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White Paper

Furthering Our Understanding of the Economic Value of Public Library Services (META 2)

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Introduction

Public Libraries are often the face of local government. People of all ages walk through their doors, and those doors are open to everyone in their community. Close to 150,000 people work to make this happen in a typical year; and as a result their libraries have recently circulated over 750,000 children's materials and over 2,000,000 different types of materials within their communities. Yet in most cases, these numbers are barely adequate to describe the roles their libraries play. Users continue to be vocal and passionate regarding their importance as symbols of community, bequests to their children, and instruments of enjoyment, literacy, and learning. But communicating this message has not always been easy despite the needs of policy makers and others.

The Economic Impact of Public Libraries on South Carolina

One of the first efforts to address this problem, funded by the University of South Carolina iSchool in partnership with the Darla Moore School of Business, was built on the premise that "Taxpayers rightfully want to understand what benefits they receive from the tax dollars that they entrust to South Carolina governments. Public libraries are one of the institutions supported by these tax dollars". The purpose of the study was to 1) determine the economic benefit of public libraries to South Carolinians and 2) to gain a better understanding of the extent these individuals feel the public library contributes to their economic wellbeing.

The study survey was distributed by the South Carolina State Library, and a formula developed in partnership with the USC Dara Moore School of Business was used to explore the possibility of quantifying aspects of this question using Public Libraries Survey (PLS) data. The results of the calculation suggested that the total direct and indirect return on investment (ROI) to SC local and state governments was $2.86 + $1.62 = $4.48. In the authors' words, another way of saying this was that for each $1 of state and local funds invested, the result was a about a 350% return on investment.

Worth Their Weight: An Assessment of the Evolving Field of Library Valuation

A national spotlight was turned on this issue in 2005, when the Bill and Melinda Gates Foundation provided funding to the Americans for Libraries Council to convene a group of individuals with expertise and interest in this area. This discussion confirmed recognition that new approaches to library advocacy were needed, including content that could make the case for public libraries in the type of quantitative

terms that were only recently becoming available. The resulting Americans for Libraries 2007 publication, *Worth Their Weight: An Assessment of the Evolving Field of Library Valuation* approached this subject from three directions: (1) a discussion of recent valuation studies, (2) a discussion of alternative socially oriented methods, and (3) a set of action-oriented recommendations for accelerating growth and using the results persuasively in advocacy settings.

META 1 *Assessing the Value of Public Library Services: A Review of the Literature and Meta- analysis* (Grant #: RE-04-08-0047)

Research Problem

The report also pointed to the absence of comprehensive meta-analyses that systematically analyzed and consolidated the results of ongoing efforts. Little was known concerning: 1) the consistency of benefit estimates, 2) their predictable magnitude, or 3) the contextual factors that figured in their variation. There were also doubts concerning generalization and whether the studies were contributing to a pattern of mounting evidence.

Research Questions

The META 1 project was designed to improve this situation with the use of two research questions: (RQ1) whether the data and studies currently available suggested mounting and generalizable evidence concerning the contributions that public libraries make to the economic prosperity of the communities they serve, and (RQ2) what steps needed to be taken in order to strengthen this assertion.

The intermediate goals were to 1) provide a better understanding of the economic benefits that accrue to communities from public library services, and 2) develop a robust and generalizable model of these benefits that could be helpful at a local and national level. The results were intended to clarify several issues, including 1) the effectiveness of different means of assessing the economic performance of public libraries, 2) the availability of measurements that can withstand analysis and testing for homogeneity, and 3) the directions that might prove to be profitable for new empirical studies. The research was organized into three phases.

META 2 Phase 1: The Research Perspective

Initial literature reviews were conducted in Google, Google Scholar, and a broad range of academic databases. Several economic terms were initially used to capture economic variables. The first, "willingness to pay" and "WTP" typically refer to the maximum price a customer is willing to pay for a product or service. "Willingness to accept" or "WTA" typically refer to the minimum monetary amount that a person is willing to accept to sell a good or service. "Contingent valuation" or "CVA".

META 2 Phase 1: Results

Method	Count
Contingent Valuation	14
Economic Model	7
Cost-Benefit	2
ROI	16
SROI	3
Qualitative	26
Perceived Outcomes	5
Other	8
Total	81
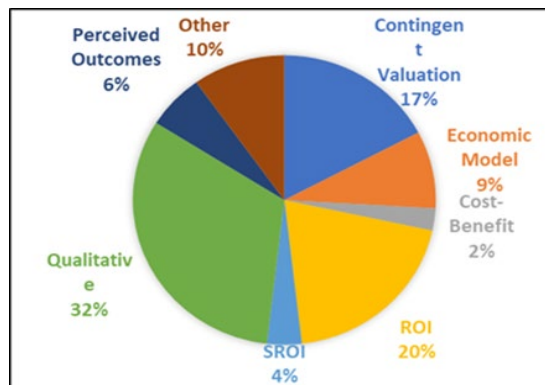
The total ROI varied between economic valuation methodologies. None of the fourteen (14) CV studies reported a total ROI. Overall, the total ROI valuations ranged from a low of 1.36 in an SROI study (James, 2013), to a high of 10.18 in an economic model study (Haas Center, 2013). The twelve studies applying the ROI methodology produced the most consistent total ROI results, ranging from a low of 5.16 (Ottawa Public Library, 2016) to a high of 7.85 (Newmarket Public Library, 2016).

	Economic Model	Cost-Benefit	ROI	SROI
N	4	2	12	2
Mean	6.82	5.02	6.01	2.81
Standard Deviation	3.20	0.17	1.04	2.04
Median	7.11	5.02	5.65	2.81

The original META 1 project concluded that the typical total return on investment in public libraries ranged between $5.00 and $6.00 for each $1.00 invested (Arns, 2013, p. 65). When indirect returns on investment are considered, the total returns on public library investment reported by the economic research studies reviewed during Phase One of the META 2 project largely validate the META 1 findings.

Phase 2: The Organizational Perspective

The PLS data used in the second group of measurement procedures remained attractive for several reasons. It was accompanied with operational definitions of each of its variables. The units of analysis were uniform and consistent — individual libraries. The number of responses for each variable was known, and these appeared to be suitable for further analysis. The University of South Carolina ROI model was originally chosen for analysis due to the researchers' familiarity with the formula and the industry data. A revised algorithm developed during interactions with the META 2 consultants was next used to update these analyses. In both cases, the states were sorted into regions using the geographic region variable (OBEREG), and statistical software was used to generate the means and standard deviations for each region.

META 2 Phase 2: Results

The updated grand total ROIs tended to fall in the $5.00 to $6.00. range when examined using the original South Carolina algorithm. Although there was an increase after the "Great Recession" of 2008, the total showed a small decrease of $0.57 between 2011 and 2017.

Region	META 1					META 2					
	Total ROI 2008	Total ROI 2009	Total ROI 2010	Total ROI 2011		Total ROI 2012	Total ROI 2013	Total ROI 2014	Total ROI 2015	Total ROI 2016	Total ROI 2017
New England	$5.62	$6.25	$6.50	$6.39		$6.34	$6.16	$6.10	$5.36	$5.60	$5.74
Mid-East	$4.80	$5.31	$5.73	$5.23		$5.14	$5.30	$5.22	$5.16	$5.36	$4.88
Great Lakes	$5.18	$5.72	$5.62	$5.62		$5.69	$5.76	$5.48	$5.31	$5.42	$5.14
Plains	$5.64	$6.14	$6.40	$6.31		$6.41	$6.09	$6.01	$5.73	$5.74	$5.63
Southeast	$4.76	$5.56	$5.65	$5.83		$5.83	$5.69	$5.50	$5.29	$5.12	$4.84
Southwest	$5.07	$5.63	$5.94	$6.03		$5.63	$5.99	$5.73	$5.57	$5.46	$5.44
Rocky Mountains	$5.65	$6.57	$6.55	$6.39		$6.29	$6.08	$5.95	$5.94	$5.68	$5.36
Far West	$4.81	$5.55	$5.61	$5.35		$5.43	$5.57	$5.22	$5.15	$4.76	$4.81
Grand Total	**$5.02**	**$5.69**	**$5.79**	**$5.63**		**$5.67**	**$5.68**	**$5.48**	**$5.31**	**$5.26**	**$5.06**

Fixed effects meta-analysis of these data produced a point estimate of the effect size or mean total return on investment for the regions of $6.12. The summary confidence interval generated using the fixed effects model indicated that the population mean total return — is between $5.99 and $6.24.

| Model	Study name	Statistics for each study							Mean and 95% CI					Weight (Fixed)
		Mean	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value	-1.00	-0.50	0.00	0.50	1.00	Relative weight
	Far West	5.393	0.385	0.148	4.639	6.148	14.009	0.000						2.73
	Great Lakes	5.762	0.286	0.082	5.202	6.322	20.158	0.000						4.95
	Mid East	5.208	0.382	0.146	4.460	5.957	13.639	0.000						2.78
	New	6.782	0.413	0.170	5.973	7.591	16.430	0.000						2.38
	Plains	6.370	0.100	0.010	6.174	6.566	63.807	0.000						40.61
	Rocky	6.628	0.416	0.173	5.812	7.444	15.927	0.000						2.34
	South East	5.809	0.252	0.064	5.315	6.304	23.032	0.000						6.36
	South West	5.995	0.103	0.011	5.792	6.198	57.979	0.000						37.86
Fixed		6.119	0.064	0.004	5.994	6.244	96.185	0.000						

When wireless and in-library computer sessions were combined, the overall number of computer users increased by 74% between 2012 and 2017. Valuing WIFI users at the South Carolina formula in-house computer use rate ($3.75 per use) resulted in an overall higher total return on investment between 2014 and 2017. Significant variation among the regions was also apparent.
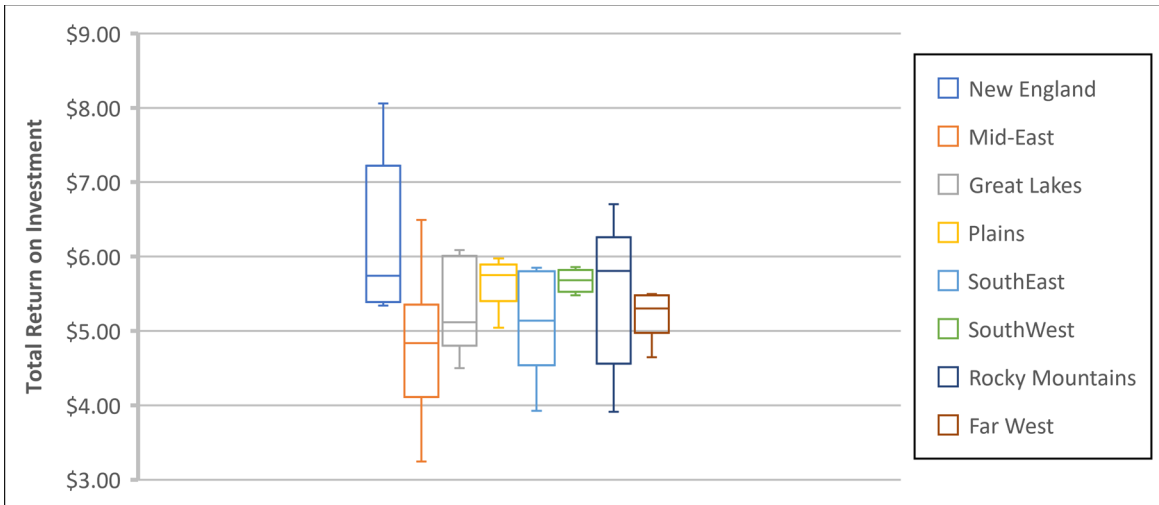
When an estimated value for WIFI usage was included in the fixed effects regional meta-analysis, the point estimate of the effect size (mean total return) increased by $0.10 to $5.52. The combined variance increased by .001, but still indicated that the meta-analysis increased the precision of the total return estimate. The summary confidence interval generated using the fixed effects model with a WIFI usage value estimate indicated with 95% confidence (alpha = .05, p < .0001) that the true effect size — the population mean total return — in 2017 was between $5.41 and $5.62.

When the 2021 Revised Algorithm is used to recalculate and extend total ROIs, the results are slightly lower, but very similar. Major changes included the addition of updated workforce data and revised computation of the Total Return on Investment, which is now represented as an average.

| Region	Total Return 2017	Total Return 2018	Total Return 2019
New England	$6.02	$6.03	$6.27
Mid East	$4.53	$4.88	$5.44
Great Lakes	$5.12	$5.42	$5.32
Plains	$5.41	$5.91	$5.90
Southeast	$4.93	$5.42	$5.44
Southwest	$5.57	$6.10	$6.21
Rocky Mountains	$5.44	$6.10	$6.07
Far West	$5.01	$5.22	$4.84
Total	$5.25	$5.63	$5.69

Total Return on Investment 2017 2018 2019
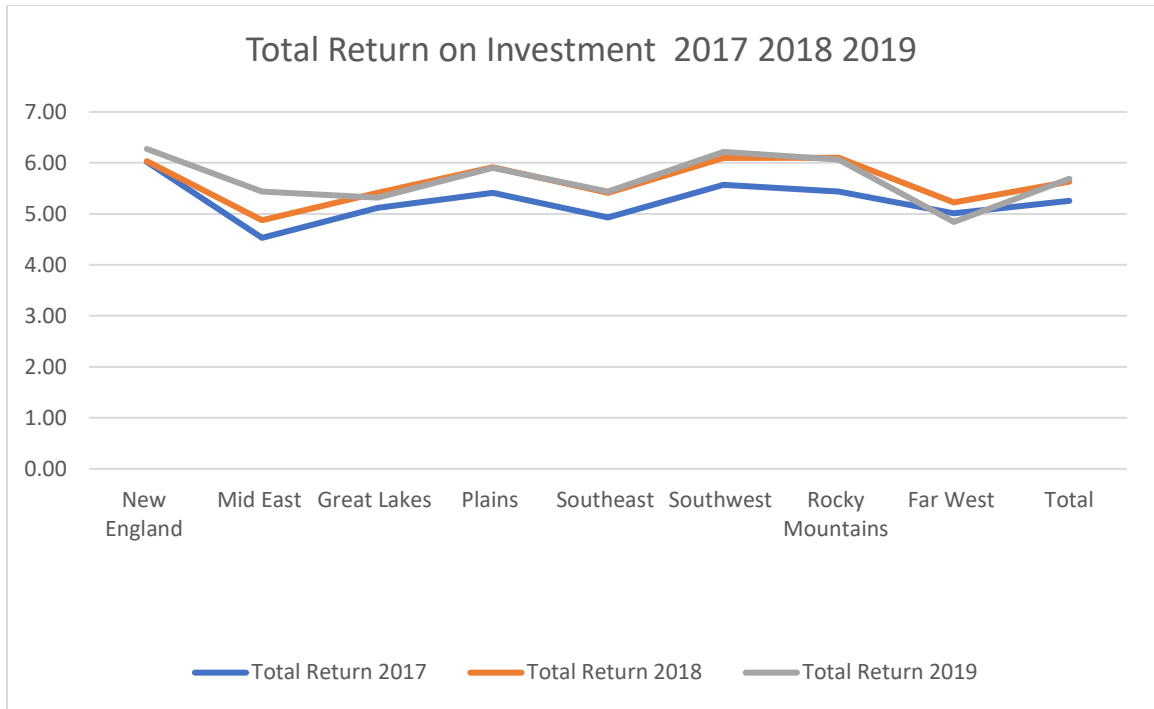
2020 PLS data reflect a different set of circumstances. During the early and least understood phase of the covid epidemic, libraries, like other organizations found services disrupted. Comparative measures reflected these disturbance throughout the economy. Their effect on public library value provides a similar picture.

Box Plots of Total Value by Region
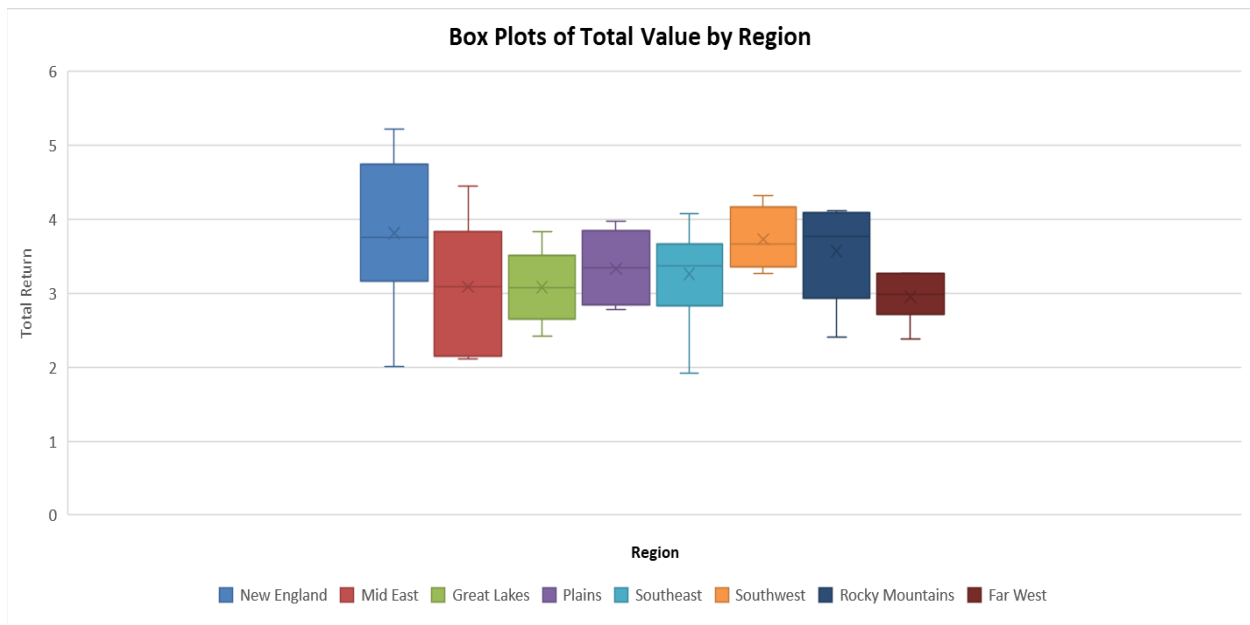
Using the revised formula, the average 2020 direct benefit per dollar invested was estimated to be $3.25. This figure rose to $3.35 when indirect returns were considered. Previous patterns were also disrupted. The direct return was highest in the New England ($3.67) and Southwest ($3.67) states. The average total direct and indirect benefit in 2020 was highest in the New England ($3.81), Southwest ($3.72), and the Rocky Mountains ($3.56) regions. While the average New England total ROI remained highest, the Mid East libraries improved their relative position. Greater variability was also seen within the regions. Meta-analysis confirms these figures.

Table 3: Regional Analysis of Return on Investment Estimates											
Region	Direct Return 2017	Direct Return 2018	Direct Return 2019	Direct Return 2020	Indirect Return 2017	Indirect Return 2018	Indirect Return 2019	Indirect Return 2020	Total Return 2017	Total Return 2018	Total Return 2019	Total Return 2020
New England	$4.94	$4.98	$5.18	$3.67	$1.08	$1.06	$1.09	$0.14	$6.02	$6.03	$6.27	$3.81
Mid East	$3.61	$3.92	$4.42	$2.93	$0.92	$0.96	$1.01	$0.15	$4.53	$4.88	$5.44	$3.08
Great Lakes	$4.20	$4.52	$4.42	$2.97	$0.91	$0.90	$0.90	$0.10	$5.12	$5.42	$5.32	$3.08
Plains	$4.49	$5.00	$4.97	$3.24	$0.92	$0.91	$0.92	$0.08	$5.41	$5.91	$5.90	$3.33
Southeast	$4.05	$4.52	$4.54	$3.16	$0.88	$0.89	$0.90	$0.09	$4.93	$5.42	$5.44	$3.26
Southwest	$4.66	$5.22	$5.32	$3.67	$0.91	$0.88	$0.89	$0.06	$5.57	$6.10	$6.21	$3.72
Rocky Mountains	$4.58	$5.21	$5.17	$3.48	$0.85	$0.89	$0.90	$0.09	$5.44	$6.10	$6.07	$3.56
Far West	$4.07	$4.32	$3.98	$2.91	$0.95	$0.90	$0.86	$0.04	$5.01	$5.22	$4.84	$2.95
Total	$4.33	$4.71	$4.75	$3.25	$0.93	$0.92	$0.94	$0.09	$5.25	$5.63	$5.69	$3.35

Total Return by Region
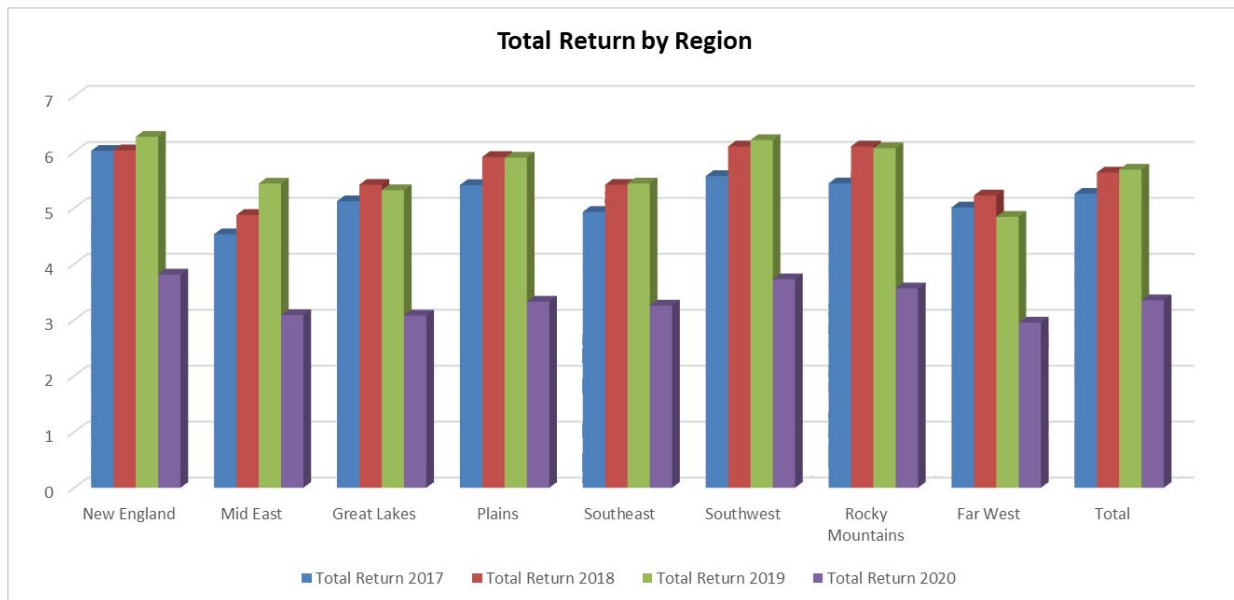
Name	Mean	Standard Error	Variance	Lower Limit	Upper Limit	Z-Value	p-Value	Relative Weight
New England	3.810	0.445	1.188	2.269	5.705	8.562	0.000	2.82
Mid East	3.085	0.369	0.816	0.489	5.392	8.366	0.000	4.11
Great Lakes	3.078	0.230	0.265	2.407	3.673	13.372	0.000	12.65
Plains	3.326	0.173	0.211	2.039	4.557	19.179	0.000	15.91
Southeast	3.257	0.175	0.366	1.771	4.733	18.637	0.000	9.14
Southwest	3.725	0.219	0.192	3.097	4.287	16.988	0.000	17.42
Rocky Mountains	3.563	0.312	0.486	2.530	5.001	11.433	0.000	6.90
Far West	2.952	0.134	0.108	2.354	3.700	22.014	0.000	31.06
Fixed	3.262	0.202	0.268	2.320	4.245	17.617	0.000	

Taken together, these analysis and observations align with prior observations and suggest a reliable pattern of confirming and mounting evidence concerning the positive contributions that public libraries make to the economic prosperity and wellbeing of the communities where they are located. Their value held during the 2018 Great Recession, during which the Dow Jones Index Return on investment fell from a strong return to a minus figure; and during the next nearly unprecedented 2020 economic decline (Average Return of the Stock Market: S&P 500, Dow Jones | Seeking Alpha), their positive rate of return ranged between 200 and 400 percent.

META 2 Phase 3: The Users Perspective

The final question that remained (RQ 2) was a recurring one: how to characterize value estimates effectively from the user's perspective. In M ETA 1, this topic was addressed within the discussion of willingness to pay related studies. META 2 Phase 3 employed an additional, informal, and exploratory approach: listening to the voices of users and encouraging them to explore their value propositions.
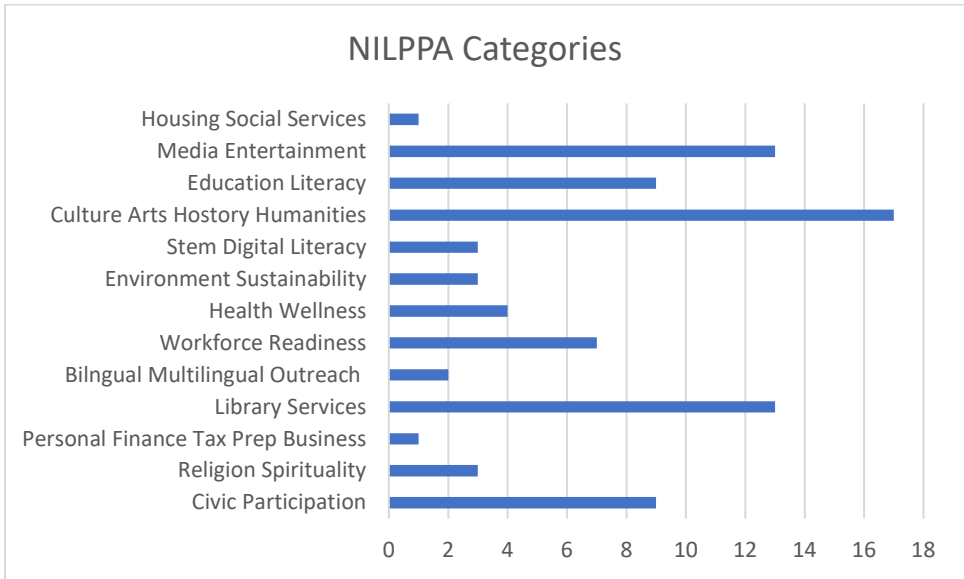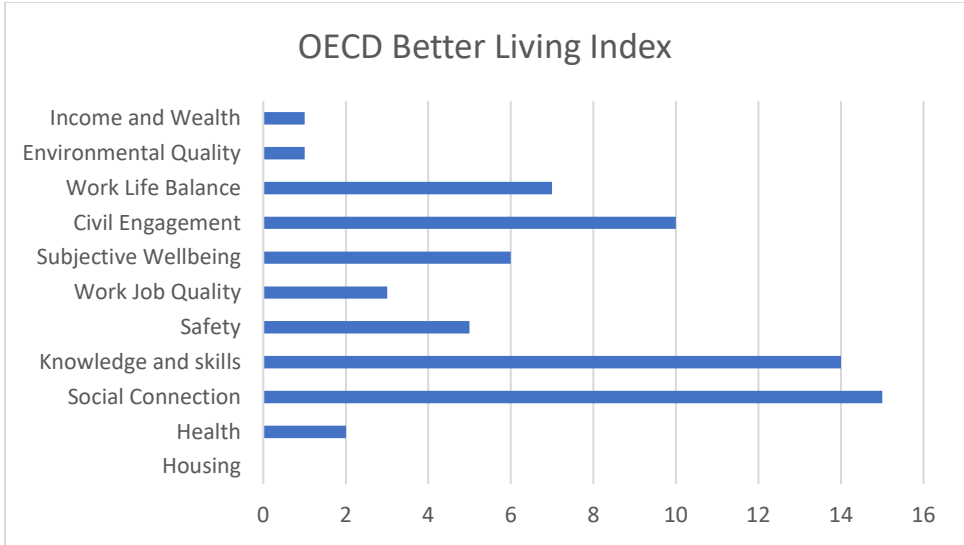
Data were collected from two regions, New England and the Southwest, based on the Phase 2 results described above. Twenty five participants were suggested and contacted by local library Directors and community members. As such, the participants comprised a self-selected convenience sample willing to describe the experiences that set them on their library path and

how their perceptions changed over time. Multiple New England locations were sought due to the presence of an unusually large number of very small libraries in that area. One Southwest community volunteered and was selected.

The histories were generally shared individually; but in some cases, they were shared in a small group setting. The first half of the sessions were quite free form with only a few prompts to move the stories forward or steer the conversation in ways that encouraged discussion about the reasoning behind decisions. In the second half, the conversations were guided by figures that included two groups of well-being or happiness constructs: the OECD Better Life Index , ([OECD Better Life Index](#)) indicators developed within the ongoing National Impact of Library Public Programs Assessment Project ([NILPPA | National Impact of Library Public Prothes aspects of well-being grams AssessmentNILPPA | National Impact of Library Public Programs Assessment | A research project. by the American Library Association](#)). Participants were asked to use the diagrams to reflect on their library experiences.

META 2 Phase 3: Results

While detailed analysis or extension to a wider population that could be generalized remained beyond the scope of this project, a number of Phase 3 observations merit attention. The first is the suggestion that traditional library services (circulation, reference encounters, , etc.) of the type that figure in META 1 and 2 type calculations also figure in the value calculations of those who interact with staff and/or use public library resources. Secondly, it suggests that these products and services have literally come to share space with the experiences that individuals associate with library presence.

OECD Better Living Index

Category	Value
Income and Wealth	1
Environmental Quality	1
Work Life Balance	7
Civil Engagement	10
Subjective Wellbeing	6
Work Job Quality	3
Safety	5
Knowledge and skills	14
Social Connection	15
Health	2
Housing	0

NILPPA Categories

Category	Value
Housing Social Services	1
Media Entertainment	13
Education Literacy	9
Culture Arts Hostory Humanities	17
Stem Digital Literacy	3
Environment Sustainability	3
Health Wellness	4
Workforce Readiness	7
Bilngual Multilingual Outreach	2
Library Services	13
Personal Finance Tax Prep Business	1
Religion Spirituality	3
Civic Participation	9

META 2 Conclusions

Public Libraries are an excellent investment in good times and bad. Mounting evidence suggests their contributions to the prosperity and well-being of their communities is strong. The consistency of current benefit estimates appears robust. Their predictable magnitude in typical periods tends to be in the $5 to $6 range. In recent times of hardship, this figure remained positive, outpacing other investments at $3 to $4.

It also appears that public libraries are currently operating in an experience economy. One of public libraries' most important value propositions – that public libraries help me enjoy and advance in life, learn more about myself and others, and encounter members of my community whom I might not otherwise meet – was confirmed in this study. That is not to say that efforts like META 1 and 2 should be discontinued. Rather, that the information needed to communicate their results effectively needs to come through conversations that tie economic results to experiences and aspirations in a multidimensional model. The Phase 3 participants had little trouble with this type of thinking because they naturally measure value from the viewpoint of their experience. They value public libraries because changes happen through place and association. A research agenda that explores this relationship more fully merits attention and would be a profitable next step toward powerful characterization.