

The Economic Activity Generated by the  
University of Maryland, Baltimore  
FY2014

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## Executive Summary

The University of Maryland, Baltimore is one of the largest employers in Maryland and a key provider of health and professional education in the state. Its activities contribute to the economy of Maryland in a wide variety of ways. Its purchases of goods and services in the state and the purchases resulting from the salaries it pays to Maryland workers are only the beginning point of a chain of expenditures which amplify the initial outlays into a much larger economic impact. It plays a vital role in providing a skilled and educated workforce; and is the only provider of educational services in several key areas, such as pharmacy and dentistry, in the State. Finally, the University supports economic development in the State through the commercialization of new technologies.

The economic activity generated by the University of Maryland, Baltimore is presented in the Summary Table below. Total university spending of \$1.3 billion generates more than \$1.5 billion in indirect and induced economic impacts for a total impact on the Maryland economy of almost \$2.8 billion. Total direct University employment of 10,302 is augmented by an estimated 10,542 jobs supported or created through indirect impacts, for a total employment impact of 20,844 jobs. Note that in this analysis, the 10,302 jobs *directly* attributed to the university include not only those who are actual employees of the university, but also the external employment by vendors and contractors that directly results from the university's expenditures. To clarify once more the economic meaning of these terms, employment that is *indirectly* generated, or *induced*, is a consequence of the "direct" activities. There is a total of more than \$1.2 billion in salaries and wages associated with these 20,844 jobs. The combined state and local fiscal impact of the wages and salaries paid to University employees or the employees supported by the University's operations is \$156.3 million in fiscal 2014.

**Summary Table**  
**Economic Activity Generated by the University of Maryland, Baltimore**  
**(FY 2014)**

Item	Direct Effect	Indirect	Total Effect
Economic Output (Mil. \$)	\$1,280.1	\$1,501.1	\$2,781.2
Employment (# of Jobs)	10,302	10,542	20,844
Earnings (Mil. \$)	\$699.4	\$509.2	\$1,208.5
State and Local Fiscal Impact (Mil. \$)			\$156.3

Source: University of Maryland, Baltimore, MIG-IMPLAN and  
The Jacob France Institute

The fiscal impact of the University of Maryland, Baltimore can also be analyzed in terms of the level of economic activity leveraged by the State appropriation. Universities, unlike other State government activities, attract a substantial portion of their revenues from other sources. In fiscal 2014, State appropriations of \$196.6 million accounted for only 14% of University expenditures, down from 23% in FY2004. This leveraging of State appropriations, combined with the economic impacts discussed above, leads to a high return on State expenditures. Dividing the total economic output activity generated by the University by the State appropriation provides an estimate of the economic returns on the State's investment in the University of Maryland, Baltimore. On this basis, the University of Maryland, Baltimore generates \$14.14 in economic activity for each \$1.00 appropriated.

## **1.0 University of Maryland, Baltimore Expenditures, Employment, and Employee Earnings in Maryland**

This report provides an analysis of the economic activity created by the operations of the University of Maryland, Baltimore, in the State of Maryland. The analysis employs the use of input-output models to estimate the overall economic impact using the MIG-IMPLAN software. Input-output analysis is based on the use of multipliers, which describe the response of an economy to a change in demand or production. Multiplier effects occur as an initial round of spending is spent and re-spent in an economy. The input-output methodology is best explained by means of an example. When an enterprise spends money, for example, in the case that it pays for the construction of a building, the economic impact is not fully represented by the original purchase price since the construction firm in turn, spends what it receives in order to purchase materials and services and to pay the construction workers. In subsequent rounds, more economic activity is generated as the money received from the construction firm is spent by the construction workers and other recipients of the initial funds in further rounds of payments. Each initial dollar spent creates more than one dollar in ultimate spending, or economic activity. This is known as the multiplier effect, as the initial round of spending works its way through the economy creating additional ripple effects and expanding the scale of the economic activity beyond the initial expenditures. The economic multipliers used in input-output analyses represent the rate of response of a regional economy to any initial change in purchases or production.

IMPLAN models are based on the observed spending patterns of each economic sector which permits the computation of the multipliers and the resulting economic activity associated with the expenditures of enterprises in the region of study. For our purposes, the region of study is the State of Maryland. This economic activity report differs from a traditional economic impact report in that it does not adjust for the potential substitution effects by other universities for the educational services provided by University of Maryland, Baltimore. It should also be noted that any year to year comparisons of the activity analyses require some caveats in that the estimated impacts are affected not only by updates to the IMPLAN multipliers, but are also sensitive to even minor refinements in the level of aggregation or detail in which the source data is supplied.

The first step in the modeling process is to estimate the direct effects, or the changes in final demand, in the affected industries. In this analysis the direct effects are the spending associated with the educational, patient care, and research operations of the University of Maryland, Baltimore. Once these direct effects are estimated, they can be entered into an economic model to determine the change in output (a measure similar to business sales volume which measures the level of business and economic activity in a state or region), employment, and earnings attributable to the University of Maryland, Baltimore.

The University of Maryland, Baltimore impacts the Maryland economy through four primary spending flows:

- 1) The operating expenditures of the University and its affiliated institutions;
- 2) The spending of the University's students;
- 3) The spending of the visitors attracted into the State by the University; and
- 4) The capital expenditures of the University.

As presented in Table 1, in fiscal 2014, the University, its affiliated institutions, its students, and the out-of-state visitors attracted into Maryland by the University spent a total of \$1.64 billion. The University and its affiliated institutions employed or supported 7,536 workers who earned \$700.8 million in salaries and benefits. These expenditures represent the direct effects of the University of Maryland, Baltimore.

**Table 1**  
**Total Expenditures, Employment and Payroll Associated with the University of Maryland, Baltimore and Its Affiliated Institutions, Fiscal 2014**

Item	Millions of Dollars
<b>Total Expenditures</b>	<b>\$1,644.0</b>
Total Operating Expenditures	\$1,018.7
Student Expenditures	\$330.4
Visitor Expenditures	\$27.8
Construction Expenditures	\$19.3
Capital Equipment	\$1.4
UMB Foundation	\$26.2
MSP-FPI**	\$220.2
<b>Total Employment (Number of Jobs)</b>	<b>7,536</b>
<b>Total Payroll and Fringe</b>	<b>\$700.8</b>

Note that in this table operating expenditures includes student employee stipends

\*\* MPS-FPI using prior year's data

## **2.0 The Maryland Output Activity Supported by University of Maryland, Baltimore**

The expenditures associated with the University of Maryland, Baltimore are circulated within the State's economy and become income for residents and businesses. As previously described, this creates "spin-off" or "multiplier" effects as this money is spent and then re-spent in the State economy. In this way, each dollar of new spending creates more than one dollar in economic activity in Maryland, as that spending is earned and, in turn, spent by others in the State. The estimated output, a figure similar to business sales volume, supported by the University of Maryland, Baltimore by expenditure category is presented in Table 2.

Direct impacts are the changes in economic activity directly attributable to the University. Indirect impacts are the "spin-off" or "multiplier" effects caused by the introduction of a new spending stream into the local economy. Total direct University and associated student and visitor expenditures of \$1.28 billion are leveraged with an additional \$1.5 billion in indirect and induced spending for a combined total impact of more than \$2.78 billion.

**Table 2**  
**Economic Output Impact of**  
**The University of Maryland, Baltimore on the Maryland Economy**  
**By Expenditure Category, Fiscal 2014**  
**(Millions of Dollars)**

Item	Direct	Indirect	Total Impact
<b>Total Expenditures</b>	<b>\$1,280.1</b>	<b>\$1,501.1</b>	<b>\$2,781.2</b>
Total Operating Expenditures *	\$1,018.7	\$916.0	\$1,934.6
Student Expenditures		\$331.9	\$331.9
Visitor Expenditures		\$27.9	\$27.9
Capital Expenditures	\$15.5	\$10.4	\$25.9
University of Maryland Foundation Foundation	\$25.7	\$22.5	\$48.2
MSP-FPI**	\$220.2	\$192.5	\$412.7

\* Student stipends excluded from operating expenditures.

Source: University of Maryland, Baltimore, MIG-IMPLAN and The Jacob France Institute

Table 3 presents the output impact of the University of Maryland, Baltimore on the Maryland economy by School. The central operating expenditures of the overall University that cannot be allocated to an individual School are included in University Central Administration.

Similarly, the expenditures of the University of Maryland Foundation to support both overall University and individual School operations are included in the University of Maryland Foundation expenditures. Thus, the actual impacts of each of the Schools would be larger than presented in this Table if these centralized expenditures could be allocated to each School. The School of Medicine generates the largest economic impact, generating \$1.35 billion of economic activity within the State economy, accounting for over half of the total impact of the University.

**Table 3**  
**Output Impact of The University of Maryland, Baltimore on the Maryland Economy**  
**By School, Fiscal 2014**  
**(Millions of Dollars)**

Item	Direct	Indirect	Total Impact
<b>Totals</b>	<b>\$1,280.4</b>	<b>\$1,472.4</b>	<b>\$2,690.7</b>
School of Dentistry	\$62.0	\$105.2	\$167.2
School of Law	\$37.4	\$92.1	\$129.5
School of Medicine	\$605.7	\$747.5	\$1,353.2
School of Nursing	\$38.1	\$108.3	\$146.5
School of Pharmacy	\$45.6	\$94.0	\$139.6
School of Social Work	\$38.7	\$40.9	\$79.6
University Central Administration <sup>1</sup>	\$206.9	\$174.5	\$381.4
University of Maryland Foundation	\$25.7	\$22.5	\$48.2
MSP-FPI	\$220.2	\$192.5	\$412.7

(1) University Central Administration includes all expenditures that cannot be allocated directly to a School and operating expenditures exclude amounts paid as salaries or stipends to students in order to avoid double counting.  
Source: University of Maryland, Baltimore, MIG-IMPLAN and The Jacob France Institute

### **3.0 The Impact of the University of Maryland, Baltimore on Maryland Employment and Employee Earnings**

The University of Maryland, Baltimore is one of the major employers in both Baltimore City and in the State. The University and its affiliated institutions directly employ or support 10,302 workers. However, the employment impact of the University, including the jobs supported by the multiplier effects, is much greater than this employment figure. As can be seen, the sequence of transactions that generate the additional output, generates additional jobs in the process. The total Maryland employment supported by the University of Maryland, Baltimore is presented by major expenditure area in Table 4, employment by School is presented in Table 5, and the wage and salary impacts of the University of Maryland, Baltimore are presented by major expenditure area in Table 6 and by School in Table 7.

The spending associated with the University, its students, and visitors support an additional 10,543 jobs in Maryland, for a total University employment impact of 20,845. As presented in Table 6 and Table 7, there is a total of \$1.2 billion in salaries and wages associated with the 20,845 jobs at, or supported by, the activities of the University of Maryland, Baltimore. As presented in Table 5 and Table 7, the School of Medicine has the largest employment and employment compensation impact.

**Table 4**  
**Employment Impact of the University of Maryland, Baltimore on the Maryland Economy by**  
**Expenditure Category, Fiscal 2014**  
**(Number of Jobs)**

Item	Direct	Indirect	Total Impact
<b>Total Maryland Employment Effects</b>	<b>10,302</b>	<b>10,543</b>	<b>20,845</b>
From:			
Total Operating Expenditures	8,384	6,192	14,576
Student Expenditures		2,477	2,477
Visitor Expenditures		208	208
Capital Expenditures	97	74	171
University of Maryland Foundation	191	167	357
MSP-FPI	1,631	1,426	3,056

Source: University of Maryland, Baltimore, MIG-IMPLAN and The Jacob France Institute

**Table 5**  
**Employment Impact of the University of Maryland, Baltimore on the Maryland Economy**  
**By School, Fiscal 2014**  
**(Number of Jobs)**

Item	Direct	Indirect	Total Impact
<b>Totals</b>	<b>9,587</b>	<b>11,131</b>	<b>20,635</b>
School of Dentistry	396	746	1,059
School of Law	568	665	1,233
School of Medicine	3,697	5,210	8,907
School of Nursing	590	786	1,375
School of Pharmacy	388	674	1,062
School of Social Work	457	282	738
University Central Administration	1,671	1,177	2,847
University of Maryland Foundation	191	167	357
MSP-FPI	1,631	1,426	3,056

(1) Central Administration includes all expenditures that cannot be allocated directly to a school.

Source: University of Maryland, Baltimore, MIG-IMPLAN and The Jacob France Institute

**Table 6**  
**Earnings Impact of The University of Maryland, Baltimore on the Maryland Economy By**  
**Expenditure Category, Fiscal 2014**  
(Millions of Dollars)

Item	Direct	Indirect	Total Impact
Total Maryland Employment	\$699.4	\$509.2	\$1,208.5
Total Operating Expenditures	\$547.5	\$299.9	\$847.3
Student Expenditures		\$117.5	\$117.5
Visitor Expenditures		\$9.9	\$9.9
Capital Expenditures	\$6.0	\$3.9	\$9.9
University of Maryland Foundation	\$15.3	\$8.2	\$23.4
MSP-FPI	\$130.6	\$69.9	\$200.5

Source: University of Maryland, Baltimore, MIG-IMPLAN and The Jacob France Institute

**Table 7**  
**Earnings Impact of The University of Maryland, Baltimore on the Maryland Economy By School,**  
**Fiscal 2014**  
(Millions of Dollars)

Item	Direct	Indirect	Total Impact
<b>Total Employee Compensation</b>	<b>\$865.7</b>	<b>\$536.3</b>	<b>\$1,402.0</b>
School of Dentistry	\$33.3	\$35.8	\$69.1
School of Law	\$30.0	\$31.7	\$61.8
School of Medicine	\$460.3	\$250.2	\$710.5
School of Nursing	\$31.9	\$37.4	\$69.3
School of Pharmacy	\$36.7	\$32.2	\$68.9
School of Social Work	\$27.9	\$13.6	\$41.5
University Central Administration	\$99.5	\$57.4	\$157.0
University of Maryland Foundation	\$15.3	\$8.2	\$23.4
MSP-FPI	\$130.6	\$69.9	\$200.5

(1) Central Administration includes all expenditures that cannot be allocated directly to a school.

Source: University of Maryland, Baltimore, MIG-IMPLAN and The Jacob France Institute



#### 4.0 The Fiscal Impact of the University of Maryland, Baltimore

The University of Maryland, Baltimore also has an impact on fiscal conditions in the State of Maryland. The salaries earned by University employees and the jobs created and sustained through University spending are subject to State and local income taxes. For example, purchases made by University employees or the persons directly or indirectly supported by the University are typically subject to sales tax. Indirect business taxes, including sales and property taxes, account for \$100.5 million. Individual contributions to State and local income taxes are estimated at \$39.2 million.

Additionally, the total University related economic activities result in various other non-tax revenues such as licensing fees and fines. Overall, the estimated State and Local tax impact of the University's activities within the State economy is estimated to be \$156.3 million.

**Table 8**  
**Selected Fiscal Impact of**  
**The University of Maryland, Baltimore on the State of Maryland,**  
**State and Local Taxes, Fiscal 2014**  
**(Millions of Dollars)**

Description	
<b>Total State and Local Taxes and Fees:</b>	<b>\$156.3</b>
<u>Taxes and Fees from Businesses:</u>	
Dividends	\$0.2
Employers: Social Ins Contributions	\$1.1
Indirect Bus Tax: Sales Tax	\$40.5
Indirect Bus Tax: Property Tax	\$44.6
Indirect Bus Tax: Motor Vehicle Licenses	\$1.1
Indirect Bus Tax: Other Taxes	\$10.3
Indirect Bus Tax: State/Local Non-Taxes	\$4.0
Corporate Profits Tax	\$3.2
<u>Taxes and Fees from Households:</u>	
Employees: Social Insurance Contributions	\$0.5
Income Tax	\$39.2
Non-Taxes (Fines & Fees)	\$9.4
Motor Vehicle License	\$1.4
Property Taxes and Other Taxes/Fees	\$0.9

Source: University of Maryland, Baltimore, MIG-IMPLAN and The Jacob France Institute

The fiscal impact of the University of Maryland, Baltimore can also be analyzed in terms of the level of economic activity leveraged by the State appropriation. Universities, unlike other State government activities, attract a substantial portion of their revenues from other sources. This leveraging of State appropriations, combined with the economic impacts discussed above, leads to a high return on State

expenditures. Dividing the total output activity associated with the University, by the State appropriation provides an estimate of the economic returns on the State's investment in the University of Maryland, Baltimore. Based on this metric, the University of Maryland, Baltimore generates \$14.14 in economic activity for each \$1.00 appropriated.