EMPLOYMENT PROJECTIONS
MIAMI-DADE COUNTY
2009 - 2030

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Introduction

The purpose of this report is to describe the process used to develop total and industry sector employment projections for Miami-Dade County to the year 2030 and present the results.

This is a continuation of a series of such projections that have been produced for several years by the Research Section of the Miami-Dade Department of Planning and Zoning. The projections are known as "baseline projections" which mean they would be expected to occur in the absence of any significant events, which could impact the local economy, including major policy actions.

The present series represents a revision of an earlier version produced by the Research Section of the Department of Planning and Zoning in 2007. The current employment projections incorporate the latest data available which include three more years of historical estimates than the earlier series. The major use of these projections is to help formulate the County's Comprehensive Development Master Plan (CDMP) and the County's overall planning program.

Employment Data

The historical employment data as well as the definition for employment used for the present projections are based on figures estimated by the U.S. Department of Commerce's Bureau of Economic Analysis (BEA). One great advantage of the BEA data is that it has the most comprehensive coverage of employment (total jobs). The BEA employment series for local areas comprises estimates of the number of jobs, full-time plus part-time, by place of work. The series includes farming and non-farming, military and civilian, proprietorships (self-employment) and wage and salary employment.

Data Limitations

It is important to note that as of 1997 industry definitions have shifted from the Standard Industrial Classification (SIC) system to the North American Industry Classification System (NAICS). As a result, the present projections incorporate employment data on the NAICS classification basis. Given that data on this classification system is available beginning with 2001, and the latest release by the BEA of employment figures is for 2008, the historical data is restricted to eight years.

Methodology

The employment projections were conducted in two steps; the first step involved projecting overall employment to 2030 based on historical trends; the second step was to project employment by major sector/industry and to reconcile the outcome with the total employment projections.

Total Jobs Projections: For the first step, the historical data dates back to 1969 and runs through 2008. An "initial" projection was calculated based on a least squares linear regression of the 1969-2008 dataset. This initial projection was modified in order to take into account the recession that began at the end of 2007 and is expected to have lingering effects on the

employment figures for some time to come. In this regard, the initial projection is left unchanged for the years 2016-2030. For 2009 the modified data point consists of the 2008 figure reduced by 2.2 percent. The 2.2 percent reduction was chosen based on observations of other more current employment figures. The Bureau of Labor Statistics (BLS) Local Area Unemployment Statistics (LAUS) employment measure dropped 2.6 percent in 2009 and the BLS's Quarterly Census of Employment and Wages (QCEW) employment figure dropped 5.5 percent between 2008 and 2009. Historically, when the QCEW figure has experienced a decline, the BEA Employment figure has also decreased by 2.4 percent less.

For the year 2010, the projections include a slight improvement and from 2011 through 2015 the employment numbers are projected to grow slightly faster than in the initial projection; this is in order to catch up to this projection by 2016.

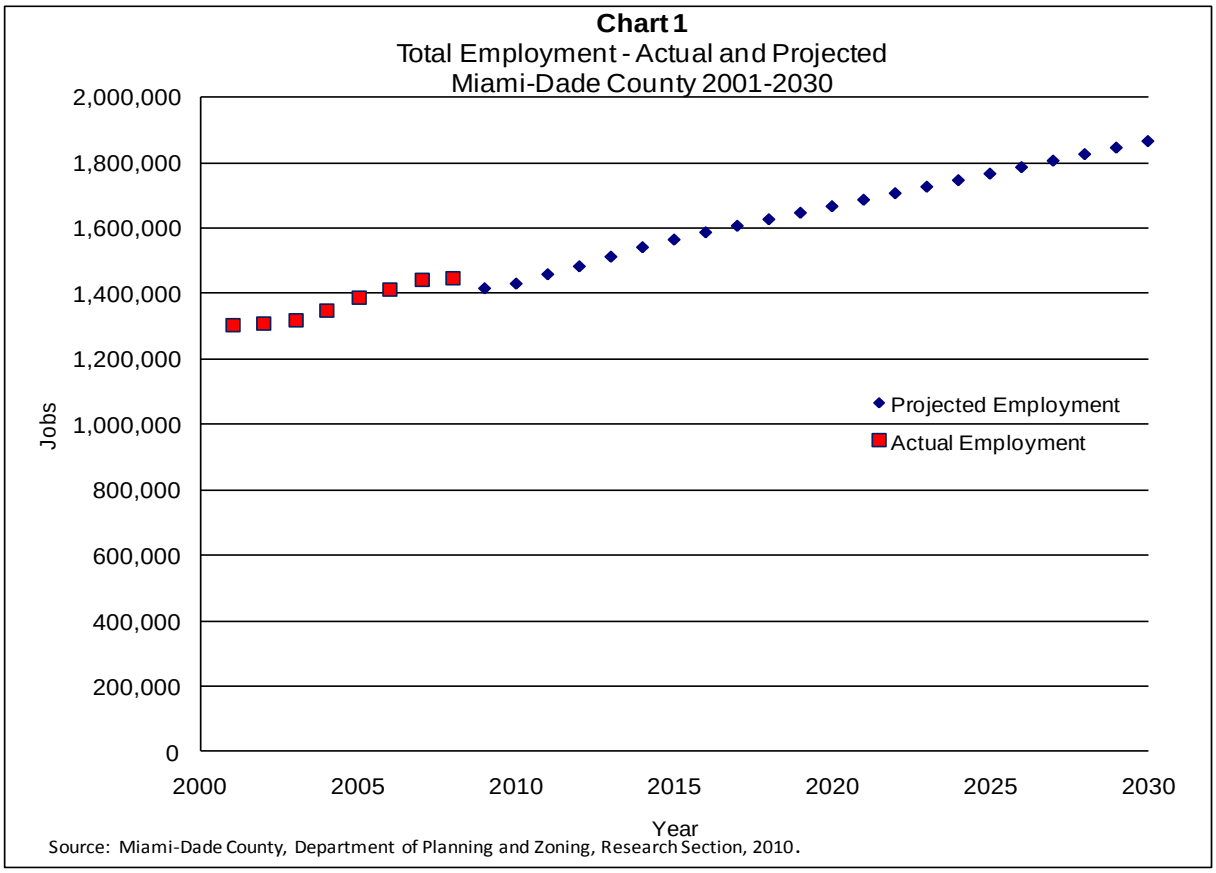
The latest available historical employment figure is 1,446,319 jobs for 2008; it is projected to decline to 1,414,500 jobs for 2009; then a slight increase to 1,428,963 in 2010; and a further increase to 1,457,727 in 2011, surpassing the historical 2008 figure; by 2016 employment returns to its long run trend at 1,586,626 and increasing every year thereafter up to 1,867,004 in 2030. The total employment projection series is presented in the last column of Table 1 and is illustrated graphically in Chart 1.

TABLE 1

Estimated Employment by Industry
Miami-Dade County, Florida: 2001 to 2008
with Projections to 2030
(Number of Jobs)

Year	Farm	Forestry Fishing, and Mining	Utilities	Construction	Manufacturing	Wholesale Trade	Transportation and Warehousing	Services	Retail Trade	Finance and Insurance	Real Estate and Rental and Leasing	Information	Government	Total Employment
2001	7,465	4,237	3,255	61,446	64,545	75,339	86,220	560,627	141,661	59,617	45,980	36,938	155,564	1,302,894
2002	7,344	4,249	2,386	62,121	59,264	74,969	84,046	571,972	136,453	61,541	49,110	35,413	158,203	1,307,071
2003	8,122	4,105	2,360	67,077	55,333	75,619	82,032	581,672	133,732	61,472	52,021	32,543	159,847	1,315,935
2004	7,297	3,922	2,331	73,885	54,773	79,461	80,811	599,388	134,450	62,511	58,851	31,788	158,046	1,347,514
2005	6,628	3,685	3,193	80,966	53,712	79,995	80,867	620,594	139,373	65,994	66,032	28,628	158,033	1,387,700
2006	7,228	3,361	3,295	87,523	52,868	80,724	81,045	631,231	144,929	67,398	69,317	26,922	158,075	1,413,916
2007	7,546	3,535	3,517	87,005	52,682	83,183	82,589	650,516	146,911	70,692	67,207	25,876	160,288	1,441,547
2008	7,136	3,614	3,645	81,214	49,810	80,806	84,538	661,927	146,820	71,261	71,092	24,864	159,592	1,446,319
2009	6,911	3,337	3,280	72,152	48,048	81,705	82,060	660,441	140,796	68,838	68,000	22,813	156,119	1,414,500
2010	6,887	3,295	3,343	67,612	47,438	83,144	82,949	677,918	141,893	69,859	65,572	21,915	157,138	1,428,963
2011	6,901	3,276	3,420	69,766	47,148	85,054	84,251	699,314	143,728	71,208	63,356	21,281	159,024	1,457,727
2012	6,891	3,248	3,482	72,165	46,743	86,686	85,227	718,524	145,034	72,266	60,771	20,719	160,366	1,482,122
2013	6,912	3,239	3,558	73,085	46,594	88,736	86,568	741,280	146,981	73,619	58,312	20,402	162,451	1,511,737
2014	6,910	3,221	3,620	73,752	46,330	90,525	87,613	761,966	148,441	74,708	59,478	20,172	164,030	1,540,766
2015	6,882	3,194	3,667	74,120	45,923	91,985	88,303	779,931	149,319	75,485	60,424	20,024	164,993	1,564,250
2016	6,849	3,165	3,709	74,405	45,509	93,374	88,898	797,333	150,051	76,170	61,323	20,021	165,819	1,586,626
2017	6,805	3,134	3,743	74,552	45,052	94,618	89,332	813,525	150,526	76,708	62,126	20,148	166,384	1,606,653
2018	6,752	3,101	3,771	75,425	45,590	95,747	89,637	828,722	150,797	77,126	62,854	20,414	166,744	1,626,680
2019	6,708	3,073	3,802	76,389	44,155	96,988	90,031	844,898	151,229	77,612	63,657	20,866	167,299	1,646,707
2020	6,660	3,044	3,829	77,300	43,734	98,161	90,344	860,482	151,539	78,023	64,417	21,467	167,734	1,666,734
2021	6,610	3,016	3,854	78,202	43,445	99,319	90,630	875,934	151,811	78,402	65,168	22,227	168,143	1,686,761
2022	6,558	2,988	3,876	79,063	43,924	100,422	90,854	890,907	151,989	78,723	65,886	23,138	168,460	1,706,788
2023	6,506	2,961	3,896	79,922	44,401	101,518	91,060	905,803	152,147	79,023	66,602	24,209	168,767	1,726,815
2024	6,453	2,935	3,915	80,778	44,877	102,605	91,250	920,626	152,284	79,303	67,315	25,439	169,062	1,746,842
2025	6,401	2,909	3,934	81,632	45,351	103,685	91,423	935,368	152,402	79,564	68,026	26,829	169,345	1,766,869
2026	6,348	2,884	3,951	82,483	45,824	104,756	91,582	950,026	152,501	79,809	68,736	28,378	169,618	1,786,896
2027	6,296	2,860	3,967	83,331	46,295	105,819	91,726	964,603	152,583	80,036	69,443	30,085	169,879	1,806,923
2028	6,244	2,837	3,982	84,178	46,766	106,874	91,857	979,091	152,648	80,248	70,148	31,948	170,129	1,826,950
2029	6,191	2,814	3,996	85,022	47,235	107,920	91,974	993,495	152,696	80,445	70,852	33,969	170,368	1,846,977
2030	6,139	2,791	4,010	85,865	47,703	108,957	92,079	1,007,808	152,729	80,628	71,554	36,145	170,596	1,867,004

Source: U.S. Department of Commerce, Bureau of Economic Analysis. Miami-Dade County, Department of Planning and Zoning, Research Section, 2010.



Employment Projections by Industry: As mentioned earlier, in addition to total employment, the current projection includes projections at the sector/industry level. The sectors are based on the two-digit level of the North American Industry Classification System (NAICS). This divides employment into the following thirteen major industry categories: *Farm*, Forestry/fishing and mining, *Utilities*, *Construction*, *Manufacturing*, *Wholesale trade*, *Transportation and Warehousing*, *Services*, *Retail trade*, *Finance and insurance*, *Real estate and rental and leasing*, *Information*, and *Government*.

Given the limited length of the historical data, it must be recognized that future trends in some sectors are inherently more difficult to project than others, so growth patterns of these projections are not always consistent. For example, employment in the *Construction* sector is projected with much less precision than the smoothly evolving *Service* sector. In view of the fact that some subjective analyses played a role in these projections, it is important that the industry level projections be cautiously utilized.

Based on the eight years of data (2001 to 2008), initial projections were made for each of the sectors using linear and non-linear[1] least squares estimation techniques taking into consideration the characteristics of the historical data.

Next the share of total employment was calculated for each sector/year pair. All shares were proportionally adjusted in order to get a 100 percent total in each year. Due to the exceptional circumstances that the Real Estate and Construction sectors experienced during the 2003-2007 period they had to be handled differently than other sectors. The assumption for these two sectors is that their share of total employment will decline steadily until reaching 2002 levels. The basis for this assumption is that 2002 was a more "normal" year for the Real Estate and Construction industries.

After modifying the Real Estate and Construction sectors, shares for all industries were recalculated. These shares were multiplied by the total employment figures for each year in order to arrive at annual employment by sector.

Trends shown by the Projections

Although all sectors experienced a short-term decline in employment, only three of the thirteen major industries, specifically *Farm*, *Forestry/fishing/and mining*, as well as *Manufacturing* ended the twenty-two year projection period with a lower level of employment than in 2008.

Of the three declining industries, *Manufacturing* experienced the largest decline. The number of jobs in that sector declined from 64,545 in 2001 to 49,810 in 2008 and is expected to continue to fall going forward albeit at a slower rate. This will lead to a loss of a little over two thousand jobs by 2030. The *Manufacturing* sector accounted for about 5.0 percent of all employment in the county in 2001, by 2008 that figure stood at 3.4 percent and is expected to decline to 2.6 percent by 2030.

The other two sectors that are expected to see their employment numbers decline over the projected time span are *Farm* and *Forestry, fishing and mining*. These sectors combined for 0.9 percent of all employment in 2001, 0.7 percent in 2008, and are projected to account for 0.5 percent in 2030. In absolute numbers both these industries lost 952 jobs in the 2001 – 2008 timeframe and are expected to lose an additional 1,820 jobs by 2030.

Combined the *Farm* and *Forestry, fishing and mining* sectors have fewer than ten thousand employees throughout the projection period. The only other single industry in this employment range is *Utilities*. The projection has employment growing from 3,645 in 2008 to 4,010 in 2030 after a recession-induced dip between 2009 and 2015.

The *Wholesale trade* sector gains employment steadily from 80,806 in 2008 to 108,957 in 2030, while the Transportation and Warehousing sector decreases between 2008 and 2009 and then bounces back, reaching 92,079 jobs in 2030.

[1] Log-linear, polynomial, and exponential

The *Retail trade* sector saw an explosion in employment between 2003 and 2007 (13,179 jobs) and is expected to lose (6,024) jobs as a result of the recession by 2009 only to return to growth thereafter adding 10,000 or more jobs in the following seven years. The results for *Retail trade* and *Wholesale trade* along with *Transportation and warehousing* are shown in Chart 3.

The *Services* sector, which includes tourism related activities, Healthcare, and Education, accounted for 45.8 percent of all employment in 2008 and will continue as the most important sector surpassing 50 percent of total employment in 2016 and reaching 53.7 percent in 2030 with just over one million employees.

Employment in the *Government* sector remained stable in the historical period and is projected to follow the same pattern going forward. From 2001 to 2008 employment in this sector increased at a 0.4 percent yearly rate, and is expected to grow at a 0.3 percent yearly rate for the following 22 years.

In the *Finance and insurance* sector employment expanded by 3.1 percent per year between 2001 and 2008 and is projected to lose 3.4 percent in 2009. Thereafter it is expected to increase at a significantly slower pace of 0.6 percent.

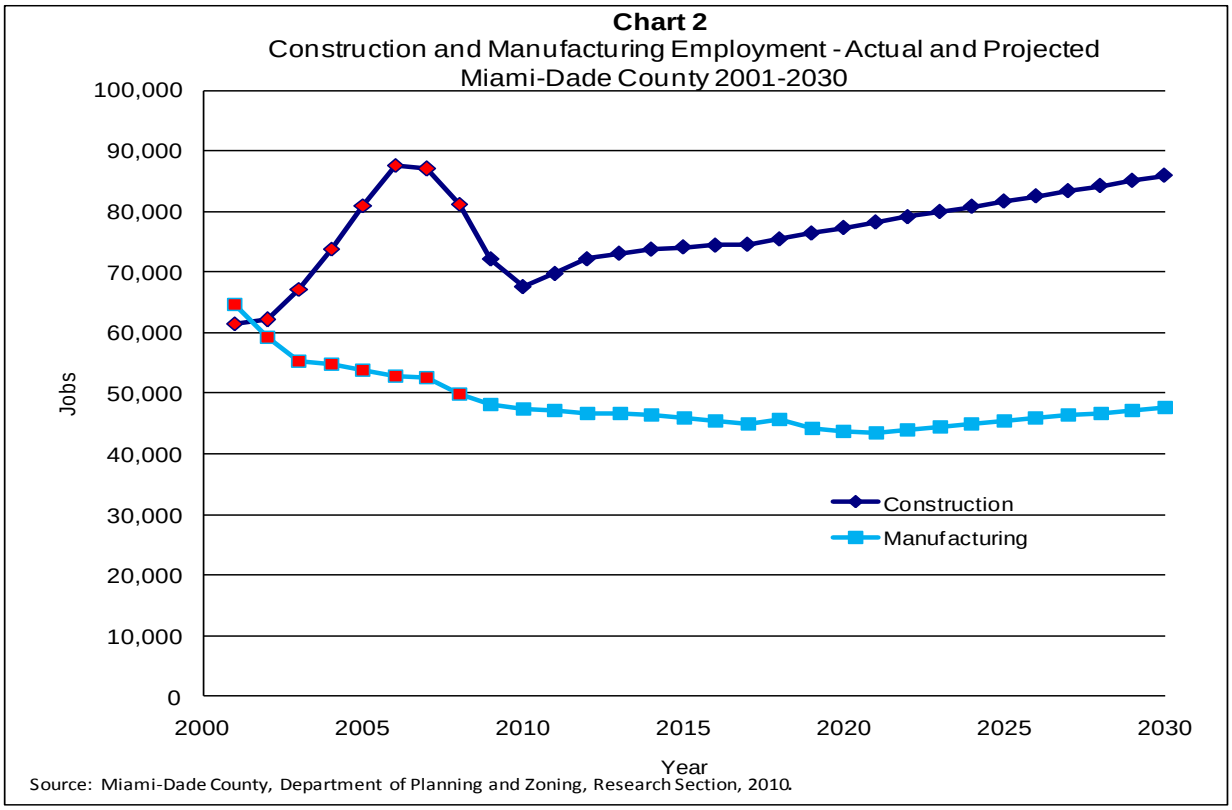
For the *Real estate and rental and leasing*, *Construction*, and *Information* sectors simply projecting forward the trend based on 2001 to 2008 data did not seem appropriate given the unusual circumstances that affected these sectors during this time span. The real-estate bubble that ended in 2007 boosted *Real estate and rental and leasing*, as well as *Construction* employment levels and growth above a sustainable long-term level. At the same time, the bursting of the Internet Bubble in early 2000 negatively impacted employment in the *Information* sector employment to an extent not expected to continue indefinitely.

The *Real estate and rental and leasing* sector accounted for 3.5 percent of total employment in 2001. During the housing bubble it grew to 4.9 percent in both 2006 and 2008. Following the bursting of the bubble in 2007 employment in this sector is expected to decline steadily reaching a share of 3.9 percent by 2013 and remaining approximately at that level until the end of the projection period. The total number of jobs in the *Real estate and rental and leasing* sector, as well as in the *Financial and insurance* sector is shown in Chart 4.

The *Construction* sector followed a trend similar to that of the *Real estate, rental, and leasing* sector growing from 4.7 percent of total employment in 2001 to 6.2 percent in 2006. By 2008 it had fallen to 5.6 percent and is projected to keep falling towards the 4.6 percent level during the projection horizon.

Employment in the *Information* sector declined for every year of the historical data and is projected to continue to fall until 2016. The decline through 2016 is expected to be at a decreasing rate, thereafter it is projected to increase until reaching the 2002 levels in 2030.
A useful illumination of the underlying changes in employment trends by some of the major industry sectors over the period covered can be gained by examining the data shown in Table 1 in a graphical form. Chart 2 identifies the growth pattern of the goods-producing sector, except *Farm*, *Forestry/fishing/and mining*, and *Utilities*. As can be seen, *Manufacturing* is the only

industry expected to reduce employment over the projection period. Similarly, Chart 3 identifies the growth pattern of three of the top five industries of the service producing sector, namely, *Wholesale trade*, *Transportation/warehousing*, and *Retail trade*. As shown, the Wholesale trade industry, which accounts for a large part of the sector's gains, is expected to increase employment significantly over the projection period. Finally, Chart 4 identifies the growth pattern of the *Real estate and rental and leasing*, as well as the *Finance and insurance* sectors.



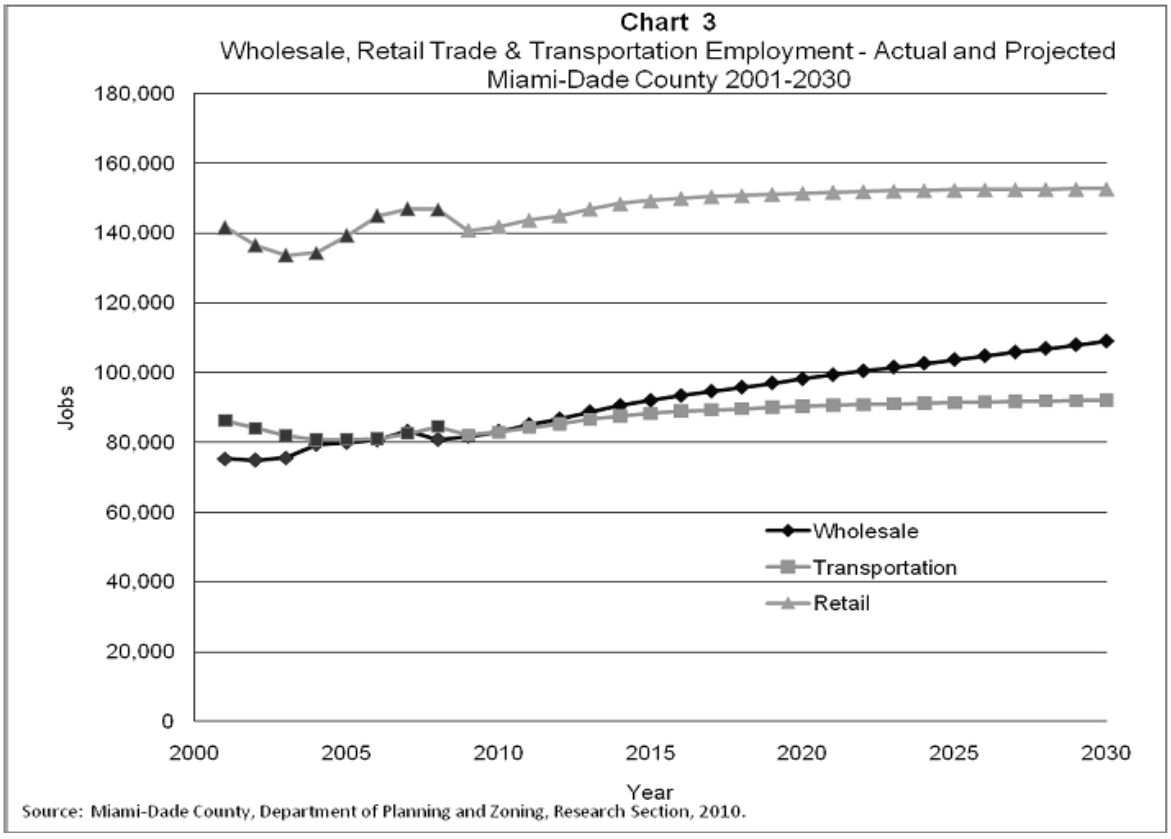


Chart 3
Wholesale, Retail Trade & Transportation Employment - Actual and Projected
Miami-Dade County 2001-2030
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Jobs
2000
2005
2010
2015
2020
2025
2030
Year
Wholesale
Transportation
Retail
Source: Miami-Dade County, Department of Planning and Zoning, Research Section, 2010.

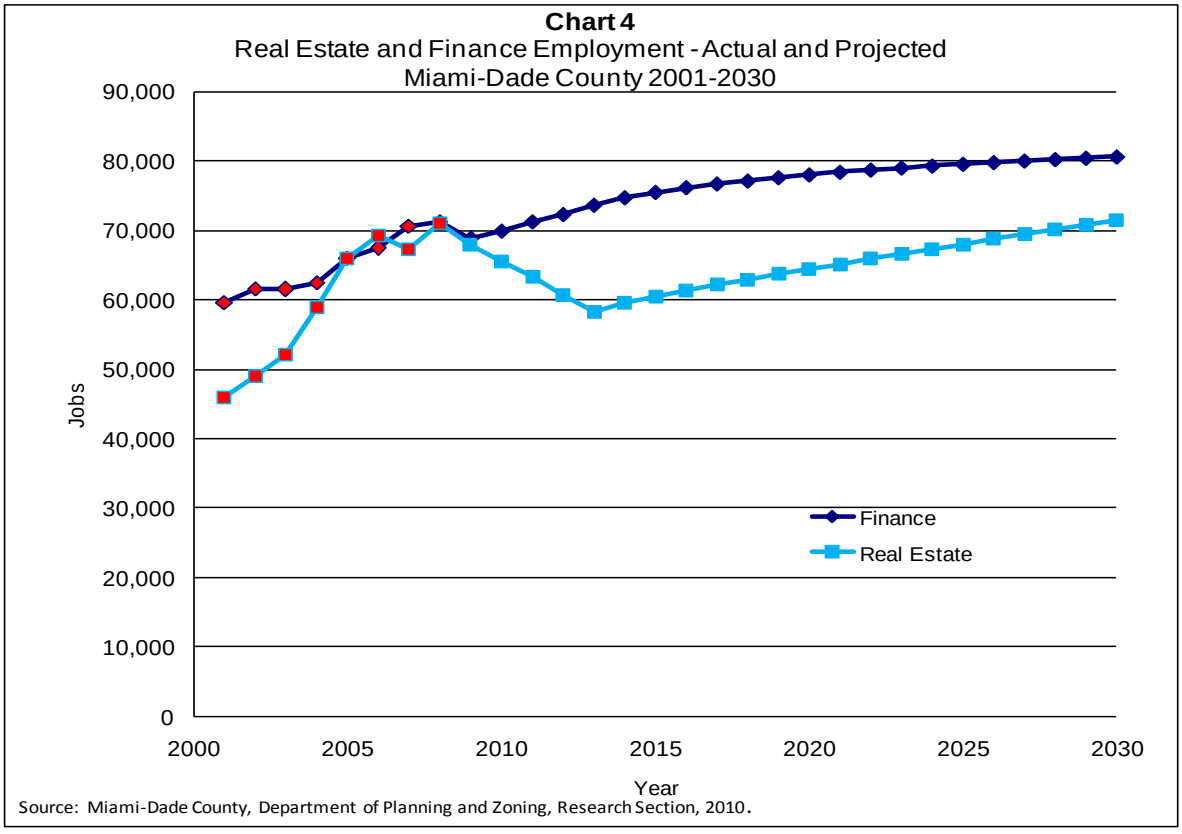
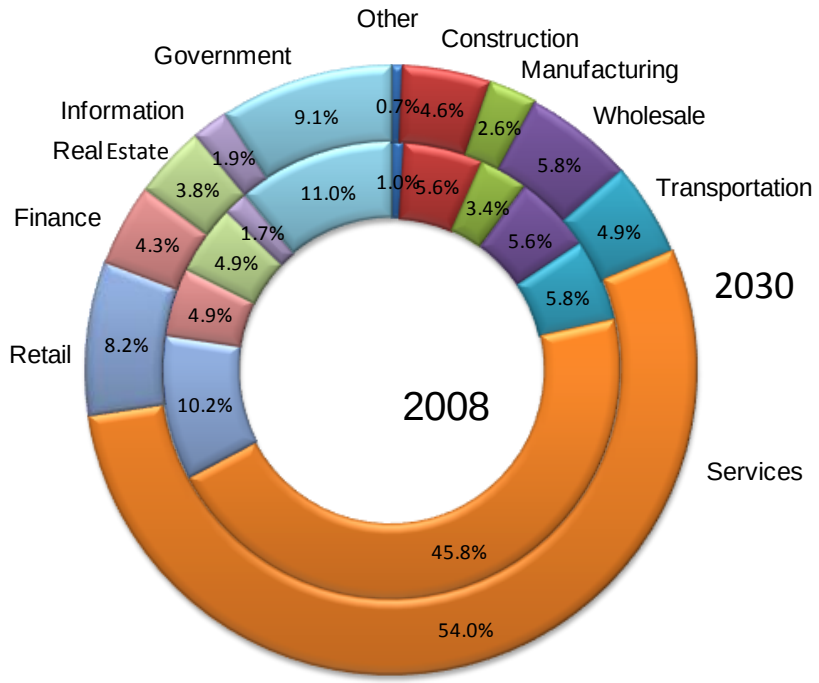


Chart 4
Real Estate and Finance Employment - Actual and Projected
Miami-Dade County 2001-2030
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Jobs
2000
2005
2010
2015
2020
2025
2030
Year
Finance
Real Estate
Source: Miami-Dade County, Department of Planning and Zoning, Research Section, 2010.

In a similar fashion, Chart 5 identifies graphically the share of total employment by each of the sectors and their respective changes between the years 2008 and 2030. As can be seen, the *Services* sector is the only sector expected to increase its employment share significantly (8.2 percent) over the projected period. While the *Wholesale trade* and *Information* sectors are expected to have fractional increases in their employment share, the remaining industries are projected to have decreased shares during the same period.

CHART 5
Share of Total Employment by Sector
Miami-Dade County 2008 and 2030



Source: Miami-Dade County, Department of Planning and Zoning, Research Section 2010.

Evaluation of Earlier Employment Projections

As mentioned above, in 2007, the Department of Planning and Zoning made Miami-Dade employment projections for the years 2006 to 2030 based on five years of historical data (2001 to 2005) of industrial basis. The present projections include historical estimates for those years, which from the time of the earlier projections, have been significantly revised, especially at the sector/industry level; nevertheless, it is useful to compare the results.

Overall, the earlier projections for the years 2006, 2007, and 2008 appear to have been within a one percentage point of actual Miami-Dade County total employment recorded for those years.

However, at the sector detail, achievable industry levels of accuracy vary. The industrial projection differs by an average 13.8 percent for the *Construction* sector, minus 11.2 percent for the *Information* sector, and minus 7.6 percent for the *Real estate and rental and leasing* sector. Because the present projections utilize three more years of historical data, perhaps they have somewhat greater validity than did the earlier projections.

Summary

In conclusion, the accompanying projections for Miami-Dade County anticipate somewhat slower employment growth to the year 2030 than was true in the 22 years immediately prior to 2009. The reader should be cautioned that the projections developed here are intended as a contribution to planning decisions and apply over a long-term period. As a result, the projections should be more reliable at the aggregate level than at the major industry sector level.