



To: Fred Nance  
Steve Freidman  
Deb Janik  
Joe Roman

From: Jim Robey, Ph.D.

Date: July 20, 2008

Re: Impacts of Visitor Spending from Medical Mart

Please find below impact estimates from visitor spending associated with 5000 convention visitors. These visitors are hypothesized to be in the Cleveland region for a convention related to the proposed Medical Mart.

Impact values are reported for the City of Cleveland, Cuyahoga County as a whole (including Cleveland impacts) and finally for the state as a whole, including Cuyahoga County. The implication of this is that local and state tax revenues are not limited to those derived from the direct project area but are also from suppliers (indirect effects) and households (induced effects) providing goods and services as part of the supply chain, as well as from the labor market supplying workforce.

Table 1 contains individual estimated delegate spending for conventions in the US. The source of the data is Destination Marketing Association International Foundation and is reported in the ExPact 2005 update. The report was provided through our partners at Positively Cleveland. The survey supplies information in 2005 dollars for a number of spending categories that are applicable for use within the REMI model to estimate delegate economic impacts from visitors. The data in table 1 have been converted to, and are reported in 2006 dollars and are the direct impacts into the REMI model.

The "all events" category was chosen as it provides the most conservative and most broad based estimate of delegate spending. This category of data indicate that the average delegate spends \$1,068 (2006\$) across all spending categories, and aggregate delegate spending for use in the REMI model is nearly \$5 million. It should be noted that retail purchases are discounted in the aggregate to account for "margins", or the share of local input into the retail industry. In impact modeling, there is general agreement that most retail goods are produced outside a region and the real impact of increased retail spending is based on increased wages and rents, not the value of the product sold. The margins in retail spending therefore account of the local expenditures.. The impact of this discounting process in Table 1 educed aggregate spending to slightly less than \$5 million in applicable spending for the 5,000 visitors.

**Table 1: Forecast Expenditures per Person for a Cleveland Convention**

	Individual Delegate	Aggregate Delegate
Lodging Hotel	\$505	\$2,523,871
food	\$103	\$516,129
Other food	\$194	\$970,323
Tours and sightseeing	\$23	\$113,548
Recreation	\$7	\$36,129
Sporting events	\$3	\$15,484
Retail	\$114	\$198,710
Local trans	\$37	\$185,806
Auto rental	\$30	\$149,677
Parking	\$53	\$263,226
Total	\$1,068	\$4,972,903

Source: ExPact 2005 Update, DMAI Foundation

Tables 3, 4 and 5 contain the impact estimates for 5,000 visitors to the city of Cleveland. While a number of estimates have been offered as to the potential size of an average convention, the 5,000 per convention appears to be firmly placed in the middle of the range of estimates. Estimates of convention size ranged from 3,000 to 8,500. Also note that the impact estimate is a *per convention* impact estimate. Generally speaking, it is possible to estimate the impact of 10 conventions by multiplying the values in the following tables by 10.

**Table 2: Economic Impacts to the City of Cleveland of 5000 Medical Mart-related Visitors (2007\$)**

	<b>2012</b>
<b>Employment</b>	91
<b>Gross Regional Product</b>	\$4,272,023
<b>Personal Income</b>	\$797,300
<b>Local Wage Tax (@2%)</b>	\$15,946
<b>State Income Tax (2.88% ATR)</b>	\$22,962
<b>CAT Self Supply</b>	\$4,954
<b>CAT Imports</b>	\$1,731
<b>Sales B2B</b>	\$45,280
<b>Sales Consumer</b>	\$11,410
<b>Total State Revenue Estimates</b>	\$86,337
<b>Total Public Revenue Estimates</b>	\$102,283
<b>Output</b>	\$6,751,094

**Table 3: Economic Impacts to Cuyahoga County 5000 Medical Mart-related Visitors to the City of Cleveland (2007\$)**

	<b>2012</b>
<b>Employment</b>	101
<b>Gross Regional Product</b>	\$5,204,451
<b>Personal Income</b>	\$2,334,300
<b>Local Wage Tax (@2%)</b>	\$46,686
<b>State Income Tax (2.88% ATR)</b>	\$67,228
<b>CAT Self Supply</b>	\$8,101
<b>CAT Imports</b>	\$2,437
<b>Sales B2B</b>	\$50,636
<b>Sales Consumer</b>	\$34,782
<b>Total State Revenue Estimates</b>	\$163,184
<b>Total Public Revenue Estimates</b>	\$209,870
<b>Output</b>	\$8,193,286

**Table 4: Economic Impacts to the State of Ohio from County 5000 Medical Mart-related Visitors to City of Cleveland (2007\$)**

	<b>2012</b>
<b>Employment</b>	107
<b>Gross Regional Product</b>	\$5,585,658
<b>Personal Income</b>	\$3,296,000
<b>Local Wage Tax (@2%)</b>	\$65,920
<b>State Income Tax (2.88% ATR)</b>	\$94,925
<b>CAT Self Supply</b>	\$12,085
<b>CAT Imports</b>	\$3,278
<b>Sales B2B</b>	\$53,384
<b>Sales Consumer</b>	\$49,015
<b>Total State Revenue Estimates</b>	\$212,687
<b>Total Public Revenue Estimates</b>	\$278,607
<b>Output</b>	\$9,037,172

**Project Summaries and Caveats**

Team NEO used data from the ExPact survey provided by Positively Cleveland. This survey identifies average spending information taken from national surveys and was kindly provided by Tami Brown at Positively Cleveland.

A note of caution in interpreting these results. The REMI model estimates economic impacts on an annualized basis. This underlies an assumption that the event shock of stimulus lasts all year, and so the benefits are distributed across a year's time frame. In this case, the event, while having leading preparations prior to the convention, occurs in the relatively short period of a few days. The implication of this is that while it appears that only 91 jobs will be created, those are *annualized* jobs for a *single* convention and it will take many more people working for a period shorter than a year to meet the needs of the production of the convention as well as supply goods and services to visitors and guests.

### **Methodology Note and Assumptions**

TeamNEO uses a model developed by Regional Economic Models, Inc. (REMI), *Policy Insight*, to estimate economic impacts. The NEO REMI model is custom designed and tailored to the region based on NEO specifications. The REMI model is the preeminent model of its type and is widely recognized to be at the forefront of modeling with clients not only in North America but also in the European Union.

REMI is a dynamic model that creates estimates using equations rather than a simple input/output (I/O) table. This allows a sensitivity in the analysis for both timing and scale/scope issues that are not found in other models. The principal investigator for this study has more than 10 years of applied modeling experience with REMI (and other impact models). Features that are unique to REMI include:

- It is calibrated to local conditions using a relatively large amount of local data, which is likely to improve its performance, especially under conditions of structural economic change.
- It has an exceptionally strong theoretical foundation.
- It actually combines several different kinds of analytical tools (including economic-base, input-output, and econometric models), allowing it to take advantage of each specific method's strengths and compensate for its weaknesses.
- It allows users to manipulate an unusually large number of input variables and gives forecasts for an unusually large number of output variables.
- It allows the user to generate forecasts for any combination of future years, allowing the user special flexibility in analyzing the timing of economic impacts.
- It accounts for business cycles.
- It has been used by a large number of users under diverse conditions and has proven to perform acceptably.

Source: REMI.com

For additional information on REMI, please see their website at [www.remi.com](http://www.remi.com).

### **Measuring Economic Impacts**

Most economic impact studies focus on three elements of impacts:

1. Job creation
2. Change in gross regional product (GRP)
3. Changes to income
4. Output
5. Tax Impacts

In the impact study, the number of jobs to be created by the investments is estimated. It is important to note that these jobs are simply “jobs” as they are counted by the Bureau of Economic Analysis (BEA) and are not necessarily full- or part- time positions. These jobs are likely distributed across a number of industries and so, in any given industry, a “job” may represent a summation of positions across a number of industries in which each industry has less than one complete position. In this example, the impact study may report one “job,” but the spending patterns in the study may actually generate positions in three industries. However, each industry may require only one-third of a person. In this case, the three industries that employ one-third of a person each to meet demand would sum to one “job” in REMI.

Employment is comprised of three elements:

- Direct: the employment created by the actual investment, growth or change
- Indirect: employment created by the need of the new firm to purchase goods and services, essentially the local supply chain
- Induced: the household that supply good and services to the workers in the prior two categories. Examples of these include education, dry cleaners, accountants, gas stations, lawyers and grocers.

Gross Regional Product (GRP) is an economic measure of the value-add that labor contributes to the final product or service. This measure is more useful in looking at events that change the economic curve of a region than total sales. GRP does not include the value of “intermediate goods” or inputs into estimating the economic impact. As an example, if a \$25,000 auto is produced in a region, it may comprised of \$15,000 in parts (intermediate goods) and \$10,000 in labor to assemble the parts into a complete car, then the \$10,000 in GRP is what the region uses to measure its input into the vehicle. If output (or sales) were used, the same \$25,000 auto may only generate \$500 to the seller. In the former example the GRP for the region from making the auto would be \$10,000, while the GRP from selling the auto in the region would be only \$500. Clearly, the GRP from making the auto is greater, and is more likely to change the wealth curve of the region. If output is used, both would have the same value and appear (incorrectly) to have similar economic impacts.

We also measure the impact of the event on the regional pool of income. This can be measured as the impact to total income from both residents and commuters generated from the event. The income statistic is likely to be over estimated as it includes wages by place of residence as well as by place of work. In Ohio, wages taxes may be collected by place of residence and place of work, although most communities offer a credit to residents for taxes paid at the municipal-based place of work. This study does not attempt to estimate or control for these credits, but merely combines total earnings for residents and commuters. For purposes in this study and ease of use, 2 percent is used as the rate for all local taxes. Across the state, the average wage rate is slightly below \$40,000, which creates an average tax rate (ATR) of about 2.88 percent. The average is used to create efficiencies in estimating potential state income tax impacts. It is acknowledged that some

workers (such as those in the construction and professional services industries) will earn more than the average annual salary and so pay a higher ATR, while others impacted by the projects will earn less than the average salary (such as service workers) and so pay a lower ATR.

Using the REMI methodology from the Ohio Department of Development study, Team NEO took output (or sales) by industry, discounted it by the exempted amount of sales and then multiplied the residual by full CAT tax rate of .0026 effective in 2010. The second application of the CAT tax is base in the imports of goods and services from the rest of the United States. These imports are also taxable under the CAT tax.

REMI, in their study, also offered a methodology to estimate sales taxes for both business to business (B2B) transactions and also from consumer transactions. For B2B transactions, REMI identified<sup>1</sup> sales-tax exempt buying and selling industries. These industries are excluded from total B2B output (sales), with the residual or taxable amount of output taxed at the current state sales tax rate of .055<sup>2</sup>.

REMI also offers away to estimate consumption from consumers, and so estimate sales tax from households. The REMI model estimates output impacts from 13 areas of consumption<sup>3</sup>. In their 2005 study, they identify the “percent taxable” (77) of each consumption category. To estimate taxable sales, taxable share by output is multiplied by consumption. Taxable sales are then multiplied by .055 to estimate state revenues from the personal consumption-based sales tax. Neither of the estimates to sales taxes includes any local rate for collections

Finally, output is estimated for the study region. This measure is essentially the same as sales in the study region and includes both the value of GRP and the value of intermediate goods—the goods or materials needed to make the product or service. It is useful as a measure of economic activity and some of the output is responsible for driving sales taxes at both the state and county level.

If you have any questions or I can provide clarifications, please do not hesitate to call me at 216-363-5420 (office) or 440-666-0641 (cell).

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<sup>1</sup> REMI study, 2005, pp 75-76

<sup>2</sup> This was done using the national input-output table to estimate taxable share of industry output. The share of applicable industry output was multiplied by dollar output for those industries. A rate of 5.5 percent was then applied to share of output to estimate total B2B sales tax.

<sup>3</sup> These include vehicles & parts, computers & furniture, other durables, food & beverages, clothing & shoes, gasoline and oil, fuel oil & coal, other non-durables, housing, household operation, transportation, medical care, and other services