METHODOLOGY AND ASSUMPTIONS FROM TAX, ALUMNI, AND VOLUNTEER ESTIMATES

EDUCATING STUDENTS, IMPACTING COMMUNITIES
Tax Revenue from Ohio University

The state and local tax and other revenue supported by Ohio University-related economic activity in FY12 was estimated separately. It is important to note that this is not an estimate of return on investment.

To calculate the tax revenue generated by Ohio University, two separate estimates were prepared:

1. The first included as State Revenue the taxes, fees, government enterprise revenues, and other sources deemed relevant to this project. Federal revenues, investment income, social insurance taxes, and state employee retirement insurance and select other receipts were excluded. Local revenue estimates included only tax revenues identified in official state documents. Other nontax local revenues were not reported in these sources (sources 1, 2, and 3). TPMA did not attempt to allocate intergovernmental transfers and revenue sharing between state and local entities. The data that resulted from this approach creates a significant underestimate of the local revenue impact due to Ohio University-related activity, and a modest underestimate of state revenue impact.

2. An independent third party source, www.usgovernmentrevenue.com, provides credible estimates of federal, state, and local public finance data on a regular basis. Using these estimates, TPMA was able to provide a more complete picture of estimated total State of Ohio State & Local (S&L) revenues, especially for contributions to state social insurance programs and local revenues not reported in the state documents.

The basic tax model assumed that Ohio University’s tax impact resulting from its economic impact would mirror the distribution of the State of Ohio’s S&L revenue collections in FY12. The following methodology was applied to both data sets discussed previously.

- The estimates are based on the relationship between the State of Ohio S&L tax collections (including other relevant revenues) and state sales volume estimated by Economic Modeling Specialists Intl. (EMSI) for FY12.
- To generate an estimate of the S&L tax collections that could be associated with Ohio University-related FY12 activity, total tax (and other relevant revenue) collection estimates per dollar of state sales were multiplied by the total economic (sales) impact of Ohio University generated by the multiplier analysis.
- Because Ohio University does not pay certain taxes due to its status as a state university, the estimate of total state and local tax collections due to OHIO’s impact were reduced based on the University’s noncompensation operational expenditures as a share of state economic output that is attributable to all nonprofit and government entities not subject to the same taxes. Adjustments were made to sales and property tax collections, vehicle license fee revenues, and corporate franchise and commercial activity taxes, among select others.

The S&L revenue estimates are summarized in Table Tax 1. Using the revenue estimates from usgovernmentrevenue.com, Ohio University-related activity supported some $104.1 million in S&L tax and related revenue collections in FY12. This was roughly split into $58.5 million in state revenue and $45.7 million in local revenue. Actual revenues will differ significantly because these estimates do not include federal pass-through and intergovernmental transfers and revenue sharing between state and local entities.

Table Tax 2 summarizes state and local funding received by Ohio University. Appropriations are general support for university activity, while contracts and grants are essentially payment for specific products or services. For each dollar of state appropriations in FY12, Ohio University-related activity supported $0.73 of state and local tax and related collections.

TABLE TAX 1 / STATE AND LOCAL TAX AND OTHER REVENUE COLLECTIONS SUPPORTED BY OHIO UNIVERSITY-RELATED ECONOMIC ACTIVITY: FY12

<table>
<thead>
<tr>
<th>Ohio S&amp;L Tax Collections due to Ohio University Related Activity (1)</th>
<th>Of Which: State Revenue (2)</th>
<th>Of Which: Local Revenue (2)</th>
</tr>
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<tbody>
<tr>
<td>$104,134,511 (3)</td>
<td>$58,474,230 (3)</td>
<td>$45,660,281 (3)</td>
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</table>

(1) Adjusted estimate of Ohio S&L Tax Collections due to OHIO University Total Sales Impact (after reducing select collection estimates due to nonprofit status).

(2) Splits are assessed based on primary collection responsibility. Allocation varies considerably between state and localities. Intergovernmental transfers and revenue sharing are ignored.

(3) Based on a comprehensive, but not state certified, third-party estimate of total State of Ohio S&L revenues, including contributions to state social insurance programs and local revenues not reported in the state documents.
Data Sources


Income Gains and Tax Revenue from Alumni

Income Gains
Analysis of the increase in individual income, and thus the increase in gains on state and federal taxes, focused on the marginal gain to income from a level of educational attainment. All marginal gains, except the high school dropout to high school diploma increase, are a comparison between OHIO alumni and the total OHIO population. In other words, the marginal income gain calculated for earning a master’s degree—a comparison of master’s degree holders to those who earned a bachelor’s degree only—is the difference between incomes of estimated Ohio University alumni with a master’s degree and the incomes of the total state of Ohio population with a bachelor’s degree only. Thus, the marginal gains to income were compared as follows:

- Less than 1 year of college at OHIO to general high school diploma.
- 1 or more years of college at OHIO without a diploma to less than 1 year of general college without a diploma.
- Associate’s degree at OHIO to less than 1 year of general college without a diploma.
- Bachelor’s degree at OHIO to 1 or more years of general college without a diploma.
- Master’s degree at OHIO to bachelor’s degree at general college.
- First professional degree at OHIO to bachelor’s degree at general college.
- Doctoral degree at OHIO to master’s degree at general college.

The sum of each marginal gain was then added up to account for the total personal income gained as a result of an individual’s experience at Ohio University.

Ohio University Advancement Services provided TPMA with data on alumni living in state as well as degree awarded and year of graduation.

Based on the American Community Survey PUMS data, TPMA estimated the marginal personal income gain for Ohio residents due to post-secondary education for FY12, adjusted for years of experience, and applied these estimates to the identified population of OHIO alumni residing in Ohio. This total represents an estimate of FY12 marginal increase in state personal income of OHIO alumni due to their acquisition of post-secondary education. This is a one-year point-in-time estimate, not an estimate of lifetime earnings.

| TABLE TAX 2 / TOTAL OHIO UNIVERSITY REVENUES FROM STATE AND LOCAL GOVERNMENT |
|---------------------------------|-----------------|
| State grants and contracts (2)  | $8,130,827      |
| Local grants and contracts (2) | $816,600        |
| State and local grants non-exchange (3) | $2,198,331 |
| State appropriations (1)       | $136,636,074    |
| State capital appropriations (1)| $6,200,109      |
| Total grants and contracts     | $11,145,758     |
| Total appropriations           | $142,836,183    |

(1) Appropriations are general support
(2) Under GASB rules, grants and contracts are viewed as compensation for value is provided separate from the University mission.
(3) These grants are somewhat ambiguous for categorization. They are specific but not for an explicit service, but they are grants, not general appropriations.
These nonexchange grants are included with other S&L grants and contracts in the totals, but could just as easily be included with appropriations.
Note that many alumni are high achievers and would have achieved success without post-secondary education.\textsuperscript{8} Many others would have earned a degree elsewhere if OHIO did not exist.\textsuperscript{9} Conservative estimates of apportionment in academic literature typically suggest an institution-specific contribution of below 50 percent of an alumnus’ additional income.

These issues are the reason alumni income gains (or taxes generated from them) were not included in the core traditional economic impact analysis.

**Tax Revenues Associated With In-State Alumni**

In-state alumni pay state and local taxes. Using the marginal personal income associated with higher education discussed above, TPMA estimated the associated marginal state and local taxes and fees collected in Ohio. Only estimates based on alumni marginal personal income are reported. Tax revenues based on the multiplier impacts from alumni spending of their marginal net income are not included. As noted regarding personal income, only a portion of this tax revenue can appropriately be attributed uniquely to Ohio University.

**Tax Revenues Associated with Regional Campuses**

Data on taxes, fees, and other collections was based on primary collections with no adjustment for intergovernmental transfers and revenue sharing, and excluding federal funding, interest earnings on investments, and other revenue sources. Campus region collections are based on statewide averages allocated to the regions, not on the specific collections by counties in each region.

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\textsuperscript{8} Many factors such as ability, socioeconomic status, and family background also positively correlate with higher earnings. Failure to account for these results in an ability bias. Chris Molitor and Duane Leigh literature review suggests that such earnings estimates should be discounted by some 10 percent to adjust for ability bias. See Chris Molitor and Duane Leigh, “Estimating the Returns to Schooling: Calculating the Difference Between Correlation and Causation” (Pullman, WA: March 2001).

\textsuperscript{9} Many different approaches have attempted to allocate lifetime benefits to the public attributable to education, and the adjustments that are necessary to account for alternative education opportunities and for the net value associated with attending a publicly subsidized university. For one such effort, see EMSI, Economic Contribution of the Florida College System: Analysis of Investment Effectiveness and Economic Growth, March 2013. The EMSI study used a net present value of lifetime earnings (and other social value) approach, not a current earning approach as used in the analysis. However, their adjustments to earnings are based on a conservative approach in this controversial area. The cumulative adjustments they apply result in some 48 percent of earnings being attributable to the Florida system. The value of such adjustments are system-specific, but a range under 50 percent is typical for public universities.
Data Types and Assumptions

1. Volunteer Time
   a. Response data in hours for a specific program or activity were simply totaled.
   b. When a program or activity was described without hours, best estimates of participation and time per person were generated.
   c. Unless the response provided more detail, faculty/staff participation described as board participation used the following assumptions.
      i. Each attended four board meetings and served on one committee that also met four times per year.
      ii. Each meeting lasting two hours.
      iii. A board officer was assumed to have two additional two-hour meetings during the year.
   d. Volunteer time estimates for OU-HCOM was based on a provided value estimate.
      i. OU-HCOM operates a free health clinic and an outreach medical van, with an estimated value of $586,617 in volunteer service, $424,497 in clinical services, and $228,000 in free pharmaceutical assistance.
      ii. Assuming volunteer services were a mix of faculty, staff and students, value was converted to hours using an average compensation of $40,000 per year.
      iii. Donated clinical services and pharmaceutical assistance were not included in the volunteer time estimate.
      iv. Volunteer time was distributed evenly at 50 percent for faculty and staff and 50 percent for students.
   e. No estimates were made for underreporting.

2. Internships
   a. Full-time off-campus internships in Ohio were reported separately. Only two programs (not counting student teaching) reported full-time internship data in detail: Scripps College of Communication and the Department of Environmental and Plant Biology.
      i. Hour estimates were assumed to be full-time for one academic quarter.
   b. Part-time internships associated with specific courses and programs were totaled with all other types of experiential learning not reported separately.
      i. Hour estimate methodology discussed below under “Experiential learning.”

3. Student teaching
   a. Student teaching has a unique course number in the Enrollment Database maintained on the Institutional Research Website.
   b. The state of Ohio has minimum state licensure requirements of 12 weeks of full-time teaching and 100 clock hours of field experience prior to student teaching.
   c. Hour estimates were based on multiplying total student teaching enrollment by full-time for 12 weeks. Prior field experience is included in the experiential learning totals.

4. Experiential learning
   a. Experiential learning comes in many forms, with very similar activities referred to differently among the various courses and programs. Estimates of time involved in anything referred to as fieldwork, practicums, capstones, senior projects, part-time internships, etc., was rolled up into the experiential learning category.
   b. The data collected came in a wide range of forms, such as
      i. Experiential learning hours per class or degree
      ii. Type of experiential learning by class, with no hours or student numbers attached
      iii. Experiential requirements per degree, with no distribution by class or year
   c. A variety of assumptions were used to convert the data collected into hours per student per class, or hours allocated per student class (freshman, sophomore, etc.), per degree.
   d. Using Institutional Research data on enrollment per class and degrees awarded by program, the per-student hourly estimates were converted into annual totals.
      i. Due to the multiple sources of data upon which this was based, considerable attention was paid to removing estimates that might result in double counting.
OHIO Employee Wage Comparisons

For the comparisons of earnings of OHIO employees to earnings of all employees in the state of Ohio or campus regions, a basic set of adjustments were made.

I. Median hourly earnings in the general economy were based on median earnings reported by EMSI. To produce a comparison between OHIO wages and the concept of earnings that was conceptually similar, earnings supplements were subtracted from the data for the total economy by applying the ratio of the average supplements-to-average earnings to median hourly earnings.

II. An hourly wage for full-time non-hourly OHIO employees was created by dividing their annual salaries by 2,080 hours.

III. Because it was impossible to estimate hours worked by part-time salaried OHIO employees, their wages were excluded.

IV. Quarterly OHIO appointees were excluded.