

## **An Accurate Measurement of the Return on Investment of the Academic Library at Brooklyn College**

### **LIBValue Study**

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This study measures the return-on-investment (ROI) of an academic library. Faculty and students at Brooklyn College were surveyed using contingent valuation methodology to measure their willingness-to-pay in time and money for the services of the academic library. The economic and environmental value of the Brooklyn College library show an ROI of \$54.02 returned to the college for every \$1.00 spent each year.

*The Economics of Academic Libraries*

Economists define private goods as goods that provide value to an individual consumer. A college education is a private good. A student pays tuition for the value of the education which, upon completion of their degree, will increase the student's salary or quality of life. The expected value the student will receive from the education exceeds the amount of tuition the student pays.

Public goods provide value to many consumers. The academic library provides access to information and services to several users simultaneously. When the library purchases a subscription to an online journal, many library patrons can access the journal articles. The library must determine which public goods to provide based on the total value to the patrons. Likewise, the college administration must determine how much funding to provide to or invest in the library based on the value of the public goods it provides. The return on investment (ROI) of the academic library is the total value of these goods to the patrons divided by the cost.

The value of a public good includes the economic, environmental, and social value. The economic value is the worth of access to the library resources by a patron. It is what a patron would be willing-to-pay for the services if he were required to purchase them. Patrons do not purchase access, but can express what they would have spent in time and money if these resources were not available to them.

The environmental value of the library is the resources saved by a library's provision of resources. Libraries have gone green by providing remote access, enabling patrons to save time and money by using online resources from their office. Patrons do not have to drive to the library and do not have to photocopy articles provided to them electronically.

The social value of the academic library is a more difficult concept to understand and to measure. The social value is the worth to everyone at the institution of having a great library. Likewise there is social value at an institution of having great academic programs, top research faculty, and a great football team. A well-resourced library attracts new students, top researchers, and provides a community with pride for their university or college.

### *Contingent Valuation and the Survey*

Many of the economic studies of the ROI of public libraries and of environmental goods use contingent valuation (CV) to provide an estimate of the value of their services when users are receiving services for free. CV surveys ask patrons their willingness-to-pay for access to a good or service or, more

accurately, what they would be willing to spend in time and money to get access elsewhere to the information resource they recently received from the library. This method allows us to calculate the patron's self-assessed value of access.

Faculty and students at Brooklyn College were asked to recall the most recent visit remotely and in-person to the academic library. They were asked what they would be "willing-to-pay" in time and money to acquire the service from another location if it had not been made available by the library. This method provides an average value of the various library services based on the willingness-to-pay by patrons.

Faculty and students were also asked to recall the number of times they used the library in the past 30 days, remotely and in-person. The answers to this question give a self-reported estimate of the use of various library services. To get the total use of services of the academic library we multiply the monthly use of services times the number of months times the total number of students or faculty.

### *Survey Results*

Tables 1 and 2 provide information on faculty and student demographics and productivity for survey respondents.

**TABLE 1: Demographics**

		FACULTY	STUDENTS
Category		Respondents	Respondents
Number of Respondents		65	288
Status			
	Professor	12.3%	
	Associate Professor	7.7%	
	Assistant Professor	13.8%	
	Instructor	1.5%	
	Teaching Assistant/Fellow	3.1%	
	Adjunct/Part-time Faculty	6.2%	
	Staff	12.3%	
	Other	1.5%	
	Freshman		6%
	Sophomore		8%
	Junior		14%
	Senior or 5th year undergraduate		18%
	Graduate		20%
Department Classification			
	Business	8%	22%

Education	23%	14%
Humanities	35%	23%
Natural/Behavioral Sciences	15%	34%
Arts	19%	7%
		1%
<b>Percent of Time Spent</b>		
Research	38%	
Teaching	35%	
Service	27%	
<b>Average Credit Hours taken in Spring 2011</b>		
		11
<b>Average GPA</b>		
		3.48
<b>Gender</b>		
Male	41%	35%
Female	59%	64%
Transgendered	0%	1%

TABLE 2: Faculty Productivity

Publications and grants	Average number in last year
<b>Publications</b>	
Articles in refereed scholarly journals	2.79 articles
Articles in non-refereed scholarly journals	1.62 articles
Chapters in books, proceedings, etc.	1.70 chapters
Books	0.58 books
<b>Average funding awarded</b>	\$6,519

Table 3 provides information on library use by faculty and students over the previous 30 days. Note that faculty and students visit the library extensively in-person and remotely. Forty-three percent of faculty and 62% of students indicated that they visited the library in-person in the past 30 days, while 42% of faculty and 62% of students indicated that they visited the library remotely. The average number of visits in a month range from 5.75 physical visits and 11.42 remote visits for faculty to 13.24 physical visits and 10.96 remote visits for students.

There is significant use of library resources—articles and books retrieved and read, government documents, special collections, library commons, and working with a professional librarian—by faculty and students.

TABLE 3: Library Use in the Last 30 Days

Activity	FACULTY		STUDENTS	
	Average frequency in the last 30 days	% of respondents with response not equal to zero	Average frequency in the last 30 days	% of respondents with response not equal to zero
Physical Visits	5.75 visits	43%	13.24 visits	62%
Remote Visits	11.42 visits	42%	10.96 visits	62%
<b>Articles Retrieved and Read</b>				
during an in-person visit from a printed journal	15.71 articles	11%	1.70 articles	36%
during an in-person visit from an online journal	15.00 articles	11%	4.23 articles	41%
during a remote library visit from an online journal	36.48 articles	79%	5.79 articles	42%
from your Blackboard course site			4.78 articles	42%
<b>TOTAL</b>	67.19 articles		16.5 articles	
<b>Total Articles Photocopied or Printed</b>	8.76 articles	32%	4.59 articles	44%
<b>Total Articles Delivered by ILL or CLICS</b>	0.95 articles	32%	0.52 articles	34%
<b>Books Retrieved and Read</b>				
during an in-person visit (printed books)	4.79 books	37%	2.38 books	47%
during a remote visit (e-books)	0.89 e-books	28%	0.65 e-books	36%
<b>TOTAL</b>	5.68 books		3.03 books	
<b>Total Books Delivered by ILL or CLICS</b>	1.47 books	24%	0.46 books	38%
<b>Government Documents Retrieved and Read</b>				
during an in-person visit	0.18 documents	26%	0.51 documents	38%
during a remote visit	0.29 documents	26%	0.17 documents	36%
<b>Use of Special Collections</b>				
In-person visits	0.15 visits	31%	0.83 visits	36%
Remote visits	0.11 visits	29%	0.41	35%
<b>Visits to Library Commons Area</b>	3.09 visits	34%	10.47 visits	53%
<b>Worked with a Library Staff Member</b>				
during an in-person visit to the library	1.16 visits	29%	1.82 visits	45%
remotely online	1.29 visits	32%	0.27 visits	36%

<b>Used Library Instructional Services</b>				
during an in-person visit to the library	0.08 classes	89%	0.40 classes	38%
remotely online	0.37 classes	89%	0.11 classes	34%
<b>Used the Library for Other Purposes</b>				
during an in-person visit to the library	1.65 visits	31%	5.75 visits	41%
remotely online	0.00 visits	20%	1.76 visits	32%
Average Total Resources Used (journals, books, commons, special collections, government documents, professional services, instruction)				
during an in-person visit to the library	2.98 uses		12.84 uses	
remotely online	8.65 uses		5.61 uses	

Survey respondents are asked to identify the services they used and to estimate the number of minutes they spent using the service. The average time spent using services is shown in tables 4 and 5.

**TABLE 4: In-Person Library Use in the Last 30 Days**

Activity	FACULTY	STUDENTS
	Average number of minutes	Average number of minutes
Searched the library databases and/or online catalog	26	45
Retrieved journal article(s) in print	16	22
Retrieved journal article(s) online	28	39
Retrieved book(s) in print	18	31
Retrieved book(s) online	10	15
Used government documents	10	13
Used the library's special collections	29	28
Used the library common areas including the café, workstations, or other public spaces	68	162
Worked with library staff, answering a reference question, interlibrary loan, etc.	47	15
Attended an instructional course at the library taught by a member of the library staff	33	34
Used the Faculty Development & Training Lab	53	
Used the Library to access an online Library course (i.e. the LOOP)		11
Used the Library to access Blackboard or Sakai courses		52
Used or checked out a resource from the multi-media collection (i.e. DVD, CD, Score)		12
Used a Library or Café Computer		190
Used the library for another purpose	82	122

**TABLE 5: Remote Library Use in the Last 30 Days**

Activity	FACULTY	STUDENTS
	Average number of minutes	Average number of minutes
Searched the library databases and/or online catalog	45	92

Retrieved journal article(s) online	49	67
Retrieved book(s) online	13	19
Used government documents online	3	9
Requested Library to Go Delivery of materials	12	8
Used the library's special collections online	1	7
Worked with library staff, answering a reference question, interlibrary loan, etc.	11	7
Worked with Library/AIT staff to improve Blackboard/online course	26	
Used an instructional course online		16
Used the Library to access Blackboard or Sakai courses		20
Remotely visited the library for another purpose	18	33

Table 6 displays the contingent values of faculty and students for access to library resources. It shows that faculty and students are willing to pay in time and money to gain access to library resources if they are required to acquire these resources from elsewhere. On average, faculty are willing to spend 121 minutes and \$53 to acquire the most recently used library resource they received during an in-person visit. Twenty-eight percent are willing to spend time and 20% are willing to spend money to acquire it from another source. Students are willing to spend 112 minutes of time and \$29 to acquire the most recently used library resource they received during an in-person visit. Fifty percent of students are will to spend time and 38% are willing to spend money to acquire it form another source.

**TABLE 6: How much time and effort would it take to obtain the same resource you got from the library from another source?**

Resource access	FACULTY		STUDENTS	
	Average	% of respondents with response not equal to zero	Average	% of respondents with response not equal to zero
<b>In-Person</b>				
Minutes	121 min	28%	112 min	50%
Cost in Dollars	\$53	20%	\$29	38%
<b>Remote</b>				
Minutes	133 min	38%	119 min	26%
Cost in Dollars	\$82	25%	\$62	20%

Table 7 provides information on how faculty and students access the college library in-person. Forty percent of students walk to the library, and 51% take public transportation for an average of 43 minutes.

**TABLE 7: Transportation**

Method of Transportation to Library	FACULTY		STUDENTS	
	% of respondents with response not equal to zero	Average number of minutes	% of respondents with response not equal to zero	Average number of minutes
Walk			40%	14 minutes
Drive			26%	19 minutes
Public Transportation			51%	43 minutes

### *Measuring the Value of the Academic Library*

Economists use someone's wage to determine the value of their time. The value of time in this study was converted to a financial equivalent by using \$70 an hour as the average value of faculty time and \$10 per hour as the average value of student time. Faculty time is calculated using an average faculty salary estimate and dividing by a 40-hour work week over a 9-month faculty contract. Student time is calculated assuming a common student hourly wage. It can be argued that both are conservative estimates of the value of time. The money and time values in Table 6 were multiplied by the annual use of resources and by the number of faculty and students to get the annual economic value of the academic library.

Table 8 gives the results of these calculations. Faculty members collectively derive an annual value of \$3.8 million in time saved from in-person use of the academic library. Faculty members derive \$5.2 million in both time and money annually from in-person use and \$18.6 million annually from remote use to equal a total of \$23.8 million in derived value.

Although students are willing to pay less in time and money for use of the academic library, there are more students than faculty at the college. Students derive \$103.1 million in value of both time and money from in-person use and \$77.3 million from remote use of the library, for a total of \$180.4 million.

Altogether, the academic library provides \$204.2 million in value of time and money to faculty and students annually. In 2011-12, the year of this survey, the library's annual budget was \$3.78 million resulting in a return on investment of 54.02 or \$54.02 in economic value returned to the college for every \$1.00 spent on the library ( $54.02 = 204.2 / 3.78$ ).



**TABLE 8: The Economic Value of the College Library (in millions)**

<b>FACULTY</b>	<b>In Person</b>	<b>Remote</b>
time	\$3.8	\$12.2
money	\$1.4	\$6.4
<b>TOTAL</b>	<b>\$5.2</b>	<b>\$18.6</b>
<b>STUDENTS</b>		
time	\$40.4	\$18.7
money	\$62.7	\$58.6
<b>TOTAL</b>	<b>\$103.1</b>	<b>\$77.3</b>

This study has not estimated the environmental or social value of the academic library. Calculating the environmental value of the academic library is difficult. We must ask ourselves what would be the environmental damage if the academic library did not provide remote access to resources or did not provide electronic access to print resources? To assume that all remote uses of the library become in-person uses is clearly an overestimate of what would happen, yet it is reasonable to assume that there would be a strong environmental impact by avoiding this number of in-person uses.

The social value of the library would also be a more complex calculation, requiring surveys of faculty and students asking about the value of the academic library to the institution. The social value adds to the overall calculation of the value of the library and would increase the ROI.

### *Conclusion*

This study used a contingent valuation survey to show the annual value of the academic library at Brooklyn College is \$23.8 million to faculty and \$180.4 million to students for a combined total of \$204.2. The return on investment of the college library is 54.02.

This is an underestimate of the value of the academic library. This study did not include the environmental or social value of the library nor did this study measure the value to the community or staff at the college. A great academic library will also impact student recruitment and retention, grades, and the quality of research including the funding received.