



The HVS Employment- Hotel Growth Index

A new tool for projecting hotel room night demand

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2008 YEAR-END UPDATE

The market has changed substantially since we first published this research in August of 2008. Led by the bust in the housing market, performance in the commercial sector took a sharp downturn in the fall of 2008, and the current recession has negatively impacted all sectors of the commercial real estate market. With this update, we set out to see whether the relationships between employment and hotel performance held true through year-end. Specifically, within the greater Washington, D.C. market, has the change in the employment picture had an impact on the health of the office market, and, if so, does the correlation between office market demand and hotel room demand still hold true? Conversely, we wondered whether we would witness a lag in the demand indicators coming into the recession. Of course, the inaugural events of January of 2009 created an anomaly in our hypothesis (though they gave the D.C. and surrounding hotel markets a remarkable boost).

First some statistics:

Employment (Source: BLS):

- Employment Change Year End 2008 – 27,919 jobs (+1.16%)
- Unemployment Rate Year End 2008 – 4.7%

Office (Source: CoStar):

- Year End 2008 Vacancy Rate – 11.8%
- YTD 2008 Net Absorption – 498,223 SF
- YTD 2008 Deliveries – 8,678,864 SF
- Year End 2008 Occupied Space– 368.9m SF (+1.27%)
- Year End 2008 Under Construction – 12,702,704 SF
- Year End 2008 Average Quarter Rent - \$34.36/SF (+0.3%)

Hotels (Source: Smith Travel Research):

- Year End 2008 Occupancy Rate – 67.1% (-1.8%)
- Year End 2008 Deliveries - 3,550 Rooms
- YTD 2008 Demand Change – 445,577 Rooms (+1.1%)
- Year End 2008 Under Construction – 4,000 Rooms
- Year End 2008 ADR - \$153.31 (+2.3%)

The data suggest that through year-end 2008 both office and hotel market demand moved in pace with the increase in employment. These trends are in-line with the historical data presented in this study. However, we note that total employment fell by 1.5% in January of 2009 and 2.1% in February of 2009 compared with the same months of 2008. Smith Travel Research reported that occupancy was up 2.5% in January because of the inauguration, but was down by 1.9% in February. Although the decreases in employment and hotel demand recorded in February were of comparable magnitude, only time will tell if the correlation observed in the 'up-market' years of 2003 to 2007 holds true through a down market.

INTRODUCTION

The relationship between the hospitality and the commercial real estate industries is commonly discussed as being symbiotic, and fittingly so. Hotels proximate to office buildings tend to capture corporate travelers, one of the three major sources of hotel demand. Hence, the density of office space in a market helps determine the highest and best use of land for hotels. While this concept is sound, no definitive study quantifies the correlation between employment trends, office space, and hotel room night demand. In the following article, we provide the figures and analysis to make this connection tangible.

Methodology

We begin by examining the relationship between employment levels and office space absorption, take the next step by considering historical trends of office and hotel growth, and finally zero in on the ratio of occupied office space to occupied room nights. The HVS Employment-Hotel Growth Index is informed by long-term trends from both industries.

We have considered employment growth projections for a particular submarket and used the index to project future hotel demand. We then consider the current pipeline of projects to determine if there will be unaccommodated demand. Lastly, we look at the break-even analysis to determine whether the RevPAR for the market suggests a profitable hotel based on expected construction costs.

The Washington, D.C. market serves as our test case, being particularly conducive to this type of study as its employment segmentation is so heavily weighted toward office-type jobs. However, the method we employ can be adapted to most major and secondary markets in the U.S.

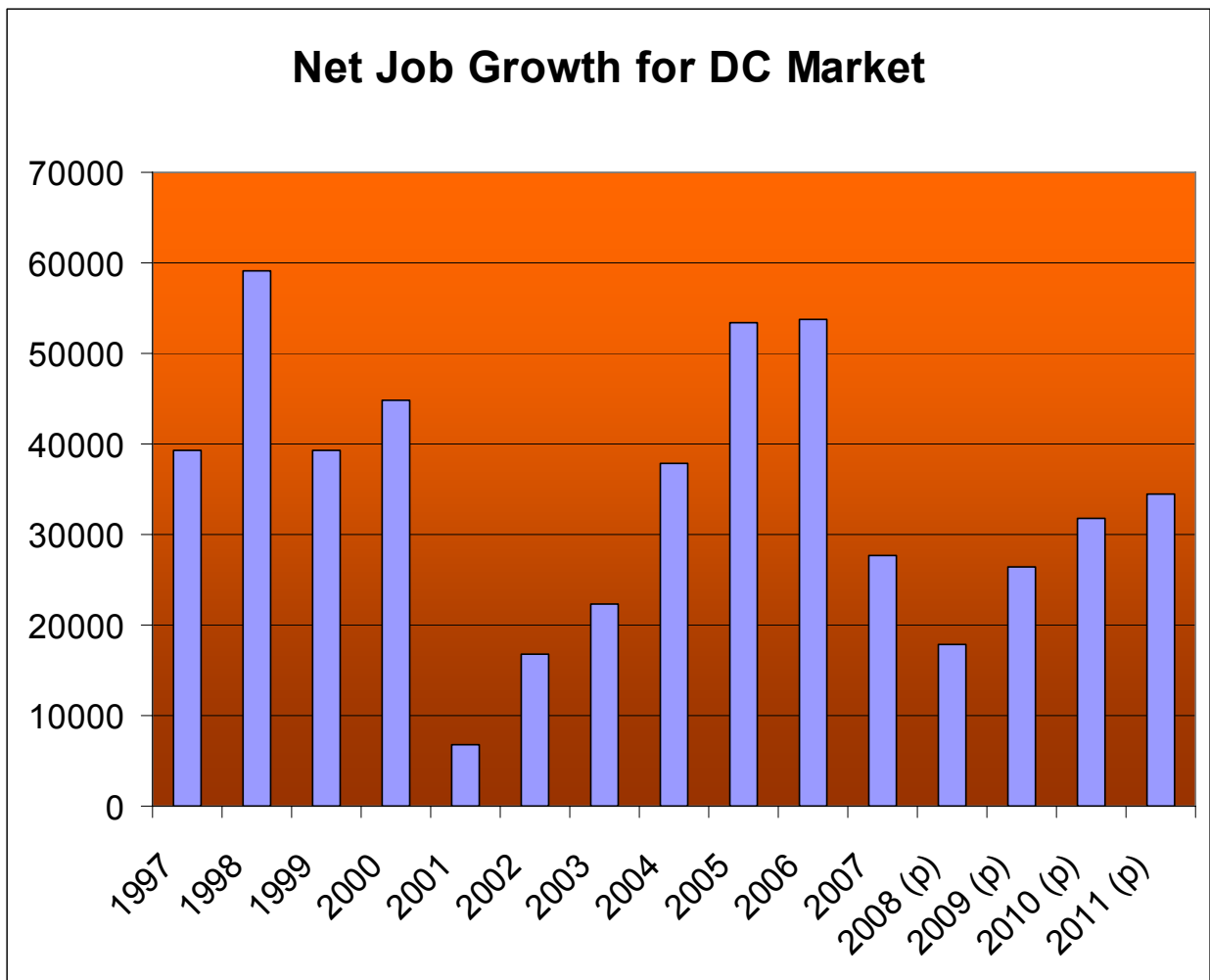
Definitions

As defined in this paper, the Washington, D.C. market includes the following jurisdictions: Washington, D.C.; Arlington, Alexandria, Fairfax (including Falls Church and Fairfax City), Loudoun County, and Prince William County (including Manassas and Manassas Park), Virginia; and Montgomery County and Prince George's County, Maryland.

Employment and Office Demand

The first step is accomplished by looking at historical office space absorption trends in the Washington, D.C. market and linking these to job growth over the same period. We then projected future demand based on anticipated job growth in the area.

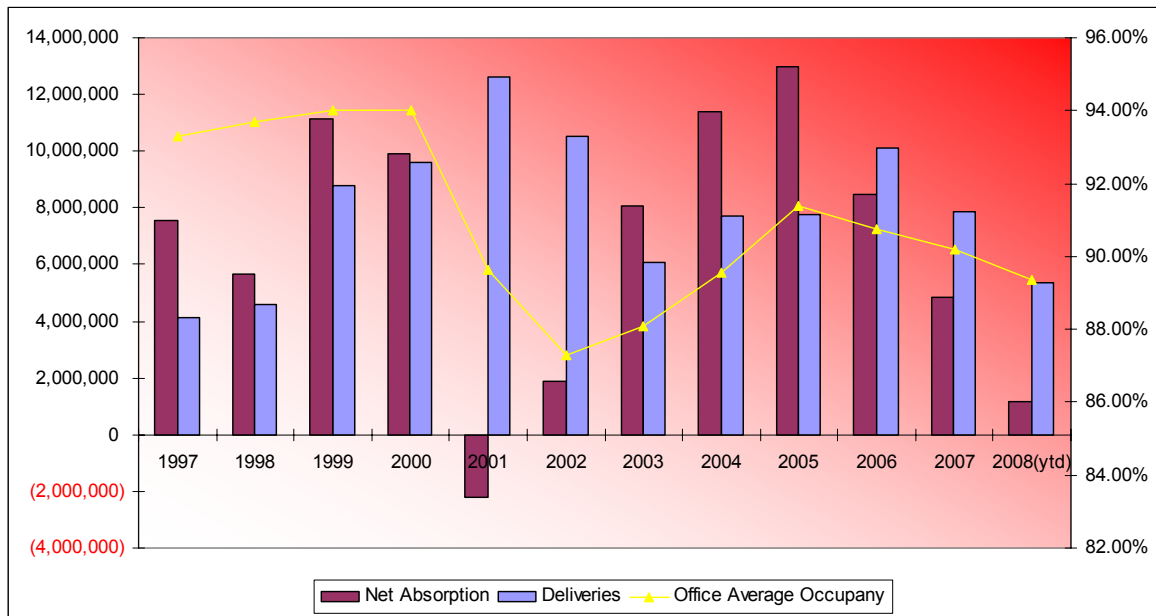
With respect to overall employment, the Washington, D.C. market has performed extremely well despite economic downturns affecting the rest of the nation. This performance owes much to the Federal government, whose massive presence helps insulate the area from negative factors in the larger economy. Though not immune from recession, the area has emerged relatively unscathed by two such events over the past 15 years. The following graph shows the 15-year history of job growth along with projections for 2008 through 2011.



Source: U.S. Bureau of Labor Statistics (BLS)

Job growth in the Washington, D.C. market has been particularly strong over the past 14 years, with an average of approximately 39,000 net new jobs per year. Recessions followed the implosion of the dot-com industry in 2000 and the terrorist attacks of September 11, 2001. The financial services sector, the hospitality and travel industry, and the transportation industry were hit particularly hard; however, an increase in defense funding and the massive letting of contracts by the Departments of Defense and Homeland Security offset many of the ill effects and helped prompt a turnaround in the D.C. economy. Job growth rebounded in 2003 through 2005 in response to the needs of the government during the build-up for the wars in Afghanistan and Iraq. In the past two years, the pace of job growth has slowed but remains strong.

The creation of thousands of new jobs led to an influx of workers in need of office space. Developers responded to the demand by adding new buildings to the inventory or renovating existing structures. The following chart illustrates a ten-year history of total deliveries and net absorption.



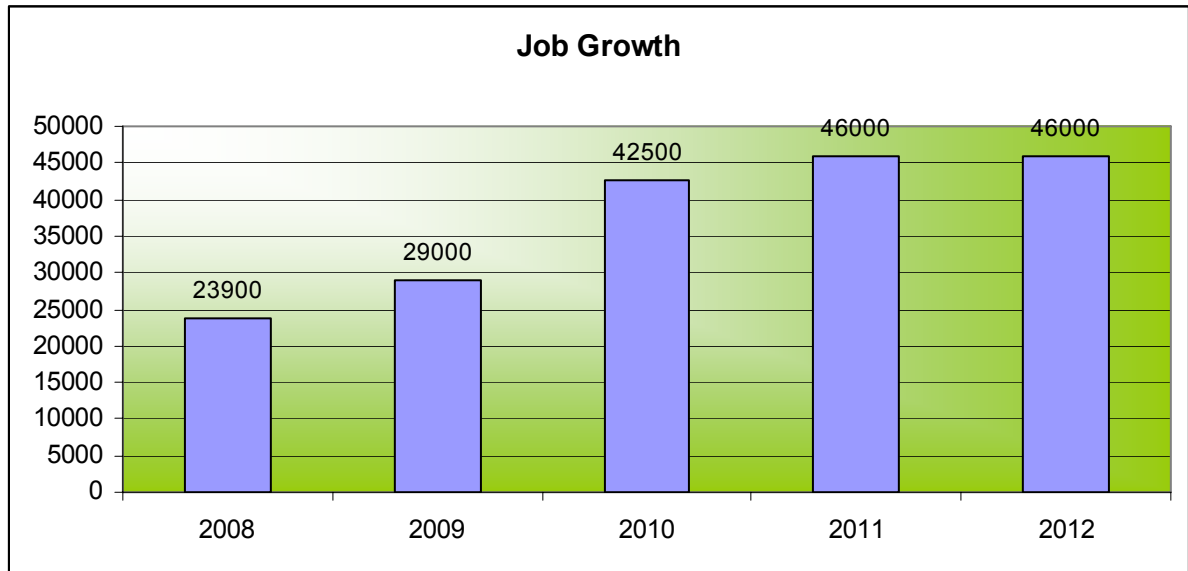
Source: CoStar Group, Inc.

The spikes in absorption in 2004/05 are directly related to defense and security contractors, demonstrating that downsizes in the Federal workforce can be offset by an equal if not greater increase in private-sector employment.

With these trends in mind, we have considered how the commercial office market has responded to healthy employment growth. From 1997 to 2007, an average of 8,562,815 square feet of new space was delivered per annum in the D.C. market, with an average net absorption of 7,222,586 square feet per annum. This translates to an average office occupancy rate above 90%, placing the Washington, D.C. market among the top markets nationwide.

Comparing net absorption with the number of net new jobs created shows that over the past 14 years, the Washington, D.C. market has averaged 318 square feet of space absorbed for every new job created. In the past five years, the average decreased to 235 square feet for every new job as companies were more creative in their use of space, including more bullpen configurations as well as an increased use of flex time and telecommuting. The ratio peaked in 2003/04 when the space absorbed per job exceeded 300 square feet. In the last three years, the ratio has decreased.

Using this formula for square feet absorbed per job created, we can estimate future demand for space based on projected employment growth. For our projections, we have used a base requirement of 235 square feet per net new job created. Projected job growth in the D.C. market is shown in the graph below.



Source: Center for Regional Analysis - George Mason University

According to Dr. Stephen Fuller of the Center for Regional Analysis (CRA) at George Mason University, approximately 39,979 new jobs per year will be added to the Washington, D.C. Metropolitan Statistical Area (MSA) through 2012. It is important to note that our definition of the Washington, D.C. market is more limited than the area covered by the CRA data. We have therefore estimated that approximately 75%, or 28,000, of the new jobs will be found in the market as we have defined it; thus, applying the 235-square-foot space requirement for each net new job results in demand for 6.6 million square feet per year, on average, for the Washington, D.C. market. This is near the historical rate of absorption of 7.2 million square feet of net absorption per annum, suggesting healthy demand.

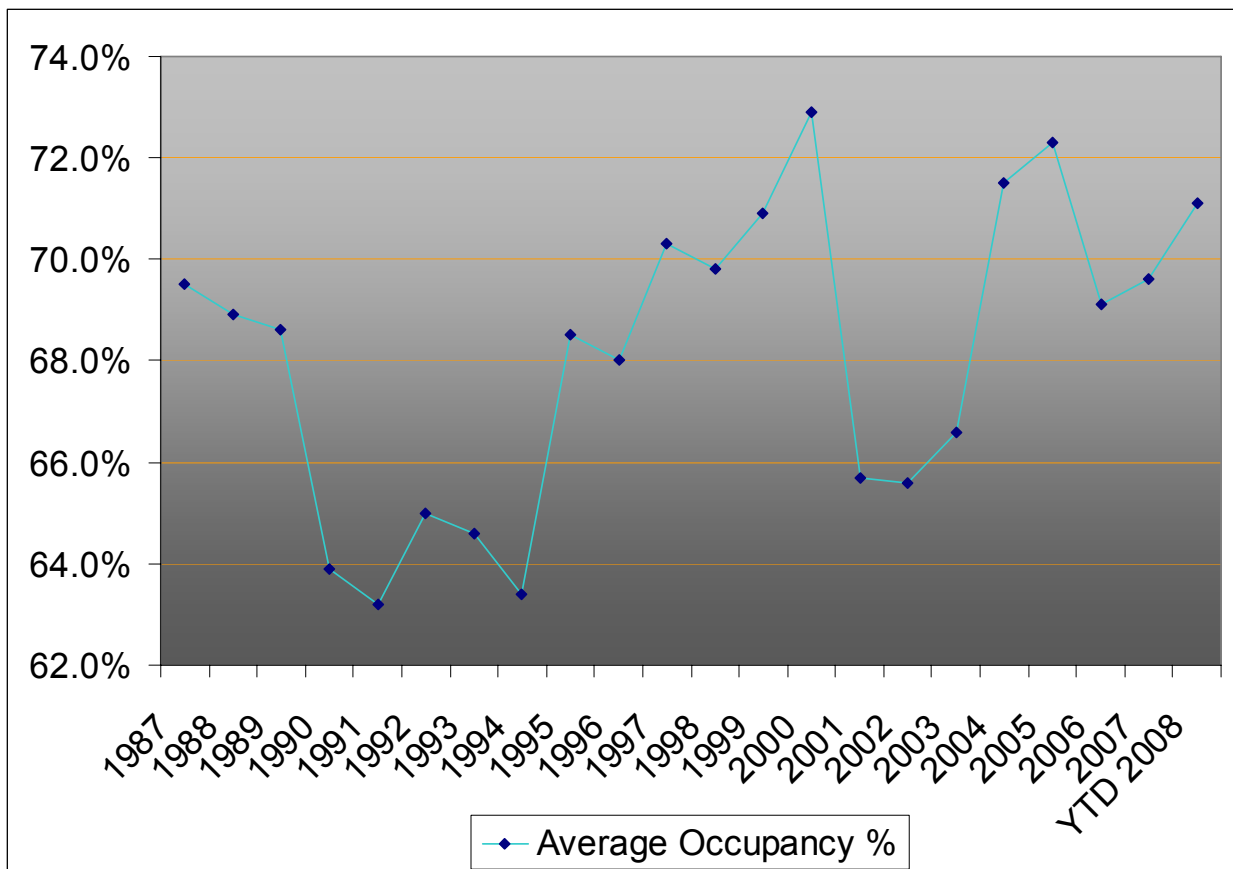
Hotel Supply and Demand

The Washington, D.C. hotel market has expanded at a healthy pace over the past 20 years. Overall, demand has kept pace with supply. Demand growth outpaced supply growth between 1987 and 1997, with the inverse occurring over the following decade.

Supply Changes		Demand Changes	
10 & 20-year annual growth rate		10 & 20-year annual growth rate	
1987-2007	1.82%	1987-2007	1.83%
1987-1997	1.70%	1987-1997	1.82%
1997-2007	1.94%	1997-2007	1.83%

Source: Smith Travel Research

The Washington, D.C. market captures demand from several segments, including tourism (individuals, groups, and families); corporate (individuals and groups); and government-related demand, inclusive of contractors. This market also tends to see a small spike in demand every four years corresponding to the cycle of presidential inaugurations, the last of which came in January of 2005. These diverse sources and anomalies of hotel demand create fluctuations in average occupancy, as illustrated in the following graph.



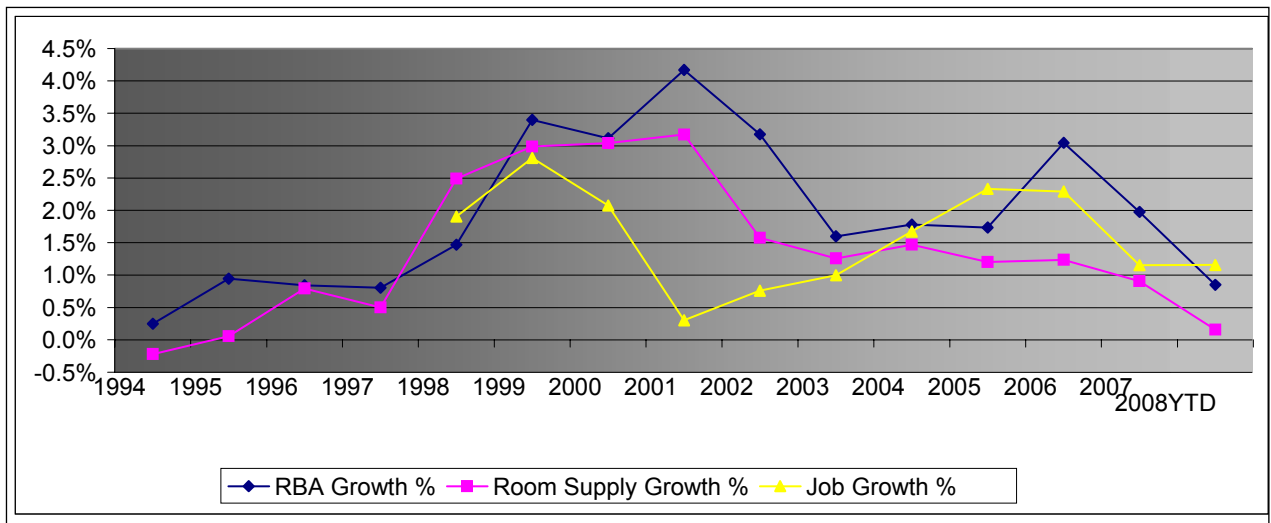
Source: Smith Travel Research

Occupancy peaked in 2000 at 72.9%. In the aftermath of 9/11, occupancy fell precipitously in 2002 and 2003, but rebounded in 2004 and 2005. The driving forces behind the general upward growth trend in demand appear to be the healthy economy as demonstrated by the rate of job growth. Year-to-date demand in the market is down by 1.6% as compared with the same period in 2007. Year-to-date occupancy fell from 76.7% as of mid-year 2007 to 71.1% as of mid-year 2008. These mid-year trends mirror the slowdown in the regional office market. In that vein, we have considered the relationship of one market to another.

HOTEL MARKET COMPARED WITH EMPLOYMENT AND THE OFFICE MARKET

We have already shown that the Washington, D.C. market as a whole has seen steady employment growth over the last 15 years, and the office market has responded with rapid additions to the supply. Demand has generally kept pace with the supply, enabling the average office occupancy to remain above 90%. In the following paragraphs, we show how these markets are linked.

The following graph shows the growth in office supply (in terms of Rentable Building Area, or RBA) and hotel room supply compared against job growth in the D.C. market.



Source: CoStar (RBA Growth), Smith Travel Research (Room Supply Growth), and BLS (Job Growth)

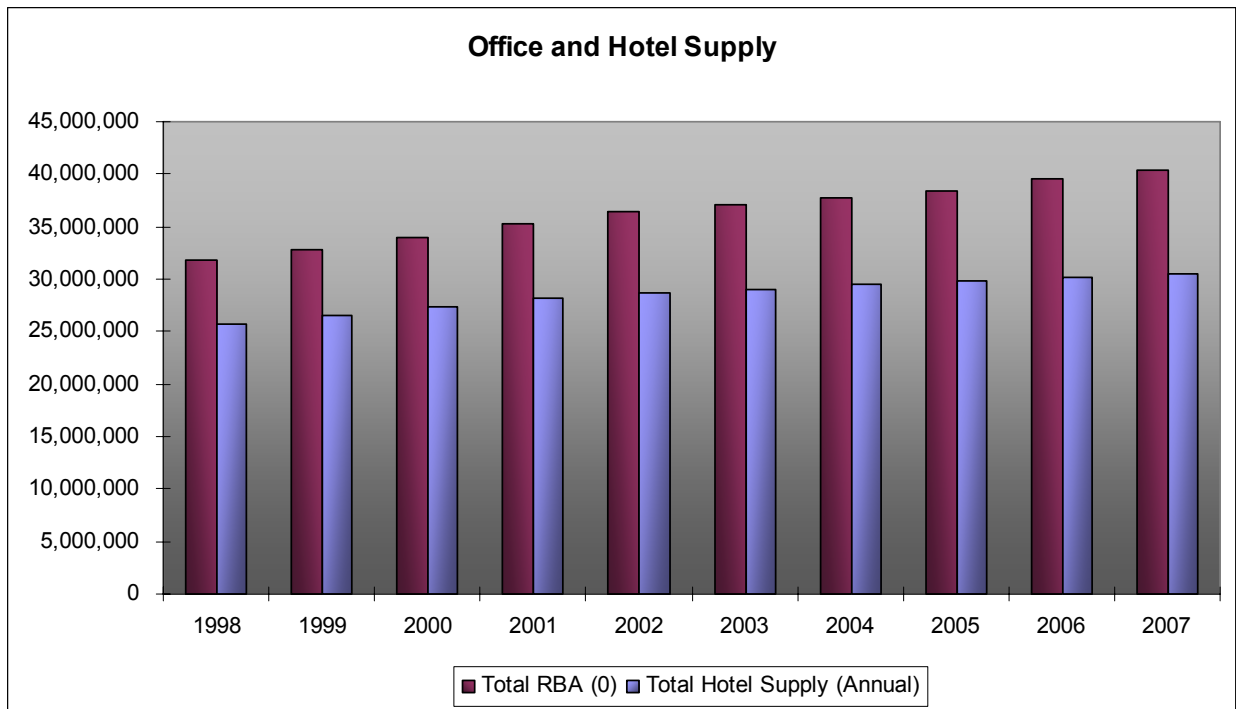
The graph shows how the rate of change in the office and hotel supply generally lags the change in the job growth direction by one to two years, a fact largely due to the lead time in constructing an office building or large hotel—note how the pace of employment expansion peaked in 1999, but the growth in office and hotel space peaked two years later in 2001. In terms of timing, this scenario was disastrous, as it coincided with both the dot-com bust and 9/11. The pace of the expansion of the labor force increased through 2005, but the office supply peaked

in 2006. While the graph appears to show a stabilizing trend into 2008 with office and hotel growth rates down below 1%, it does not account for the space under construction on both fronts. There are currently over 13 million square feet of office space and 3,426 hotel rooms under construction in the market. These additions will mark a 3.2% increase in the office supply and a 5.5% increase in hotel rooms. The pace of new construction of office space will be near the high points set in 2001 and 2002, and the growth in the hotel supply marks the fastest pace tracked to date.

The biggest component of the supply change in 2008 is the Gaylord National Resort and Convention Center at National Harbor, which opened this year and brings 2,000 rooms in addition to 500 rooms from supporting hotels. We found that this entity has induced its own demand to date and appears to be self-sustaining. Furthermore, this complex is geographically removed from the rest of the market and is not situated near any concentration of office space. Therefore, this block of 2,500 rooms has been excluded from our analysis. Excluding these rooms, the supply side shows an increase of just 2.5% for 2008.

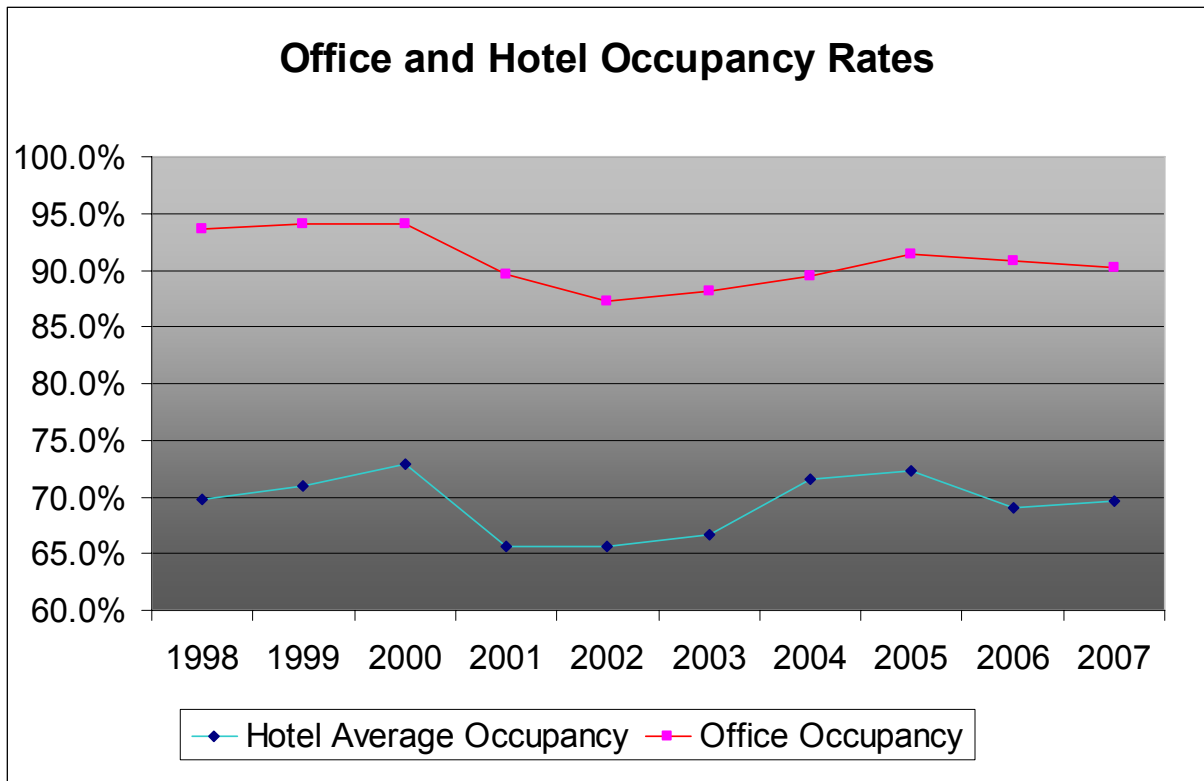
Statistical Correlations

In performing our analysis, we observed an interesting trend. Looking back at the office supply versus hotel room supply over the past 15 years, there is a clear ratio of office square footage to total hotel rooms. In fact, we found that the ratio of hotel rooms per 1,000 square feet of net rentable office space ranged from only 0.21 to 0.23, with a mean of 0.22. Furthermore, the ratio of total net rentable area in the region to total hotel rooms available ranged from only 12.2 to 13.3, with a mean of 12.6. Given these exceptionally tight ranges, it appears that one can justifiably link the two supply lines. The following graph shows the supply growth of these two sources over the past ten years. Note how both are moving upward at a similar pace.



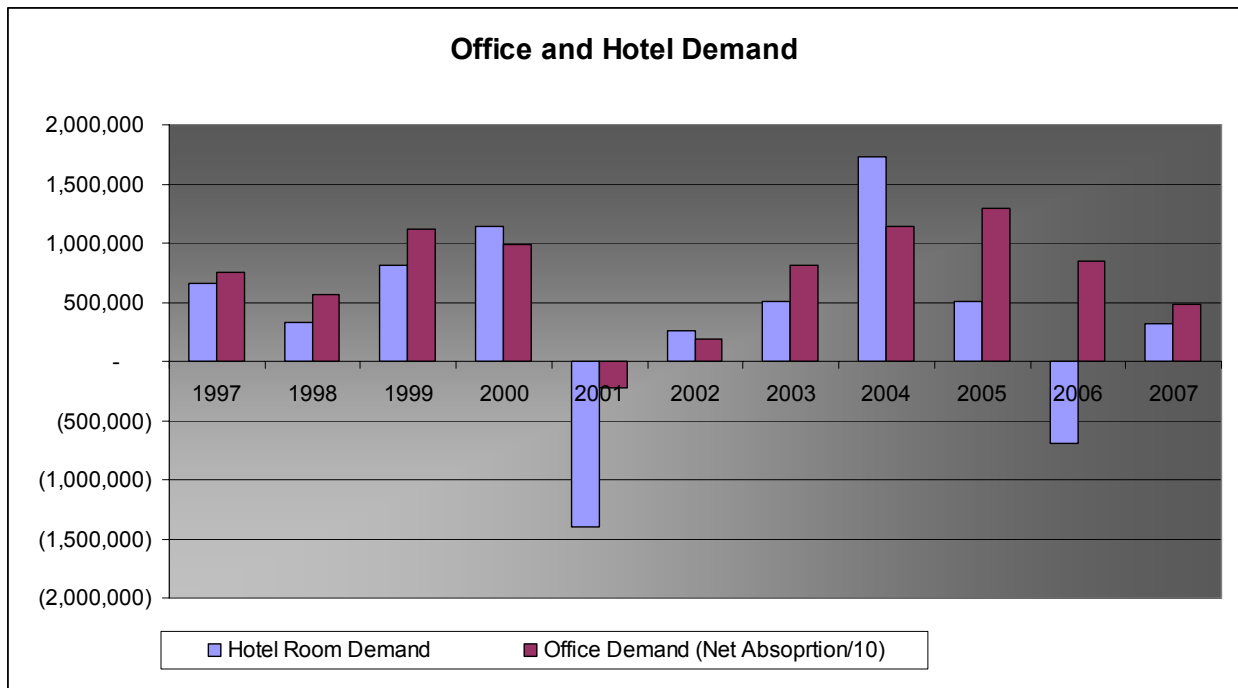
Source: CoStar & Smith Travel Research

Once we establish that the growth in supply of office space in the area mirrors that of the hotel market, we consider the demand side of the equation to determine whether a similar correlation exists. To do this we looked at the changes in office space and hotel room occupancies. The following graph shows how the average occupancy for both office space and hotels has generally moved in tandem.



Source: Smith Travel Research

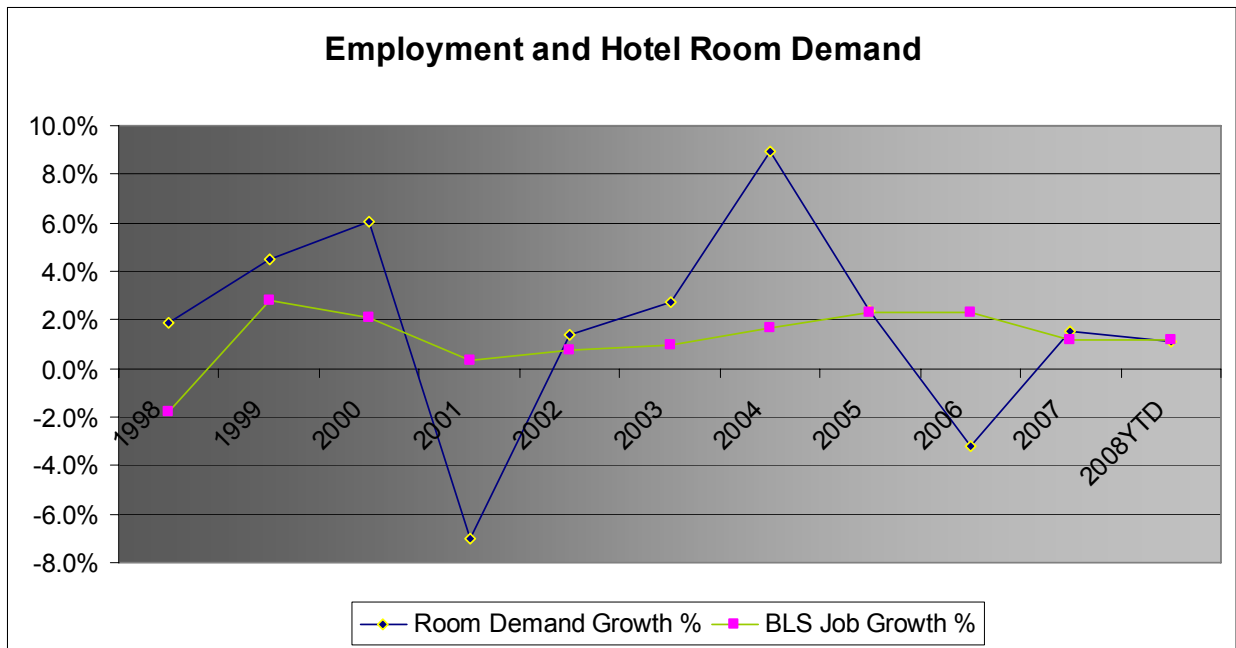
The link between occupied office space and occupied hotel rooms in the market is even more direct than what we saw in the broader category of supply. In the same time period, we found that the ratio of occupied hotel rooms to occupied office space ranged from only 0.058 to 0.064, with an average of 0.060. The inverse of this ratio shows that for every 16.6 square feet of occupied office space, there was one hotel room occupied. The range of the occupied RBA to occupied room nights was from 15.5 square feet to 17.2 square feet. Again, the tightness of this range lends stability to the argument for linking these statistics.



Source: CoStar & Smith Travel Research

To confirm these relationships, we ran a regression analysis on hotel demand and occupied office space and found a greater than 92% correlation factor between the numbers (with an r^2 of 0.92).

The strong correlation between office supply and hotel supply, along with that between office demand and hotel demand, enables us to link changes in employment to changes in the hotel supply and demand. It thus becomes more clear that we are justified in characterizing this relationship as a symbiosis, though one complicated by many factors. We note, for example, that while job growth in the Washington, D.C. market has held steadily between 1% and 3% per annum, hotel demand has fluctuated. The following graph shows that the trend lines are generally moving in the same direction, though clearly the hotel demand is influenced by other factors aside from just regional employment.



HVS OFFICE-HOTEL DEMAND INDEX

Based on the tight relationship between the office and hotel trends, we can reasonably predict future supply and demand. We have further shown that the ratio of occupied office space to occupied room nights in the market has been fairly consistent over the last 15 years. Lastly, we can estimate the number of office square feet absorbed (235 square feet of demand) for each new job that enters the market. Based on the reliability of these data, we can translate how much influence one new job has on hotel room demand. Given that each job creates demand for 235 square feet of office space, of which each 16.6 square feet is linked to demand for one occupied room night, each new job generates demand for 14 room nights per annum in the market. Therefore, our new HVS Employment-Hotel Growth Index for the Washington, D.C. market is 1:14. The following is a summary of the findings.

Hotel Rooms per 1,000 Square Feet of Rentable Building Area

- Range: Low 0.21 High 0.23
- Mean: 0.22

RBA to Total Room Nights Available

- Range: Low 12.2 High 13.3
- Mean: 12.6

Occupied Office Space to Occupied Rooms

- **Range: Low 15.5 High 17.2**
- **Mean: 16.6**

Calculation of New Jobs to Annual Room Night Demand

- **235 SF per New Job / 16.6 SF per Hotel Room Night**
- **= 14.2 Rooms Night Per Annum**

FORECASTS

Supply Growth

Based on these tight ranges, we are able to make some projections. First we consider the amount of office space delivered to date in 2008 and the amount under construction. We have assumed that 25% of the space currently being developed will be delivered before the end of the year. Therefore, total office supply in the Washington, D.C. market will increase by approximately 9.47 million square feet. With this space factored in, we have increased the supply by 7.5 million square feet per annum, or just above the 15-year average.

For hotel supply, we have added the rooms delivered to date plus 25% of the rooms under construction (less the Gaylord complex), totaling 1,351 rooms added for 2008. The following table summarizes the current project pipeline for the Washington, D.C. market.

Delivered YTD	Under Constructi	Final Planning	Planning	Pre-Planning
2,757	3,436	2,498	7,172	2,811

Based on space currently under construction, an additional 2,142 hotel rooms will be added in 2009. With regard to subsequent years, we have used the highly constant ratio of hotel rooms per 1,000 square feet of Rentable Building Area of 0.22. This results in an average 1,650 new rooms per annum.

Demand Growth

We start by considering the future employment growth expected in the market. The previously cited CRA publishes their forecast of employment growth for the MSA over the next five years (inclusive of calendar-year 2008), with job growth expected to average 37,480 new jobs for the MSA. We have assumed that 75% of those will be in Washington, D.C. and the seven surrounding counties that form our definition of the Washington, D.C. market.

Next, we have taken the ratio of net office absorption per new job of 235 square feet and multiplied it by the projected job growth. This yields total office demand per year. This net absorption is added to the occupied square feet each year from 2008 to 2012. Finally, we divide the new occupied office square footage by a factor of 16.6 (the average ratio of occupied square feet to occupied hotel room nights). This produces total occupied room nights per year as shown in the following two tables.

Office Supply/Demand Forecast

Year	Total RBA SF	Occupied SF	Avg. Occ. %
2008	413,431,558	368,564,171	89.1%
2009	420,931,558	373,675,421	88.8%
2010	428,431,558	381,166,046	89.0%
2011	435,931,558	389,273,546	89.3%
2012	443,431,558	397,381,046	89.6%

The projected changes in supply and demand net a fairly stable occupancy by 2012 that equates to roughly 90%. Again, this occupancy rate is an indicator of a fairly healthy market.

Hotel Supply/Demand Forecast

Year	Rooms Available	Rooms Occupied	Avg. Occ. %
2008	31,192,900	21,428,564	68.7%
2009	31,974,730	21,736,470	68.0%
2010	32,576,980	22,187,713	68.1%
2011	33,179,230	22,676,116	68.3%
2012	33,781,480	23,164,520	68.6%

Thus, based on our ratios, we can safely predict that demand will continue to grow; however, given the current rate of new supply coming into the market, the overall market occupancy is expected to fall from the year-end 2007 average of 69.6% to 68.0% by 2009, before rebounding slightly to 68.6% by 2012.

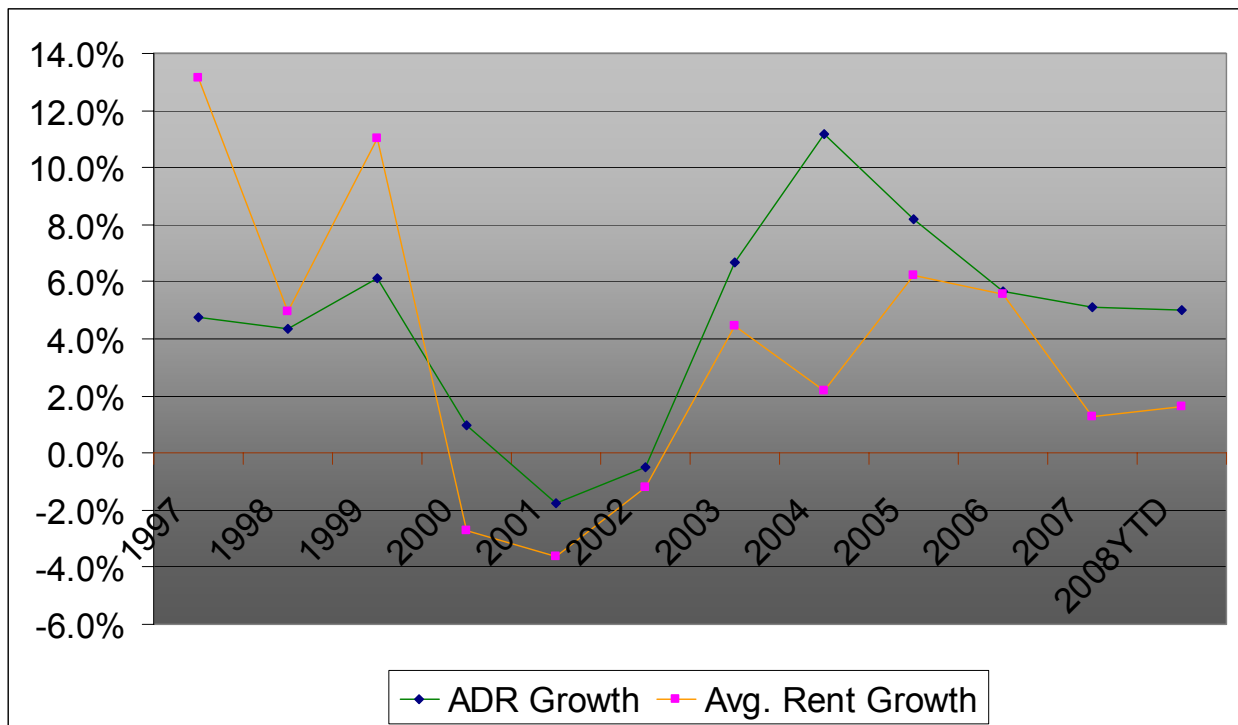
Practical Significance

Simply put, it can be applied in this manner: General Dynamics creates a job out in Reston Town Center on January 1, 2009, and the person hired will need 235 square feet in which to work. That person will not necessarily be staying in the Hilton Garden Inn—Reston, but he/she may host a subcontractor coming into town from Denver for two nights twice a year. He/she may also host a saleswoman from Houston for a Thursday afternoon meeting, and that saleswoman may bring along

her husband and 2.2 children (no dog) to stay for a weekend excursion to the monuments and museums.

COMMENTS ON AVERAGE OFFICE RENT/SQUARE FOOTAGE AND AVERAGE DAILY RATE AT HOTELS

Using data from CoStar and Smith Travel Research, we considered the growth trends of the average rent for office space and ADR at hotels. We found that ADR growth has outpaced that of average rents consistently year-over-year since 2000. This is shown in the following graph.



Source: CoStar and Smith Travel Research

The figures from this graph are summarized in the following table.

Annual Change	ADR	CPI-MSA
20-Year Rate 1987-2007	3.90%	
10-Year Rate 1997-2007	4.50%	2.85%
5-Year Rate 2002-2007	6.18%	3.38%

From 1997 to 2007, ADR grew at 4.50% per annum, compared with the average office rent growth rate of 3.86% per annum. For comparison purposes, the CPI growth for the Washington, D.C. MSA in that period was only 2.85%. The gap widened from 2002 to 2007, when ADR grew by 6.18% per annum compared against the average rent growth rate of 3.40% per annum.

Much of the increase in ADR can be associated with the general shift in room supply from small independent hotels and standard full-service hotels to the upscale select-service chains and luxury brands dominating the new supply.

ADR Forecast

Based on the historical growth rates in the market, a conservative forecast calls for a 4.0% annual growth rate between 2008 and 2012. While the balance of 2008 will likely not see such a robust growth in rates, we expect that it will be offset by stronger years down the road.

RevPAR Forecast

Given our forecast of average occupancy and ADR, we can make the following forecast for RevPAR through 2012.

Year	ADR	Avg. Occ. %	RevPAR
2008	\$163.38	68.7%	\$112.24
2009	\$169.92	68.0%	\$115.51
2010	\$176.72	68.1%	\$120.36
2011	\$183.78	68.3%	\$125.61
2012	\$191.14	68.6%	\$131.07

Break-even / Feasibility Analysis

Based on the current and forecasted RevPAR, we can look at the potential break-even point for a proposed hotel. Let us assume we have a proposed select-service hotel in suburban Washington, D.C. of 135 keys. The hotel is projected to open in 2009 and stabilize by 2012. Starting with a RevPAR of \$131.07 and adding \$4.00 per occupied room for Other Departmental Income, we derive a total income of \$49,299 per key. We have analyzed operating statements from five similar hotels of the same class and quality level in this market and determined that the Expense ratio should be 65%. Therefore, the Net Operating Income amounts to \$17,255 per key. We further estimate that a stabilized overall capitalization rate is 9.0%. This yields a value of \$191,718 per key. Thus, construction costs inclusive of land and developer profit must be less than this benchmark to be feasible.

Our test case is a new hotel currently under development near Dulles Airport. This 135-key, select-service hotel is expected to open by year-end 2008. The development costs amount to \$160,000 per key excluding land and approximately \$185,000 per key all-in. This suggests that the hotel is feasible in the current environment. We present the results of our calculations in the following table.

Select Service Branded Hotel Fairfax County, Virginia	
Stabilized Year	2012
Keys	135
RevPAR	\$131.07
Other Revenue	\$4.00
Total Revenue Per Key	\$49,299
Expense Ratio	65%
NOI	\$17,255
Ro	9.0%
Value Per Key	\$191,718
Cost Per Key	\$185,000

This analysis suggests that new construction is feasible at the projected RevPAR level. Unless a project is already in the pipeline, however, additional new construction is not advisable at this time.

Conclusion

It has been said that war is good for the economy. While this argument is highly debatable on a national level, it is fairly clear that the Washington, D.C. regional economy has benefited from the post-9/11 ramp-up in defense/security spending. This in turn has fueled office demand in key areas such as Fairfax County and in Washington, D.C. proper. Our analysis shows that, while many other factors play into the demand equation, the statistics show a clear connection between supply and demand for office space and hotel rooms. The HVS Employment-Hotel Growth Index clearly demonstrates how one new job can translate into 14 more rooms filled at area hotels. So the next time you find yourself at a cocktail party with a few HR directors, be sure to buy them another round and encourage them to start recruiting.

We thank the following individuals and organizations for their help, insight, and assistance in preparing this article.

Jan Freitag, Vice President of Development, Smith Travel Research
Tim Trainor, Director of Communications, CoStar Group, Inc.
Dr. Stephen Fuller, Director, Center for Regional Analysis at George Mason University

About the Authors



David Fuller, Managing Director of the HVS Washington, D.C. office, has over 17 years of experience in real estate valuation, investment analysis, and consultation. He has a diverse background in the valuation of hotel, commercial, and mixed-use properties nationwide, with extensive experience in market value appraisals, property portfolio consulting and management, investment advisory service, and consulting studies for securitization-equity-based and mortgage-backed transactions.

David's consulting and valuation experience encompasses the research and analysis of real estate markets throughout the Mid-Atlantic and appraisals of hotel properties across the United States. His bank of appraisal assignments includes hotels and motels, industrial facilities, shopping centers and malls, office buildings, subdivisions, golf courses, condominiums, and apartment complexes. David is a Designated Member of the Appraisal Institute (MAI) and a member of the Appraisal Institute Board of Directors, as well as a State Certified appraiser in several states. In addition, David proudly serves on several community boards, including the Board of Directors for the Cleveland Park Club of Washington, D.C.



Caitlin McKenna, a Project Manager with the HVS Washington, D.C. office, serves our clients from a prominent store of academic and professional experience in the industry. Caitlin earned her Bachelor's degree from Cornell University's School of Hotel Administration. Before joining HVS, Caitlin gained extensive hotel consulting and valuation experience working for Joseph J. Blake & Associates and Leitner Group, Inc. Her projects include limited-service hotels, large upscale properties, and master-planned mixed-use luxury developments, spanning primary, secondary, and tertiary markets throughout the United States. Caitlin also specializes in consulting for proposed hotels serving major metropolitan areas. In addition to hotel appraisals, Caitlin has worked in depth on commercial real estate projects ranging from office to retail to residential properties.

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