

**Economic Impact of the Cleveland Museum of Art: A
Tourism Perspective**

For

The Cleveland Museum of Art

By

James E. Robey, Ph.D.

Jack Kleinhenz, Ph.D.

Greater Cleveland Growth Association

EXECUTIVE SUMMARY

This report provides an overview of the estimated economic impact of activities of the Cleveland Museum of Art (CMA) on the Greater Cleveland-Akron regional economy. The Economics Research Department of the Greater Cleveland Growth Association (GCGA) completed this study in November 2000 for the Cleveland Museum of Art.

The staff at CMA randomly surveyed their patrons between March 1999 and February 2000 regarding where they lived, length of stay, reason for visit and other market-related data. Using the survey data, the economic impacts of the CMA were modeled using estimated expenditures of visitors from outside the study region. Of critical interest in an economic impact study of venues is the geographic origin of the visitor. These expenditures and related services (and the corresponding importation of dollars) are the only types of economic activity that contribute to the growth of regional wealth and standard of living and thus are the only source of economic impact.

Using standard statistical techniques, the number of visitors from outside the region and their length of stay were projected to the nearly 600,000 patrons of CMA from the more than 1,500 completed patron surveys. For the purposes of this study, the eight-county Cleveland-Akron Consolidated Metropolitan Statistical Area (CMSA) was selected as the appropriate local market. It is the federally defined economic and labor market for Northeast Ohio. This study estimates that 193,752 patrons from outside the region visited Cleveland just for the day (day-trippers), and 60,250 visitors spent a median number of two nights in the region totaling 120,500 hotel/motel nights.

As part of the economic impact analysis, 20% of CMA employees (50) were assumed to supply services to non-resident visitors. Although this percentage is less than the amount that would have been derived using the proportion of non-resident patrons, a significant number of CMA staff is required for daily operations regardless of out of region visitor demand. Staff positions such as curator and public relations are tied more to ongoing operations than to patronage. It is important to note that CMA is funded primarily through endowments, not through patron revenues.

The total economic impact of non-resident patrons was estimated using the Greater Cleveland Regional Economic Model developed by Regional Economic Models, Inc. (REMI). This is a state-of-the-art regional economic forecasting model. The REMI model first transforms visitor inputs such as day-trippers and hotel/motel nights and employment data into economic inputs, and then estimates the economic and employment impacts on the region.

The economic impact analysis reveals that the CMA generates the following impacts on the region:

- More than \$22.3 million in gross regional product each year (the amount of value added from these activities);
- Approximately \$20.1 million in personal income and \$5.2 million in state and local

- government revenues;
- Creates 656 jobs, including the 50 jobs at CMA; and
- Increases disposable income, (the *spendable* income for northeast Ohio residents) by \$12.64 million.

PURPOSE AND SCOPE

This study estimates the economic impact of spending by non-resident patrons of the Cleveland Museum of Art (CMA). CMA was founded by Cleveland philanthropists in 1913 and opened in 1916 with a mission to “fulfill its dual roles as one of the world's most distinguished comprehensive art museums, and as one of northeastern Ohio's principal civic and cultural institutions.”¹ As part of its mission, CMA continues a tradition of not charging for general admission, but CMA does charge for admission to special and one-time exhibits. For the purposes of this study, the effect of CMA visitors from outside the region on the economies of both Cuyahoga County as well as the entire Northeast Ohio region² is examined.

ECONOMIC ANALYSIS METHODS AND ASSUMPTIONS

The approach used to assess the economic impacts of CMA’s draw as a tourist attraction employs generally accepted economic principles. Fundamentally, these expenditures provide impact through three economic effects:

- ***Direct Economic Impacts*** are those changes in the flows of dollars and employment that result directly from the initial capital spending for land acquisition, equipment, modernization of existing facilities, engineering and design and all system components, as well as the production or operation of the facility or service.
- ***Indirect Economic Impacts*** are created by investment or spending by suppliers whose goods and services are used in the project, process or service.
- ***Induced Economic Impacts*** result as household income changes (created by direct and indirect effects on wages and employment) lead to a further effect on consumer spending throughout the county and regional economies.

We estimate the economic impact for both Cuyahoga County as well as the entire Northeast Ohio region using an export-based model. In such a model, economic impacts are derived only when goods or services are exported to outside the region(s) under study, with dollars imported in return for the goods or services. Importing dollars creates the initial round of activity or the direct effect on employment and income, as indicated above. It also creates successive rounds of activity called the multiplier effects, or additional jobs and spending as indicated by the indirect and induced effects listed above.

¹ www.clemusart.com/museum/collect/mission.htm

² The Northeast Ohio region is defined by the Federal government as Consolidated Metropolitan Statistical Area (CMSA), an integrated labor and economic market. The Cleveland-Akron CMSA consists of the following counties: Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Media, Portage and Summit.

In general, spending by a region's residents on CMA-associated activities does not generate an economic impact, but is viewed as making a "contribution" to the local economy. The concept of contribution acknowledges that while significant consumer spending may be associated with CMA, it is fundamentally a substitution of dollars among entertainment and other purchase options within the region. The substitution of dollars among options does not create social wealth³, but rather redistributes it among various uses and service providers. It is acknowledged that different spending patterns will have different effects, but it is beyond the scope of this study to estimate the efficiency of spending alternatives and their effect on aggregate regional wealth.

The Greater Cleveland REMI model provides a best fit as it was designed to estimate the regional effects of visitor spending on the service and retail sectors, as well as estimate impacts on infrastructure and capital investments, operations expenditures and governmental policies. The REMI model is an economic simulation model produced by Regional Economic Models, Inc. (REMI). This firm has recognized expertise in regional econometric modeling, and is a leading supplier and developer of such models.

The Cleveland REMI model represents all the major inter-industry linkages among private industries aggregated into 53 major industrial sectors including three public sectors (state and local, federal and military). The REMI model determines demand and supply changes created from a proposed economic change, such as increased visitors due to CMA's ongoing operations, on an individual region based on the model's baseline and forecast conditions. The model determines how much of the demand created can be supplied locally, before the demand leaks out beyond the core region selected.

While it is expected that the economic impact is largely limited to Cuyahoga County, this study also estimates the impacts to the entire Cleveland-Akron CMSA region.

Indicators of Economic Development

³ We do recognize that different patterns of consumer spending can affect individual and regional wealth. This local wealth factor is driven by consumer choice, as an example the decision to see movies rather than rent movies. This is called the substitution effect. Owners and workers at the movies would benefit from increased business while those at the video rental stores may lose. The sum of the benefits from people choosing movies over rentals may have some affect on total wealth in a region, but this mostly due to the local content of materials and labor used to produce the good or service. But it is argued here that the substitution effect will more likely affect small changes in individual wealth rather than change total wealth significantly. The one factor creating an exception to this would be when choices for goods or services available to consumers go beyond the region. In this case it may be argued that retaining the consumer (essentially self-supply) retains spending (and wealth) that would be exported and lost to the region. This is essentially the attraction versus retention debate that occurs within economic development circles on an ongoing basis.

The investment and operation of CMA creates several forms of economic impacts to Cuyahoga County and the region. To determine a consistent and reliable set of meaningful results, the analysis focuses on five indicators of economic output as described below. The estimates for the various measures are analyzed and reported as differences from the control or base forecast. It is important to note that factors such as government policies, local investments and disinvestments and others are also influencing the local economy and, therefore, it is impossible to isolate fully CMA's impact on the regional economy.

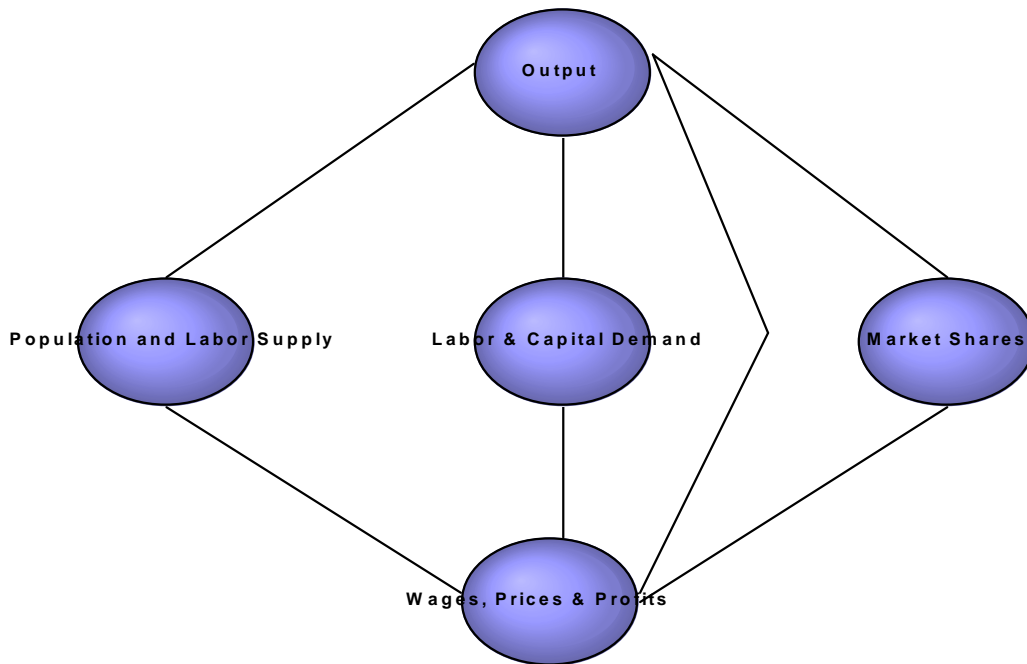
- **Employment** - Bureau of Economic Analysis (BEA) concept based on place of work including full-time and part-time employees as well as seasonal employees. Total "new" jobs are attributable to normal operations of the museum, and the new dollars provided by visitors both to the region and to the museum.
- **Gross Regional/State Product (GRP/GSP)** - Output is defined as "gross output" and is a measure of the total economic activity in the region. GRP/GSP is a value-added concept analogous to the national concept of gross domestic Product. This is composed of the value of final demand created by consumer spending, investment, net exports and government spending excluding the intermediate inputs. Changes in these components are examined over the forecast period.
- **Personal Income** - This measure consists of total increases in payroll costs paid by local industries, plus income from self-employment, other property income and transfer payments.
- **Disposable Income** - A measure of after-tax buying power of the community (income less taxes). It reflects the increased government spending and consumer activity.
- **State and Local Tax Revenues** - The estimates on various state and local tax and user fees are based on *average* activity within the state. This suggests that actual revenues may be slightly higher or lower. For example, state sales taxes would be at the state average rate, but since rates are set at the county level they could vary above or below the state average.

THE REMI MODEL

For this study, the Greater Cleveland REMI model contains the newest version of software specifically REMI Policy Insight Version 2. The REMI model shares two underlying assumptions with mainstream economic theory: households maximize their utility and producers maximize their profits. The REMI model includes hundreds of equations that describe cause-and-effects relationships in the economy, going beyond an input-output model. Figure 1 provides a simplistic presentation of the REMI model.

The Output block in Figure 1 (found on the next page) includes all the inter-industry relationships that are in an input-output model.⁴ The Labor and Capital Demand block indicates how labor and capital requirements depend on their relative prices as well as on output.⁵ Population and Labor Supply create demand for products from the Output block and also determine wages in the labor market.⁶ The feedback (double arrow between the Population and Labor Supply block and the Wages, Prices, and Profits block) suggests that economic migrants respond to labor market conditions. Demand and supply interact in the Wage, Price, and Profit block, which influences the Market Shares block, and that, along with components of demand, determines Output.^{7,8}

Figure 1: Overview of the REMI model



Source: REMI Policy Insight, User Guide. The REMI model uses extensive data sets to estimate key inter-relationships of the economy. REMI builds customized regional models using data from the Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis, Department of Energy, and other public sources. The model provides long-term projections with general equilibrium properties that are called control forecasts.

When the REMI model is used to estimate an economic impact, one needs to understand how the model works and how the model variables interact with each other. Figure 2 shows how the impact is measured for a policy change called “Policy X.” The figure illustrates that the baseline forecast (or control forecast) is compared to an

⁴ State and local government spending, investment, exports, consumption, and real disposable income influence the Output block.

⁵ The Labor and Capital Demand block depends on employment, labor/output ratio, and optimal capital stock.

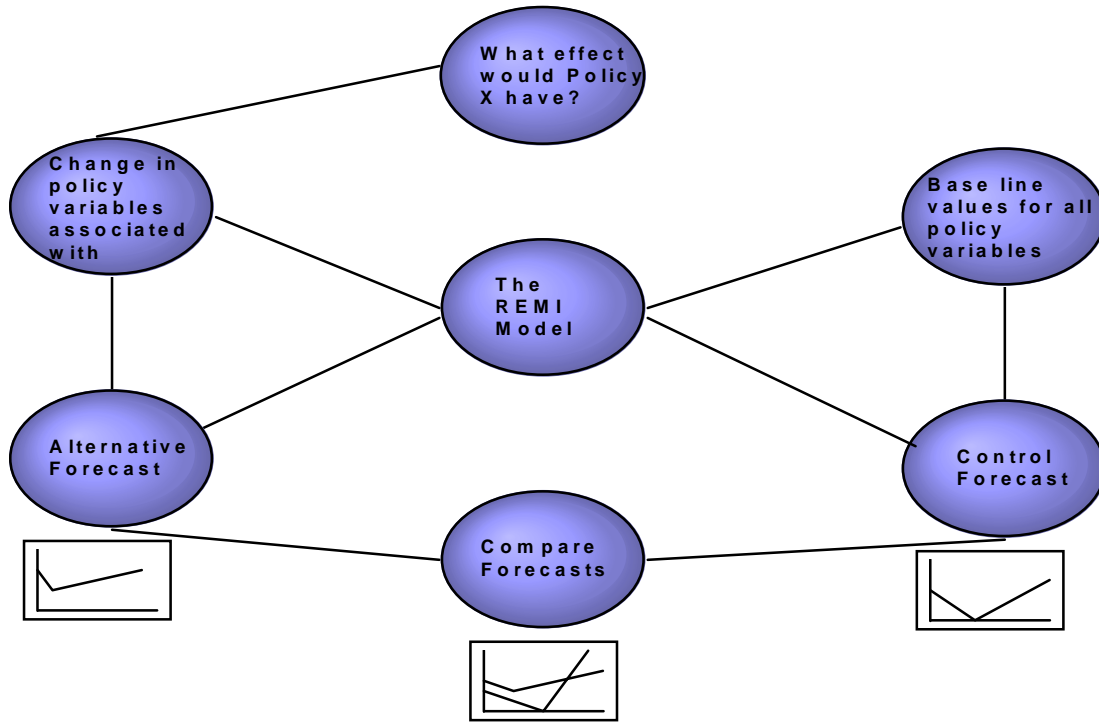
⁶ The Population and Labor Supply block depends on population and migration.

⁷ Many factors enter the Wage, Price, and Profit block. These include employment opportunity, wage rate, consumer price deflator, real wage rate, production costs, profitability, industry sales price, and housing price.

⁸ The Market Shares block refers to the shares of both local and external markets.

alternative forecast that is based on the changed policy. The difference between the two forecasts provides an estimate of the total economic impact.

Figure 2: Measuring Economic Impact in REMI



Source: REMI Policy Insight, User Guide

ECONOMIC IMPACT ANALYSIS

Assumptions and Methods

Between March 1999 and February 2000, CMA randomly surveyed 1,545 of their 593,046 patrons. Based on standard statistical techniques, the survey results are generalized to the entire patron base with a confidence interval of +/- 2.5 and 95 confidence level (the correct value within the universe is achieved in 95 out of 100 samples).

The survey asked questions about the patron's home or residential zip code, their length of stay and the number of people in the party. Patrons with zip codes from outside the CMSA were placed into a separate database and were used for this analysis. Of particular importance is the patron's length of stay, since the modeling procedure requires an estimation of expenditures associated with overnight accommodations. The information on the number of individuals in the party was used to determine the proportional nature of the response. The importance of determining the number of patrons represented by the completed survey is easily shown by the results from the survey. In the survey, 31% of individual respondents were from outside the CMSA, but accounted for the behavior and activities of 42.8% of all patrons due to the larger number of individuals in these parties than parties from inside the CMSA. Based on survey findings, respondents from outside the CMSA ("tourists") typically visited the CMA in larger groups than those from within the CMSA. The higher proportion of non-resident patrons yield more visitor days and associated expenditures that effectively increase the estimated economic impact of the CMA.

The first step in the modeling process was to estimate the number of "tourists" within CMA's total patronage. Based on the sample responses 254,002 patrons were estimated to be from outside the CMSA (42.8 % of 593,046 total patrons). Further tabulations classified these respondents into three groups: overnight stays, day-trippers and "non response" to the length of stay (unknowns). For estimation purposes the unknown responses were combined with day-trippers totaling 193,752. The aggregation was necessary because while we knew that patrons were from outside the region, we did not know how long they stayed in the region. This method allows the responses to be included as economic inputs into the model, but since there is no associated spending for food and accommodations for these patrons they will have a limited multiplier effect on estimated economic impact of the CMA.

The final calculation needed to estimate CMA's economic impact was the total number of overnight stays (total hotel/motel nights). Based on the survey results 60,250 patrons spent at least one night. Where patrons stayed was not known. While the average (mean) number of nights each patron stayed was 3.92, the median and mode was two nights. To avoid possible overestimation the value of two nights per patron was used for the 60,250 patrons totaling 120,500 hotel/motel nights. The lower figure was chosen to help offset the lack of information about the actual location of their stay. In some cases

the patrons could be staying with family or friends, and therefore have a lower economic impact than hotel/motel stays due to reduced accommodation and food expenditures.

It is important to note that when estimating the impact of hotel/motel nights, the REMI model recognizes that some patrons share space and therefore attributes an average cost per person for each hotel night as an input into the model. This means that REMI may attribute (for example only) \$60 per night towards accommodations per person when the actual cost of a single room in the region may be \$100.

Table 1: REMI Model Inputs

Daytrips	193,752
Hotel/motel nights	120,500
Employees	50

As part of the economic impact analysis, 20% of CMA employees (50) were assumed to supply services to non-resident visitors. Although this is less than the estimated proportion of non-resident patrons (42.8%), a significant proportion of CMA staff is required regardless of non-resident demand. Staff positions such as curator and public relations are tied more to ongoing operations than to changes in patronage. Thus about one in five employees at CMA are in support of the non-resident visitor or are due to non-resident visitor demand. It is important to note that CMA is funded primarily through endowments not through patron revenues.

This economic impact analysis is an estimate for a one-year period and is believed to be a representative year for the CMA. Whether this year’s economic activity for CMA is normal or anomalistic cannot be determined without additional periods of data.

Total Estimated Impacts

Tables 2.1 and 2.2 detail the impacts of non-resident CMA patrons on the economies of both Cuyahoga County and the Cleveland-Akron CMSA.

Key Findings of the Economic Impact Analysis

Table 2.1 Total Impacts on Cuyahoga County

Employment	589
Gross Regional Product	\$19,381,683
Personal Income	\$13,820,000
Disposable Income	\$8,148,554
State Tax Revenues	\$2,817,329
Local Tax Revenues	\$1,084,818

Cuyahoga County

- *Jobs:* Expenditures by non-resident CMA patrons generate a total of 589 jobs in Cuyahoga County, including the 50 jobs already identified at the museum.
 - Of the total jobs generated, there are 340 *Services* jobs that include 142 employed at *hotels*, 60 in *personal services* and 57 in *non-profits* (50 of those directly employed by CMA).
 - Of the 156 jobs generated in *Retail*, 109 are mostly in the *eating and drinking* sector.
- *Gross Regional Product (GRP):* Non-resident CMA patrons create an additional \$19.38 million in economic activity for Cuyahoga County.
- *Personal Income:* An additional \$13.8 million in personal income is generated for Cuyahoga County.
- *Disposable Personal Income:* The total after tax earnings in the county is estimated to be slightly more than \$8.1 million.
- *Local Tax Revenues:* Local tax revenues are projected to increase by about \$1.0 million. These revenue estimates include \$161,400 in local property taxes, \$90,000 in general sales taxes and \$205,300 in individual income taxes. It is important to note that the local estimates are based on state averages applied to local changes in economic activity.

Table 2.2 Total Impacts Cleveland-Akron CMSA

Employment	656
Gross Regional Product	\$22,374,356
Personal Income	\$20,100,000
Disposable Income	\$12,642,277
State Tax Revenues	\$3,746,726
Local Tax Revenues	\$1,517,190

The Cleveland-Akron CMSA

- *Jobs:* Expenditures by non-resident CMA patrons generate a total of 656 jobs in the Cleveland Akron eight-county region.
 - Of the total jobs generated, there are 359 *Services* jobs that include 142 employed at *hotels*, 64 in the *non-profit* sector and 60 in the *personal services* area.

- Of the 178 jobs generated in *Retail*, 116 are *mostly in the eating and drinking* sector. -- Other sectors impacted include 39 *Construction*, 31 *Miscellaneous Business Services*, 21 *Finance, Insurance and Real Estate*, and 21 *Transportation and Public Utilities* jobs.
- *Gross Regional Product (GRP)*: Non-resident CMA patrons create an additional \$22.37 million in economic activity for the Cleveland-Akron economy.
- *Personal Income*: CMA creates an additional \$20.1 million in earnings for the Cleveland-Akron economy.
- *Disposable Personal Income*: The total after tax earnings in the region is estimated to be \$12.6 million.
- *Local Revenues*: Local tax revenues are estimated to increase by about \$1.5 million. These revenue estimates include \$240,500 in local property taxes, \$110,800 in general sales taxes and \$300,800 in individual income taxes. Similar to the county analysis, it is important to note that the local estimates are based on state averages applied to local changes in economic activity.

Note: CMSA statistics include Cuyahoga County impacts plus the impacts from the other seven counties in the CMSA.

Other Economic Benefits of The Cleveland Museum of Art

In addition to the economic benefits highlighted in the previous section, there are other benefits to the county and regional economies from the CMA:

- The University Circle area is home to a number of cultural amenities such as CMA, the Museum of Natural History and the Cleveland Orchestra. The CMA provides an important component to this neighborhood economy formed by the high density of these amenities. It provides the opportunity for name recognition for the area, cross-selling to other institutions and potentially a critical mass of amenities that attracts visitors.
- With a well-recognized brand name, CMA enhances the general pool or bundle of amenities that the Cleveland region has to offer. Current research suggests that most mobile or new entrant workers select where they want to live and then seek a job in that location. An important criterion along with climate and community is the quality and quantity of the amenity bundle.