Library Return on Investment

Reviewing the evidence from the last 10 years

Over the last few decades, libraries have been exploring various ways to assess and demonstrate their value and contribution to users and societies at large. One of the approaches libraries have taken is examining the monetary value of their services to measure their outcome and assess the impacts of their work (see e.g. Matthews, 2019).

Among such studies, *Return on Investment* assessments are a commonly used approach. At its simplest, an ROI assessment determines the ratio of net gains (monetised benefits) to the costs of an investment:

$$ROI = \frac{Total\ Benefits - Total\ Costs}{Total\ Costs}\ x\ 100$$

This indicates how much value a library has generated for each monetary unit invested in it (alternatively expressed as a Benefit/Cost ratio, e.g. 3.66:1). This approach originated in the economic field of study, and libraries have adopted (and adapted) this method to measure their own value and impact.

Publications dating back to late 2000s (e.g. Imhols & Arns, 2007) point out that such methods of economic library valuation had at that point already been in use for a decade. In fact, some (e.g. Aabø, 2009, LIANZA, 2014) point out the link between a demand for library service valuation and periods of economic pressure for governments and societies - when libraries are increasingly called to justify their expenditures and demonstrate value in quantifiable terms.

Impressive figures, but wide variety of approaches

A significant part of ROI/CBA's appeal as a valuation method is its simplicity; the ability to arrive at a single measurement. This can be a way to demonstrate impressive results:

A 2014 report by FESABID, for example, estimated that the network of public, research and university libraries in Spain generates between €3.09 billion and €4.23 billion of value per year, meaning an ROI between **2.80** and **3.83 for each euro** invested in them.

A 2019 Canadian Museums Association study examined the return on investment for Canadian galleries, libraries, archives and museums – and showed a library benefit-cost ratio of **4.6 to 1.**

These are very encouraging figures that demonstrate the value of libraries' work. It is, however, worth pointing out that a wide variety of methods has been used to calculate library ROI. In addition, since different types of libraries take on significantly different roles, there is also variation between methods of measuring and quantifying the benefits across library sectors.

To illustrate how different libraries generate value and how it can be measured, sections below outline and offer examples of ROI studies focusing on different library types. Notably, since library services, outcomes and impacts are fast evolving, libraries are prompted to rethink continuously how to measure and prove the value of their work (Urquhart, 2020). This, in turn, affects library

thinking on ROI methods – which is why this review focuses on library ROI studies carried out in the last ten years.[1]

Public Libraries

Examples of studies and reports focusing on public libraries' ROI:

Country	Ratio	Focus	Publication Year
Korea	3.66:1	A sample of public libraries in Seoul/Gyeonggi and other provinces	2012
Australia	2.9:1	Public library services in Australia (per region and in total)	2013
Spain	2.25:1	Barcelona Municipal Library Network	2013
Czechia	2.55:1	The Municipal Library of Prague	2015
New Zealand	1.27:1-1.44:1[2]	Hutt City libraries	2013
Canada	5:63:1	Toronto Public Library (TPL)	2013
USA	4.42:1	Texas public libraries	2012

Conceptualising and measuring value:

Within the LIS field, public libraries were early adopters of the ROI assessment approach (Kelly, Hamasu and Jones, 2012). While a wide array of valuation methods has been used by different libraries, many studies point out two to three most frequently used approaches:

- **Contingent valuation.** This approach measures library value by directly surveying community members' hypothetical willingness to pay (WTP) for (or accept compensation – WTA – to forfeit their access to) library services. This method is often seen as the standard approach to measuring the value of non-private goods or services, or government services (Skurla et al., 2011).

For example, studies like Stejskal and Hájek (2015) and Ko et al. (2012) take this approach to calculate the benefits of library services. The former calculated user's WTP for a broad range of library services – book loans, printing and copying, cultural/educational programs, PC use, and more. The value of each service was then multiplied by the frequency of its use per year. The latter study surveys users' perceived value of three major library services – access to informational materials, library programs, and use of library space. The yearly WTP per capita was then multiplied by the total number of registered users to calculate the total value.

- The prices of **private market analogues** offer another way to estimate the value of library services. For example, the model developed for a study calculating the ROI of the Toronto Public Library (Martin Prosperity Institute, 2013) measures the value of several library offerings (the use of library collections, museum passes available at the library, programs, reference and database services, technology access, as well as the use of library space) based on the market prices of comparable local services. The formula has been re-used or adjusted for other public library ROI studies in Canada: for example, the London Public Library (2015), Vancouver Island Regional Library (2016), Ottawa Public Library (2015), and others.

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[1] To find out more about library ROI studies before 2010, see e.g. Aabø, S., (2009), "Libraries and return on investment (ROI): A meta-analysis", and "The Value of Academic Libraries: A Comprehensive Research Review and Report" by ACRL (2010). This review focuses on Open Access and publicly available documents.

[2] The un-weighted and weighted averages (respectively) of Hutt Libraries cost-benefit ratio estimations, valuated through 3 different methods.

This approach can also lend itself more easily to rapid-assessment tools. The Ohio Library Council, for instance, has recently updated their ROI calculator. Libraries can use it to assess the value of their services on the basis of annual use statistics of library services and the estimated prices of their market alternatives – including such initiatives as homework help sessions or food service programs.

Notably, many observe that the value of some library services to a user may not be equal to that of private market alternatives – for instance, purchasing as opposed to borrowing a book. To account for this, many studies add a discount factor – Arts Council England (2014), for example, points out that studies can value library lending at anything between 5 to 100 percent of the market book prices.

- Finally, the value of library services can be derived from the time, money and effort users invest to make use of the services – the **travel costs/revealed preference** method. A 2018 report for State Library Victoria and Public Libraries Victoria Network, for example, calculates user benefits as the compound value of the time they spend at a library and the time and money spent travelling to the library.

Direct, indirect and secondary benefits

The methods outlined above offer some insights on *how* to measure the value of public libraries – and just as important is understanding and conceptualising *what* key library benefits should be measured. As a starting point, many studies refer to the dichotomy of *direct* and *indirect* (as well as tangible and intangible) library benefits (see e.g. Luria i Roig & Pintor González, 2013 and the Victoria and Toronto studies above, among others).

Here, the **direct** (and tangible) **benefits** are a conservative estimate of the economic value of library services. Some of the studies listed above demonstrate which library services can fall into this category: library collections and programming, access to ICT, meeting/study spaces, reference services, among others.

Indirect/intangible benefits are the broader societal impacts of public's use of library services. This can bring about such positive impacts as increased literacy levels, potential better employment prospects as a result of skills training, and much more. While undoubtedly important, these impacts do not lend themselves as easily to ROI assessment and valuation; and are therefore rarely explicitly factored into the calculation.

Outside of specific ROI calculations, there are of course reports seeking to better understand and gauge those impacts. For example, Jervelund et al. (2015) estimate that Danish libraries generate economic value through their cultural and social impact, education (by increasing users' reading skills and likelihood to pursue higher education, and therefore economic productivity), and by contributing to the digitisation of society (and therefore to public saving and personal financial gains that digitisation enables).

Related is the concept of Social Return on Investment, which focuses on outcomes (rather than outputs) of a service, program or initiative (see e.g. McLeod, 2019). This approach can entail measuring the monetary value of impacts through financial proxies – as applied, for example, in a 2019 SROI study of three programs ran by Suffolk Libraries.

It is also possible to conceptualise and estimate the **secondary economic impacts** of public libraries. Examples of secondary economic impacts different studies factor in include: the economic value of library employment (wages, spending, even early work experience), the effects of library purchases of goods and services in the local economy, the value of user spending in the locality (shops, cafes, etc) during their visits to the library, and more (see e.g. the 2013 Toronto Libraries ROI model described above).

Finally, some ROI studies aim to explicitly factor in and measure non-user benefits of public libraries. For example, the Victoria libraries ROI study mentioned earlier ran a survey among non-users to measure their willingness to pay for a) preserving the opportunity to use library services in the future, b) the significance and value of a library existing in their community, and c) preservation for future generations. A Social Return on Investment analysis of Hutt City Libraries in New Zealand (2013) further surveyed both users and non-users on what library benefits (e.g. enjoyable pastimes, skills training and lifelong learning opportunities, etc.) and cultural values (e.g. "capturing local history for future generations", "maintaining local history collections", etc.) they valued the most.

Academic Libraries

Examples of studies and reports focusing on academic libraries' ROI:

Country	Ratio	Focus	Publication Year
8 countries in Africa, Asia-Pacific, North America and Western Europe	0.64:1 – 15.64:1[3]	8 academic libraries in 8 different countries. The study covers different types of academic institutions: public universities, research universities and a research institute.	2010
USA	4.49:1	Syracuse University library	2015
Canada	3.4:1	Canadian Association of Research Libraries (CARL) libraries	2019

Conceptualising and measuring value:

The ROI and value of academic libraries has been a focus of several large-scale studies. The multi-year *LibValue* project, sponsored by the U.S. Institute of Museum and Library Services, developed and applied several ROI assessment methods to measure the value of academic libraries, for example:

▪ **Alternative costs and contingent valuation**. Several studies have focused on a patrons' last use of academic library resources - the 'critical incident' – and asked them to evaluate how much it would have cost them to access the item (or service) if it was not available through the library.

King (2012), for example, assesses contingent value of library services to faculty members by asking whether they would bother getting the item or service elsewhere – and how much it would cost them in dollars and minutes. This method was applied to articles, books, other publications and reference searches. Meanwhile, Kingma and McClure (2015) surveyed both students and faculty members on how much money and time they would be willing to spend to access the library service they had used most recently. Notably, they broadly conceptualise the value of academic libraries as comprised of economic, environmental (i.e. resources saved by library remote access) and social (e.g. contributing to institutional prestige, attracting new students and researchers, etc) value; and this method allows to assess the former.

In addition, some of the studies above also refer to **'purchase value'** (a concept similar to the **travel costs/revealed preference** method outlined earlier) – and contrast it with the **'use value'** of

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[3] This is the entire range of value returns among 8 academic libraries that the study examines. The benefits are calculated on the basis of grant income that the libraries helped generate, in ratio to libraries' entire budget. The authors note that the wide range can be explained, inter alia, by the differences between research-focused and teaching-focused institutions (and those with a mixed focus).

academic library materials. This is the value of the outcomes of using a book, article or other publication accessed through the library. For instance, surveys can help assess whether library-sourced material was cited in a faculty members' research work, affected their understanding of a topic, and so on. These may not be as easily quantifiable, but can be a useful complement to usage-based indicators.

- A fundamentally different approach focuses on **income generation linked to academic libraries**. Tenopir et al. (2010) examine the value of academic libraries' electronic journal collections – and how they help grant acquisition by faculty members. Revising an earlier ROI model, they measure library collections' contribution to grant income generation on the basis of:
  o the percentage of faculty members that use library-sourced citations in grant proposals;
  o the success rate of grant proposals that make use of library resources; and
  o average grant income.

- **Students in focus: academic library value as part of the educational system.** Some approaches also factor in the value academic libraries generate for students more explicitly. For example, the 2019 'Value Study of GLAMs In Canada' report estimated library benefits to students as part of the overall formula of academic library ROI. They did this by drawing on OECD data on the overall costs and benefits of higher education to students in their country – and since it can be expected that academic libraries contribute to the learning process in universities, they apply the broader cost-benefit ratio for higher education to library costs, thereby calculating the total benefits of academic libraries to students.

And, just as with public libraries, some studies estimate the ROI of individual library services or programmes. Melo et al (2019), for example, look into the costs of commercial alternatives for book and journal loans, Internet and workstation access, training and interlibrary loan services. The 2012 study by King (2012) also calculates ROI for different library services – access to books and journals and other publications; reference searches, assistance with research projects, remote assistance and other services. The value of some services was assessed by asking respondents to assess how much time/money it would cost to obtain this elsewhere, others on the basis of how much time the patron saved by using this service.

Special Libraries

Examples of studies and reports focusing on special libraries' ROI:

Country	Ratio	Focus	Publication Year
Australia	1.15:1 - 5.43:1[4]	Special libraries in Australia: government, health, law and corporate	2014
Australia	2.4:1 - 9:1[5]	Health libraries in Australia	2013
USA	1.90:1	Minnesota Department of Transportation libraries	2013

Conceptualising and measuring value:

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[4] Median and average benefit/cost ratios for a scenario where there is a significant difference in how fast a librarian and a library user would perform the same task. Ratios based on low speed/efficiency differences are 0.7 median and 2.7 average. These value assesments are based on time saving and library services alone, therefore excluding the value of access to collections and some other benefits.
[5] Median and average benefit/cost ratios, respectively.

The type of benefits and value special libraries generate will of course depend heavily on the context. A somewhat widely-applicable starting point that some studies have taken focuses on two elements of value generation:

- **Time saved by making use of library services** – e.g. reference, literature review, research, document delivery. Part of the assessment here is the number of hours library staff dedicates to these tasks; some assessments also estimate a 'time saving factor', highlighting that it may take library users more time to carry out a task which a librarian performs for them.

For example, a questionnaire administered to health libraries in Australia invited them to estimate how much longer it would take their patrons to carry out a task that librarians perform. The responses varied – from a factor as low as 1 (e.g. for reference requests in some libraries), to as high as 6 or 8 (e.g. for some research or literature review services). One way such studies can then assess monetary value is by multiplying the hours library users (e.g. doctors, nurses, civil servants, legal professionals and so forth) save by their average wages.

- Second is the **expenses that library users avoid** - the costs they would have incurred if they accessed materials through commercial vendors. This is similar to the assessment of public and academic library contributions discussed earlier.

Beyond these commonalities, there are further discussions and suggestions focusing on ROI for different types of special libraries. For example, a [2016 three-part Delphi study](#) organised by the US Medical Library Association further discusses operationalisation of user (i.e. clinician) time saved. It outlines several ways 'saved time' has been measured, drawing on wider healthcare literature – e.g. observed time, reported time, etc. The study also references a [calculator](#) tool developed by the Network of the National Library of Medicine, which can be used to calculate ROI and cost/benefit ratios of medical library collections based on library cost, usage statistics and average retail costs.

Several chapters in the [2016 American Association of Law Libraries White Paper on ROI](#) highlight the importance of going beyond usage metrics alone when assessing the value of law libraries. It is important to demonstrate (and measure) how a law library helps achieve the specific goals of the organisation they are working in. This can include, for example, tracking how a (corporate) law library helps attain new clients (and how many), collecting narrative accounts of how an academic law library improves student performance, or interviewing attorneys on how and to what extent using a specific resource or database through a law firm library helped them deliver services to their clients.

The question of broader (and less easily quantifiable) benefits is of course also relevant for other special libraries. In a [2014 publication](#), ALIA builds on an earlier ROI analysis of special libraries in Australia, and points out more ways they generate value: unique sources and collections not available elsewhere, resource sharing, generating higher quality search results when looking for information, and more.

A sound assessment approach is critical

Valuation and economic impact studies can be a useful way for libraries to demonstrate value – whether for advocacy, evaluation, or as supporting evidence. However, a sound and credible assessment method is absolutely crucial. As [the 2014 review of available studies by Arts Council UK](#) points out, it may be challenging to undertake such a study to a rigorous standard; and the choice of method has a considerable impact on the identified rate of returns. (For example, revealed preference method ('travel costs') tends to yield higher results than contingent valuation;

users' willingness to pay is often lower than their willingness to accept compensation for forfeiting their access to the same service due to cognitive biases, and so on).

What comprises a credible method? Standards and guidelines for carrying our such assessments in the library context can offer a useful starting point– for example, the ISO standard "Methods and procedures for assessing the impact of libraries" (although this standard is not openly available).

As general guidance, the 2010 "Value of Academic Libraries" report reiterates the advice that library economic impact studies should have three key qualities – *simplicity, credibility,* and *detail*. Here, simplicity means the methodology is able to yield a clear rate of return indication; credibility entails avoiding the less tangible/quantifiable benefits which require a lot of estimation – and risk overstating the library value; and detail (e.g. on the values of specific services or per specific user groups) allows an ROI analysis to be more actionable and useful for decision-making and planning. The 2014 review by Arts Council England also points out that not having a large and representative enough sample is a common flaw in survey-based library valuation methods.

Accounting for costs. While the previous sections outline the different ways of conceptualizing and measuring value, it is of course also crucial to correctly account for costs. Depending on the subject of the analysis (overall library functions, a specific service or project, etc), the calculation should fully account for the costs incurred for the services and timeline in focus. For example, studies like the 2013 Australian Public Libraries ROI or the 2018 Victoria Libraries ROI accounted for full ongoing operating costs (staff and library materials expenditure, etc.) as well recurrent capital costs (e.g. asset maintenance). The Suffolk Libraries ROI example offers a granular view of a full range of inputs required for three different projects – and points out the need to reasonably proportion costs in cases where several activities draw on the same input (e.g. building overheads).

Overall, ROI methodologies used by libraries remain diverse – especially across library sectors – and continue to evolve. Naturally, some guidance and good practice suggestions for ROI and value assessment can also be drawn from elsewhere in the cultural sector. A 2012 publication by Arts Council England, for example, offers practical guides to four common methods of examining the monetary value of arts and cultural organisations – as well as a decision tree on how to choose an appropriate method. Similarly, Social Value UK offers guidelines and standards on performing a Social Return on Investment analysis, which could be useful for libraries interested in examining the wider social benefits of their services or initiatives.

In short, there are many studies suggesting that libraries return more value for the investments put into them. However, the methodologies vary widely, and definitive universal practices – even for separate types of libraries – have yet to emerge. The field continues to evolve, and we look forward to further discussion on good practices and approaches to demonstrating library value.