

Economic and Fiscal Impact of the 2004 Democratic National Convention in Boston

**A Report to
Mayor Thomas M. Menino**



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Introduction

Boston's first-ever political convention, the Democratic National Convention of 2004, is expected to deliver a sizeable economic and fiscal benefit to the Commonwealth of Massachusetts, the five-county metropolitan area, and the City of Boston. The Convention runs between July 26 and July 29, 2004 and is expected to draw more than 35,000 delegates, media and staff along with many political fans and protestors to the City and the surrounding metropolitan area.

The Convention will take place at the FleetCenter, home of the Boston Bruins professional hockey team and the Boston Celtics professional Basketball team. The FleetCenter is capable of seating some 22,000 people, has several restaurants, many luxury boxes, and is convenient to all forms of transportation and lodging. Hotels in downtown Boston, Cambridge, and other reasonably close cities or towns have offered room blocks to delegates to ensure their close proximity to the FleetCenter. Other guests will stay in hotels throughout Boston, Cambridge and the metropolitan area.

This paper attempts to quantify the economic impact, that is, the value-added to Gross Regional Product (GRP) or the dollar value of additional goods and services produced in the region, of such a large convention on the five-county metropolitan area that includes Suffolk, Norfolk, Middlesex, Essex and Plymouth counties¹ and fiscal (tax) impact on the Commonwealth of Massachusetts and the City of Boston.

The researchers have employed the use of a "dynamic input-output" model designed to follow direct spending dollars due to activity related to an event like the Democratic National Convention. As those dollars are spent over and over again, through the economy of a given geographic area and among the many different industries affected by this activity, the model estimates the value of any additional production of goods and services that occur in the region as a result. The total of direct spending is then

¹ See Appendix A for a listing of the cities and towns in those counties.

subtracted from the total of additional Gross Regional Product generated, yielding a “value-added multiplier”.

For example, imagine that you buy a carton of orange juice from the supermarket. The money from the sale of that orange juice is immediately transformed into wages for store employees and profit for the storeowners, wages and profit for the wholesaler and distribution company, and wages and profit for the producer of the orange juice. This is the effect of “direct” spending on goods and services. In this study, whatever portion of the value of that orange juice transaction can be attributed to the region is added to Gross Regional Product. And, when those employees and business-owners then spend those wages and profits earned, generating additional production of goods and services and value-added (some of which can be attributed to the region), there is a secondary benefit to the economy, and so on, and so on. This is the “multiplier” effect.

This paper seeks to accurately measure the indirect, or multiplier-induced, value of additional goods and services produced and state the added Gross Regional Product resulting from direct spending due to the 2004 Democratic National Convention on the five-county metropolitan area economy.

Many similar studies done for other conventions simply attached a multiplier of “2” to the estimated direct spending and ended the study. A multiplier of 2 means that for every dollar in direct spending, another dollar of indirect spending occurs. Most researchers agree that for a larger geographic area, and for sustained spending over a long period of time, a multiplier of 2 is accurate. However, for a short duration event in a highly mobile region such as New England, a multiplier of 2 may not be realistic.

This paper will also attempt to qualify the major state and local taxes that will be affected and then quantify additional collections from those taxes. There will be additional discussion of the ratio of expected State to City of Boston additional tax collections resulting from Convention activity.

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The Participants, the Mayor and the People of Boston, wish to thank Professors Havens and Clayton-Matthews for donating their time and considerable experience to this project. Each gave willingly to this effort free of charge in order to aid the City of Boston in achieving the most accurate reflection of an economic and fiscal impact as could be done with the resources available.

Executive Summary

Boston's first-ever political convention, the Democratic National Convention of 2004, is expected to deliver a sizeable economic benefit to the Commonwealth of Massachusetts and the five-county metropolitan area that includes Suffolk, Norfolk, Middlesex, Essex and Plymouth counties. The Convention runs between July 26 and July 29, 2004 and is expected to draw more than 35,000 delegates, media and staff along with many political fans and protestors to the City of Boston and the surrounding metropolitan area.

The direct spending impact to the metropolitan area economy of guest spending and Boston 2004 Host Committee² spending is estimated to total \$126.1 million. The indirect value-added arising from direct Convention related spending is estimated to total \$28.1 million or approximately an additional \$0.22 of value-added for every dollar of direct spending. In total, direct spending and indirect value-added are expected to add \$154.2 million to the metropolitan area economy.

Direct spending in Suffolk County is estimated to reach \$104.7 million and in the remaining four counties, \$21.4 million, producing additional Gross Regional Product of \$82.2 million and \$71.9 million. Gross Regional Product in Suffolk County that is less than direct spending can be explained by a large portion of direct spending entering the economy of Suffolk County in the form of wages, and then, through a high non-resident labor pool in the county, the removal of those wages from the economy where people work and spending them in the economy closer to their homes, reducing value-added in Suffolk County and increasing it in the remaining four counties. This effect can also be seen in a discussion of personal income that occurs later in this paper

² Based on Boston 2004 Host Committee Agreement with DNCC (Exhibit A – Boston Budget Summary), large portions of this budget will not be spent by the committee itself, but through intermediaries. For example, security spending will be directed by the City of Boston to various state and local police agencies to ensure comprehensive police coverage throughout the event's timeframe and across its geography.

Both direct spending and indirect value-added are expected to produce tax revenue for the Commonwealth of Massachusetts and local governments in the metropolitan area. The Commonwealth and the City of Boston are the two largest expected beneficiaries of additional tax revenue from Convention related spending, taking in an additional \$10.7 million and \$2.0 million, respectively. Overall it is estimated that the Commonwealth will receive additional convention related tax revenues on the order of 5.5 times what the City of Boston can expect from the same event.

The Commonwealth will benefit from increased income, sales and excise taxes along with licensing and other fees from within the metropolitan area. This estimate is likely conservative as the rest of the state and region were not included in this analysis and some Convention direct and indirect spending is likely to leave the area of study. The City of Boston will benefit from increased excise taxes, fines, and fees for licenses and permits.

All guest spending and tax collection estimates from hotel excise reflect capacity limitations of hotels in all markets, the price increases that will occur due to bidding on remaining hotel rooms, added supply from new hotels and expansions in Boston that are expected to be finished by July, and negotiated reduced hotel room rates due to advanced block booking of rooms for delegates through the Democratic National Convention Committee (DNCC). Furthermore, the estimate reflects the net value over a normal July week of hotel business, which is usually strong for Boston-area hotels.

Suburban hotels and therefore, the cities and towns where they are located and the Commonwealth overall, will benefit substantially from both increased room occupancy and average daily room rates increasing tax revenue during the Convention, as they accommodate guests who could not or chose not to stay in Boston. While Boston on the other hand, will see limited tax revenue increases due to more displaced normal business than other areas.

Metropolitan Area Economic Impact

Direct spending by Convention guests is expected to reach \$61.6 million in total, mostly in the hospitality, retail and transportation industries. \$30.0 million will be spent on meals and beverages, retail sales, entertainment and personal services, \$27.3 million on hotel rooms and hospitality suites, and \$4.3 million on transportation related services. Spending in each of these categories was distributed between Suffolk County (\$40.2 million) and the remaining four counties in the metropolitan area (\$21.4 million).

In addition to direct spending by guests at the Convention, Boston 2004 Host Committee direct spending (through intermediaries) is expected to amount to \$64.5 million across 7 major industry groups and 17 private industries. The largest industry group, Local Government, which includes only security and will technically be spent by the City of Boston and distributed among various state and local police agencies, will be \$25.0 million, followed by Services with \$11.8 million, Construction with \$9.2 million, Finance Insurance & Real Estate with \$7.2 million, Transportation, Communication & Utilities with \$7.1 million, Retail with \$3.8 million, and Manufacturing with \$0.4 million. All of Host Committee spending is assumed to take place within Suffolk County.

As mentioned above, in addition to direct spending by guests of the Convention and the Host Committee, there is the economic benefit of indirect value-added. This is the difference between total direct spending and the additional Gross Regional Product produced as a result of that spending. The model and inputs used for this study do not use a multiplier per se, but suggest additional value-added of 1.223 for the metropolitan economy as a whole. This means that for every dollar in direct spending of \$126.1 million by guests and the Host Committee, there will be an additional \$0.22 of value-added, or \$28.1 million in total additional indirect value-added to the metropolitan area economy as Convention related spending cycles through it again and again.

Suffolk County alone will benefit from an initial direct spending impact of \$104.7 million, but will capture only \$82.2 million direct spending impact due to “leakage” of value-added caused in the majority by the wages of non-resident workers leaving the county and being re-spent elsewhere. The remaining four counties of the metropolitan area economy will benefit substantially from \$21.4 million in direct spending and a subsequent \$50.6 million of indirect value-added that includes leakage from Suffolk County. There is additional discussion of “leakage” further in this paper.

Metropolitan Area Economic Impact

Detail of Metropolitan Economic Impact

	Total	Suffolk	Rest of Metro
Gross Regional Product (GRP)	\$ 154,155,120	\$ 82,211,080	\$ 71,944,040
Gross Personal Income	137,381,800	80,824,800	56,557,000
Wage and Salary Disbursements	107,680,000	63,420,000	44,260,000
Net Personal Income (w/ residence adjustment)	106,189,800	28,334,800	77,855,000
<u>Direct Metropolitan Spending Impact:</u>	<u>\$ 126,084,521</u>	<u>\$ 104,713,857</u>	<u>\$ 21,370,664</u>
Guest Spending	\$ 61,583,878	\$ 40,213,214	\$ 21,370,664
Host Committee Spending	\$ 64,500,643	\$ 64,500,643	\$ -
<u>Indirect Metropolitan Value-Added Impact:</u>	<u>\$ 28,070,599</u>	<u>\$ (22,502,777)</u>	<u>\$ 50,573,376</u>
"Multiplier" Value	1.223	0.785	3.366

Return on Investment

Multiplier Return on Total Spending	22.3%	-21.5%	236.6%
Boston 2004 Host Committee	139.0%	27.5%	NA

In sum, the Democratic National Convention of 2004 will give a \$154.2 million dollar boost to the metropolitan area economy through direct spending on goods and services and subsequent rounds of additional sales within the region.

Fiscal (Tax) Impact: Massachusetts and Boston³

The Commonwealth will benefit from increased revenue in Personal and Corporate Income taxes, Sales and Use taxes, Excise taxes and fees from licenses and permits. It is estimated here that the Commonwealth could expect to receive \$5.3 million in additional Personal Income taxes, \$1.1 million in Corporate Income and Business Excise taxes, \$906,000 in added Sales and Use taxes, and \$2.3 million in extra Excise taxes. The total of additional Convention related tax and fee revenue the Commonwealth could expect to receive is at least \$10.7 million. It is expected, although not quantified in this study, that the Commonwealth will receive additional tax revenue from spending “leakage” outside of the metropolitan area economy, but still within the state. The model in use only measures the five county-area and is not equipped to further analyze the additional impact in the remaining regions of the state, therefore that value cannot be presented here.

The City of Boston will benefit as well, but on a much smaller scale than the Commonwealth given the City’s limited avenues of taxation on the sale of goods and services and the wages of workers, where most Convention-activity driven spending will occur. The City should receive an additional \$845,000 in Excise Taxes and approximately \$1.1 million in fines and fees for license and permits. The City can expect limited additional excise tax revenues due to normally high July room occupancy rates to begin with. This will cause business to spill out to hotels in the suburban ring of the metropolitan area, increasing hotel excise revenues in surrounding cities and towns and for the Commonwealth, but limiting additional revenues to the City of Boston from what would normally be collected to a slight increase from added occupancy and increased room rates bid up by strong demand on a limited supply. This effect is explained in more detail later in this paper.

³ Boston additional tax, fine and fee revenues were calculated “outside” of model results. Commonwealth of Massachusetts tax revenues were calculated based on model outputs of personal income and consumption in the case of income and sales taxes, other excise taxes were taken directly from model output and tested with actual Massachusetts tax rates and against actual collections for reasonableness. See Appendix A for more detail.

Tax Impact

	Massachusetts	Boston	Metro	Total
<u>Personal Income Tax</u>	\$ 5,310,500	N/A	N/A	\$ 5,310,500
<u>Corporate & Business Excise Tax</u>	\$ 1,137,963	N/A	N/A	\$ 1,137,963
<u>Sales Tax</u>	\$ 905,872	N/A	N/A	\$ 905,872
Meals	\$ 721,434	N/A	N/A	\$ 721,434
<u>Excise Tax*</u>	\$ 2,265,311	\$ 844,898	\$ 617,326	\$ 3,727,535
Rooms	\$ 1,673,433	\$ 358,389	\$ 617,326	\$ 2,649,148
<u>Licenses, Permits, Fees & Other**</u>	\$ 1,068,630	\$ 1,114,354	N/A	\$ 2,182,984
<u>Total</u>	<u>\$ 10,688,275</u>	<u>\$ 1,959,252</u>	<u>\$ 617,326</u>	
	80.6%	14.8%	4.7%	
<u>Grand Total Tax Impact</u>				<u>\$ 13,264,853</u>
				100.0%
<u>Ratio of State to City Tax Impact</u>	<u>5.5</u>	<u>1.0</u>		

* Includes alcohol, motor vehicle fuel, and tobacco excises for the Commonwealth and Jet Fuel for the City of Boston

** Includes vehicle rental surcharge, sightseeing, motor vehicle licensing and unemployment insurance contributions for the Commonwealth and local vehicle rental surcharge for Boston

NOTE: Some revenue presented here is committed to special purposes for both the Commonwealth and the City of Boston and will not be available for appropriation.

Overall, the Commonwealth will receive 80% of the total estimated tax revenue generated from Convention direct and indirect spending. The City of Boston will receive 15% and surrounding cities and towns in the metropolitan area, about 5%. As is the case with most large events held in the City of Boston, nearly 85% of the tax revenue benefit goes to other governments of the Commonwealth.

The following pages detail the analysis done and define all inputs and data sources of this study.

Explanation of Results

To estimate the economic impact of the Convention on the metropolitan area economy, the researchers have utilized a “dynamic” or “input-output” model developed by Regional Economic Models, Inc. (REMI). REMI⁴ is an Amherst, Massachusetts-based company that has developed and sold economic modeling software since 1980. Several agencies of the Commonwealth of Massachusetts own and employ REMI models as well as many cities and the majority of states across the country. The REMI model is an economic forecasting and policy analysis model. In this study, estimated dollar values of direct spending were input by region (Suffolk County versus the remaining four counties in the metropolitan area) and associated with industries where such spending will likely take place. The model then estimates the effects of that direct industry spending on the output of all industries in a designated area and totals that output into numerous statistics including Gross Regional Product, Personal Income, Consumption and many others⁵.

Displaced Normal Activity (Opportunity Cost)

The economic and fiscal impact measurements have attempted to account for normal economic activity that will be displaced by convention business in industries that have strict capacity limitations, namely hotels, and especially in Boston. Put more simply, during this week in July, there will certainly be other Boston hotel guests that no longer are able to find a room in their desired location, or if they can, the price may be much higher than normal due to bidding on limited remaining available rooms. There can be argument over whether some business is gone forever, creating an “opportunity” cost, or if the business has just moved to other localities. We have reason to believe there is very little opportunity cost given that the event has been so well publicized that other travelers will simply utilize the excess capacity available in the surrounding metropolitan area hotels. The suburban market will, with normal occupancy rates, be able to absorb

⁴ See Appendix B for a detailed description of REMI from their website www.remi.com

⁵ See Appendix A for detailed REMI output variables and values.

nearly all of this displaced Boston business as they usually depend on spillover from the larger Boston market to begin with. This constitutes a “re-shuffling of the deck” rather than a true opportunity cost. Analysis of expected net hotel revenue during this week reveals that the increased hotel business (occupancy and average daily room rates above normal) almost fully offsets the loss expected from displaced normal business and additionally, total revenue of hotels will increase by 76% over what would be normal.

Direct Economic Impact

For the purpose of this analysis, direct spending has been divided between “Guest Spending” and “Host Committee Spending”. These two groups constitute all of direct spending for the Convention. Both are estimated, based on spending patterns of other conventions in the case of Guest Spending, or on a spending agreement, in the case of the Boston 2004 Host Committee. Specific assumption details are provided below.

Guest Spending

Guest spending includes delegates, media and staff attending events for the Convention. The number of people (35,000) expected to attend in total was estimated by the Boston 2004 Host Committee and the estimated number in each of the above mentioned groups was derived by weighted average from a study done for the 2000 Democratic National Convention held in Los Angeles.

Estimated Convention Guests by Group

Delegates/Family	8,933
Media	3,689
Technical Media	11,066
Staff/Other	11,312
<hr/>	
Total	35,000
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The number of projected Boston hotel rooms available (16,240) by the date of the convention (this number includes an estimate of small hotels and inns) was taken from a recently revised report on Boston's hotel industry prepared by the Boston Redevelopment Authority (BRA), and the number of suburban hotel rooms (26,998) from the "Outlook 2004" presentation of Boston/Cambridge and Suburban Boston hotel markets by Pinnacle Advisory Group.

The researchers have estimated hotel room rates to be paid by guests from projected future hotel market conditions⁶, accounted for the obvious geographical driven price differences between hotels in Boston/Cambridge and Suburban Boston (Suburban Boston rates average 57% of Boston/Cambridge average rates), and estimated price pressures resulting from strong convention-related demand. To measure this price pressure, an informal survey of two popular travel websites was done for 18 Suburban Boston and 11 Boston hotels. Only hotels that still had available rooms for the week of the Convention were surveyed. Average daily room rates for the week of the Convention were compared to average daily room rates for the week following. Suburban Boston room rates increased an average of 45.8% between the two periods and Boston/Cambridge room rates increased an average of 50.7%.

Guest's estimated average length of stay of 6.9 nights was derived from the Los Angeles 2000 study using a weighted average of the estimated length of stay for all the different groups of attendees found in that report. A person per-room factor of 1.6 was estimated by comparing Greater Boston Convention and Visitors Bureau (GBCVB) statistics of total annual visitors, lodging choices and actual hotel occupancy rates over the same period. Total guests of 35,000, times an average of 6.9 nights per guest, divided by 1.6 people per hotel room, reveals the need for 21,875 hotel rooms for a total of 150,938 room nights for the Convention. The number of hotel rooms needed by region was then estimated assuming block-bookings by the Democratic National Convention

⁶ Based on discussions between the BRA and Pinnacle Advisory Group, the researchers believe that a small recovery in the Boston hotel market will occur with room rates and occupancy that mirrors 2002 results. Therefore 2002 data was used for the normal or "baseline" room occupancy and rates.

Committee (DNCC) in each region and then filling Boston hotel rooms first, moving outward to suburban hotels.

Guest meal and beverage, retail, entertainment and other spending of \$124 per day, transportation spending of \$18 per day and hospitality spending of \$12 per day (included with hotel below), are all based on data of convention attendee spending gathered by the Greater Boston Convention and Visitors Bureau for 2003⁷. The hotel rate is the weighted average of all estimated hotel rates in effect during the Convention week. There are assumed to be approximately 13,000 rooms at pre-determined rates in Boston, Cambridge and some surrounding cities and towns reserved in blocks for Convention delegates, their families, and others by the DNCC. The rates charged for remaining available rooms will be subject to substantial market pricing pressure. It is estimated the most hotels in the metropolitan area will be near capacity at 95% occupancy during the Convention week due to both Convention business and normal business during the July busy season.

All of the spending for these variables was divided in to the respective industries where the funds will likely be spent and input into the model.

Estimated guest spending totals \$61.6 million, the bulk of which arises from spending on meals, retail, entertainment and other services. This was followed closely by hotel and hospitality spending, and then transportation spending.

Guest Spending

	Average Daily Spending	Total
Sales	\$ 124.00	\$ 29,946,000
Meals/Beverages	\$ 62.00	\$ 14,973,000
Retail	\$ 38.00	\$ 9,177,000
Entertainment	\$ 16.00	\$ 3,864,000
Other	\$ 8.00	\$ 1,932,000
Hotels and Hospitality	\$ 210.95	\$ 27,290,878
Transportation	\$ 18.00	\$ 4,347,000
Total	\$ 352.95	\$ 61,583,878

⁷ See Appendix A for GBCVB data details.

Host Committee Spending

Host Committee spending is the total of projected spending through the Boston 2004 Host Committee detailed in their agreement with DNCC, plus added security costs that have been determined since the Convention has been designated by Congress as a “national security event”. The major categories include Host Committee, Production, Convention Complex, City Insurance, Data Communications, Office Space, Security, Telecommunications, and Transportation.

The detailed figures in the agreement were then matched to appropriate industries where the funds will be spent and input to the model.

Host Committee Spending

Host Committee	\$	3,024,900
Production	\$	5,199,000
Convention Complex	\$	16,528,920
City Insurance Obligations	\$	3,950,000
Data Communications	\$	2,732,750
Hotel and Low-Cost Housing	\$	130,800
Office Space	\$	2,559,723
Security	\$	25,000,000
Telecommunications	\$	2,966,500
Transportation	\$	1,719,170
Host Committee Contingency	\$	100,000
DNC Committee Contingency	\$	588,880
		Total \$ 64,500,643

Estimated Host Committee direct spending totals \$64.5 million. The largest spending by industry⁸ occurs in Local Government for police and security services at \$25 million. Services receives the next largest amount of spending on Business and Professional Services with \$11.8 million. Services is followed by Construction with \$9.2 million, Finance, Insurance and Real Estate (FIRE) with \$7.2 million and Transportation

⁸ For more detailed industry spending see Appendix A.

with \$7.1 million. Host committee spending by industry wraps up with \$3.8 million in Retail spending and \$420,000 in Manufacturing with spending on printed materials.

Host Committee Spending

Government (Security/Police)	\$	25,000,000
Services	\$	11,822,600
Construction	\$	9,195,000
Finance Insurance & Real Estate	\$	7,199,723
Transportation & Communication & Utilities	\$	7,060,570
Retail	\$	3,802,750
Manufacturing	\$	420,000
Total		\$ 64,500,643

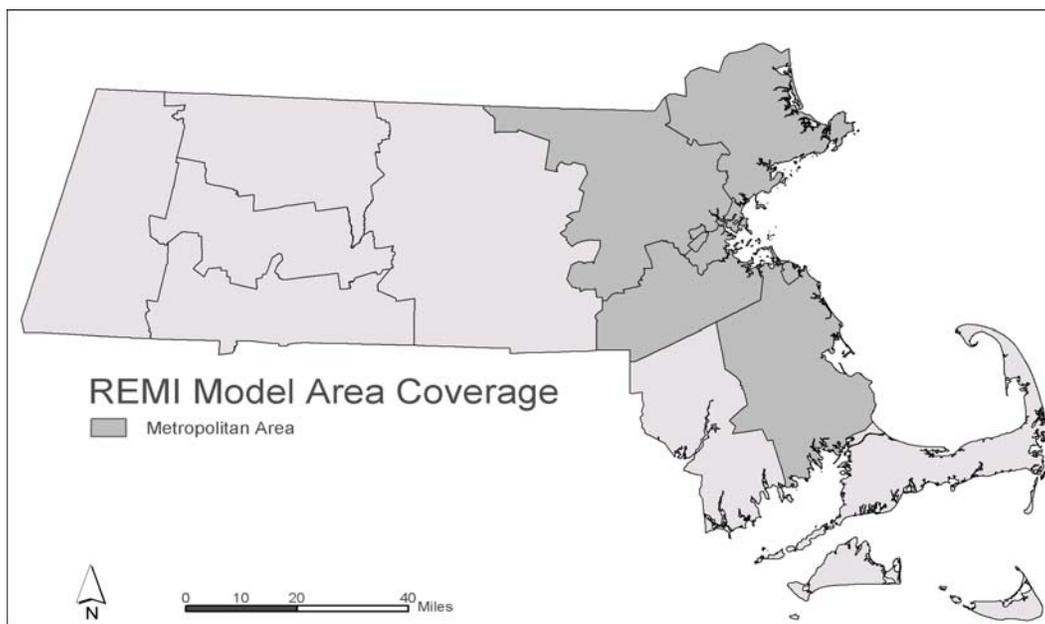
Indirect Value-Added and “Leakage”

Indirect value-added from Convention related direct spending adds an additional \$28.1 million to the metropolitan area economy. These funds are the difference between additional Gross Regional Product of \$154.2 million and \$126.1 million in direct spending estimated to be generated in association with the Convention. The reason that the value-added is just roughly one-sixth of the direct spending that generates it is that as direct spending moves through the metropolitan area economy – it also moves out of the metropolitan economy. This effect is sometimes referred to as “leakage”, and it is simply a statement of fact that much of the economic impact generated in a region will “leak” to other regions due mostly to the geographic location of inputs outside of the region being analyzed (think of imports from China as an extreme example) and labor mobility (seen in Suffolk County results), especially in a small geographic area as is under consideration here. In addition, taxes paid to governments and savings by individuals are both also considered leakage.

To accurately measure the value of leakage, the researchers would need to model the economic impact of the Convention on successively larger geographic regions that

surround the five-county metropolitan area such as Massachusetts and New England, and then subtract the additional Gross Regional Product of the metropolitan area from one of the larger area’s additional Gross Regional Product. This difference could be labeled leakage from the metropolitan area economy. The researchers had neither the time nor resources to engage in the necessary further study of the issue in order to quantify its value for all regions that could be affected, but the effect can be seen in the difference between direct spending in Suffolk County and its resulting Gross Regional Product. Of the additional \$104.7 million in direct spending generated by the Convention in the county, only \$82.2 million remains while \$22.5 million “leaks” to the remaining four counties.

Leakage, in this study, has its most troubling effect when estimating the value of expected tax benefits to the larger governments. It has the effect of reducing the estimated value of additional tax revenue generated by the Convention to the Commonwealth of Massachusetts, as some of this leaked output is retained in the state economy as taxable sales and income, but outside of the metropolitan area economy



being studied here, and is therefore not measured due to the limitations of the model in use as mentioned earlier.

Fiscal (Tax) Impact⁹

While the REMI model output contains an estimate of jobs to be created by direct and indirect spending such as will occur with the Convention, it also assumes that this spending will occur over the course of a year. Drawing out spending such as this would likely generate jobs in an economy, as managers would seek to hire additional employees to match the incremental added demand on their businesses. But with a short duration of spending, even as large as is estimated to accompany the Convention, it is more likely that businesses will use existing employees on overtime shifts and possibly temporary help to fulfill their needs rather than invest in additional permanent employees.

Massachusetts Personal Income Taxes

Since it is assumed very few additional workers will actually be hired for Convention related work and that most will already have been gainfully employed, increased wages, especially in service industries, will arise from overtime work of existing labor or short-term temporary help. Since each of these groups consists of individuals who have very likely earned Massachusetts income in excess of the personal exemption allowed in Massachusetts law in tax year 2004 prior to this event, it is assumed that the effective income tax rate will be very close to the existing marginal Massachusetts personal income tax rate of 5.3%. To account for error in that some temporary employees will likely be hired that have not earned wages above the personal exemption for the tax year and to account for unused deductions and credits against taxable income that could now be fully utilized with the additional income, the researchers have chosen to use an effective personal income tax rate of 5.0% instead of

⁹ Boston additional tax, fine and fee revenues were calculated “outside” of model results. Commonwealth of Massachusetts tax revenues were calculated based on model outputs of personal income and consumption in the case of income and sales taxes, other excise taxes were taken directly from model output and tested with actual Massachusetts tax rates and against actual collections for reasonableness. See Appendix A for more detail.

the full value of the current marginal tax rate to make estimates of the personal income tax that will be generated by the Convention.

The 5.0% assumed rate is applied to all income projected to be generated, including capital gains and interest and dividend income. Since some of these latter types of income would be taxed at a higher rate than the marginal rate on wages and salaries, short-term capital gains for example, this estimate is more conservative by that additional factor, although very little additional non-wage and salary income is expected.

Gross personal income before taxes and adjustments, associated with convention spending, is estimated by the REMI model to be \$137.4 million. A taxable income proxy was developed by reducing Gross Personal Income by the value of some common reductions to wages and salaries of workers and a net loss due to worker residency outside of the metropolitan area of study. This in turn generates a taxable income base proxy of \$106.2 million and, subsequently, a total of \$5.3 million of personal income taxes for the Commonwealth.

Calculation of Personal and Taxable Income

	Suffolk County	Four County-Area	Total
Wage & Salary Disbursements	\$ 63,420,000	\$ 44,260,000	\$ 107,680,000
Proprietor's & Other Labor Income	16,670,000	10,800,000	27,470,000
Dividend, Interest & Rental Income	734,800	1,497,000	2,231,800
Gross Personal Income	80,824,800	56,557,000	137,381,800
Social Insurance Contributions	(4,441,000)	(3,253,000)	(7,694,000)
Transfer Payments	(1,569,000)	(5,999,000)	(7,568,000)
Net Residence Adjustment	(46,480,000)	30,550,000	(15,930,000)
Net Personal Income (Taxable Income Proxy)	\$ 28,334,800	\$ 77,855,000	\$ 106,189,800

Massachusetts Corporate Income and Business Excise Taxes

Corporate Income Tax may be slightly over-stated due to the inability of researchers to apply direct spending to specific tourism-related industries within the model's framework and the complexity of the Massachusetts corporate income tax

structure. The difference, however, likely has little substantial effect on the overall outcome of this analysis. An estimated effective rate of tax of 9.5% was used to generate the taxable income base from the REMI model output of estimated corporate income tax generated. Corporate income tax is projected to reach \$718,000 based on an estimated \$7.6 million in taxable income.

Other Business Excise taxes are expected to be generated in Insurance and Public Utilities due to spending through the Host Committee in each sector. Effective tax ratesⁱ of 1.92% on premiums of insurance companies and 6.5% on income of utilities were derived and applied to spending. Insurance excise tax is expected to total \$76,000 and Public Utility Excise, \$345,000.

Massachusetts Sales and Use Taxes

Due to the considerable expected consumption by convention guests on meals and beverages and taxable retail sales and services (Host Committee spending on tangible personal property is exempt from taxation as a 501-(C)(3) non-profit corporation), sales and use taxes associated with convention spending are expected to be robust. Overall, taxable spending is expected to amount to \$18.1 million and generate \$906,000 in sales and use tax revenue for the Commonwealth.

Taxable convention-related sales of food and beverages alone, is estimated to total \$14.4 million, or approximately \$60.00 per day, per person in attendance. At the operative 5.0% tax rate, this amounts to \$721,000 in meals taxes generated for the Commonwealth.

Taxable sales and use of tangible personal property is expected to amount to \$3.3 million, or about \$13.66 per guest each day, and generate \$164,000 in sales and use taxes. Telecommunication Services sales and use tax is estimated to be \$21,000 on taxable sales of \$411,000, or approximately \$2.72 per convention-related hotel room per day.

Most taxable spending on motor vehicles is expected to occur within Host Committee spending or among government agencies, and therefore will be tax exempt.

Massachusetts and Boston Excise Taxes

Excise taxes from hotel rooms, jet fuel, tobacco, motor fuels, and alcoholic beverages will all be affected by such a large convention coming to Boston. Excise taxes are direct taxes on very specific products and activities. The overall design of excise taxes is to help governments cope with activities that will, when increased, raise the baseline demand of government services. Conventions are one example of that type of activity.

The Room Occupancy Excise tax estimates are net of what would be normal July activity in the Boston, Cambridge and Suburban hotel markets. Estimated taxable revenues are adjusted by subtracting the value of normal business that would have occurred without the Convention.

Furthermore, a “crowding out” effect in the Boston market will serve to substantially increase suburban occupancy rates to the maximum (assumed here to be 95%) increasing room rates as a result, and therefore, tax revenue. It is estimated that approximately 11,500 rooms in Boston and Cambridge associated with normal business will be replaced with Convention business and that 9,026 of those rooms will be absorbed by the suburban hotel market, yielding a net loss of 2,474 hotel room occupancies within the model coverage area if all business were to be accommodated. This effect yields little opportunity cost to Commonwealth room occupancy revenues as there is nearly enough total room supply to meet the total of normal and Convention demand, but it does serve to limit additional Boston local room occupancy tax revenues while increasing revenues to suburban cities and towns. The suburban hotel market routinely absorbs Boston market “overflow” hotel guests in this fashion.

Hotel Room "Crowding-out" & "Re-shuffling" Effects

	Total Rooms as of July 2004	Normal Occupancy	Normal Rooms Occupied	Remaining Rooms	Needed Convention Rooms	Displaced Normal Business	"Re-Shuffled" Market @ 95% Occupancy
Boston	16,240	80%	12,992	3,248	15,428	(12,992)	15,428
Cambridge	2,535	80%	2,028	507	2,408	(2,028)	2,408
Metro	26,998	72%	19,439	7,559	4,039	3,520	25,648
Total	45,773		34,459	11,314	21,875	(11,500)	43,484
Net Addition to Room Occupancy							9,026

In the case of revenues, this effect translates into very strong price pressure on the remaining room rates after early Convention related booking takes place. A survey of popular travel websites indicates that Boston hotels that still have vacancies for the Convention week are charging an average of 50.7% more for those rooms than the week after the Convention and Suburban Boston hotels are charging 45.8% more as well. This added price pressure will serve to increase hotel revenues by more than 75% during the Convention week over what would be earned during a normal July week.

Additional Room Occupancy excise tax to the Commonwealth will total \$1.7 million and \$360,000 to Boston based on these assumptions.

Other additional revenues from excises, such as motor fuel, tobacco and alcoholic beverages will total \$592,000 for the Commonwealth and jet fuel for Boston will total \$487,000.

Net Hotel Activity and Revenue by Market

	July Occupancy	July Room Rate	Total Rooms	Occupied Rooms	Vacant Rooms	Revenue for 6.9 Days
<i>Baseline July Hotel Market Activity</i>						
Boston	80%	\$ 160.00	16,240	12,992	3,248	\$ 14,343,168
Cambridge	80%	\$ 160.00	2,535	2,028	507	\$ 2,238,912
Metro	72%	\$ 117.00	26,998	19,439	7,559	\$ 15,692,749
			45,773	34,459	11,314	\$ 32,274,829
<i>Convention Delegates - Discounted Block Rooms</i>						
Boston	100%	\$ 206.04	9,771	9,771	-	\$ 13,891,196
Cambridge	100%	\$ 199.79	1,526	1,526	-	\$ 2,103,669
Metro	100%	\$ 137.86	1,752	1,752	-	\$ 1,666,562
			13,049	13,049	-	\$ 17,661,427
<i>Other Business/Overflow Convention Business</i>						
Boston	95%	\$ 241.12	6,469	5,657	812	\$ 9,411,709
Cambridge	95%	\$ 241.12	1,009	882	127	\$ 1,467,824
Metro	95%	\$ 170.59	25,246	23,896	1,350	\$ 28,126,747
			32,724	30,435	2,289	\$ 39,006,280
<i>Total Convention Week Business</i>						
Boston			16,240	15,428		\$ 23,302,905
Cambridge			2,535	2,408		\$ 3,571,493
Metro			26,998	25,648		\$ 29,793,309
						\$ 56,667,707
Increase from Baseline						75.6%

Massachusetts and Boston Total Taxes

Overall, it is expected that the Commonwealth, within the metropolitan area economy, will receive a total of at least \$10.7 million in additional Income, Sales and Use, and Excise taxes in addition to fees for licenses and permits from Convention-driven activity spending. This compares to a Boston total of an additional \$2.0 million in excise taxes, fines and fees for licenses and permits. These amounts equal a ratio of additional Commonwealth revenue to City of Boston revenue of approximately 5.5 to 1.0. In other words, for every \$1 the City collects in taxes and fees due to the Convention, the State collects \$5.50 in taxes and fees.

It is expected, although not quantified in this study, that the Commonwealth will receive additional tax revenue from spending and sales leakage outside of the metropolitan area economy, but still within the state. As stated earlier, the model in use only measures the five county-area and is not equipped to further analyze the additional impact in the remaining regions of the state.

Conclusion

The 2004 Democratic National Convention to be held in Boston July 26 to July 29, 2004, will attract more than 35,000 delegates, media and staff to Boston and surrounding cities and towns. They will stay an average of 6.9 nights and occupy approximately 21,875 hotel rooms at an average rate of \$211 (including hospitality suites). They will spend an average of \$124 each per day, on meals and beverages, retail purchases, entertainment, and other services along with about \$18 each per day for transportation to and from events around the area.

Overall, value-added to the Gross Regional Product of the metropolitan area economy will total \$154.2 million. As each dollar directly spent in association with the Convention is re-spent repeatedly, it will produce an additional \$28.1 million in value added to direct spending of \$126.1 million. Suffolk County will suffer from leakage of added value as it moves out of the county in into the surrounding four-county area through the wages of the large non-resident labor pool of Boston employment.

\$13.3 million in additional tax revenue will accrue to the Commonwealth, the City of Boston and surrounding cities and towns. The Commonwealth will collect 80% of this revenue, Boston, 15%, and the other cities and towns the remaining 5%. The Commonwealth's 80%, or \$10.7 million translates into 5.5 times Boston's 15% or \$2 million in additional tax collections.

The Convention will produce a sizeable economic and fiscal benefit to the Commonwealth, Metropolitan, and Boston economies and their respective tax collections.

Appendix A - Inputs & Results

2004 Democratic National Convention

Boston, Massachusetts

Event Dates: July 26 to July 29, 2004

1. Estimation of Gross Convention Economic Impact, Regional Economic Modeling, Inc. (REMI)

Metropolitan Area Economic ImpactDetail of Metropolitan Economic Impact

	Total	Suffolk	Rest of Metro
Gross Regional Product (GRP)	\$ 154,155,120	\$ 82,211,080	\$ 71,944,040
Gross Personal Income	137,381,800	80,824,800	56,557,000
Wage and Salary Disbursements	107,680,000	63,420,000	44,260,000
Net Personal Income (w/ residence adjustment)	106,189,800	28,334,800	77,855,000
<u>Direct Metropolitan Spending Impact:</u>	<u>\$ 126,084,521</u>	<u>\$ 104,713,857</u>	<u>\$ 21,370,664</u>
Guest Spending	\$ 61,583,878	\$ 40,213,214	\$ 21,370,664
Host Committee Spending	\$ 64,500,643	\$ 64,500,643	\$ -
<u>Indirect Metropolitan Value-Added Impact:</u>	<u>\$ 28,070,599</u>	<u>\$ (22,502,777)</u>	<u>\$ 50,573,376</u>
"Multiplier" Value	1.223	0.785	3.366

Return on Investment

Multiplier Return on Total Spending	22.3%	-21.5%	236.6%
Boston 2004 Host Committee	139.0%	27.5%	NA

2004 Democratic National Convention

Boston, Massachusetts

Event Dates: July 26 to July 29, 2004

2. Estimation of Gross and City (Boston) Tax Impact

Tax Impact

	Massachusetts	Boston	Metro	Total
<u>Personal Income Tax</u>	\$ 5,310,500	N/A	N/A	\$ 5,310,500
<u>Corporate & Business Excise Tax</u>	\$ 1,137,963	N/A	N/A	\$ 1,137,963
<u>Sales Tax</u>	\$ 905,872	N/A	N/A	\$ 905,872
Meals	\$ 721,434	N/A	N/A	\$ 721,434
<u>Excise Tax*</u>	\$ 3,084,627	\$ 844,898	\$ 617,326	\$ 4,546,851
Rooms	\$ 2,492,749	\$ 358,389	\$ 617,326	\$ 3,468,464
<u>Licenses, Permits, Fees & Other**</u>	\$ 1,068,630	\$ 1,114,354	N/A	\$ 2,182,984
<u>Total</u>	<u>\$ 11,507,591</u>	<u>\$ 1,959,252</u>	<u>\$ 617,326</u>	
	81.7%	13.9%	4.4%	
<u>Grand Total Tax Impact</u>				<u>\$ 14,084,169</u>
				100.0%
<u>Ratio of State to City Tax Impact</u>	<u>5.9</u>	<u>1.0</u>		

* Includes alcohol, motor vehicle fuel, and tobacco excises for the Commonwealth and Jet Fuel for the City of Boston

** Includes vehicle rental surcharge, sightseeing, motor vehicle licensing and unemployment insurance contributions for the Commonwealth and local vehicle rental surcharge for Boston

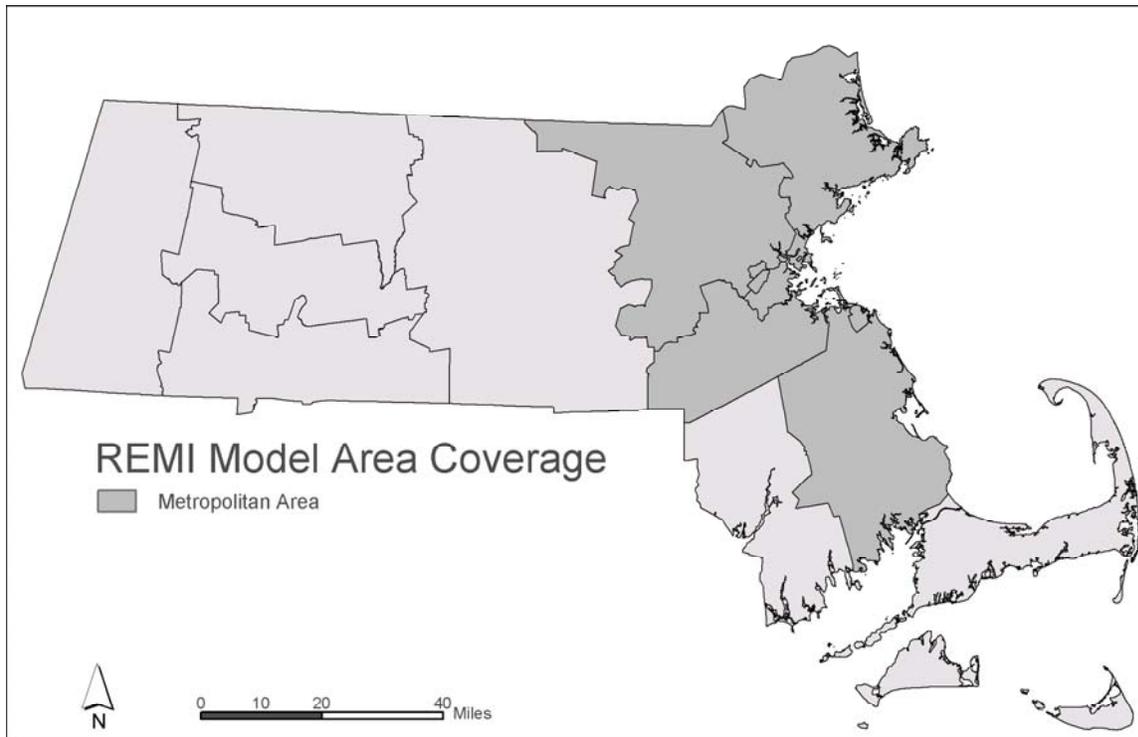
NOTE: Some revenue presented here is committed to special purposes for both the Commonwealth and the City of Boston and will not be available for appropriation.

Boston

Suffolk County	Boston, Chelsea, Revere, Winthrop
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Five-County Metro- Area

Suffolk	Boston, Chelsea, Revere, Winthrop
Norfolk	Avon, Bellingham, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxborough, Franklin, Holbrook, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood, Plainville, Quincy, Randolph, Sharon, Stoughton, Walpole, Wellesley, Westwood, Weymouth, Wrentham
Middlesex	Acton, Arlington, Ashby, Ashland, Ayer, Bedford, Belmont, Billerica, Boxborough, Burlington, Cambridge, Carlisle, Chelmsford, Concord, Dracut, Dunstable, Everett, Framingham, Groton, Holliston, Hopkinton, Hudson, Lexington, Lincoln, Littleton, Lowell, Malden, Marlborough, Maynard, Medford, Melrose, Natick, Newton, North Reading, Pepperell, Reading, Sherborn, Shirley, Somerville, Stoneham, Stow, Sudbury, Tewksbury, Townsend, Tyngsborough, Wakefield, Waltham, Watertown, Wayland, Westford, Weston, Wilmington, Winchester, Woburn
Essex	Amesbury, Andover, Beverly, Boxford, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence, Lynn, Lynnfield, Manchester-by-the-Sea, Marblehead, Merrimac, Methuen, Middleton, Nahant, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salem, Salisbury, Saugus, Swampscott, Topsfield, Wenham, West Newbury
Plymouth	Abington, Bridgewater, Brockton, Carver, Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham, Hull, Kingston, Lakeville, Marion, Marshfield, Mattapoisett, Middleborough, Norwell, Pembroke, Plymouth, Plympton, Rochester, Rockland, Scituate, Wareham, West Bridgewater, Whitman



REMI version 5.5 - Variables in DNC Run
 January, 2004
 Total Dollar Impact

GUEST SPENDING

OVERALL ASSUMPTIONS	Value	Metric	Source
Delegates, Media and Support	35,000	People	Los Angeles Study (PKF)
Average Stay	6.9	Weighted Average Days	BRA/OBM/Los Angeles Study calculation
People per Room	1.6	Ratio	Los Angeles Study (PKF)
Rooms Needed	21,875	Number	BRA/OBM calculation
Room Days	150,938	Number	BRA/OBM calculation
Visitor Days	241,500	Number	BRA/OBM calculation
HOTELS			
Boston Daily Room Rate (all)	\$ 218.90	Weighted Average	GBCVB Data/Pinnacle
Metro Daily Room Rate (all)	\$ 178.99	Weighted Average	GBCVB Data/Pinnacle
Hospitality Suite (Boston only)	\$ 12.00	per day, per person	GBCVB Data/Pinnacle
Boston Revenue (Net of loss)*	\$ 12,150,914	Dollars	BRA/OBM calculation
Metro Revenue (Net of loss)*	\$ 15,139,964	Dollars	BRA/OBM calculation
Sub-total	\$ 27,290,878	Dollars	BRA/OBM calculation
SALES			
Meals/Beverages	\$ 62.00	per people day	GBCVB Data
Retail	\$ 38.00	per people day	GBCVB Data
Entertainment	\$ 16.00	per people day	GBCVB Data
Other	\$ 8.00	per people day	GBCVB Data
	\$ 124.00		
Boston 85%	\$ 25,454,100	Dollars	BRA/OBM calculation
Metro 15%	\$ 4,491,900	Dollars	BRA/OBM calculation
Sub-total	\$ 29,946,000	Dollars	BRA/OBM calculation
TRANSPORTATION			
Cab, Limo, T	\$ 18.00	per people day	GBCVB Data
Boston 60%	\$ 2,608,200	Dollars	BRA/OBM calculation
Metro 40%	\$ 1,738,800	Dollars	BRA/OBM calculation
Sub-total	\$ 4,347,000	Dollars	BRA/OBM calculation
TOTAL Guest Spending	\$ 61,583,878	Dollars	BRA/OBM calculation

*Hotel spending includes the estimated incremental cost of increased room rates to non-convention block room convention-related guests and to all other hotel guests during the Convention week.

REMI version 5.5 - Variables in DNC Run
 January, 2004
 Total Dollar Impact

HOST COMMITTEE SPENDING*

Host Committee	Budgeted Funds	REMI Industry	Factor
56 state and territorial delegation events	\$ 1,000,000	Hotels, Eating, non-profit org.	Hotels 34%, Eating 33%, Non-profit 33%
Media reception	\$ 800,000	Eating, Amusement and Rec.	50% each
Hospitality lounges	\$ 200,000	Amusement and Rec.	100%
DNCC hospitality lounge	\$ 100,000	Amusement and Rec.	100%
Information kiosks	\$ 65,000	Miscellaneous Business Services	100%
Delegate packets	\$ 400,000	Printing	100%
Directional signs	\$ 20,000	Printing	100%
Volunteer coordinator and support staff	\$ 100,000	Misc. Business Services	100%
People with disabilities coordinator and staff	\$ 100,000	Misc. Business Services	100%
Staff transportation	\$ 39,900	Local and Interurban Transportation	100%
Public demonstration area	\$ 100,000	Construction	100%
Outreach coordinator and support staff	\$ 100,000	Misc. Business Services	100%
Sub-total	\$ 3,024,900		
Production			
Lighting system	\$ 1,026,000	Professional	100%
Audio system	\$ 500,000	Communication	100%
In-house communication system	\$ 75,000	Communication	100%
Teleprompter system	\$ 150,000	Communication	100%
LEDs or digital video projector system	\$ 162,000	Professional	100%
Production designer	\$ 100,000	Professional	100%
Podium backdrop	\$ 1,026,000	Professional	100%
Decorations, balloon drop, delegation placards	\$ 378,000	Misc. Business Services	100%
Production personnel	\$ 1,782,000	Misc. Business Services	100%
Sub-total	\$ 5,199,000		
Convention Complex			
FleetCenter lease	\$ 3,500,000	Amusement & Rec.	100%
TV control room, satellite, video facilities	\$ 800,000	communications	100%
Electrical power/electrical distribution	\$ 810,000	Public Utilities	100%
Janitorial services	\$ 231,120	Services to Dwellings and Other Buildings	100%
Construction manager, architects, engineers, contractor	\$ 531,300	Engineering and Architectural Services	100%
Construction and set assembly	\$ 3,375,000	Construction	100%
Media work space	\$ 5,720,000	New Communications Facilities	100%
Equipment, vehicle, satellite, truck space	\$ 690,000	Real Estate	100%
Other convention complex items	\$ 871,500	Misc. Business Services	100%
Sub-total	\$ 16,528,920		
Insurance Obligations	\$ 3,950,000	Insurance	100%
Data Communications	\$ 2,732,750	Rest of Retail	100%
Hotel and Low-Cost Housing	\$ 130,800	Misc. Business Services	100%
Office Space	\$ 2,559,723	Real Estate	100%
Security	\$ 25,000,000	Local Government	100%
Telecommunications	\$ 2,966,500	Public Utilities	100%
Transportation	\$ 1,719,170	Local and Interurban Transportation	100%
Host Committee Contingency	\$ 100,000	Misc. Business Services	100%
DNC Committee Contingency	\$ 588,880	Misc. Business Services	100%
Grand Total	\$ 64,500,643		

REMI Total of Inputs from DNC Budget by Industry

Industry	Spending	Industry Group
Printing	\$ 420,000	Manufacturing
Construction	\$ 3,475,000	Construction
New Communications Facilities	\$ 5,720,000	Construction
Local and Interurban Transportation	\$ 1,759,070	TCU
Communication	\$ 1,525,000	TCU
Public Utilities	\$ 3,776,500	TCU
Hotels	\$ 340,000	Retail
Eating and Drinking	\$ 730,000	Retail
Rest of Retail	\$ 2,732,750	Retail
Real Estate	\$ 3,249,723	FIRE
Insurance	\$ 3,950,000	FIRE
Non-profit Organizations	\$ 330,000	Services
Amusement and Recreation	\$ 4,200,000	Services
Miscellaneous Business Services	\$ 4,216,180	Services
Miscellaneous Professional Services	\$ 2,314,000	Services
Services to Dwellings and Other Buildings	\$ 231,120	Services
Engineering and Architectural Services	\$ 531,300	Services
State & Local Government spending	\$ 25,000,000	Police
TOTAL	\$ 64,500,643	

State Tax Assumptions

	Effective Tax Rate*	Direct or Induced Revenue	Estimated Tax Collections
Personal Income Tax	5.00%	\$ 106,210,000	\$ 5,310,500
Sales			
Tangible*	5.00%	\$ 3,278,226	\$ 163,911
Services*	5.00%	\$ 410,531	\$ 20,527
Meal*	5.00%	\$ 14,428,680	\$ 721,434
Motor Vehicle	5.00%	\$ -	\$ -
Corporate Income Tax***	9.50%	\$ 7,552,895	\$ 717,525
Other Business Excises			
Insurance	1.92%	\$ 3,950,000	\$ 75,840
Public Utility	6.50%	\$ 5,301,500	\$ 344,598
Financial Institution	10.50%		
Excise Taxes			
Alcoholic Beverages***	4.05, \$0.55, \$0.11 /gal.		\$ 35,079
Motor Fuels***	\$0.21 /gal.		\$ 409,255
Tobacco***	\$1.51 /pack		\$ 147,544
Room Occupancy	5.70%		\$ 1,390,394
Convention Center Room Fee	2.75%		\$ 1,102,355
Other Taxes & Fees			
Vehicle Rental Surcharge	\$10.00		\$ 31,500
Sightseeing	5.00%		\$ 17,500
Other**	Misc.		\$ 1,019,630

*Note: includes MBTA/CCF portion of sales taxes

Other Business Excise Tax effective rates calculated from A Report on 1999 Corporate Excise Returns, December 2002, Massachusetts Department of Revenue, Office of Tax Policy Analysis.

**Includes Motor Vehicle Licenses and Unemployment Insurance Contributions

***Taken from Federation of Tax Administrators - February 2003

Boston Tax Assumptions

	Effective Tax Rate	Estimated Revenue
Excise Taxes		
Local Option Jet Fuel*	\$.05 /gal.	\$ 486,509
Local Option Rooms	4.00%	\$ 358,389
Sub-total		\$ 844,898
Licenses, Permits, Fees & Fines		
Fiber Optic Access Fees*	negotiated	\$ 429,346
Building Permits*	\$10/\$1,000 cost	\$ 420,093
Other Licenses, Permits, Fees & Fines*	various	\$ 261,415
Sub-total		\$ 1,110,854
Other Taxes & Fees		
Local Vehicle Rental Surcharge	\$1.00/contract	\$ 3,500
Sub-total		\$ 3,500

*Amounts calculated by the Office of Budget Management, City of Boston, based on historical correlation to Room Occupancy Excise Tax collections.

BOSTON HOTEL PIPELINE

Name	Address	Rooms	Type	5-Jan-04		
				Renov. of	New Const. Completion	
COMPLETED SINCE JULY 1, 1997:						
Club Quarters	161 Devonshire	170	corp. members	Reuse	Q3	1997
Custom House	Custom House St.	84	time share	Reuse	Q3	1997
Harborside Inn	185 State St.	56	tourist	Reuse	Q4	1997
Seaport Hotel	Northern Avenue	427	luxury	New Const.	Q2	1998
Chalet Inn of Boston	900 Montey Blvd.	28	expansion	addition	Q2	1998
Holiday Inn Express	69W Boston St.	18	expansion	Net gain	Q2	1998
Hilton Expansion Phase I	Prudential Center	44	expansion	New Const.	Q2	1998
Bostonian addition phase I	North & Blackstone Sts.	11	expansion	expansion	Q3	1998
Club by Doubletree	Mt. Vernon St.	212	moderate price	New Const.	Q2	1999
Bostonian addition phase II	North & Blackstone Sts.	38	expansion	expansion	Q3	1999
Wyndham Boston Hotel	89 Broad St.	362	full service	Reuse	Q3	1999
Airport Hilton	Airport	600	87 Net new	New Const.	Q3	1999
15 Beacon St.	15 Beacon St.	61	boutique	Reuse	Q1	2000
Club by Doubletree	Washington Street	268		New Const.	Q3	2000
Beacon Hill Hotel	Charles St.	13	full service	Reuse	Q4	2000
Best Western "Roundhouse"	851 Mass. Ave.	92		Reuse	Q1	2001
Ritz on the Common	Millennium Place	191	luxury suites	New Const.	Q2	2001
Millennium Place Extended Stay	Millennium Place	63	extended stay	New Const.	Q2	2001
Charlesmark Hotel	657 Boylston St.	33		Reuse	Q1	2002
Nine Zero	90 Tremont	190		New Const.	Q3	2002
Embassy Suites	Porter/Cottage/Geneva	272		New Const.	Q1	2003
Commonwealth Hotel	Kenmore Square	149		New Const.	Q2	2003
Marriott Residence Inn	Tudor Wharf	168		New Const.	Q2	2003
SUBTOTAL		3,550	new rooms			
			3,411 Rooms in 18 new Hotels			
			139 Rooms in 5 expansions			
UNDER CONSTRUCTION:						
Courtyard by Marriott	88 Exeter St., Back Bay	81		Reuse	Q1	2004
Jury's Doyle/Saunders	Berkeley St.	220		Reuse	Q1	2004
Hotel Clarion (formerly Europa)	115 Merrimack St.	88		Reuse/New	Q2	2004
Hotel Onyx (Kimpton Boutique)	155 Portland St.	112		New Const.	Q1	2004
Hampton Inn / Crosstown	Melnea Cass/Mass. Ave.	175	limited service	New Const.	Q2	2004
SUBTOTAL			676 rooms, all in new hotels			
TOTAL OF ROOMS COMPLETED, OR UNDER CONSTRUCTION			4,226 new rooms			
			4,087 rooms in new hotels			
APPROVED:						
Courtyard by Marriott	33 W. Howett, South Bay, Roxbury	164		New Const.	Q3	2005
Marriott Renaissance	Massport Parcel F	438		New Const.	Q4	2005
Ames Building	1 Court Street	133		Reuse	Q4	2005
Mandarin Oriental	Boylston Street @ Prudential Center	150	Luxury	New Const.	Q1	2006
Charles Street Jail Reuse	at N.G.H. / Red Line	305		Reuse/New	Q2	2006
Westin BCEC Headquarters Hotel (Phase I)	Summer Street	790		New Const.	Q4	2006
Boston Edison Site/ Intercontinental	500 Atlantic Ave.	420		New Const.	Q1	2007
Loews/Sawyer	Stuart & Tremont Streets	395		New Const.	Q2	2007
Battery Wharf Regent		144		New Const.	Q3	2007
Grand Hyatt	Fan Pier	600		New Const.	Q4	2008
Columbus Center	Turpike Air Rights/ S. End-Bay Village	207		New Const.	Q4	2008
Westin BCEC Headquarters Hotel (Phase II)	Summer Street	320		New Const.	Q4	2008
SUBTOTAL			4,066 rooms, all in new hotels			
APPROVAL PROCESS INITIATED:						
Pier 4	South Boston Waterfront	220		New Const.		
Massport Parcel D2	Summer Street, South Boston Waterfront	600		New Const.		
Hoosac Stores Building	Charlestown	115		Reuse		
Russia Wharf	Atlantic Ave.	300		New Const.		
SUBTOTAL		1,235				
GRAND TOTAL			9,527 new rooms			
			9,388 rooms in new hotels			

Calculation of Net Hotel Activity by Market

Baseline July Hotel Market Activity		6.9 day		5.70%		2.75%		4.00%	
July Occ.	July Rate	Total Rooms	Occ. Rooms	Vac. Rooms	Revenue	State Tax	CCF Fee	Local Tax	Total Tax
Boston	\$ 160.00	16,240	12,992	3,248	\$ 14,343,168	\$ 817,560.58	\$ 394,437.12	\$ 573,726.72	\$ 1,785,724.42
Cambridge	\$ 160.00	2,535	2,028	507	\$ 2,238,912	\$ 127,617.98	\$ 61,570.08	\$ 89,556.48	\$ 278,744.54
Metro	\$ 117.00	26,998	19,439	7,559	\$ 15,692,749	\$ 894,486.72	N/A	\$ 627,709.98	\$ 1,522,196.70
		45,773	34,459	11,314	\$ 32,274,829	\$ 1,839,665	\$ 456,007	\$ 1,290,993	\$ 3,586,666

21875

Convention Delegates - Discounted Block Rooms	
Boston	100% \$ 206.04 9,771
Cambridge	100% \$ 199.79 1,526
Metro	100% \$ 137.86 1,752
	13,049

Other Business/Overflow Convention Business	
Boston	95% \$ 241.12 6,469
Cambridge	95% \$ 241.12 1,009
Metro	94% \$ 170.59 25,246
	32,724

Total Convention Week Business	
Boston	\$ 24,115,720
Cambridge	\$ 3,698,435
Metro	\$ 29,450,683
	\$ 57,264,838

Increase from Baseline
77.4%

Net New Spending and Taxes by Area between normal and convention weeks	
Boston	\$ 9,772,551.81
Cambridge	\$ 1,459,523.30
Metro	\$ 13,757,933.71
	\$ 24,990,008.81

Net New Tax Revenue	
State	\$ 2,543,206.36
Boston	\$ 390,902.07
Cambridge	\$ 58,360.93
Metro	\$ 550,317.35
	\$ 3,542,806.71

Total \$ 3,542,806.71

REMI OUTPUT

Variable		Change to 2004\$
Employment (Thous)	2.527	1.246
GRP (Bil Chained 96\$)	0.119	
GRP (Bil Fixed 96\$)	0.1237	\$ 154,130,200
Pers Inc (Bil Nom \$)	0.1062	\$ 106,200,000
PCE-Price Index (Fixed 96\$)	0.003616	
Real Disp Pers Inc (Bil Fixed 96\$)	0.06863	
Population (Thous)	0.4324	
Econ Migrants	0.4277	
Total Migrants	0.4277	
Labor Force	0.5005	
Demand (Bil Fixed 96\$)	0.2423	
Output (Bil Fixed 96\$)	0.1904	\$ 237,238,400
Delivered Price	3.09E-05	
Rel Cost of Production	4.61E-05	
Labor Intensity	-7.15E-07	
Labor Access Index	1.26E-05	
Indust Mix Index	0	
Reg Pur Coeff (SS over Dem)	6.00E-05	
Imports (Bil Fixed 96\$)	0.06919	\$ 86,210,740
Self Supply (Bil Fixed 96\$)	0.1731	\$ 215,682,600
Exports to Multiregions (Bil Fixed 96\$)	0	
Exports to Rest of Nation (Bil Fixed 96\$)	0.01235	\$ 15,388,100
Exp to Rest of World (Bil Fixed 96\$)	0.004982	\$ 6,207,572
Wage Rate (Thous Nom\$)	-0.002178	

Income

Variable (Bil nominal \$'s)

As a % of Nation	0.001104	
Wage & Sal Disb	0.1077	\$ 107,700,000
Prop & Oth Lab Inc	0.02747	
Lab & Prop Inc	0.1351	
Soc Ins Contrib	0.007694	
Net Res Adj	-0.01593	
Div&Int&Rent	0.002232	
Trans Pymnts	-0.007568	
Pers Inc	0.1062	
Taxes	0.01758	
Disp Pers Inc	0.08864	
Gross Personal Income	0.12378	\$ 123,780,000

Consumption (Bil Fixed 96\$'s)

		Change to 2004\$	
Variable			1.246
Vehicles and Parts	0.004875	\$	6,074,250
Computers & Furniture	0.008485	\$	10,572,310
Other Durables	0.002631	\$	3,278,226
Food & Bev	0.01158	\$	14,428,680
Clothing & Shoes	0.009425	\$	11,743,550
Gasoline & Oil	0.001761	\$	2,194,206
Fuel Oil & Coal	0.0001888	\$	235,245
Other Non-Durbls	0.005704	\$	7,107,184
Housing	0.003836	\$	4,779,656
Hsehold Operat	0.005574	\$	6,945,204
Transportation	0.003562	\$	4,438,252
Medical Care	0.001808	\$	2,252,768
Other Services	0.01645	\$	20,496,700
	0.07588	\$	94,546,231

Change to 2004\$	
	1.063

State Revenues (Bil 2001 \$'s)

Federal Intergovernmental	0.0005298	\$	563,177
Local Intergovernmental	3.76E-05	\$	39,990
Property Tax	9.87E-09	\$	10
General Sales Tax	0.00265	\$	2,816,950
Motor Fuel Sales Tax	0.000385	\$	409,255
Alcoholic Bev Sales Tax	3.30E-05	\$	35,079
Tobacco Sales Tax	1.39E-04	\$	147,544
Public Utility Sales Tax	0	\$	-
Other Sales Tax	0.0003862	\$	410,531
Individual Income Tax	0.004699	\$	4,995,037
Corporate Income Tax	0.000675	\$	717,525
Motor Vehicle License	0.0001129	\$	120,013
Other Tax	0.0002271	\$	241,407
Education Charges	0.0006581	\$	699,560
Other Charges & Rev	0.002017	\$	2,144,071
Utility&Liquor Store Rev	3.75E-05	\$	39,873
Unemployment Comp.	0.0008463	\$	899,617
Employee Retirement	0.0005986	\$	636,312
Workers' Comp.	3.97E-05	\$	42,180
Other Ins. Trust Rev	0	\$	-

REMI RESULTS OF DNC STUDY

SUFFOLK COUNTY

Economic Impact (96\$)		Change to 2004\$	
Variable	2004		1.246
Employment (Thous)	1.487		
GRP (Bil Chained 96\$)	0.06344		
GRP (Bil Fixed 96\$)	0.06598	\$	82,211,080
Pers Inc (Bil Nom \$)	0.02834		
PCE-Price Index (Fixed 96\$)	0.006409		
Real Disp Pers Inc (Bil Fixed 96\$)	0.01787		
Population (Thous)	0.1353		
Econ Migrants	0.1337		
Total Migrants	0.1337		
Labor Force	0.1249		
Demand (Bil Fixed 96\$)	0.1065		
Output (Bil Fixed 96\$)	0.08922		
Delivered Price	5.93E-05		
Rel Cost of Production	9.62E-05		
Labor Intensity	-1.19E-06		
Labor Access Index	1.96E-05		
Indust Mix Index	0		
Reg Pur Coeff (SS over Dem)	-2.61E-05		
Imports (Bil Fixed 96\$)	0.04316		
Self Supply (Bil Fixed 96\$)	0.0633		
Exports to Multiregions (Bil Fixed 96\$)	0.01308		
Exports to Rest of Nation (Bil Fixed 96\$)	0.007708		
Exp to Rest of World (Bil Fixed 96\$)	0.005126		
Wage Rate (Thous Nom\$)	-0.02468		
Income (Bil Nominal \$)			
Variable	2004		
As a % of Nation	0.0002946		
Wage & Sal Disb	0.06342	\$	63,420,000.00
Prop & Oth Lab Inc	0.01667	\$	16,670,000.00
Lab & Prop Inc	0.08009	\$	80,090,000.00
Soc Ins Contrib	0.004441	\$	4,441,000.00
Net Res Adj	-0.04648	\$	(46,480,000.00)
Div&Int&Rent	0.0007348	\$	734,800.00
Trans Pymnts	-0.001569	\$	(1,569,000.00)
Pers Inc	0.02834	\$	28,340,000.00
Taxes	0.004873	\$	4,873,000.00
Disp Pers Inc	0.02347	\$	23,470,000.00

4 COUNTY REGION

Economic Impact (96\$)		Change to 2004\$	
Variable	2004		1.246
Employment (Thous)	1.04		
GRP (Bil Chained 96\$)	0.05552		
GRP (Bil Fixed 96\$)	0.05774	\$	71,944,040
Pers Inc (Bil Nom \$)	0.07787		
PCE-Price Index (Fixed 96\$)	0.00296		
Real Disp Pers Inc (Bil Fixed 96\$)	0.05076		
Population (Thous)	0.2971		
Econ Migrants	0.2941		
Total Migrants	0.2941		
Labor Force	0.3756		
Demand (Bil Fixed 96\$)	0.1358		
Output (Bil Fixed 96\$)	0.1012		
Delivered Price	2.42E-05		
Rel Cost of Production	3.15E-05		
Labor Intensity	-5.36E-07		
Labor Access Index	1.03E-05		
Indust Mix Index	0		
Reg Pur Coeff (SS over Dem)	2.15E-05		
Imports (Bil Fixed 96\$)	0.05378		
Self Supply (Bil Fixed 96\$)	0.08205		
Exports to Multiregions (Bil Fixed 96\$)	0.01467		
Exports to Rest of Nation (Bil Fixed 96\$)	0.004642		
Exp to Rest of World (Bil Fixed 96\$)	-0.0001431		
Wage Rate (Thous Nom\$)	3.05E-05		
Income (Bil Nominal \$)			
Variable	2004		
As a % of Nation	0.0008093		
Wage & Sal Disb	0.04426	\$	44,260,000.00
Prop & Oth Lab Inc	0.0108	\$	10,800,000.00
Lab & Prop Inc	0.05506	\$	55,060,000.00
Soc Ins Contrib	0.003253	\$	3,253,000.00
Net Res Adj	0.03055	\$	30,550,000.00
Div&Int&Rent	0.001497	\$	1,497,000.00
Trans Pymnts	-0.005999	\$	(5,999,000.00)
Pers Inc	0.07787	\$	77,870,000.00
Taxes	0.0127	\$	12,700,000.00
Disp Pers Inc	0.06517	\$	65,170,000.00

Sample of Suburban Hotel Rates

		July 26-29 Convention	Aug 2-5 "Normal"	\$ Change	% Change
Hawthorn	Arlington	\$ 300.00	\$ 160.00	\$ 140.00	87.5%
Sheraton	Braintree	\$ 325.00	\$ 158.00	\$ 167.00	105.7%
Hampton Inn	Burlington	\$ 109.00	\$ 109.00	\$ -	0.0%
Radison	Chelmsford	\$ 119.00	\$ 99.00	\$ 20.00	20.2%
Hilton	Dedham	\$ 149.00	\$ 159.00	\$ (10.00)	-6.3%
Holiday Inn Express	Lexington	\$ 109.95	\$ 109.95	\$ -	0.0%
Doubletree	Lowell	\$ 252.00	\$ 99.00	\$ 153.00	154.5%
Crown Plaza	Natick	\$ 270.00	\$ 170.00	\$ 100.00	58.8%
Hampton Inn	Natick	\$ 204.00	\$ 159.00	\$ 45.00	28.3%
Holiday Inn	Newton	\$ 252.00	\$ 186.00	\$ 66.00	35.5%
Park Inn	Newton	\$ 172.95	\$ 128.28	\$ 44.67	34.8%
Holiday Inn	Peabody	\$ 147.00	\$ 107.00	\$ 40.00	37.4%
Days Inn	Saugus	\$ 149.00	\$ 92.00	\$ 57.00	62.0%
Holiday Inn	Somerville	\$ 179.00	\$ 179.00	\$ -	0.0%
Comfort Inn	Woburn	\$ 169.00	\$ 119.00	\$ 50.00	42.0%
Hampton Inn	Woburn	\$ 99.00	\$ 99.00	\$ -	0.0%
Four Points Sheraton	Woburn	\$ 309.95	\$ 129.95	\$ 180.00	138.5%
Radisson	Woburn	\$ 175.95	\$ 139.95	\$ 36.00	25.7%
Averages		\$ 193.99	\$ 133.51	\$ 60.48	45.8%

Office of Budget Management, City of Boston
 Expedia.com 2/10/2004

Sample of Boston Hotels

Ramada Inn	Boston	\$ 279.00	\$ 192.33	\$ 86.67	45.1%
Quality Inn	Boston	\$ 279.95	\$ 193.28	\$ 86.67	44.8%
Best Western	Boston	\$ 209.95	\$ 209.95	\$ -	0.0%
Holiday Inn Express	Boston	\$ 239.95	\$ 129.95	\$ 110.00	84.6%
Shawmut Inn	Boston	\$ 249.95	\$ 209.95	\$ 40.00	19.1%
Howard Johnson Fenway	Boston	\$ 299.95	\$ 159.95	\$ 140.00	87.5%
Best Western	Cambridge	\$ 399.95	\$ 199.95	\$ 200.00	100.0%
Hotel @ MIT	Cambridge	\$ 402.00	\$ 402.00	\$ -	0.0%
Wyndham	Chelsea	\$ 249.95	\$ 139.95	\$ 110.00	78.6%
Four Points Sheraton	Logan	\$ 249.00	\$ 139.00	\$ 110.00	79.1%
Hampton Inn	Logan	\$ 249.95	\$ 209.95	\$ 40.00	19.1%
Averages		\$ 282.69	\$ 198.75	\$ 83.94	50.7%

Office of Budget Management, City of Boston
 Hotels.com 2/12/2004

Appendix B – General Information

Model Overview

Regional Economic Models, Inc. (REMI[®]), provides REMI Policy Insight[®], the leading forecasting and policy analysis model. Since 1980, REMI has developed models that answer "what if...?" questions about the effect of policy initiatives on the economy of local regions. The model is based on past and current research and development, which is subject to peer review and published in academic journals. REMI Policy Insight is currently used by hundreds of governmental agencies, universities, and others.

REMI's founder, Dr. George I. Treyz, developed the methodology used in REMI's socioeconomic modeling system in order to improve the quality of research-based decision making in the public and private sectors. A research team currently led by Drs. George and Frederick Treyz continues to enrich and deepen REMI's powerful dynamic analytic engine. The latest version is based in part on a REMI prototype set forth in the November 2000 issue of the *Journal of Regional Science*. It is designed for regional areas of varying sizes in the U.S., the E.U., and Canada.

The forecasting and policy analysis system includes key econometric estimates and integrates inter-industry transactions, long run equilibrium features, and the new economic geography. It includes: substitution among factors of production in response to changes in relative factor costs; migration responses to changes in expected income; labor participation rate responses to changes in real wage and employment conditions; wage rate responses to labor market changes; consumer consumption responses to changes in real disposable income and commodity prices; and local, regional, and market shares responses to changes in regional production costs and agglomeration economics.

The REMI Policy Insight's unique power is to generate realistic year-by-year estimates of the total regional effects of any specific policy initiative. A wide range of policy variables allows the user to represent the policy to be evaluated while the explicit structure in the model helps the user to interpret the predicted economic and demographic effects. The model is calibrated to many sub-national areas for policy analysis and forecasting, and is available in single- and multi-area configurations. Each calibrated area (or region) has economic and demographic variables, as well as policy variables so that any policy that affects a local economy can be tested.

REMI Policy Insight is used by government agencies (including a vast majority of state governments), consulting firms, nonprofit institutions, universities, and public utilities. REMI model simulations estimate comprehensive economic and demographic effects in wide-ranging initiatives such as: economic impact analysis; policies and programs for economic development, transportation, infrastructure, environment, energy and natural resources; and state and local tax changes. Articles about the model equations and research findings have been published in professional journals such as the *American Economic Review*, *The Review of Economic Statistics*, *the Journal of Regional Science*, and the *International Regional Science Review*.

Economic Multipliers and Local Economic Impact Analysis

David Kay, Cornell Local Government Program

December 2002

"Superhospital Study Projects \$28-million Annual Gain"

"Power Project Would Employ 700, Have a Huge Economic Impact"

"University Study Shows California Parade To Be Economic Gem"

Introduction

Headlines like these recent real-life examples are prized by project promoters and business boosters. They often appear when advocates for private sector projects are seeking public support. The dollar figures featured in the stories are large, even "huge". They signal to readers both economic importance and political significance.

An economic multiplier lies behind nearly all such headlines. Multipliers are typically used to turn large dollar impacts into even larger ones. They do this because they translate project-specific effects into economy-wide impacts.

The local spending impacts associated directly with a specific project or economic activity are the starting point of any impact analysis. Known or planned facility construction and operating expenditures are a typical example. Called "direct effects", they are nearly always the most important data to estimate well in any impact analysis. To estimate economy-wide impacts, numbers known as multipliers are literally multiplied by the direct effects.

Citizens, elected officials, journalists, planning commissioners, neighborhood organizers, business persons and many others concerned with economic growth and development can benefit from a basic understanding of multipliers and their uses and abuses. Those who understand will be better prepared to separate the useful wheat from the promotional chaff of economic impact study reports. They should be better prepared to ask the questions that will help them go behind the "gee whiz" headlines.

Economic Multipliers

An economic multiplier is a number used to estimate economy-wide impacts of industry-specific economic changes. Multipliers are generated from numerical or statistical models of a national or regional economy. Using models, multipliers can be calculated for every business or industry sector in the economy. A multiplier is always greater than one because it is a ratio that is calculated by dividing a) the estimated total effect resulting from a given economic "shock" to the economy by b) a necessarily smaller partial effect, namely the direct project- or activity-specific effect.

Each multiplier can be thought of as an empirical, quantified measurement of the strength of the economic linkages between a given industry or economic sector and the rest of the regional economy. The greater the extent of the linkages, the greater the size of the

multiplier. The greater the multiplier, the greater the economy-wide dollar or employment impact of any given stimulus to one industry or sector of the economy.

Final Demand Changes, Multiplier Rounds, and Leakage

There are at least three key concepts that must be understood to understand what lies behind the use of most multipliers. The first is the concept of an economic stimulus through a *change in final demand*. The second is the notion of *a chain of spending and respending* that is set into motion by an initial economic stimulus. The third is the notion of *"leakage"* from a local economy.

"Final demand" refers to the sales of economic goods and services to purchasers who are the ultimate users or consumers of these products. The demand is "final" as opposed to "intermediate". In other words, the goods and services are valued in and of themselves rather than for their usefulness in the economic production of new goods and services.

When final demand increases, a kind of chain reaction of economic events is triggered. The initial stimulus of new spending sets into motion a series of additional spending and respending activities. Most multipliers are used with the presumption that, in a precise mirror image of an increase, any decrease in existing final demand sets into motion a whole series of spending contractions. The best way to explain this may be to give an example (using a spending increase).

Assume the overall final demand for locally made ice cream increases significantly, say boosting sales by \$100,000 because of a successful non-local advertising campaign. The local ice-cream manufacturer's receipts then increase, but that is not the end of the money trail. In order to meet the increased demand, the manufacturer will typically respond by increasing production. To do this, the firm will use some portion of the \$100,000 to buy more inputs in the form of additional goods and services. The additional inputs for new ice cream production will include ingredients like cream, sugar, fruits, and chocolate; paper and ink for more containers; more electricity and water; more labor; perhaps even new equipment; and so on. But again, this is not the end of the money trail. Each of the ice-cream manufacturer's suppliers will respond in similar fashion. As demand for their products increase, so they too will increase their purchases of all the inputs they require for their production processes. Ultimately, the chain of input purchases is likely to reach far beyond the sectors of the economy that are most obviously linked to ice cream production.

Increased purchases of inputs by business firms are not the only way in which the economic stimulus of increased final demand diffuses throughout the economy. People also benefit from increased demand as workers or business owners earn more. They are very unlikely to stash all of their increased revenues unproductively in a cookie jar. More likely, they will spend some or all of that money on a wide variety of new consumer goods and services, not to mention new investments. Depending on their income classes, purchasers of new consumer goods will likely spend across the full spectrum from cookies to cars to piano lessons. Next, as the grocery stores, car dealers, and piano teachers respond to this increased demand, they will in turn increase their own purchases of inputs to their businesses. Moreover, any owners and employees in these businesses

will have additional income or profit to spend on still other goods and services.

At first glance, this cycle of spending and respending seems like it might continue without end. However, this is not the case. The reason can be summarized in the term "*leakage*". Leakage represents the dollars that are withdrawn from the respending cycle.

Insofar as they are not respent, the withdrawn dollars cannot stimulate further purchases. Starting right at the very first round of spending associated with an increase in final demand, and continuing in all subsequent rounds, a certain portion of the dollars will "leak" out of the economy.

Because of leakage, at each round of spending and respending, the dollar amount re-spent diminishes. The amount that it diminishes is usually averaged across the entire process and summarized in percentage terms.

A small amount of leakage may indeed end up in a cookie jar or under someone's mattress. However, leakage more importantly is associated with other sources including:

- other forms of long term saving and nonlocal investment
- increased tax payments
- spending on goods and services that are not produced locally, (e.g. domestic and foreign imports)

While it is true that some of what is termed leakage here may eventually be re-spent locally, this is not likely to be immediate or automatic. If such spending does occur, it would generally be considered a new increase in final demand.

A single city or county, especially in a rural area, is much more likely to experience high levels of leakage. This is because, compared to a state or nation, most "small" economies are more dependent on the need to buy many goods and services produced outside its boundaries. For this reason, it is nearly always but not necessarily true that multipliers for small geographic areas are smaller than for larger ones.

In fact, a couple of the more likely errors behind exaggerated economic impact reports pertain to misunderstandings of the role of geographic boundaries. One is the misapplication of a large area multiplier (state and national multipliers are usually easier to acquire at low cost) to a small area like a county. Another is the failure to account for the fact that new consumer spending that is associated with one new project in a regional economy (a retail mall, for example) may be partly or even fully counterbalanced by reduced consumer spending at existing, competitive facilities within the same region.

Many Kinds of Multipliers

One of the reasons references to multipliers can be confusing is that there are a number of different kinds of multipliers that can be calculated. Multipliers often vary in their unit of measurement or denominator (e.g. output, jobs, income). I-O multipliers also vary in the assumptions they make about the relationship between increased worker and investor incomes and subsequent consumer spending behavior.

An *employment multiplier* summarizes the number of total jobs in the economy that will be created for each new job created directly by a given increase in final demand. An

output multiplier represents the total value of new sales that will be stimulated in the economy for each dollar increase in final demand. And the *income multiplier* indicates the total amount of new income that will be generated for each dollar of income earned by workers in the industry directly affected by the increased final demand.

Any one of these multipliers is as valid to use as any others. The choice of which to use depends upon what issues are being studied and what kinds of measures are of greatest salience to the intended audience. These three kinds of multipliers are often calculated before others because they tend to have high political salience.

For a longer version of this article or further information on multipliers or impact analyses in New York and Pennsylvania, and for contacts in other states, please contact David Kay or Dr. Martin Shields - Penn State University

Appendix C – Data Sources

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