

Economic Impact and Contribution Analysis:

Nashville Public Library

Nashville Area Chamber of Commerce
The Research Center
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EXECUTIVE SUMMARY

A city's library system is an all-encompassing institution that integrates with the cultural, social, and economic forces of a region. Nashville Public Library is no different. It connects neighborhoods and communities, arming them with knowledge and learning. The library is a resource for all of its constituents. As such, an examination of the impact of the library's economic and social impact is a key component to understanding the work of this key institution.

This study focuses on several major elements of impact and opportunity attached to the library system. The key components featured in this study include:

- **Economic impact and contribution** of the library system to Nashville
- Examination of **return on investment (ROI)** through change effects on economic and social capital of the community
- Consideration of the **unique economic aspects and roles of the library** within the context of the broader economy and community, reflective of the public good value as a monetized asset in aggregate, per library user and per library supporter

The report measures the impact of Nashville Public Library to Davidson County and its constituents. Data collection and analysis utilized a mixed-method approach. A key part of the analysis draws from survey data developed for this study to assess valuation of library services by users. This valuation provided the basis for a cost-benefit analysis. Survey results also yielded important data on user demographics and organizational effectiveness.

A second study component includes an economic impact analysis generated through input-output modeling. This research resulted in findings on the total impact of the library system's employment and operations on the area economy. Additionally, the third component of analysis portrayed the impact potential of the role of the library on education in the region. This scenario assesses the economic impact of residents enhancing their level of educational attainment through use of the types of programs available at Nashville Public Library.

KEY FINDINGS

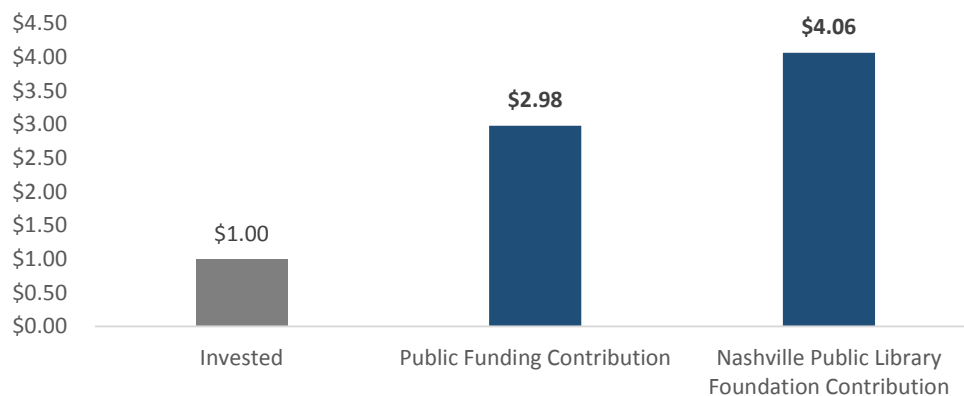
Key points drawing from the study of Nashville Public Library highlight the ways it delivers important and far-reaching returns to the city:

- Nashville Public Library makes a sizeable contribution to the city's economic well-being, with **market value of services nearing \$141 per capita and with direct benefit to the community totaling just more than \$94 million.**
- With a wide range of programs, services and facilities, Nashville Public Library's **return on investment to the city is \$3.06 for every \$1.00 of expenditure** for the library system.

- The Nashville Public Library Foundation demonstrates a **direct community benefit of \$9.1 million**, with **market value of services exceeding \$13.68 per capita**.
- The **return on investment** of the Nashville Public Library Foundation to the city is **\$4.06 for every \$1.00 of expenditure** for Foundation-sponsored programs and services.
- Patrons of the library express **enthusiastic support for the quality and diversity of programs, including an overall rating of 8.13 excellence on a 10-point scale for library services**, with additional high ratings for staff helpfulness and materials and equipment meeting user needs.
- For every \$1.00 in library operations, the city **realizes \$1.33 in economic output**.
- Library users demonstrate **high confidence in the library's fulfillment of its mission**, with a range of 8.5 to 8.9 excellence in inspiring reading, advancing learning and connecting the community.
- The library leads the way across the city in offering learning and experiential **opportunities for students, jobseekers, entrepreneurs, artisans and performers** to advance and diversify their livelihood and craft in viable economic ways.

In short, Nashville Public Library puts to effective and innovative use its investments and resources, making a real difference in people's lives. Dollars spent to ensure the city's library system takes a leadership role in education, culture, entertainment and civic activities pay dividends that are measurable and significant. Nashville Public Library system exemplifies through its work the meaning of a true community center, for it serves as a community center through its facilities, programs, and outreach in countless ways. This study comprises comprehensive research, which showcases in both qualitative and quantitative terms the value realized by this vital institution and its work.

Key Findings: Nashville Public Library Services Cost Benefit and Economic Impact



Economic Impact and Contribution Analysis: Nashville Public Library

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Economic Impact and Contribution Analysis: Nashville Public Library

Introduction

The impact of a city's library system reaches across many facets of that community and life in that area. The cultural, social and economic forces that make an urban area thrive draw deeply and continuously from the knowledge and learning available there – knowledge and learning that connect generations, neighborhoods, experiences and ideas. The library, with its many locations covering a community, can coalesce these forces of knowledge, learning, ideas, opportunities and people. In this way, the library can help all its participants grow as their city grows.

The need for a comprehensive examination of the library as an entity of economic and social importance in Nashville is critical to understanding this key institution and also for guiding it toward future opportunities.

Nashville's reputation as a cultural and educational center is entwined with its library, so this essential institution is well situated for deeper analysis and understanding. This research provides data and insight to continue promoting awareness of the library's role in fostering an exceptional environment, one where Nashville residents can enjoy success and well-being. Nashville benefits from a rich library legacy. To build on this legacy and remain strong in the 21st-century city, with its rapid changes and powerful opportunities, the need to assess, understand and guide the direction of Nashville Public Library (NPL) is critical.

Using combined sources of real-time data, proprietary databases and expert insights and experiences, this research provides a basis for key leaders to leverage information in practical ways to guide, shape and manage future opportunities. Most importantly, this research maintains continuity with data and research about the broader Nashville economy, offering a broader context for understanding NPL in a systematic way.

Nashville's library history dates back to the early 19th century. The modern Nashville Public Library system can trace its history to as early as the 1897 Tennessee Library Law, which authorized cities of 20,000 people or more to establish and maintain free public libraries and reading rooms.

Nashville quickly responded with a city appropriation of \$2,500 for the Howard Library, the city's first. Initially, use of the Howard Library required a fee from patrons, but, by 1901 and with new city funding, Nashville began to offer a public library that was free to use by the community.

In 1901, Andrew Carnegie offered to donate \$100,000 to Nashville for a new library building if the city would appropriate \$10,000 a year for its maintenance. The city saw the opportunity, and, by 1904, the new Carnegie Library on Polk Avenue was a reality. Carnegie offered support for additional branches to be built; some of these locations continue to serve in NPL's current, much-expanded system.

Nashville, like other cities, benefited from the Carnegie philanthropy, which offered residents a true "common" library experience. With a recognized need for free, public libraries, the Carnegie gifts aimed for a standardized and quality experience for residents (Palfrey, 2015). Nationally, as library programs and initiatives broadened in scope, the diversity and customization of library offerings across the U.S. continued to grow. This was certainly the case in Nashville's experience as well, and in 1934, the existing local system officially became Nashville Public Library, the basis of NPL today.

As the city grew, the library began to expand its offerings, adding a music department in 1948; bookmobile service and film lending in 1949 and free service to all of Davidson County in 1950. Other hallmarks included the creation of the Friends of the Nashville Public Library group in 1957 and establishment of the WPLN-FM radio station in 1962 as educational outreach. A new Main Library facility opened on the site of the original Carnegie Library in 1966 at a cost of \$1.9 million. This building served well until the creation of a new, state-of-the-art, nationally acclaimed \$98 million Main Library in 2001. Over the past decade, the entire system has experienced major growth, with seven branch libraries being built or undergoing large-scale renovations.

Thus, NPL's heritage is a long and important one that complements the change, growth and needs of the city and its people. The foresight to sustain the growth of a quality, innovative library system has remained a hallmark value in Nashville. Consequently, it is useful to discern what library investments and achievements have meant, and continue to mean, for a city that prides itself on strong economic, civic and social achievement.

This study focuses on several major elements of impact and opportunity attached to the Library system. The key components featured in this study include:

- **Economic impact and contribution** of the library system to Nashville
- Examination of **return on investment (ROI)** through change effects on economic and social capital of the community
- Consideration of the **unique economic aspects and roles of the library** within the context of the broader economy and community, reflective of the public good value as a monetized asset in aggregate, per library user and per library supporter

Methodology

This study employs various data collection and analysis methods, including online surveys of patrons and constituents, cost-benefit analyses and economic impact modeling to assess total library impact on the city economy. This study uses a mixed-method approach to calculate different kinds of ROI for Nashville Public Library. This study relies on a variety of accepted and relevant methods and sources to provide an overall framework for understanding and communicating the library's role as an asset of the city.

The assessment of a public good offering such as the library engages with methods appropriate to capture credible and meaningful input for valuing activity. This research combines contingent valuation to inform willingness to pay and willingness to act among area residents in relation to Library offerings, along with economic impact modeling that considers broader implications of the Library as a community economic and social resource.

Methods have varied in the field of evaluating the economic impact of libraries and library systems. Since the library operates as a provider of "public goods," there is a need and opportunity to establish value in ways that are both typical and atypical of many other facets of an area economy.

Since the very mission of most modern libraries is to provide the public with free access to services and materials, the use of these resources does not occur through transactions that can be identified or monetized in ways that many consumer transactions are. In this case, adaptive methods are employed to provide a framework that gives meaning and plausibility to those non-monetized transactions.

The field of **contingent valuation** is a widely used, accepted method of assessing people's preferences for public goods by establishing a willingness to pay (WTP) in dollar amounts (Mitchell, 1989). In the absence of a conventional market for goods, people's perceptions of value-hypothetical markets are modeled after real markets. Because the WTP values that are established are contingent on the hypothetical market-used respondents, the method is termed **contingent valuation** (Brookshire and Eubanks, 1978). Information gathered through this process typically includes descriptions of the goods being valued and the circumstances in which they are available; respondents' willingness to pay for goods being valued and characteristics of the respondents that are relevant to the value and use of the goods (Mitchell, 1989).

Application of contingent valuation approaches can include both WTP and willingness to accept (WTA) scenarios for use of public goods. The two types generally relate to the ability or necessity of the public to buy or sell some aspect of the public goods in question, or to buy or sell similar or equivalent goods in a private-market setting. Often, WTA values - frequently applied to use of natural environment or other, less tangible goods- result in markedly higher values than do willingness to buy (WTB).

In the application to library goods and services as a ‘public good,’ the WTP approach is both feasible and appropriate, generating modeled scenarios and information that mirror private-market transaction values. These values are widespread and understood by the general public and, in this case, also by users of library goods and services. The classification of goods and services of public libraries as quasi-private goods, in fact, provides a useful understanding of the way these goods function in a mirroring fashion to private-market activity, how they differ from pure public goods that are essentially intangible and how they present greater challenge to a contingent-valuation approach.

Table 1. Classes of Goods

Class of Good	Characteristics	Examples
Pure private	Individual property rights Ability to exclude potential consumers Traded freely in competitive market	Agricultural products Automobiles Financial services
Quasi-private	Individual property rights Ability to exclude potential consumers Not freely traded in competitive markets	Public libraries Recreation in parks TV frequencies
Pure public	Collective property rights Cannot exclude potential consumers Not traded in any organized market	Air visibility Environmental risks National defense

(Mitchell, 1989)

The determination of price levels for materials and services from the library system is established through a variety of affirming processes in this study. The added strength of the use of WTP measures in this study results from valuation and usage input derived from active, rather than passive, uses of the goods under consideration.

In other words, the application of the method gains greatest utility where usage values are established through estimation and affirmation from users that respond to actual behaviors, rather than theoretical constructs. This is an important feature that bolsters the appropriateness of contingent valuation for the study of libraries and their impacts. While contingent valuation is used in a variety of topics for which economic impacts are sought, some - such as those relating to the physical environment or other more encompassing public goods - present more opportunities for conjecture on the part of would-be users than do those where tangible goods, services and interactions can be identified in considerable detail.

Solicitation for inputs through active users overcomes any critique of merely passive use values, such as may occur in environmental topics that often rely on contingent valuation methods. The specific approach in this study, again owing to the high transparency of library goods and services as mirrors of many private-market transactions, is categorized as a direct and hypothetical set of methods.

Table 2. Methods of Valuing Public Goods

	Direct	Indirect
Observed market behavior	OBSERVED/ DIRECT Referenda Simulated markets Parallel private markets	OBSERVED/ INDIRECT Household production Hedonic pricing Actions of bureaucrats or politicians
Responses to hypothetical markets	HYPOTHETICAL/ DIRECT Contingent valuation Allocation game with tax refund Spend more-same-less survey question	HYPOTHETICAL/ INDIRECT Contingent ranking Willingness-to (behavior) Allocation games Priority evaluation technique Conjoint analysis Indifference curve mapping

(Mitchell, 1989)

The reliance on behavioral economics and experimental economics thus serves a very useful function in developing an understanding of the monetized value of goods and services provided or maintained by the public sector. Particularly, where quasi-private market activity as occurs with libraries exists, the use of hypothetical constructs to formulate value allows for a robust set of inputs that can then be applied to other economic impact analysis.

Alongside the contingent valuation approach to establishing values for goods and services, this study relies on **input-output modeling** to determine economic impact of library services in a more generalized way. The model illustrates particular aggregate economic and social outcomes that conform to the flow of library expenditure within the local area and to the human capital gains associated with the library mission of fostering learning, education and training useful for employment and business development.

In this study, input-output modeling is developed through use of the REMI (Regional Economic Models, Inc.) data system. REMI serves as an anchor platform for this analysis used in concert with library user-supplied input on valuation. REMI is an acknowledged premier tool for performing input-output analysis that combines modeled data on 6,000 time- and area-specific data series, with modifications indicated by survey and other key informant insights. Additional REMI documentation can be found in Appendix F.

The economic impact findings reflect a full array of stimuli related to library investments, including facility and staff expenditures, material holdings, events and programs, as well as estimated effects among the resident population and in the built and social environment. Thus, positive externalities are fully integrated into economic modeling wherever feasible to generate the most complete assessment of library effects in the area. In this regard, the results of this study combine both traditional input-output modeling, which portrays results of intra-area economic trade relationships, and cost-benefit analysis, which demonstrates ROI metrics that point to economic benefits of an important public good. In short, this study results in findings that are useful for assessing the library's impact within the broader economy along standard

lines of business and industry. These findings are also useful in guiding understanding of the level of return back to the area of invested public resources.

During December 2015, an online survey was administered to a database of Nashville Public Library users and other library stakeholders. The survey instrument was developed through testing and refinement in November 2015 and was launched to the full recipient group through the Qualtrics platform. Survey participation was encouraged through inclusion of the survey's purpose statement and survey link in the Nashville Public Library e-newsletter, on its website, through staff promotion to patrons and through a series of direct outreach email communications to a random sample of patrons. These patrons have remained active participants in library electronic communications in the past 12 months. In total, 4,437 responses were captured and analyzed. The survey responses come at a 95% confidence level and have a confidence interval of $\pm 1.47\%$.

The survey instrument contained a total of 39 questions, designed to capture accurate valuations of library products and services as experienced by Library patrons. Incorporating extensive tree and branch logic, the survey was designed to foster survey completion and accuracy by respondents while also being understandable to respondents and maintaining their interest.

The survey included two major sections regarding library patron activity. In order to achieve the highest level of valuation accuracy, only patrons who had been to the library in the last 12 months could access the product valuation portion of the survey. Respondents who had not interacted with Library goods or services in the past 12 months were provided the opportunity to respond regarding the gap in their interaction; about which services they were aware of and about the types of changes that would encourage their return to use of library goods and services.

In the field of contingent valuation, the topic of strategic behavior arises wherein respondents may opt for erroneous or misleading responses where outcomes - whether tangible (often monetary) or intangible - may hinge on survey results. The nature of this study, its focus area and its respondent universe suggest that strategic behavior essentially is not activated, insofar as no respondents were in a position to benefit or experience disadvantage deriving from survey results. In short, this research compelled no weighing of cost (outside the choice situation) of alternative, false or misleading stated preferences or valuations against the gains directly related to the choice situation (in this case, assistance in generating meaningful, accurate information and insights on library goods and services) (Mitchell, 1989; Akerlof, 1983).

In terms of the key facets of the methodological approach and their strengths, particular attention is given to matters inherent to the contingent valuation approach. Various forms of bias are addressed through specific steps in the approach or through the overall nature of the topics included. Nonresponse bias is considered to be overcome insofar as respondents approached have a natural familiarity with the amenity - in this case, library goods and services (Mitchell, 1989). Other response effects are controlled by means of distribution of electronic

survey instruments not limited to any particular setting, administrator or other external influences. Randomizing question sequences within tree and branch ordering also reduced non-sampling error in regard to instrument design. The use of careful language, modeled according to recognized contingent valuation survey methods and other library cost-benefit study designs, allowed the instrument to present “the respondent with a well-defined situation and elicit a circumstantial choice contingent upon the occurrence of the posited situation” (Randall, Hoehn and Brookshire, 1983).

Contingent valuation allows for a variety of means of eliciting information from users and would-be users. The iterative method employed in this research serves as the most robust approach that conforms to the nature of use of goods and services and to the diversity of users, goods and services under consideration. Where willingness to pay is fashioned in a hypothetical construct, rather than in an actual record of monetized transaction, various discrete indicators of that activity are required. The combination of recorded activity of library usage by type with the survey process of establishing value provided for the necessary inputs to further economic cost-benefit modeling. The added feature of value iterations through follow-up options by survey respondents results in the most robust foundation of information obtainable for this research.

Table 3. Elicitation Methods in Contingent Valuation

	Actual Willingness to Pay Obtained	Discrete Indicator of Willingness to Pay Obtained
Single question	Open-ended/ Direct question Payment card Sealed bid auction	Take-it-or-leave it offer Spending question offer Interval checklist
Iterated series of questions	Bidding game Oral auction	Take-it-or-leave-it offer (with follow-up)

(Mitchell, 1989)

The Nashville Public Library patron survey measured each respondent’s overall use of a set of items. In other, similar surveys of library user activity, respondents were asked to identify the rate at which they used goods or services. This line of inquiry was followed by a question type that is conventional in contingent valuation approaches: “Suppose your library services were shut down indefinitely. How many of those items would you replace at the following cost?” The NPL patron survey adhered to this pattern of question. From an initial question regarding frequency of use of particular items in a typical month over the past 12 months, respondents were prompted with an estimated market value of each item established from popular, major consumer sources available to local households. Survey respondents were then given an opportunity to concur with the value estimation provided or to suggest another.

The resulting values that undergird the analysis are thus both market-based, in that they are also available for purchase outside the library holdings, but are also responsive to user perception and understanding of value through options for alternatives to the market-based value. This ‘hybrid value’ then combines a strong foundation of input that reflects both a reality

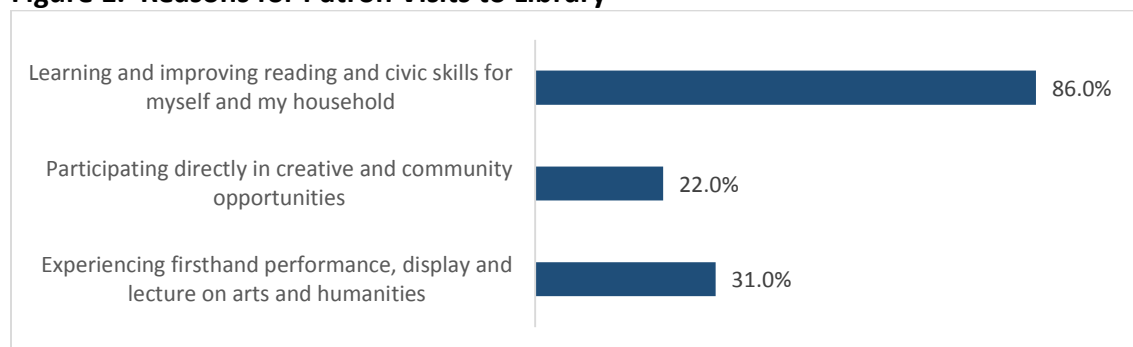
and a perception of value among Nashville residents of library goods and services. For example, approximately 20.8% of respondents who checked out printed library books suggested an alternative valuation, with most identifying only slightly different levels of value. The hybrid value thus incorporated a weighted share for those responses that yielded alternate values.

Economic Impact Findings

The establishment of economic value of use by Nashville residents of NPL goods and services lies at the heart of this study. Individuals and households are motivated for many reasons to access the library as a resource. Both the longstanding and the emerging role of libraries drive a wide array of library goods and services delivery that is responsive to users' needs. The library's enhanced role as a convener and coalescing center for community and individual learning is demonstrated through the robust level of activity of Nashville Public Library across its 21 locations.

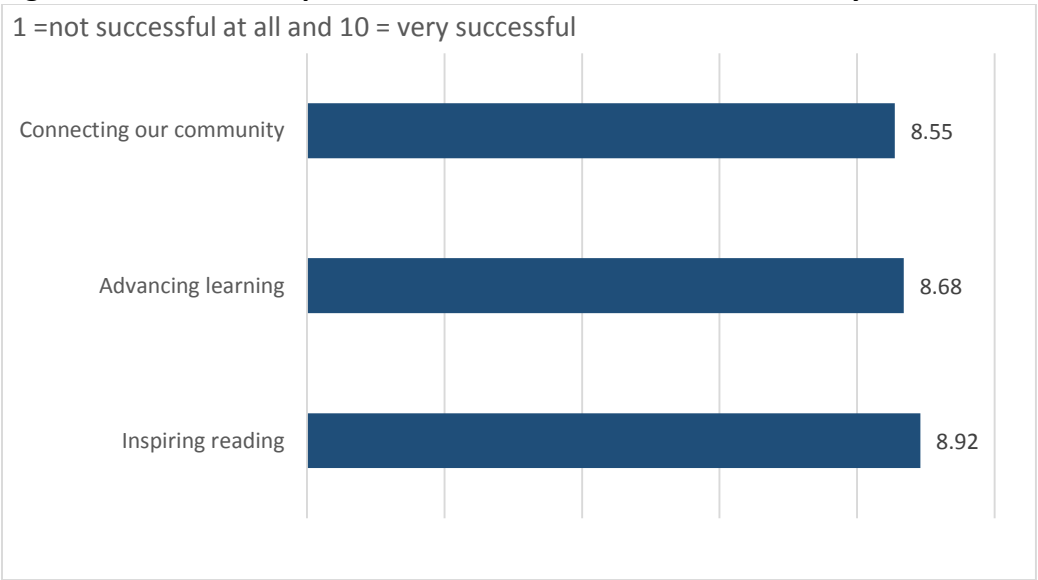
The historic role of libraries as repositories of written materials continues to flourish, as evidenced by the extensive and diverse collection of both print and electronic holdings at Nashville Public Library. Not surprisingly, a full 86% of users identified reading as a central motivation for coming to the library. However, more than 1 in 3 patrons noted that experiencing live performance, display or lecture stands as an important reason for their access of the library. Another quarter of patrons found direct participation in creative and community experiences as a motivation for involvement with the library system.

Figure 1. Reasons for Patron Visits to Library



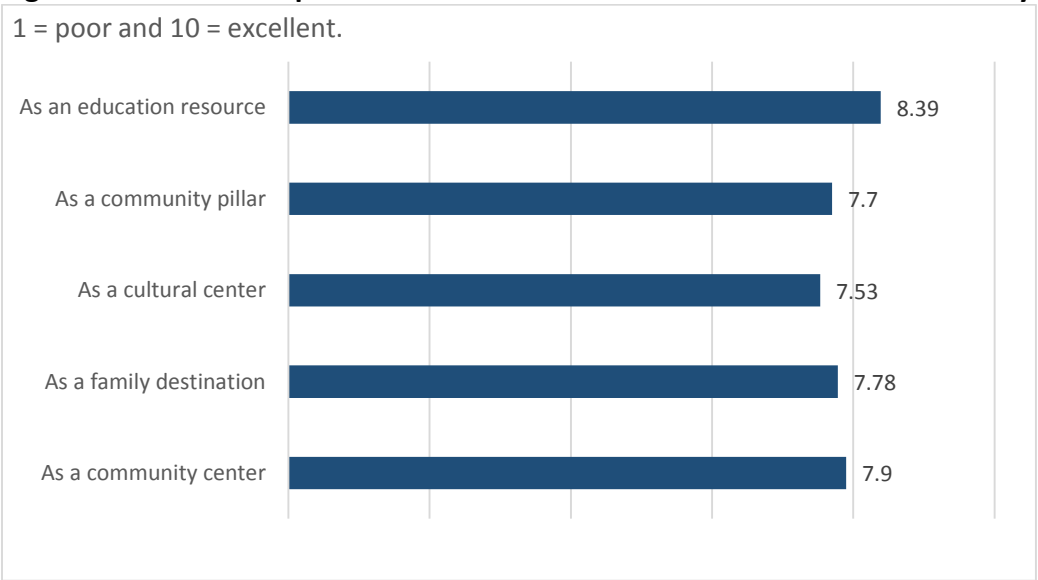
In the broadest terms, Nashville Public Library performs well in how users perceive the library system delivers on services and goods that matter to them. In conjunction with the motivations for accessing library resources, one then notes the ways that a library achieves user-focused delivery. Response by patrons about the quality of the library's success in connecting the community, advancing learning and inspiring reading again demonstrate very strong levels.

Figure 2. Patron Perception of Success of Nashville Public Library in its Mission



The performance of Nashville Public Library, as seen through the responses of several thousand patrons, exemplifies very positive activity across the facets of the library’s function. Foremost, as a provider of resources for learning, the library achieves highest ratings for that singular, hallmark role. However, the level of esteem for the quality of offerings of the library was strong in all categories. Respondents who participated in the survey but have not visited in the last year still ranked library functions highly.

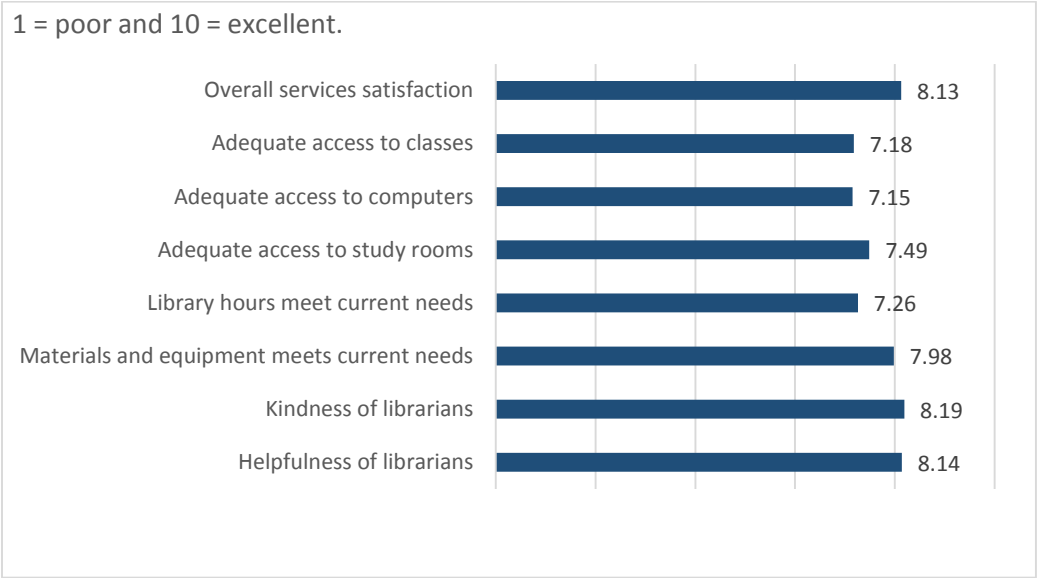
Figure 3. Patron Perception of Functions and Levels of Nashville Public Library



In a large library system such as Nashville’s, with many facilities and services, it is useful to gauge the public’s overall assessment of quality of performance. These measures serve to enhance understanding and corroboration of valuation survey methods, insofar as respondent

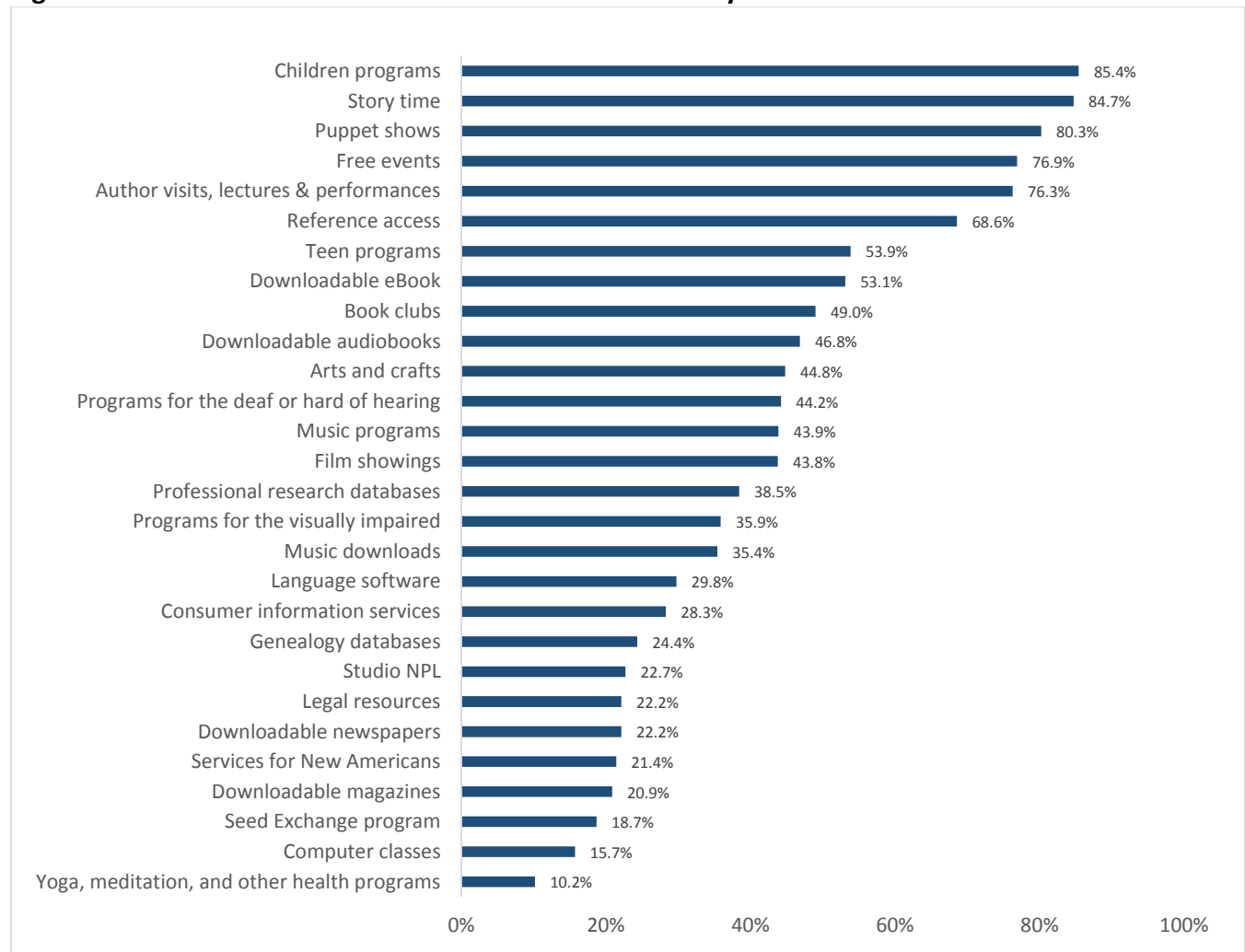
pools ought to reflect a familiarity with the operations, goods and services with which they are presented for value estimation purposes. Overall, the performance ratings by the sizable respondent set presents a picture of high favorability. **None of the ratings of the component areas of library service fell outside what could be deemed a ‘good’ or ‘very good’ range. Staff assistance particularly received strong positive ratings, along with materials and equipment meeting the needs of users.**

Figure 4. Perception of Patrons of Library Services



In a large, growing and diverse urban setting such as Nashville, there exist many needs and interests. The diversity of programs offered by Nashville Public Library responds to a very large range of those interests. Unsurprisingly, some programs that focus on a need or interest of one portion of the population may be less sought after by other groups or even by the population at large. Thus, the strength of a large library system is to perform well in ways that support the needs of the broad population and also cultivate the interests of subgroups of the community.

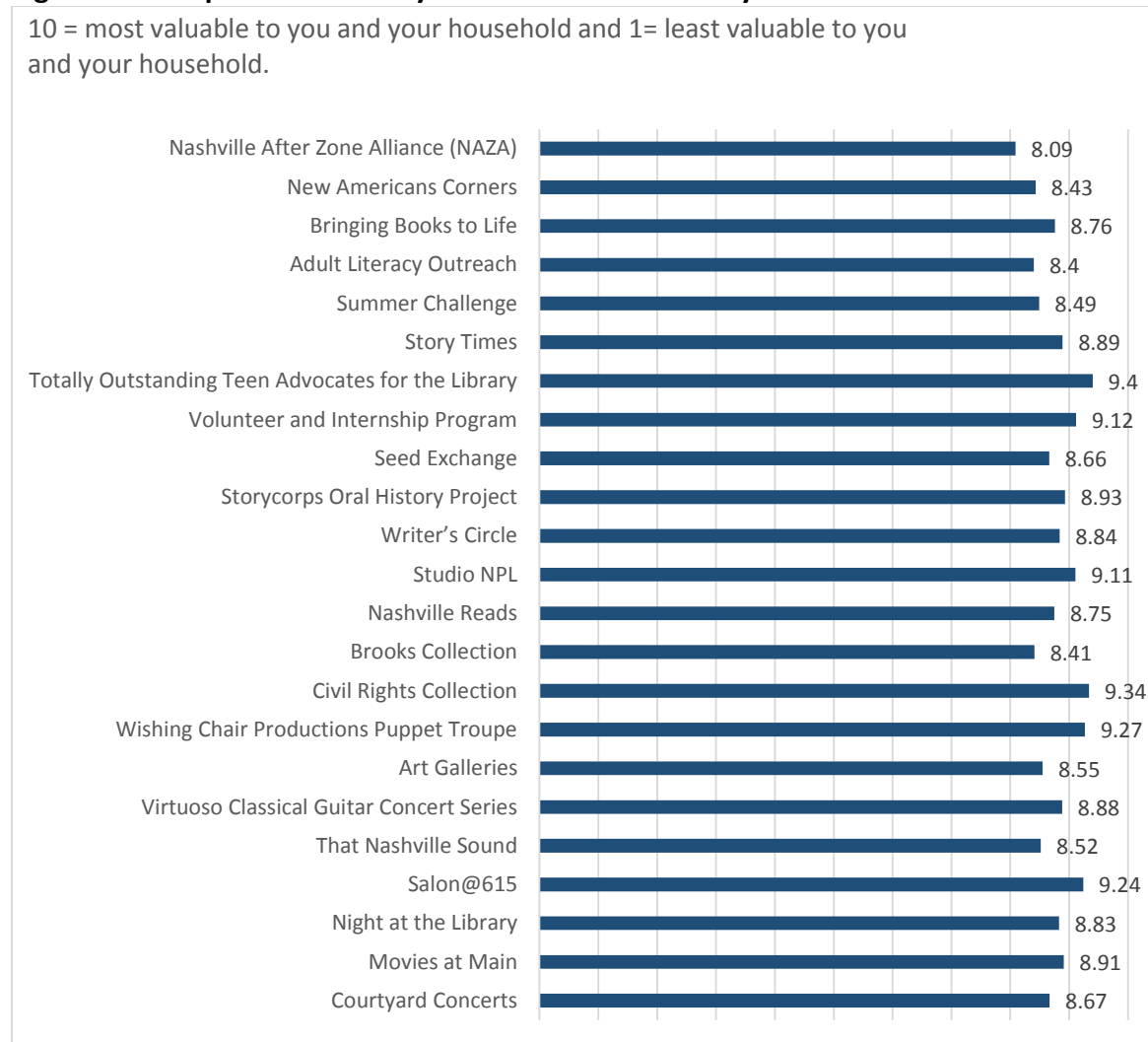
Figure 5. Patron Awareness Level of Nashville Public Library Services



A key feature of the library is its many distinctive programs, including those supported directly by the Nashville Public Library Foundation. The mission of the Nashville Public Library Foundation is to raise private funds to enhance the programs, facilities and collections of Nashville Public Library. Gifts to the Foundation help the library create a more literate, more educated and more connected Nashville community. Foundation-funded programs include Bringing Books to Life for preschool literacy, literacy-based story times and puppet shows, Mobile Job Search Labs, Salon@615, author talks and book signings, and Limitless Libraries, which connects Metro Nashville Public School students to NPL's 2 million books and materials. When asked about specific, unique programs —many initiated and sustained through the Foundation— patron responses were uniformly very positive.

Figure 6. Perception of Value by Attendees of the Library in Past 12 Months

10 = most valuable to you and your household and 1= least valuable to you and your household.



Cost-Benefit Analysis

Cost-benefit analysis serves as a key method for ascertaining the return on investment (ROI) for an activity. In this case, the ROI to Nashville and its residents demonstrates a connection between municipal expenditures, enhanced with private support through the Nashville Public Library Foundation, and the resulting value that is realized by the population of the city. As described earlier as a methodological consideration, survey research aimed at contingent valuation provides an excellent means of establishing values for the public (or quasi-private) goods and services of the library system.

Survey respondents were those patrons and users who had been to the library within the past 12 months, adding a relevant current context to the ROI. Respondents were prompted to consider only those specific library categories and items accessed by their households.

Responses were for a self-generated number of uses in a typical month, rather than from a selection of options. This approach, known as a take-it-or-leave-it with follow-up method in survey literature, was used in modified form to gain efficiency with revealed preferences of respondents. Survey respondents were allowed to select designated market values of items or, in follow-up, to ascribe their own value to items. The result of these processes engaged a series of control rigors that ensure value estimation inputs are accurate for the time period and locale under consideration. Return on investment is predicated on the real outlays for providing goods and services, as well as on a meaningful understanding of the derived value recognized by recipients.

During Nashville Public Library's 2014–2015 fiscal year, more than 5 million library items were borrowed or accessed. These usage statistics formed another core measurement of the total ROI the library provides to the community. Items were assigned value derived from the library patron survey administered and as described earlier in this report. Total estimated direct benefits are obtained from usage data combined with the hybrid valuation of each category of library goods and services.

The key findings on cost-benefit analysis reveal:

- Total direct benefit of the Nashville Public Library system to the community is \$94.1 million.
- The market value of library services in Davidson County is \$140.89 per capita.
- The ROI of Nashville Public Library to the city is \$3.06 for every \$1.00 of expenditure for the Nashville Public Library system.

Table 4. Cost-Benefit of Combined Nashville Public Library Metro and Foundation–Supported Programs to Users

Total estimated direct benefit	\$94,160,283
Nashville Public Library FY 14–15 budget expenditure	\$30,738,234
Nashville Public Library service area population	668,347
Market value or services per capita	\$140.89
Nashville Public Library Expenditure per capita	\$45.99
Direct benefits per \$1 spent	\$3.06

The Nashville Public Library as an institution can stand on its own with additional donations or funding. The findings below investigate the effectiveness of government funded programs only and estimates their impact. Like the total cost-benefit analysis, benefits are derived from patron values of the services available across Nashville Public Library branches.

The key findings on cost-benefit analysis reveal:

- Total direct benefit of the Nashville Public Library system to the community is \$85 million.
- The market value of Library services in Davidson County is \$127.20 per capita.
- The ROI of Nashville Public Library to the city is \$2.98 for every \$1.00 of expenditure for the Nashville Public Library system.

Table 5. Cost-Benefit of Nashville Public Library Metro Funding–Supported Programs and Resources to Users

Total estimated direct benefit	\$85,015,026
Nashville Public Library FY 14–15 budget expenditure	\$28,488,198
Nashville Public Library service area population	668,347
Market value or services per capita	\$127.20
Nashville Public Library Expenditure per capita	\$42.62
Direct benefits per \$1 spent	\$2.98

The Nashville Public Library Foundation also serves as a key component of the system’s ongoing mission of serving the city and its residents. Privately generated dollars are instrumental in carrying out the unique mission of the Foundation and form an important portion of total cost-

benefit to users of those special programs and services. Thus, the study entails an examination of the library’s overall economic impact, as well as those impacts that are associated with the programs directly supported by the work of the Foundation. The patron survey provided a robust basis for understanding the many ways patrons find value in particular programs and resources developed by the Foundation to showcase particular topics, issues and interests of the community.

The key findings from the analysis in regard to the Foundation reveal:

- Total direct benefit of the Nashville Public Library Foundation to the community is \$9.1 million.
- The market value of library services in Davidson County is \$13.68 per capita.
- The ROI of the Nashville Public Library Foundation to the city is \$4.61 for every \$1.00 of expenditure for Foundation–sponsored programs and services.

Table 6. Cost-Benefit of Nashville Public Library Foundation–Supported Programs and Resources to Users

Total estimated direct benefits	\$9,145,257
Nashville Public Library Foundation FY 14–15 budget expenditure	\$2,250,036
Nashville Public Library service area population	668,347
Market value of services per capita	\$13.68
Nashville Public Library Expenditure per capita	\$3.37
Direct benefits per \$1 spent	\$4.06

A variety of approaches was used in soliciting input from library patrons and users, which allowed for several ways of understanding how those individuals perceive value to them and their households. A particularly important measure of this value involves identification of an annualized value of household savings that accrue from ability to access library resources and programs. Nashville Public Library demonstrates the ways a contemporary library serves in a host of service fields for learning and activity, so it is clear that real value is discernable for these. From those values established by users themselves through the survey process, combined with detailed data on user activity maintained by the library system, it is possible to determine a value of potential average monetary savings that accrues to area households. Relying on a series of inputs from the online survey relating to user profiles weighted by type, volume and monetized volume of activity, a composite household economic advantage associated with the library emerges.

Total Average Annual Savings to Typical Patron Household	\$ 2,951.15
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In short, the patron household using the services and holdings of Nashville Public Library can realize annual savings of some \$2,951. As an example, the patron household achieves savings of nearly \$1,000 annually through access of print books and selected other printed materials and over \$300 in savings of purchase of audio-visual materials, such as CDs and DVDs.

Table 7. Average Usage of Major Library Materials by Type

Item	Average Usage per Month by Patrons
Children's books, Print	20
Books, Print	9
Playing computer games	9
CDs, DVDs, or other multimedia, Digital/ Streaming	8
Magazines, Digital/ Streaming	7
Computer and Internet access	7
Books, Digital/ Streaming	7
Children's books, Digital/ Streaming	6
CDs, DVDs, or other multimedia, Print	6

Models of Community Impact

In addition to an analysis of the cost-benefit of goods and services to library users, it is useful to consider the contribution of the library system to the area's overall personal income, business activity, economic health, and employment expectations. This portion of the report differs from the previous section in that it measures the impact of the library on the local economy in terms of output and industry, while the previous section measures how goods and service usage impacts local investment. The current state of library assets, expenditure activity and direct employment offerings contribute in significant ways to the city and regional economies.

To understand the economic contributions of the library system's direct employment, direct expenditures, and induced effects of educational attainment, a dynamic economic and demographic model is used to calculate the full implications of the library's offerings. REMI PI+ is used to understand the economic contribution of the library's assets and economic value.

Direct Operational Impacts

The direct economic contributions by the library's employment and expenditures enter into REMI as a custom industry. To construct a custom industry in the REMI model, the library's balance sheet was referenced to accurately estimate the full implications of its \$30,783,234 budget in 2015.

In 2015, about 66.8% of its budget went to compensation, and 366 full-time and part-time employees receive this compensation. The other 33.2% went toward other expenditures. The expenditures are categorized into NAICS (North American Industry Classification System) to allow the expenditure sums to iterate with the REMI PI+ model.

Following are the key components of the community impact analysis:

- Total employment comprises an estimate of the number of jobs, full-time plus part-time, by place of work. Full-time and part-time jobs are counted equally. Employees, sole proprietors and active partners are included, but unpaid family workers and volunteers are not included.
- Output is the level of business activity or sales created as a result of this simulation. Increases in output account for increases in sales or supply to both the region and sales and supply outside of the region.
- Value added is the gross output of an industry, less its intermediate input or non-labor expenditures. This does include any improvements in labor productivity from the increase in personal income.
- Personal income is all income received from all sources in the area.

Findings from the economic and contribution analysis of Nashville Public Library operations yield important results, illustrating the major role that the system plays through its facilities, staffing and other operational activity. Key findings include:

- The economic impact of Nashville Public Library operations results in 468 total jobs for the region.
- Output results in a total of \$71.8 million impact to the region's economy.
- Value added to the region's economy totals \$47.7 million.
- Personal income as a result of economic contributions is increased by \$132.4 million.
- In total, \$1.33 in economic output is generated for every \$1 in library expenditures.

Table 8. Economic Impact and Contribution of Nashville Public Library Operations

Category	Annual Impact
Total Employment	468 employment
Output	\$71.8 million
Value Added	\$47.7 million
Personal Income	\$132.4 million

Educational Attainment Impacts

Nashville Public Library empowers and educates Nashville residents with free and equal access to books, resources, facilities and programs. In an effort to quantify this impact, this analysis examined the potential improvement that would occur as a result of a 1% increase in the educational attainment levels of Davidson County adults within the labor force.

In Davidson County, the population of residents 18–24 years old is 69,300, and the population of residents 25–65 years old is 455,020. About 77% of the 18–24 year olds, and about 80% of 25–65 year-olds are part of the local labor force. Therefore, of the 18–24 year-olds, 53,915 are in the labor force, and of the 25–65 year-olds, 364,869 are in the labor force.

The educational attainment of these individuals varies. Of the total 418,784 individuals in the labor force in Davidson County, 13% have less than a high school degree, 24% have a high school degree or equivalency, 28% have some college or an associate degree and 35% have a bachelor's degree or higher. Increases in educational attainment improve the incomes of individuals who graduate.

Table 9. Labor Force of 18 to 65 year-olds by Educational Attainment

Less than high school graduate	55,159
High school graduate (includes equivalency)	102,043
Some college or associate degree	115,889
Bachelor's degree or higher	145,693
Total	418,784

Within Davidson County, a 1% increase in educational attainment would increase the incomes of individuals in the county, depending on their particular level of education. An individual improving his or her education from no high school graduation to greater than a high school degree or equivalency would see an increase in annual income of \$3,088. An individual increasing his or her education from a high school degree or equivalency to some college or associate's degree would see an increase in annual income of \$7,857. An individual improving his or her education from some college or associate degree to a bachelor's degree or higher would see an increase in annual income of \$11,694.

Consequently, a 1% increase in educational attainment would result in a \$23,272,741 increase in aggregate compensation for Davidson County. Of that figure, \$1,703,315 would result from individuals moving from no high school graduation to earning a high school degree or equivalency. Meanwhile, \$8,017,517 would come from individuals moving from a high school degree or equivalency to some college or associate degree. Lastly, \$13,551,909 would result from individuals moving from some college or associate degree to a bachelor's degree or higher. The summary of these aggregate gains is important to consider as key strengths of the library as a major force in the area's ongoing efforts to advance literacy, learning and job readiness.

Table 10. Aggregate Gains From 1% Increase in Educational Attainment in Nashville

Category	Average annual impact
Output	\$12.4 million
Value Added	\$8.1 million
Personal Income	\$25.2 million

Conclusions

Nashville is known as a center of knowledge, learning and creativity, resting on a 200-year legacy of institutional anchors and public support for those anchors to create a vibrant cultural and educational urban center. For more than a century, Nashville Public Library has been a key, singular type of anchor for Nashville and Middle Tennessee by operating as an innovative, growing and responsive institution. Quality of place and quality of life matter to residents of a city, and Nashville residents have, time and again, expressed support and affirmation for the role of their library in providing an array of facilities, staff, resources and programs. As the 21st century progresses, Nashville Public Library and the Library Foundation continue to expand the ways they fulfill their mission of outstanding service to the city's residents.

Nashville's cultural and educational environment offers opportunities for residents and businesses alike. A constant focus on continuous enhancement of learning and experiences in all fields are not merely pleasant amenities for this city; rather, this dedication to the enrichment of Nashvillians as citizens, workers, leaders and learners is an imperative the city has strongly embraced. The pivotal role of Nashville Public Library is unrivaled across the breadth and depth of the community, its needs and its interests.

But the importance of the library's role is not only anecdotal and narrative in quality. This opportunity to consider the economic value of a library system is equally critical to assessing the realized gains that the city and its residents achieve from investments that allow the library to serve at the high level it does. Return on investment provides one incontrovertible set of metrics that gives meaning to the ways in which libraries serve educational and enrichment roles, which have deep and long-lasting effects on people's lives.

Key points drawing from the study of Nashville Public Library highlight the ways it delivers important and far-reaching returns to the city:

- Nashville Public Library makes a sizeable contribution to the city's economic well-being, with **market value of services nearing \$141 per capita** and with **direct benefit to the community totaling just more than \$94 million**.
- With a wide range of programs, services and facilities, Nashville Public Library's **return on investment to the city is \$3.06 for every \$1.00 of expenditure** for the library system.
- The Nashville Public Library Foundation demonstrates a **direct community benefit of \$9.1 million**, with **market value of services exceeding \$13.68 per capita**.
- The **return on investment** of the Nashville Public Library Foundation to the city is **\$4.06 for every \$1.00 of expenditure** for Foundation-sponsored programs and services.
- Patrons and users of the library express **enthusiastic support for the quality and diversity of programs, including an overall rating of 8.13 excellence on a 10-point scale**

for library services, with additional high ratings for staff helpfulness and materials and equipment meeting user needs.

- For every \$1.00 in library operations, the city **realizes \$1.33 in economic output**.
- Library users demonstrate **high confidence in the library's fulfillment of its mission**, with a range of 8.5 to 8.9 excellence in inspiring reading, advancing learning and connecting the community.
- The library leads the way across the city in offering learning and experiential **opportunities for students, jobseekers, entrepreneurs, artisans and performers** to advance and diversify their livelihood and craft in viable economic ways.

Nashville Public Library puts to effective and innovative use its investments and resources, making a real difference in people's lives. Dollars spent to ensure the city's library system takes a leadership role in education, culture, entertainment and civic activities pay dividends that are measurable and significant. Nashville Public Library exemplifies through its work the meaning of a true community center, for it serves as a civic pillar through its facilities, programs, and outreach in countless ways. This study comprises comprehensive research, which showcases in both qualitative and quantitative terms the value realized by this vital institution and its work.

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Appendices

Appendix A: Cost-Benefit of Combined Nashville Public Library Metro and Foundation–Supported Programs to Users

Library Statistics Information	Usage totals and estimates FY 14–15	Total Estimated Value (\$)
Books, Print	1,299,106	\$ 18,468,463
Books, Digital/ Streaming	431,700	\$ 3,504,670
Newspapers, Print	26,954	\$ 66,286
Newspapers, Digital/ Streaming	2,484	\$ 2,602
Magazines, Print	62,024	\$ 309,925
Magazines, Digital/ Streaming	49,429	\$ 194,289
CDs, DVDs, or other multimedia, Print	1,264,716	\$ 14,944,277
CDs, DVDs, or other multimedia, Digital/ Streaming	805,960	\$ 8,149,497
Reference materials, Print	272,488	\$ 7,714,640
Reference materials, Digital/ Streaming	453,106	\$ 8,841,796
Children's books, Print	1,237,150	\$ 10,570,624
Children's books, Digital/ Streaming	33,093	\$ 107,306
Academic or professional journals, Print	33,575	\$ 1,671,656
Academic or professional journals, Digital/ Streaming	10,768	\$ 450,109
Assistance with other research (not school of business related)	18,809	\$ 224,079
Tutoring, homework help, or other educational needs	132	\$ 1,662
Research assistance with business related research	3,909	\$ 57,362
Computer and Internet access	756,250	\$ 11,981,880
Use of language learning software	4,831	\$ 374,192
Use of Microsoft office programs	2,701	\$ 128,873
Playing computer games	205,388	\$ 899,416
Accessing research databases	8,412	\$ 388,944
Accessing business databases	54,790	\$ 2,335,281
Accessing genealogy databases	4,598	\$ 90,540
Accessing legal resources	6,276	\$ 215,393
Studio NPL	20,109	\$ 1,265,191
Microsoft Office training	353	\$ 49,870
ESL or other language classes	5,424	\$ 258,937
Computer usage training	353	\$ 17,860
Job search labs	656	\$ 3,788
Story times	8,297	\$ 52,962
After school programs for youth	2,120	\$ 45,964

Library Statistics Information	Usage totals and estimates FY 14–15	Total Estimated Value (\$)
Programs for the deaf or hard of hearing	1,159	\$ 9,954
Puppet shows	82,622	\$ 622,084
Concerts	4,480	\$ 86,334
Lectures	2,955	\$ 52,435
Other events	99	\$ 1,145
Total estimated direct benefits		\$ 94,160,283
Nashville Public Library service area population		668,347
Market value or services per capita		\$ 140.89
Nashville Public Library FY 14–15 Budget expenditure		\$ 30,738,234
Nashville Public Library Expenditure per capita		\$ 45.99
Direct benefits per \$1 spent		\$ 3.06

Appendix B: Cost-Benefit of Nashville Public Library Metro Funding–Supported Programs and Resources to Users

Library Statistics Information	Usage totals and estimates FY 14–15	Total Estimated Value (\$)
Books, print	1,299,106	\$ 16,806,301
Books, Digital/ Streaming	431,700	\$ 3,189,250
Newspapers, print	26,954	\$ 60,320
Newspapers, Digital/ Streaming	2,484	\$ 2,368
Magazines, print	62,024	\$ 282,032
Magazines, Digital/ Streaming	49,429	\$ 176,803
CDs, DVDs, or other multimedia, print	1,264,716	\$ 13,599,292
CDs, DVDs, or other multimedia, Digital/ Streaming	805,960	\$ 7,416,042
Reference materials, print	272,488	\$ 7,020,323
Reference materials, Digital/ Streaming	453,106	\$ 8,046,035
Children's books, print	1,237,150	\$ 9,619,268
Children's books, Digital/ Streaming	33,093	\$ 97,649
Academic or professional journals, print	33,575	\$ 1,521,207
Academic or professional journals, Digital/ Streaming	10,768	\$ 409,599
Assistance with other research (not school of business related)	18,809	\$ 224,079
Tutoring, homework help, or other educational needs	132	\$ 1,662
Research assistance with business related research	3,909	\$ 57,362
Computer and Internet access	756,250	\$ 11,981,880
Use of language learning software	4,831	\$ 374,192

Library Statistics Information	Usage totals and estimates FY 14–15	Total Estimated Value (\$)
Use of Microsoft office programs	2,701	\$ 128,873
Playing computer games	205,388	\$ 899,416
Accessing research databases	8,412	\$ 388,944
Accessing business databases	54,790	\$ 2,335,281
Accessing genealogy databases	4,598	\$ 90,540
Accessing legal resources	6,276	\$ 215,393
Studio NPL	20,109	\$ -
Microsoft Office training	353	\$ -
ESL or other language classes	5,424	\$ -
Computer usage training	353	\$ -
Job search labs	656	\$ -
Story times	8,297	\$ -
After school programs for youth	2,120	\$ -
Programs for the deaf or hard of hearing	1,159	\$ -
Puppet shows	82,622	\$ 70,918
Concerts	4,480	\$ -
Lectures	2,955	\$ -
Other events	99	\$ -
Total estimated direct benefits		\$ 85,015,026
Nashville Public Library service area population		668,347
Market value or services per capita		\$ 127.20
Nashville Public Library FY 14–15 Budget expenditure		\$ 28,488,198
Nashville Public Library Expenditure per capita		\$ 42.62
Direct benefits per \$1 spent		\$ 2.98

Appendix C: Cost-Benefit of Nashville Public Library Foundation–Supported Programs and Resources to Users

Library Statistics Information	Usage totals and estimates FY 14–15	Total Estimated Value (\$)
Books, Print	1,299,106	\$ 1,662,162
Books, Digital/ Streaming	431,700	\$ 315,420
Newspapers, Print	26,954	\$ 5,966
Newspapers, Digital/ Streaming	2,484	\$ 234
Magazines, Print	62,024	\$ 27,893
Magazines, Digital/ Streaming	49,429	\$ 17,486
CDs, DVDs, or other multimedia, Print	1,264,716	\$ 1,344,985
CDs, DVDs, or other multimedia, Digital/ Streaming	805,960	\$ 733,455
Reference materials, Print	272,488	\$ 694,318

Library Statistics Information	Usage totals and estimates FY 14–15	Total Estimated Value (\$)
Reference materials, Digital/ Streaming	453,106	\$ 795,762
Children's books, Print	1,237,150	\$ 951,356
Children's books, Digital/ Streaming	33,093	\$ 9,658
Academic or professional journals, Print	33,575	\$ 150,449
Academic or professional journals, Digital/ Streaming	10,768	\$ 40,510
Assistance with other research (not school of business related)	18,809	\$ -
Tutoring, homework help, or other educational needs	132	\$ -
Research assistance with business related research	3,909	\$ -
Computer and Internet access	756,250	\$ -
Use of language learning software	4,831	\$ -
Use of Microsoft office programs	2,701	\$ -
Playing computer games	205,388	\$ -
Accessing research databases	8,412	\$ -
Accessing business databases	54,790	\$ -
Accessing genealogy databases	4,598	\$ -
Accessing legal resources	6,276	\$ -
Studio NPL	20,109	\$ 1,265,191
Microsoft Office training	353	\$ 49,870
ESL or other language classes	5,424	\$ 258,937
Computer usage training	353	\$ 17,860
Job search labs	656	\$ 3,788
Story times	8,297	\$ 52,962
After school programs for youth	2,120	\$ 45,964
Programs for the deaf or hard of hearing	1,159	\$ 9,954
Puppet shows	82,622	\$ 551,167
Concerts	4,480	\$ 86,334
Lectures	2,955	\$ 52,435
Other events	99	\$ 1,145
Total estimated direct benefits		\$ 9,145,257
Nashville Public Library service area population		668,347
Market value or services per capita		\$ 13.68
Nashville Public Library Foundation FY 14–15 Budget expenditure		\$ 2,250,036
Nashville Public Library Expenditure per capita		\$ 3.37
Direct benefits per \$1 spent		\$ 4.06

Appendix D: Nashville Public Library Average Annual Savings to Library Patrons

Summary of Annual Savings	Annual Savings per item
Library materials-Books-Print	\$ 959.92
Library materials-Books-Digital/ Streaming	\$ 244.61
Library materials-Newspapers-Print	\$ 3.45
Library materials-Newspapers-Digital/ Streaming	\$ 0.30
Library materials-Magazines-Print	\$ 16.11
Library materials-Magazines-Digital/ Streaming	\$ 11.89
Library materials-CDs, DVDs, or other multimedia-Print	\$ 318.39
Library materials-CDs, DVDs, or other multimedia-Digital/ Streaming	\$ 175.32
Library materials-Reference materials-Print	\$ 97.97
Library materials-Reference materials-Digital/ Streaming	\$ 21.11
Library materials-Children's books-Print	\$ 322.52
Library materials-Children's books-Digital/ Streaming	\$ 6.95
Library materials-Academic or professional journals-Print	\$ 90.35
Using academic or professional journals	\$ 177.27
Library materials-Academic or professional journals-Digital/ Streaming	\$ 50.08
Assistance with other research (not school or business related)	\$ 42.08
Tutoring, homework help, or other educational needs	\$ 18.95
Research assistance with business related research	\$ 19.48
Computer and Internet access	\$ 32.18
Use language learning software	\$ 19.27
Use Microsoft office programs	\$ 23.74
Playing games	\$ 15.81
Accessing research databases	\$ 58.40
Accessing business databases	\$ 15.22
Accessing genealogy databases	\$ 8.57
Accessing legal resources	\$ 8.35
Studio NPL	\$ 10.38
Microsoft Office training	\$ 25.60
ESL or other language classes	\$ 4.91
Computer usage training	\$ 10.81
Job search labs	\$ 12.33
Story times	\$ 18.41
After school programs for youth	\$ 12.02
Programs for the deaf or hard of hearing	\$ 0.74
Puppet shows	\$ 10.08
Concerts	\$ 27.10
Lectures	\$ 29.80

Summary of Annual Savings	Annual Savings per item
Other events	\$ 30.64
Total Average Annual Savings	\$ 2,951.15

Appendix E: Market and Hybrid Valuation Sources and Notes

Library Service	Market Value	Hybrid Value	Unit	Market value source	Notes
Books, Print	\$14.00	\$14.22	per item	Estimates from: http://www.amazon.com/ http://www.barnesandnoble.com/ http://www.parnassusbooks.net/ http://www.booksamillion.com/	-
Books, Digital/ Streaming	\$8.00	\$8.12	per item	Estimates from: http://www.amazon.com/ http://www.barnesandnoble.com/ http://www.parnassusbooks.net/ http://www.booksamillion.com/	-
Newspapers, Print	\$2.00	\$2.46	per item	Physical subscription to the Tennessean: http://www.tennessean.com/	-
Newspapers, Digital/ Streaming	\$1.00	\$1.05	per item	Digital subscription to the Tennessean: http://www.tennessean.com/	-
Magazines, Print	\$5.00	\$5.00	per item	Estimates from: http://www.amazon.com/ http://www.barnesandnoble.com/ https://www.kroger.com/	Estimates based on singular magazine purchases and subscriptions.
Magazines, Digital/ Streaming	\$4.00	\$3.93	per item	Estimates from: http://www.amazon.com/ http://www.barnesandnoble.com/ https://www.kroger.com/	Estimates based on singular magazine purchases and subscriptions.
CDs, DVDs, or other multimedia, Print	\$12.00	\$11.82	per item	Estimates from: http://www.amazon.com/ http://www.bestbuy.com/ http://www.fye.com/	Includes music, movies, and audiobooks
CDs, DVDs, or other multimedia, Digital/ Streaming	\$10.00	\$10.11	per item	Estimates from: http://www.amazon.com/ http://www.bestbuy.com/ http://www.fye.com/	Includes music, movies, and audiobooks. Also considers subscription and streaming services as well as singular song purchases
Reference materials, Print	\$30.00	\$28.31	per item	Estimates and price list from: http://www.oxfordjournals.org/ http://www.jstor.org/ http://www.lexisnexis.com/ http://www.thomsonreuters.com/	-
Reference materials, Digital/ Streaming	\$20.00	\$19.51	per item	Estimates and price list from: http://www.oxfordjournals.org/ http://www.jstor.org/ http://www.lexisnexis.com/ http://www.thomsonreuters.com/	-

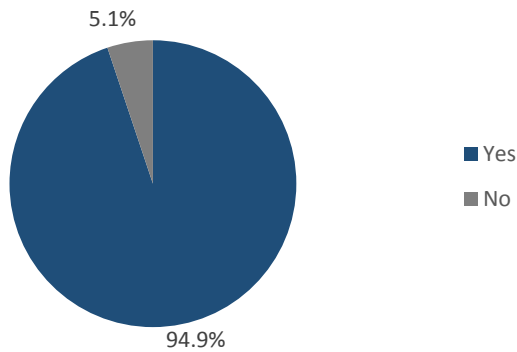
Library Service	Market Value	Hybrid Value	Unit	Market value source	Notes
Children's books, Print	\$9.00	\$8.54	per item	Estimates from: http://www.amazon.com/ http://www.barnesandnoble.com/ http://www.parnassusbooks.net/ http://www.booksamillion.com/	-
Children's books, Digital/ Streaming	\$3.00	\$3.24	per item	Estimates from: http://www.amazon.com/ http://www.barnesandnoble.com/ http://www.parnassusbooks.net/ http://www.booksamillion.com/	-
Academic or professional journals, Print	\$50.00	\$49.79	per item	Estimates and price list from: http://www.oxfordjournals.org/	Cost heavily fluctuate based on journal accessed. Discounts are applied to library users assuming bulk use
Academic or professional journals, Digital/ Streaming	\$40.00	\$41.80	per item	Estimates and price list from: http://www.oxfordjournals.org/ http://www.jstor.org/	-
Assistance with other research (not school of business related)	\$10.00	\$11.91	flat	Estimated tutoring fees: http://www.care.com/	-
Tutoring, homework help, or other educational needs	\$10.00	\$12.61	flat	Estimated tutoring fees: http://www.care.com/	-
Research assistance with business related research	\$12.00	\$14.67	flat	Estimated tutoring fees: http://www.care.com/	Premium price added due to reports generated and question complexity
Computer and Internet access	\$18.00	\$15.84	flat	Estimates from: https://www.att.com/ http://www.xfinity.com/ http://www.centurylink.com/ https://www.charter.com	-
Use of language learning software	\$90.00	\$77.46	flat	Estimates from: www.rosetastone.com Reference: http://www.pcmag.com/article2/0,2817,2381904,00.asp	Considered new and used software
Use of Microsoft office programs	\$60.00	\$47.71	flat	Estimates from: http://www.amazon.com/ http://www.microsoftstore.com/	Considers new and used and older Office products. Discounted to account for program's use by library patrons
Playing computer games	\$4.00	\$4.38	flat	Estimates from: http://www.amazon.com/ http://store.steampowered.com/	Considers free games accessed via Internet, as

Library Service	Market Value	Hybrid Value	Unit	Market value source	Notes
					well as new and free digital downloads
Accessing research databases	\$50.00	\$46.24	per visit	Estimates and price list from: http://www.oxfordjournals.org/ http://www.jstor.org/ http://www.lexisnexis.com/ http://www.thomsonreuters.com/	-
Accessing business databases	\$50.00	\$42.62	per visit	Estimates and price list from: http://www.oxfordjournals.org/ http://www.jstor.org/ http://www.hoovers.com http://www.referenceusa.com/	-
Accessing genealogy databases	\$20.00	\$19.69	per visit	Cost of U.S. discovery monthly membership at http://ancestry.com	-
Accessing legal resources	\$30.00	\$34.32	per visit	Estimates and price list from: http://www.amazon.com http://barnesandnoble.com http://www.oxfordjournals.org/ http://www.jstor.org/ http://www.hoovers.com http://www.referenceusa.com/	-
Studio NPL	\$50.00	\$62.92	per visit	Estimates from: https://www.mymusicmasterclass.com/ http://www.porchtn.org/prose/ http://www.craft-south.com/ http://www.nowplayingnashville.com/categories/classes/ http://nashvillesoftwareschool.com/	Similar pricing to a workshop or master class
Microsoft Office training	\$160.00	\$141.27	per visit	Estimates from: http://www.businesscomputerskills.com/ http://www.careerstep.com/microsoft-office-training http://www.newhorizons.com/	Estimates adjusted for one class or program
ESL or other language classes	\$50.00	\$47.74	per visit	Tennessee Foreign Language Institute - http://tfli.org/	Discounts applied when adjusting for free English resources available in the region
Computer usage training	\$35.00	\$50.60	per visit	Estimates from: http://www.businesscomputerskills.com http://www.careerstep.com/microsoft-office-training http://www.newhorizons.com/	Estimates adjusted for one class or program
Job search labs	\$5.00	\$5.77	per visit	Value based on computer usage and consultation	-
Story times	\$5.00	\$6.38	per visit	Estimates based on value added of 30-45 minutes of entertainment	-

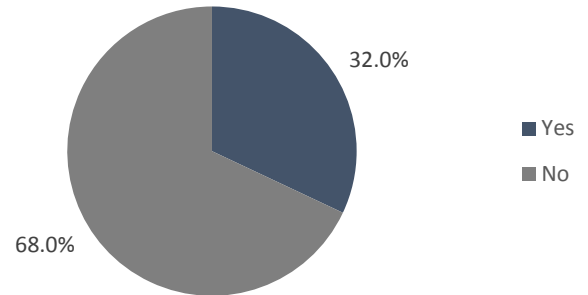
Library Service	Market Value	Hybrid Value	Unit	Market value source	Notes
After school programs for youth	\$20.00	\$21.68	per visit	Estimated cost of space and services	-
Programs for the deaf or hard of hearing	\$4.00	\$8.59	per visit	Estimated value added to a free service	-
Puppet shows	\$6.00	\$7.53	per visit	Estimated value added and ticket estimates for troupes outside the region	-
Concerts	\$18.00	\$19.27	per visit	Estimated ticket value: http://endnashville.com/ http://www.exitin.com/ http://thebasementnashville.com/ http://ryman.com/ http://www.marathonmusicworks.com/ https://www.nashvillesymphony.org/ http://stationinn.com/ http://thecanneryballroom.com/	-
Lectures	\$10.00	\$17.74	per visit	Estimated value of celebrity speaker and venue costs	Majority of lecture events are free
Other events	\$10.00	\$11.58	per item	Estimated value of events otherwise not classified	-

Appendix F: Survey and Community Demographics

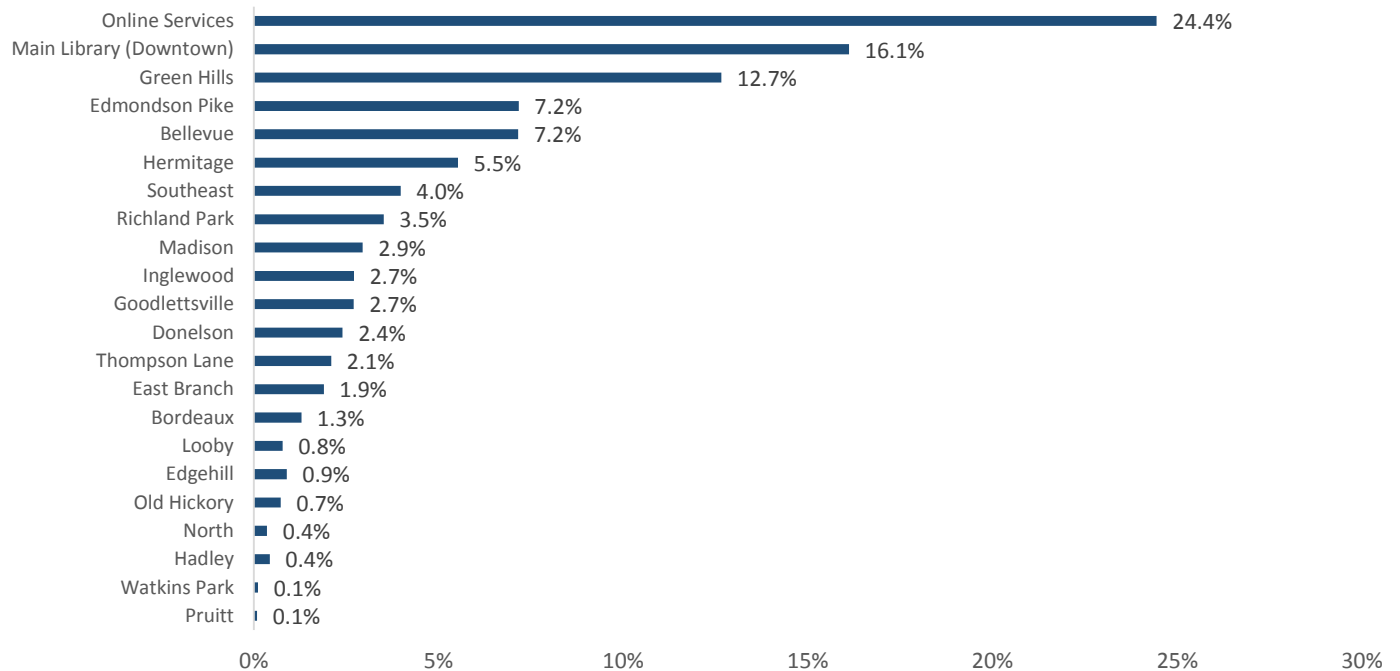
In the past 12 months, have you used any library service provided by the Nashville Public Library?



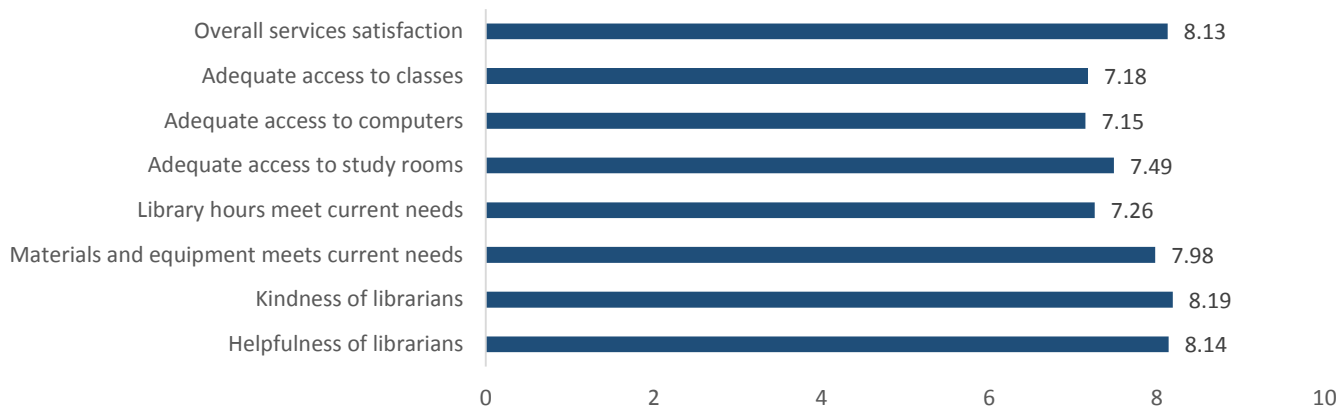
Do you have any children in your household?



Which library locations do you visit most often?

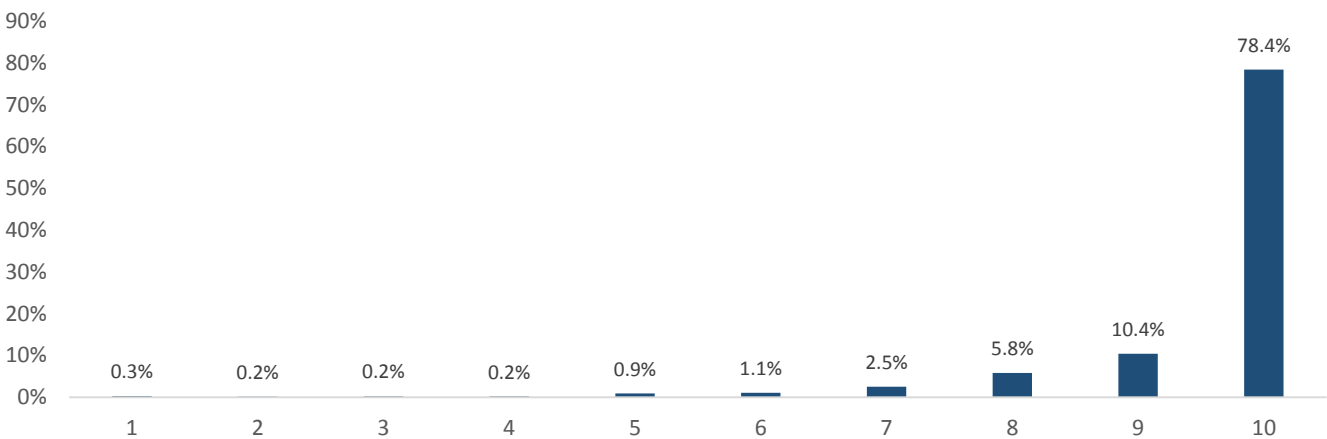


Please rate how you feel about the current services offered at the Nashville Public Library with 1 being poor and 10 being excellent.

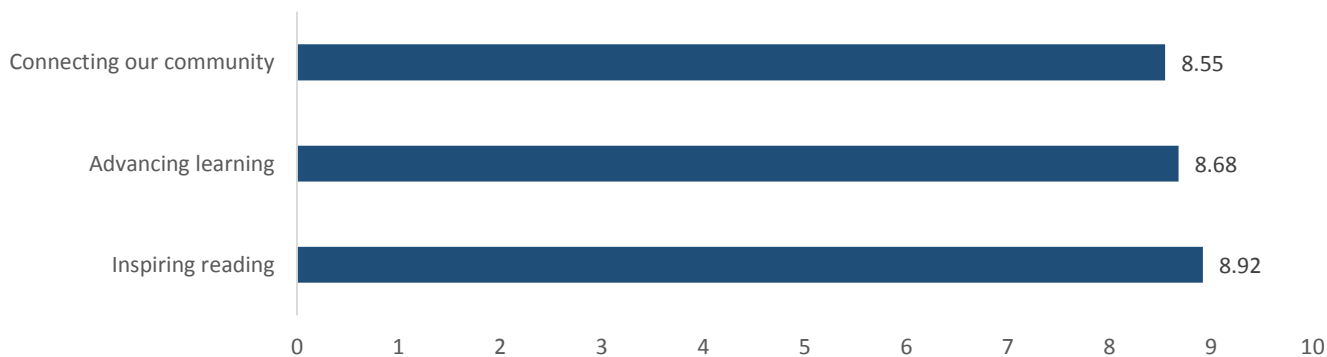


I would recommend the Nashville Public Library to a friend or colleague.

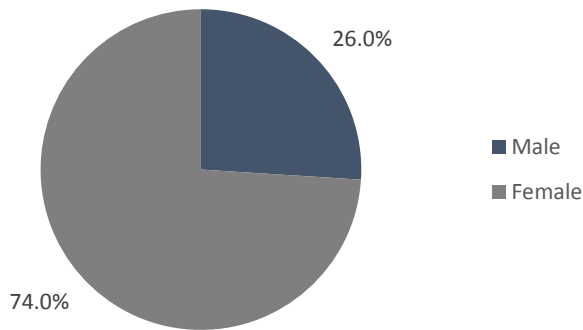
NPS: 85.9



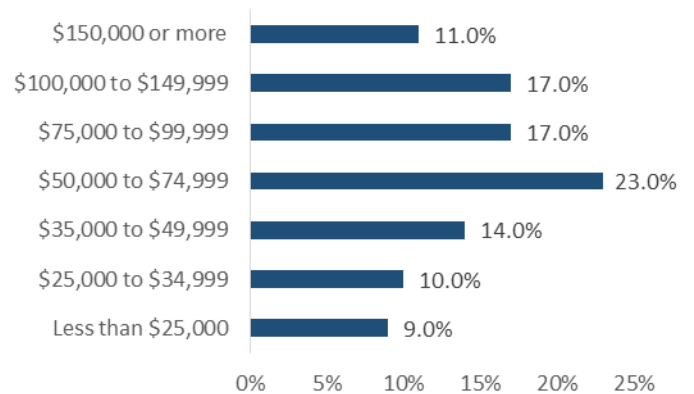
How successful is the Nashville Public Library in the following areas of its mission statement? Please rate on a scale of 1 to 10 where 1 is not successful at all and 10 is very successfully.



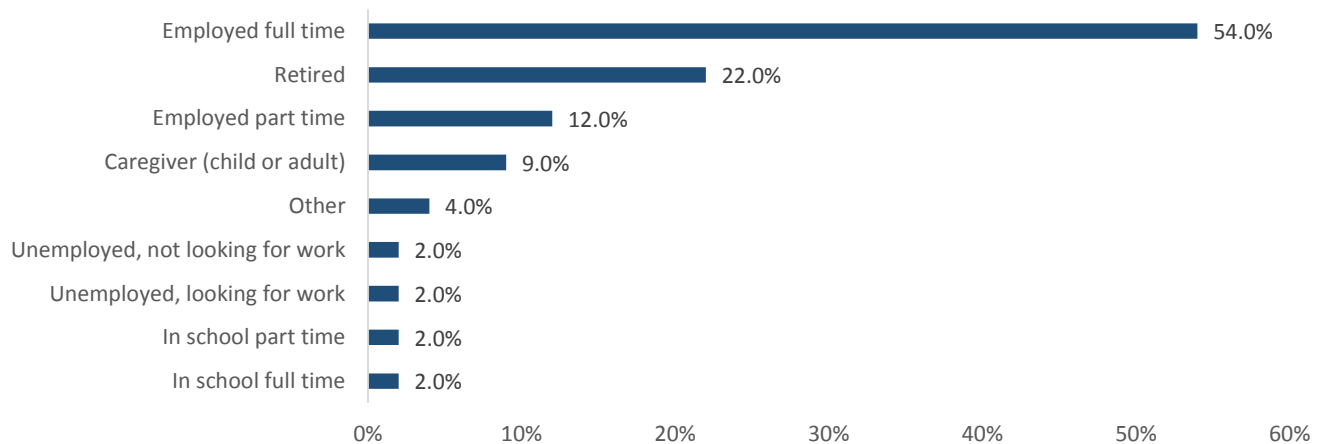
What is your gender?



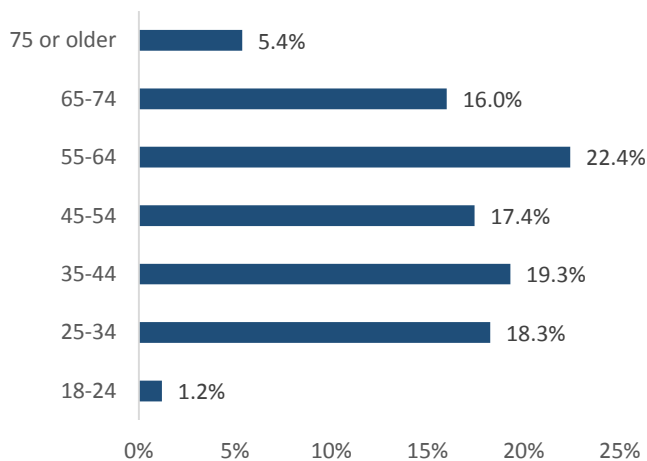
What is your household income?



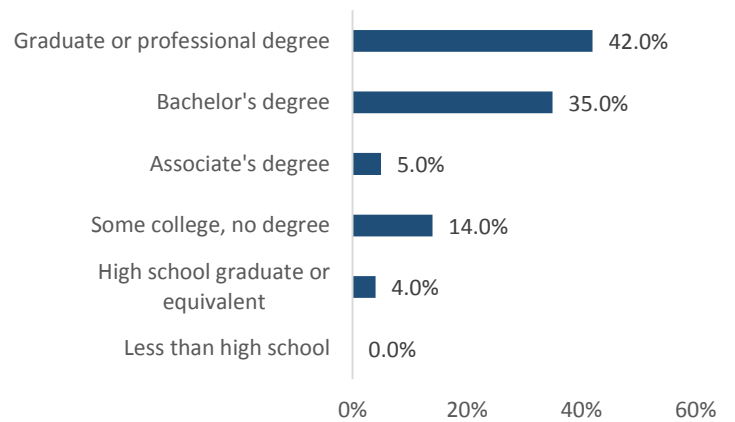
Please select the option or options that best describe you.



What is your age?



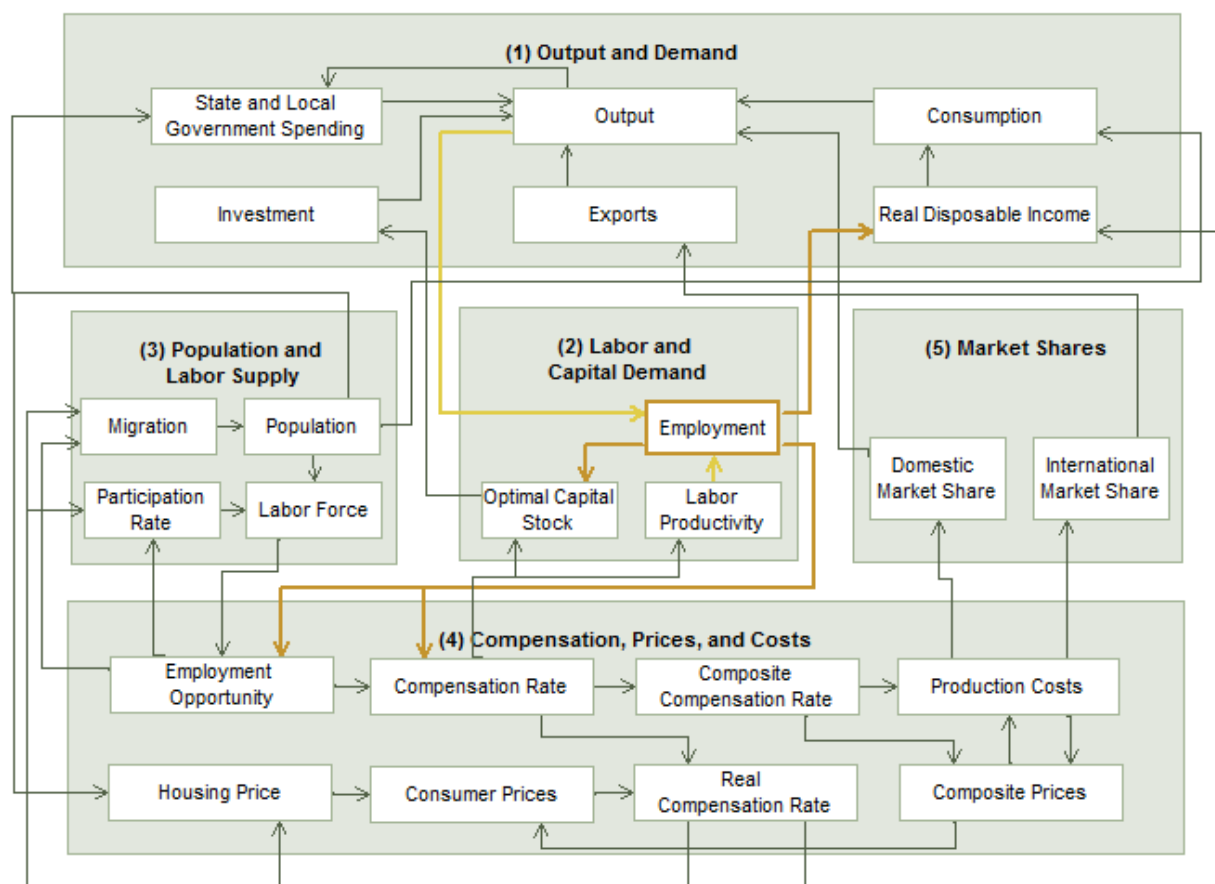
What level of education have you attained?



Appendix G: Overview of REMI Policy Insight (Source: REMI, Inc.)

Policy Insight is a structural economic forecasting and policy analysis model. It integrates input-output, computable general equilibrium, econometric and economic geography methodologies. The model is dynamic, with forecasts and simulations generated on an annual basis and behavioral responses to wage, price and other economic factors.

The REMI model consists of thousands of simultaneous equations with a structure that is relatively straightforward. The exact number of equations used varies depending on the extent of industry, demographic, demand, and other detail in the model. The overall structure of the model can be summarized in five major blocks: (1) Output and Demand; (2) Labor and Capital Demand; (3) Population and Labor Supply; (4) Wages, Prices and Costs; and (5) Market Shares.



Block 1. Output and Demand

This block includes output, demand, consumption, investment, government spending, import, product access, and export concepts. For each industry, demand is determined by the amount of output, consumption, investment and capital demand on that industry. Consumption depends on real disposable income per capita, relative prices, differential income elasticities and population. Input productivity depends on access to inputs because the larger the choice set of inputs, the more likely that the input with the specific characteristics required for the job will be formed. In the capital stock adjustment process, investment occurs to fill the difference between optimal and actual capital stock for

residential, non-residential, and equipment investment. Government spending changes are determined by changes in the population.

Block 2. Labor and Capital Demand

The Labor and Capital Demand block includes the determination of labor productivity, labor intensity and the optimal capital stocks. Industry-specific labor productivity depends on the availability of workers with differentiated skills for the occupations used in each industry. The occupational labor supply and commuting costs determine firms' access to a specialized labor force.

Labor intensity is determined by the cost of labor relative to the other factor inputs, capital and fuel. Demand for capital is driven by the optimal capital stock equation for both non-residential capital and equipment. Optimal capital stock for each industry depends on the relative cost of labor and capital, and the employment weighted by capital use for each industry. Employment in private industries is determined by the value added and employment per unit of value added in each industry.

Block 3. Population and Labor Supply

The Population and Labor Supply block includes detailed demographic information about the region. Population data is given for age and gender, with birth and survival rates for each group. The size and labor force participation rate of each group determines the labor supply. These participation rates respond to changes in employment relative to the potential labor force and to changes in the real after tax compensation rate. Migration includes retirement, military, international and economic migration. Economic migration is determined by the relative real after tax compensation rate, relative employment opportunity and consumer access to variety.

Block 4. Wages, Prices and Costs

This block includes delivered prices, production costs, equipment cost, the consumption deflator, consumer prices, the price of housing and the wage equation. Economic geography concepts account for the productivity and price effects of access to specialized labor, goods and services. These prices measure the price of the industry output, taking into account the access to production locations. This access is important due to the specialization of production that takes place within each industry, and because transportation and transaction costs of distance are significant. Composite prices for each industry are then calculated based on the production costs of supplying regions, the effective distance to these regions, and the index of access to the variety of output in the industry relative to the access by other uses of the product.

The cost of production for each industry is determined by cost of labor, capital, fuel and intermediate inputs. Labor costs reflect a productivity adjustment to account for access to specialized labor, as well as underlying compensation rates. Capital costs include costs of non-residential structures and equipment, while fuel costs incorporate electricity, natural gas and residual fuels. The consumption deflator converts industry prices to prices for consumption commodities. For potential migrants, the consumer price is additionally calculated to include housing prices. Housing price changes from their initial level depend on changes in income and population density. Compensation changes are due to changes in labor demand and supply conditions and changes in the national compensation rate. Changes in employment opportunities relative to the labor force and occupational demand change determine compensation rates by industry.

Block 5. Market Shares

The Market Shares equations measure the proportion of local and export markets that are captured by each industry. These depend on relative production costs, the estimated price elasticity of demand, and effective distance between the home region and each of the other regions. The change in share of a specific area in any region depends on changes in its delivered price and the quantity it produces compared with the same factors for competitors in that market. The share of local and external markets then drives the exports from and imports to the home economy.

The Labor and Capital Demand block includes labor intensity and productivity as well as demand for labor and capital. Labor force participation rate and migration equations are in the Population and Labor Supply block. The Wages, Prices and Costs block includes composite prices, determinants of production costs, the consumption price deflator, housing prices, and the wage equations. The proportion of local, inter-regional and export markets captured by each region is included in the Market Shares block.