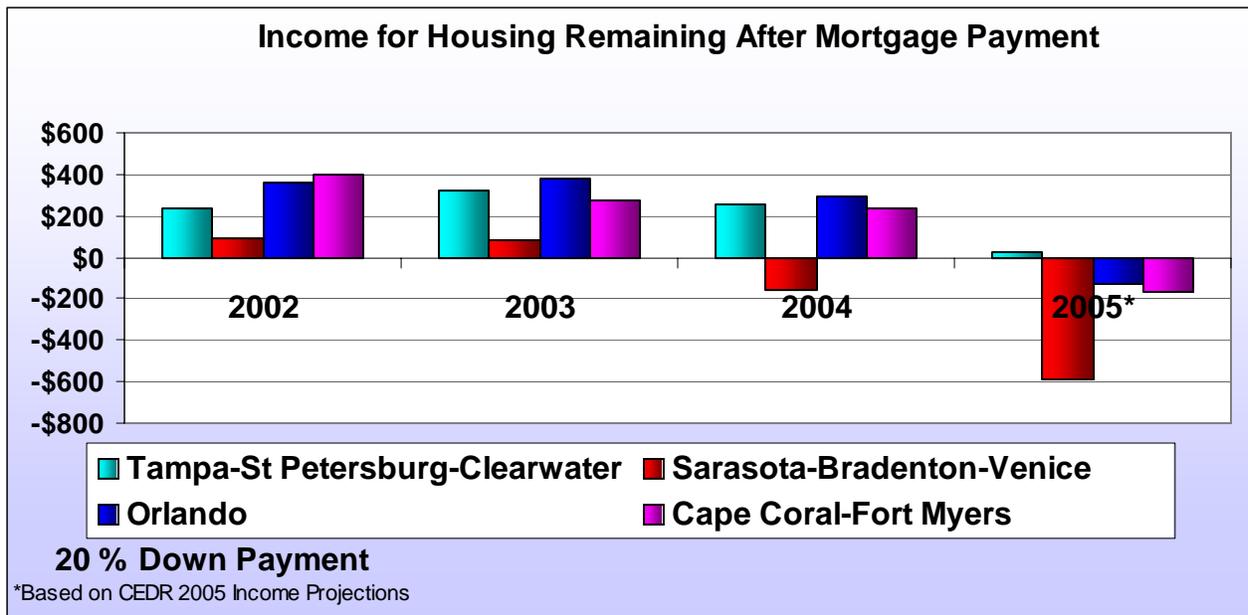


Chart 4, shows that all MSAs were affordable based on median household income and a 20% down payment in 2002 and 2003. This is partly due to the fact that as median home prices increased an average of 9.62%, mortgage rates fell an average of 0.71%. From 2002 to 2003 the decline in mortgage rates was a much more significant factor in home affordability than the increase in prices. In 2004 as home prices moved higher, the affordability measurement fell in all four MSAs. This trend continued into 2005. Based on 3rd Quarter single-family home prices, affordability will only be maintained in the Tampa-St Petersburg-Clearwater MSA.

Mortgage Rates as An Affordability Measurement

Our research highlights the three major variables that affect housing affordability. They are household incomes, price of homes and the mortgage rates. Holding constant median household income and the median price of a single family home, a reduction of mortgage rates would reintroduce more affordability into central and southwest Florida. From

2002 to 2003 growth in home prices (9.62%) outpaced growth in incomes (1.04%) by 8.58%. Nevertheless, the fall in mortgage rates increased the affordability of home ownership. However, with projected increases in mortgage rates we can expect a further decline of housing affordability.

Table 8 reports our second measurement of housing affordability. Holding constant median single-family home prices and median household income, we use the required mortgage interest rate as the overall measurement of affordability. The interest rates colored red indicate unaffordable housing. For example, in Sarasota-Bradenton-Venice in 2004 a decline in the mortgage rate to 4.61% from the national average of 5.84% would restore affordability. Conversely in Tampa-St Petersburg-Clearwater in 2004, housing would remain affordable even if mortgage rate rose to 8.74%. According to mortgage rates as an affordability measurement, in 2005 only Tampa-St Petersburg-Clearwater remains an affordable housing market.

Table 8

Annual Mortgage Interest Rate Required for Affordable Housing

Metropolitan Statistical Area	2002	2003	2004	2005
Tampa-St Petersburg-Clearwater	9.73%	10.07%	8.74%	6.09%
Sarasota-Bradenton-Venice	7.59%	6.63%	4.61%	2.26%
Orlando	11.12%	10.51%	8.96%	4.84%
Cape Coral-Fort Myers	11.73%	9.12%	8.18%	4.64%
Average Historic Mortgage Rates	6.54%	5.83%	5.84%	5.83%*

Assuming 30yr Mortgage and 20% down payment

*Average for 11 months Ending Nov, Source: Freddie Mac

Chart 5

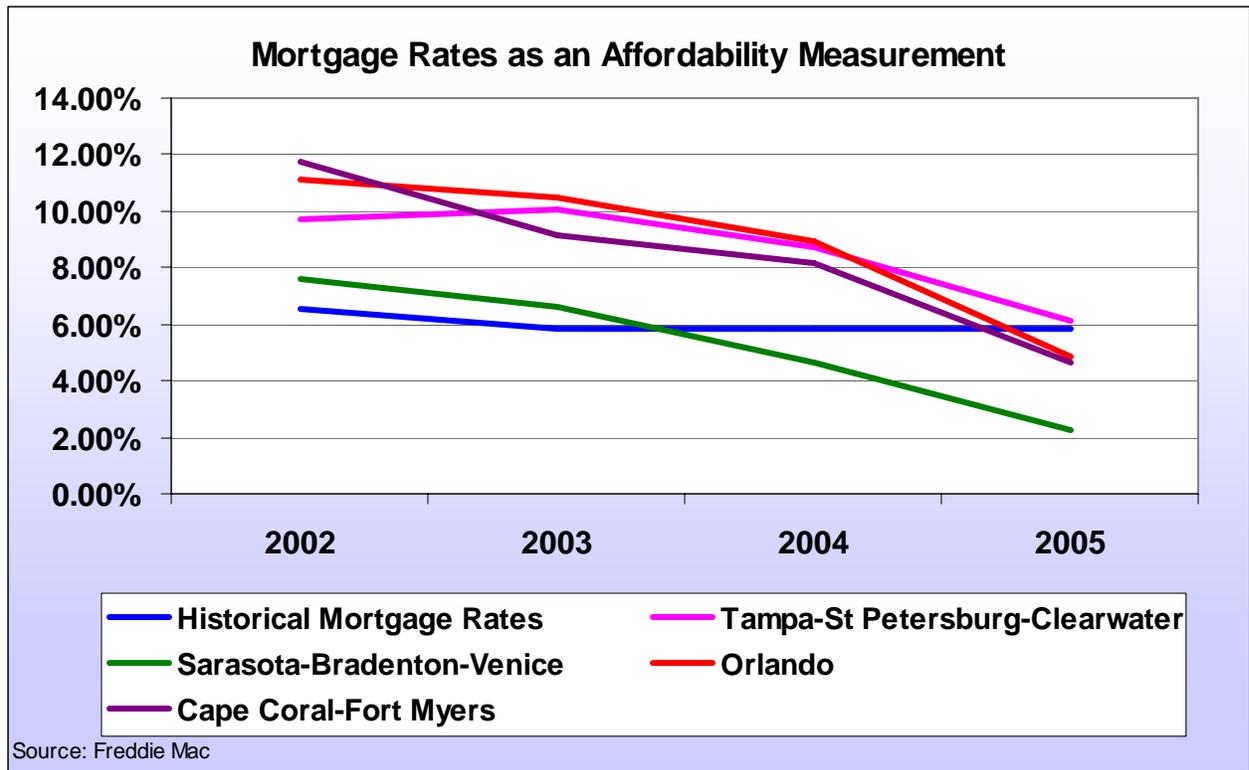


Chart 5 highlights the decline in home affordability in 2004 and 2005. The results illustrate the median price single-family home in Tampa-St Petersburg-Clearwater remains relatively affordable to a household with the median household income. This would require a 20% down payment on the full price of the home. Based on mortgage rates, home affordability became problematic in 2004 for the Sarasota-Bradenton-Venice MSA and is a growing problem in Cape Coral-Fort Myers and Orlando.

Section 3: Conclusion

After investigating housing affordability in four Florida MSAs, we conclude that housing affordability is a major problem in three of the four MSAs. The Sarasota-Bradenton-Venice MSA leads the list, failing in both of our affordability assessments for 2004 and 2005. Housing affordability is a budding problem in Orlando and Cape Coral-Fort Myers. Presently the Tampa-St Petersburg-Clearwater MSA has a positive level of affordability. In 2005, a household earning the median household income in Sarasota-Bradenton-Venice, with a 20% down payment, would need to spend \$591 more than the HUD affordable limit. In Cape Coral-Fort Myers the requirement is \$164 more, while in Orlando the requirement is \$130 more. Tampa-St Petersburg-

Clearwater remains an affordable housing market in 2005 according to the HUD standard.

Our research shows that, an increase in household incomes, decrease in mortgage rates or a decrease in house prices would increase affordability. Certainly, increasing HUD's 30% affordability threshold would also affect the findings presented in this article. While incomes, prices and mortgage rates are largely market driven variables, our research highlights the role of mortgage rates in determining housing affordability. This suggests that a plausible government solution for increasing affordability and encouraging home ownership is low interest or subsidized home loans for households at or below the median income level.

Endnote:

¹Anari, M.A. "Bubble Talk,"
Tierra Grande, Volume 12. No 3 (July 2005)
Texas A&M University Real Estate Center. See
<http://recenter.tamu.edu/tgrande/vol12-3/1731.html>.

Update on CEDR's Data Center

By Dennis G. Colie, Ph.D., Director, Center for Economic Development Research

The principal focus of CEDR's Data Center is a facility for self-service, on-line queries of economic and demographic datasets. You can access the Data Center by going to <http://cedr.coba.usf.edu> and selecting "Data Center" from the menu on the left side of your screen. When you select "Query CEDR Databases," you will see a list of available databases. In addition, we have recently added instructions for selecting a database and pasting the data into a spreadsheet on your computer.

Three national cost / price indices are available: Consumer Price Index, Producer Price Index, and Employment Cost Index. We have improved the query boxes for these databases so that you can request more than one year's data with a single query. The query's result is an index number for each month (price indices) or each quarter (cost index) for each year requested.

We are currently working on improving the query boxes for our statewide datasets. We have ten datasets with metrics for each of Florida's sixty-seven counties and metro-areas are also included in some of the datasets. The datasets available are:

- **Cost of Living.** This dataset provides relative costs of living for Florida's counties and is released annually by the Florida Department of Education. The average cost of living in a given year is set at 100% and a Florida county's relative cost of living is expressed as a percentage of the average.
- **Education Indicators.** The Education Indicators series has five measures: average class size; drop out rates, graduation rates; per-pupil expenditures and SAT scores. The data is obtained from the Florida Department of Education for each of Florida's counties.

- **ES202.** This data set is a Bureau of Labor Statistics (BLS) sponsored collection of job and wage data from all employers participating in Florida's unemployment insurance program. Statewide or county data is available for each month of a particular quarter, or annual averages can be obtained.
- **Gross and Taxable Sales.** This data originates from the Florida Department of Revenue. Monthly gross sales and taxable sales, denominated in nominal dollars, are available, by county, and by category.
- **Housing Permits.** The Manufacturing and Construction Division, Bureau of the Census distributes this dataset of construction authorized by building permits. The data is organized by county or MSA for each month of a year.
- **LAUS.** The Bureau of Labor Statistics (BLS) through its Local Area Unemployment Statistics (LAUS) program gathers this monthly data that describes labor force participation, employment, unemployment, and unemployment rate by place of residence.
- **Unemployment Claims.** The Florida Agency for Workforce Innovation's Labor Market Statistics Department issues the initial Unemployment Claims report monthly.
- **Personal Income, Per Capita (Personal) Income, and Population.** The Regional Economic Information System (REIS) of the Bureau of Economic Analysis (BEA) releases these three datasets annually. The BEA defines Personal Income as the current income received by persons from all sources (including investment income and transfer payments) minus their personal contributions for social insurance. Per Capita Income is Personal Income divided by Population.

If you do not find the data you want in the self-service Data Center, you can send an email to CEDR to request specific data. In most cases we have the data or can direct you to a source for your data need. As of 11/30/05, Mr. Dodson Tong, CEDR's Data Manager, has responded on average to about one special data request per week.

We continually look for ways to make CEDR's Data Center a more valuable resource, particularly for supporting Florida's economic development practitioners. Your comments or suggested improvements for the Data Center are always welcome. Send your emails to us at: cedr@coba.usf.edu.