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Illinois Libraries Contribution to Community Economic Development: Estimating the Monetary Value of Library Assistance to Entrepreneurs in 12 Industrial Sectors

...library resources are the point of first resort for very few inquiries and are the last resort (or no resort at all) for many (Monroe (1979)).

Little has changed since 1979, a significant proportion of the population rarely or never uses libraries (Coker 1993; Choy 2011). In this age of smartphone access to resources, there is mounting pressure on librarians to demonstrate that the information services they provide are vital resources for community economic development. How can the contribution of public library services for community economic development be measured? This paper addresses this question using data from the US Census and the Public Libraries Survey.

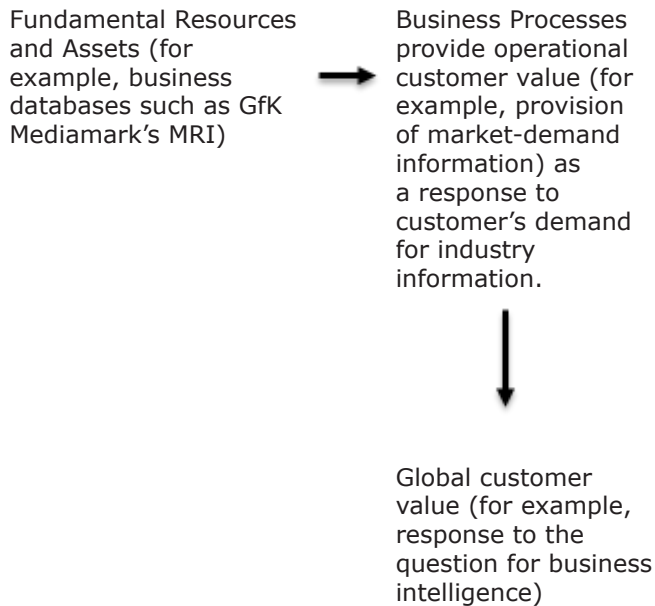
Setting

Consider Figure 1, it presents the process of converting library resources into customer value. Often, customers think of value at a global level, for example, a customer may request information about an industry. At the operational level the library has to break this information request down into its specific features, provide the information, and enhance customer satisfaction. Thus the customer's request for industry information could be broken down into specific attributes such as information about market demand for a product, competitive intensity in the product category, etc. It is then up to the library's business processes to enhance customer value by providing the needed information and satisfy customer needs (Choy, 2011; Porter 2005).

Research into library value chain is scarce, a Google Scholar search using the phrase "library value chain" failed to produce any document detailing the value chain of a library. However, several studies have explored two major components of the value chain for libraries, the efficiency of upstream business processes and the efficacy of downstream activities - providing benefits to communities.

For example, based on a secondary analysis of 34 library valuation studies Aabo (2009) concludes that one dollar investment in libraries produce \$4.31 in benefits, a clear indication of both the efficiency of library business-processes and efficacy of library services. Hamilton-Pennell (2008) and Sciacca (1998) validate this empirical generalization, they posit that public libraries provide business intelligence to entrepreneurs and help businesses succeed in the marketplace. Our study adds to this literature by providing quantitative estimates of public library contribution to community economic development, it highlights the cost of providing library services to entrepreneurs in 12 major industrial sectors in Illinois.

Figure 1: Matching Customer Value to Resources through Business Processes



Method

A county level statistical model of the form:

$$y_i = a + \sum_{i=1}^{102} \sum_{j=1}^{12} \beta_j x_{ij} + u_i, \text{ was calibrated.}$$

In this formulation, y is the average, per capita operating cost of the libraries in each of the 102 counties in Illinois, and the x are proportions of self-employed in the county's work force in each of the 12 major industry sectors: agriculture, construction, manufacturing, wholesale trade, retail trade, information, transportation, finance, education, professional, arts industry, and other sectors (see www.naics.org for industry sector definitions).

Data on library operating costs were sourced from the Institute of Museum and Library Services (IMLS; Manjarrez, Miller, Craig, Dorinski, Freeman, Isaac, O'Shea, Schilling, and Scotto (2011)). The IMLS public use data file contains information on 9225 public libraries in the US. Our focus was limited to the 634 libraries in Illinois. The variable

"total operating expenditures" (TOTOPEXP) was scaled by county population to derive per capita measures.

The independent variables (the x variables) were collated from the American Community Survey. These are the five-year estimates of self-employment in Illinois counties (Table B24080, and DP3). Appendix 1 lists the data used in the analysis.

Results and Discussion

Table 1 shows the results of model estimation. The partial r^2 's are obtained by the computation:

$$\frac{t^2}{t^2 + df}$$

Partial r^2 is the *true*, bivariate correlation between average cost to provide library services and the proportion of entrepreneurs in that category. In contrast, the simple r^2 is the square of the zero-order correlation between service costs and the proportion of entrepreneurs in that category. The partial r^2 is presented to highlight the salencies of the explanatory variables. For example, the service needs of an educational entrepreneur costs more to fulfill than the needs of an entrepreneur in the professional-services sector, the partial correlation coefficient of the former is higher than the latter.

In general, each regression coefficient measures the change in y for a unit increase in that independent variable *holding other variables constant*. In this paper since the independent variables are proportions, it is impossible to hold other variables constant. The proper interpretation of regression coefficients in Table 1 is as follows:

Put the value of Education = 1, all others 0. Then the estimated value of the dependent variable = (Coefficient of Education + Constant) = (161.36 - 46.69) = 114.67. This is the average cost of providing library services to an entrepreneur in the education sector. Similarly, the coefficient of professional + constant = 143.9 - 46.69 = 97.21 is the average cost of providing library services to an entrepreneur in the professional services industry. The last column of Table 1 provides cost information for all the entrepreneurial categories.

Table 1: Library Cost Regressions

| Variable | Coefficient | SE | t ratio | Partial r ² | Simple r ² | Average Cost to Service an Entrepreneur |
|----------------|-------------|--------|---------|------------------------|-----------------------|---|
| Agriculture | 36.59 | 30.1 | 1.22 | 0.02 | 0.27 | 0 |
| Construction | 68.05 | 37.08 | 1.84 | 0.04 | 0.01 | 21.36 |
| Mfg. | 50.81 | 59.92 | 0.85 | 0.01 | 0.01 | 4.12 |
| Retail | 64.42 | 48.91 | 1.32 | 0.02 | 0.05 | 17.73 |
| Wholesale | 219.63 | 87.70 | 2.5 | 0.06 | 0.09 | 172.94 |
| Inf. | 152.51 | 177.84 | 0.86 | 0.01 | 0.06 | 105.82 |
| Transportation | 41.67 | 61.14 | 0.68 | 0.00 | 0.08 | 0 |
| Finance | 141.16 | 54.8 | 2.58 | 0.07 | 0.22 | 94.47 |
| Education | 161.36 | 38.81 | 4.16 | 0.16 | 0.19 | 114.67 |
| Professional | 143.9 | 41.25 | 3.49 | 0.12 | 0.36 | 97.21 |
| Arts | 16.61 | 64.27 | 0.26 | 0.00 | 0.10 | 0 |
| Other | 0 | | | | | |
| Constant | -46.69 | 25.4 | -1.84 | | | |

R² = 0.46

The analyses point out that demand for library services comes from entrepreneurs in the education, professional services, finance, wholesale, and the construction sectors. The question is whether the counties have the resources to service these clients. For example, majority of entrepreneurs in Logan County work in the construction, manufacturing, and professional services industries (53%; see Appendix 1). Since professional services entrepreneurs demand business intelligence much more than others, it is essential for the Logan County to ensure that the libraries provide relevant books, periodicals, databases, and technical assistance to cater to the needs of “professional” businessmen / entrepreneurs.

1. \$114.67 to service an entrepreneur in the educational sector;
2. \$97.21 to provide library services to an entrepreneur in professional services, and
3. \$94.47 to service an entrepreneur in the financial services sector.

It is hoped that armed with this information and the county-level entrepreneurial mix data provided in Appendix 1 economic developers will assess the adequacy of library resources in their county. Job creation has become the mantra of almost all local governments in Illinois. This study shows how library services help in this objective.

Summary and Conclusion

This study is an empirical assessment of the contribution of Illinois public libraries to entrepreneurs. Specifically, it is shown that libraries spend on an average:

Appendix 1: Data Matrix

| Portion of Self-Employed ... | | | | | | | | | | | | | | | |
|------------------------------|------------|-------------------------|---------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| County | Population | Per Capita Library Exp. | No. Self-Employed Persons | AG | CON | MFG | RET | WS | IT | TRAN | FIN | EDU | PRO | ART | Other |
| Adams | 67054 | 36.31 | 3798 | 0.12 | 0.15 | 0.03 | 0.10 | 0.03 | 0.01 | 0.04 | 0.06 | 0.19 | 0.11 | 0.05 | 0.12 |
| Alexander | 7914 | 9.86 | 112 | 0.17 | 0.25 | 0.00 | 0.00 | 0.06 | 0.00 | 0.11 | 0.13 | 0.00 | 0.00 | 0.00 | 0.29 |
| Bond | 18103 | 8.84 | 841 | 0.28 | 0.22 | 0.02 | 0.05 | 0.01 | 0.01 | 0.07 | 0.04 | 0.08 | 0.10 | 0.01 | 0.10 |
| Boone | 54020 | 14.81 | 1833 | 0.07 | 0.16 | 0.09 | 0.10 | 0.03 | 0.00 | 0.05 | 0.05 | 0.12 | 0.18 | 0.03 | 0.12 |
| Brown | 6591 | 16.62 | 483 | 0.39 | 0.25 | 0.00 | 0.04 | 0.00 | 0.00 | 0.02 | 0.07 | 0.10 | 0.02 | 0.00 | 0.11 |
| Bureau | 34699 | 30.43 | 1653 | 0.25 | 0.12 | 0.02 | 0.09 | 0.04 | 0.00 | 0.05 | 0.08 | 0.09 | 0.10 | 0.04 | 0.12 |
| Calhoun | 5019 | 4.58 | 210 | 0.26 | 0.21 | 0.08 | 0.06 | 0.00 | 0.04 | 0.07 | 0.01 | 0.00 | 0.17 | 0.06 | 0.06 |
| Carroll | 15749 | 23.67 | 1076 | 0.25 | 0.24 | 0.03 | 0.07 | 0.03 | 0.00 | 0.07 | 0.02 | 0.07 | 0.07 | 0.05 | 0.10 |
| Cass | 13559 | 26.71 | 511 | 0.20 | 0.15 | 0.03 | 0.05 | 0.01 | 0.00 | 0.04 | 0.04 | 0.18 | 0.10 | 0.02 | 0.19 |
| Champaign | 195671 | 56.94 | 7423 | 0.09 | 0.12 | 0.03 | 0.06 | 0.01 | 0.02 | 0.04 | 0.09 | 0.16 | 0.19 | 0.07 | 0.12 |
| Christian | 34253 | 14.60 | 1715 | 0.21 | 0.22 | 0.02 | 0.06 | 0.02 | 0.00 | 0.06 | 0.05 | 0.05 | 0.12 | 0.02 | 0.16 |
| Clark | 16657 | 30.20 | 1153 | 0.30 | 0.19 | 0.01 | 0.05 | 0.01 | 0.00 | 0.05 | 0.09 | 0.03 | 0.06 | 0.04 | 0.16 |
| Clay | 13538 | 19.43 | 656 | 0.27 | 0.11 | 0.00 | 0.10 | 0.00 | 0.00 | 0.04 | 0.00 | 0.19 | 0.13 | 0.06 | 0.10 |
| Clinton | 36368 | 12.18 | 1733 | 0.22 | 0.15 | 0.02 | 0.12 | 0.02 | 0.01 | 0.06 | 0.07 | 0.07 | 0.12 | 0.03 | 0.11 |
| Coles | 52065 | 19.21 | 2098 | 0.10 | 0.15 | 0.08 | 0.09 | 0.01 | 0.01 | 0.06 | 0.05 | 0.12 | 0.13 | 0.03 | 0.16 |
| Cook | 5287037 | 56.16 | 204096 | 0.00 | 0.15 | 0.03 | 0.07 | 0.03 | 0.02 | 0.05 | 0.10 | 0.13 | 0.23 | 0.08 | 0.10 |
| Crawford | 19433 | 30.97 | 716 | 0.22 | 0.25 | 0.03 | 0.07 | 0.02 | 0.03 | 0.03 | 0.03 | 0.07 | 0.11 | 0.05 | 0.09 |
| Cumberland | 10716 | 16.68 | 559 | 0.31 | 0.19 | 0.02 | 0.11 | 0.00 | 0.00 | 0.03 | 0.02 | 0.11 | 0.05 | 0.02 | 0.14 |
| Dekalb | 107333 | 42.72 | 4604 | 0.07 | 0.19 | 0.03 | 0.06 | 0.02 | 0.01 | 0.02 | 0.06 | 0.13 | 0.17 | 0.10 | 0.13 |
| De Witt | 16034 | 58.63 | 643 | 0.32 | 0.21 | 0.00 | 0.13 | 0.00 | 0.00 | 0.04 | 0.03 | 0.09 | 0.07 | 0.01 | 0.10 |
| DuPage | 932541 | 82.20 | 47802 | 0.00 | 0.14 | 0.05 | 0.07 | 0.05 | 0.01 | 0.04 | 0.12 | 0.13 | 0.24 | 0.05 | 0.11 |
| Edgar | 18471 | 12.64 | 1049 | 0.37 | 0.12 | 0.01 | 0.08 | 0.03 | 0.00 | 0.02 | 0.01 | 0.09 | 0.16 | 0.01 | 0.11 |
| Edwards | 6444 | 11.59 | 351 | 0.38 | 0.12 | 0.08 | 0.02 | 0.00 | 0.00 | 0.05 | 0.03 | 0.06 | 0.09 | 0.00 | 0.18 |
| Effingham | 34424 | 18.38 | 2262 | 0.10 | 0.18 | 0.07 | 0.07 | 0.03 | 0.00 | 0.09 | 0.10 | 0.12 | 0.10 | 0.02 | 0.12 |
| Fayette | 20935 | 22.59 | 1317 | 0.28 | 0.14 | 0.04 | 0.10 | 0.00 | 0.01 | 0.04 | 0.05 | 0.05 | 0.12 | 0.08 | 0.11 |
| Ford | 13911 | 30.79 | 860 | 0.24 | 0.30 | 0.02 | 0.04 | 0.01 | 0.00 | 0.02 | 0.03 | 0.17 | 0.07 | 0.01 | 0.10 |
| Franklin | 39312 | 13.46 | 1374 | 0.06 | 0.25 | 0.04 | 0.08 | 0.01 | 0.01 | 0.03 | 0.04 | 0.07 | 0.11 | 0.05 | 0.25 |
| Fulton | 36652 | 34.37 | 1510 | 0.19 | 0.17 | 0.03 | 0.05 | 0.04 | 0.00 | 0.06 | 0.05 | 0.13 | 0.07 | 0.05 | 0.15 |
| Gallitin | 5705 | 2.62 | 267 | 0.30 | 0.25 | 0.00 | 0.07 | 0.00 | 0.00 | 0.17 | 0.05 | 0.01 | 0.02 | 0.02 | 0.10 |
| Green | 13567 | 13.71 | 874 | 0.28 | 0.16 | 0.01 | 0.08 | 0.02 | 0.00 | 0.05 | 0.02 | 0.06 | 0.10 | 0.05 | 0.17 |

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Portion of Self-Employed ...

| County | Population | Per Capita Library Exp. | No. Self-Employed Persons | AG | CON | MFG | RET | WS | IT | TRAN | FIN | EDU | PRO | ART | Other |
|------------|------------|-------------------------|---------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Grundy | 48421 | 39.88 | 1861 | 0.09 | 0.19 | 0.05 | 0.13 | 0.03 | 0.01 | 0.03 | 0.10 | 0.12 | 0.10 | 0.07 | 0.08 |
| Hamilton | 8096 | 4.75 | 511 | 0.34 | 0.06 | 0.06 | 0.01 | 0.04 | 0.02 | 0.06 | 0.04 | 0.01 | 0.06 | 0.00 | 0.31 |
| Hancock | 18359 | 27.18 | 1270 | 0.29 | 0.14 | 0.06 | 0.06 | 0.01 | 0.01 | 0.02 | 0.03 | 0.12 | 0.05 | 0.05 | 0.13 |
| Hardin | 4358 | 5.53 | 140 | 0.18 | 0.21 | 0.03 | 0.05 | 0.06 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.04 | 0.35 |
| Henderson | 7354 | 27.37 | 461 | 0.39 | 0.11 | 0.04 | 0.07 | 0.00 | 0.00 | 0.11 | 0.01 | 0.03 | 0.12 | 0.03 | 0.09 |
| Henry | 49314 | 45.82 | 2297 | 0.20 | 0.20 | 0.02 | 0.08 | 0.05 | 0.01 | 0.06 | 0.06 | 0.07 | 0.10 | 0.05 | 0.12 |
| Iroquois | 29690 | 30.69 | 2188 | 0.29 | 0.15 | 0.01 | 0.06 | 0.01 | 0.01 | 0.04 | 0.02 | 0.06 | 0.15 | 0.06 | 0.13 |
| Jackson | 58103 | 20.48 | 2170 | 0.08 | 0.16 | 0.02 | 0.10 | 0.03 | 0.00 | 0.03 | 0.05 | 0.09 | 0.14 | 0.10 | 0.20 |
| Jasper | 9530 | 15.24 | 804 | 0.39 | 0.09 | 0.00 | 0.03 | 0.01 | 0.00 | 0.03 | 0.13 | 0.08 | 0.06 | 0.06 | 0.12 |
| Jefferson | 39944 | 19.05 | 1744 | 0.13 | 0.22 | 0.05 | 0.13 | 0.03 | 0.00 | 0.05 | 0.04 | 0.08 | 0.11 | 0.03 | 0.13 |
| Jersey | 22549 | 18.47 | 1060 | 0.12 | 0.21 | 0.07 | 0.04 | 0.03 | 0.00 | 0.09 | 0.04 | 0.04 | 0.16 | 0.05 | 0.16 |
| Jo Daviess | 21990 | 32.26 | 2059 | 0.26 | 0.19 | 0.02 | 0.08 | 0.01 | 0.01 | 0.04 | 0.06 | 0.07 | 0.08 | 0.09 | 0.09 |
| Johnson | 13730 | 1.63 | 236 | 0.24 | 0.08 | 0.15 | 0.06 | 0.00 | 0.00 | 0.01 | 0.03 | 0.11 | 0.10 | 0.07 | 0.14 |
| Kane | 511892 | 74.85 | 20268 | 0.02 | 0.19 | 0.05 | 0.07 | 0.04 | 0.02 | 0.04 | 0.08 | 0.11 | 0.21 | 0.07 | 0.10 |
| Kankakee | 113215 | 33.13 | 3945 | 0.09 | 0.20 | 0.04 | 0.06 | 0.01 | 0.01 | 0.05 | 0.08 | 0.14 | 0.13 | 0.03 | 0.16 |
| Kendall | 104821 | 32.15 | 4156 | 0.05 | 0.21 | 0.06 | 0.06 | 0.01 | 0.02 | 0.04 | 0.09 | 0.08 | 0.18 | 0.03 | 0.16 |
| Knox | 51648 | 35.04 | 1735 | 0.20 | 0.13 | 0.04 | 0.06 | 0.01 | 0.01 | 0.03 | 0.04 | 0.15 | 0.10 | 0.12 | 0.11 |
| Lake | 712567 | 92.87 | 36811 | 0.01 | 0.14 | 0.05 | 0.09 | 0.04 | 0.01 | 0.03 | 0.11 | 0.11 | 0.26 | 0.05 | 0.09 |
| LaSalle | | 36.31 | 4837 | 0.16 | 0.15 | 0.04 | 0.10 | 0.01 | 0.02 | 0.09 | 0.03 | 0.07 | 0.14 | 0.08 | 0.12 |
| Lawrence | 16408 | 9.86 | 555 | 0.28 | 0.13 | 0.12 | 0.02 | 0.01 | 0.00 | 0.10 | 0.03 | 0.03 | 0.12 | 0.02 | 0.14 |
| Lee | 34919 | 8.84 | 1617 | 0.22 | 0.15 | 0.05 | 0.05 | 0.02 | 0.00 | 0.04 | 0.09 | 0.12 | 0.10 | 0.03 | 0.13 |
| Livingston | 37777 | 14.81 | 1944 | 0.25 | 0.17 | 0.05 | 0.09 | 0.02 | 0.00 | 0.06 | 0.03 | 0.06 | 0.08 | 0.05 | 0.12 |
| Logan | 29776 | 16.62 | 1149 | 0.26 | 0.22 | 0.02 | 0.08 | 0.01 | 0.00 | 0.03 | 0.07 | 0.05 | 0.11 | 0.01 | 0.13 |
| McDonough | 32770 | 30.43 | 1620 | 0.22 | 0.12 | 0.01 | 0.06 | 0.01 | 0.00 | 0.09 | 0.10 | 0.09 | 0.12 | 0.09 | 0.11 |
| McHenry | 320961 | 4.58 | 16012 | 0.03 | 0.16 | 0.09 | 0.08 | 0.05 | 0.03 | 0.03 | 0.09 | 0.08 | 0.22 | 0.05 | 0.10 |
| McLean | 167699 | 23.67 | 6116 | 0.09 | 0.19 | 0.02 | 0.12 | 0.01 | 0.01 | 0.01 | 0.06 | 0.16 | 0.17 | 0.04 | 0.12 |
| Macon | 108204 | 26.71 | 3775 | 0.10 | 0.15 | 0.02 | 0.09 | 0.05 | 0.01 | 0.04 | 0.05 | 0.15 | 0.12 | 0.06 | 0.15 |
| Macoupin | 47774 | 56.94 | 2347 | 0.18 | 0.19 | 0.03 | 0.09 | 0.02 | 0.00 | 0.04 | 0.03 | 0.11 | 0.11 | 0.07 | 0.14 |
| Madison | 268457 | 14.60 | 9751 | 0.05 | 0.17 | 0.05 | 0.11 | 0.02 | 0.01 | 0.04 | 0.10 | 0.11 | 0.15 | 0.06 | 0.14 |
| Marion | 39008 | 30.20 | 1382 | 0.10 | 0.11 | 0.04 | 0.12 | 0.04 | 0.03 | 0.03 | 0.07 | 0.13 | 0.10 | 0.08 | 0.14 |

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|-------------|------------|-------------------------|---------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Marshall | 12702 | 19.43 | 519 | 0.28 | 0.12 | 0.02 | 0.09 | 0.00 | 0.02 | 0.10 | 0.05 | 0.05 | 0.08 | 0.03 | 0.16 |
| Mason | 14785 | 12.18 | 836 | 0.33 | 0.08 | 0.03 | 0.07 | 0.04 | 0.00 | 0.05 | 0.04 | 0.20 | 0.09 | 0.02 | 0.05 |
| Massac | 14970 | 19.21 | 595 | 0.14 | 0.29 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.07 | 0.04 | 0.12 | 0.11 | 0.19 |
| Menard | 12466 | 56.16 | 718 | 0.20 | 0.10 | 0.03 | 0.03 | 0.00 | 0.02 | 0.08 | 0.08 | 0.10 | 0.16 | 0.03 | 0.16 |
| Mercer | 16276 | 30.97 | 945 | 0.29 | 0.06 | 0.00 | 0.09 | 0.00 | 0.00 | 0.06 | 0.01 | 0.18 | 0.08 | 0.07 | 0.15 |
| Monroe | 33236 | 16.68 | 1615 | 0.10 | 0.14 | 0.02 | 0.10 | 0.04 | 0.03 | 0.04 | 0.15 | 0.04 | 0.14 | 0.06 | 0.15 |
| Montgomery | 29500 | 42.72 | 1721 | 0.33 | 0.13 | 0.03 | 0.08 | 0.00 | 0.00 | 0.01 | 0.04 | 0.09 | 0.15 | 0.05 | 0.08 |
| Morgan | 34897 | 58.63 | 1462 | 0.22 | 0.15 | 0.03 | 0.10 | 0.03 | 0.02 | 0.04 | 0.03 | 0.13 | 0.09 | 0.02 | 0.15 |
| Moultrie | 14392 | 24.84 | 694 | 0.24 | 0.22 | 0.07 | 0.11 | 0.00 | 0.00 | 0.01 | 0.03 | 0.07 | 0.11 | 0.01 | 0.12 |
| Ogle | 55336 | 82.20 | 2972 | 0.17 | 0.15 | 0.04 | 0.10 | 0.02 | 0.00 | 0.09 | 0.08 | 0.09 | 0.08 | 0.06 | 0.12 |
| Peoria | 185816 | 12.64 | 6006 | 0.05 | 0.15 | 0.04 | 0.09 | 0.02 | 0.01 | 0.02 | 0.08 | 0.14 | 0.18 | 0.08 | 0.14 |
| Perry | 22424 | 11.59 | 866 | 0.16 | 0.19 | 0.03 | 0.08 | 0.05 | 0.03 | 0.01 | 0.02 | 0.07 | 0.12 | 0.10 | 0.14 |
| Piatt | 16550 | 18.38 | 849 | 0.29 | 0.13 | 0.04 | 0.04 | 0.00 | 0.00 | 0.06 | 0.00 | 0.14 | 0.08 | 0.04 | 0.16 |
| Pike | 16273 | 22.59 | 973 | 0.30 | 0.14 | 0.02 | 0.05 | 0.01 | 0.00 | 0.03 | 0.03 | 0.15 | 0.10 | 0.05 | 0.11 |
| Pope | 3991 | 30.79 | 288 | 0.22 | 0.45 | 0.00 | 0.06 | 0.00 | 0.00 | 0.05 | 0.07 | 0.06 | 0.04 | 0.02 | 0.02 |
| Pulaskie | 6218 | 13.46 | 219 | 0.25 | 0.16 | 0.00 | 0.02 | 0.00 | 0.00 | 0.09 | 0.00 | 0.05 | 0.20 | 0.01 | 0.22 |
| Putnam | 6009 | 34.37 | 275 | 0.23 | 0.14 | 0.00 | 0.08 | 0.10 | 0.03 | 0.05 | 0.07 | 0.11 | 0.07 | 0.08 | 0.04 |
| Randolph | 32686 | 2.62 | 1302 | 0.19 | 0.14 | 0.05 | 0.11 | 0.01 | 0.00 | 0.03 | 0.04 | 0.06 | 0.18 | 0.07 | 0.12 |
| Richland | 15523 | 13.71 | 772 | 0.19 | 0.16 | 0.03 | 0.08 | 0.08 | 0.00 | 0.03 | 0.06 | 0.10 | 0.08 | 0.08 | 0.12 |
| Rock Island | 146826 | 39.88 | 5456 | 0.06 | 0.14 | 0.04 | 0.06 | 0.02 | 0.01 | 0.03 | 0.06 | 0.15 | 0.18 | 0.06 | 0.18 |
| St. Clair | 263617 | 4.75 | 9141 | 0.04 | 0.15 | 0.04 | 0.10 | 0.03 | 0.01 | 0.04 | 0.10 | 0.12 | 0.17 | 0.05 | 0.14 |
| Saline | 25738 | 27.18 | 1185 | 0.10 | 0.18 | 0.03 | 0.13 | 0.04 | 0.00 | 0.04 | 0.07 | 0.07 | 0.09 | 0.06 | 0.19 |
| Sangamon | 195716 | 5.53 | 8059 | 0.05 | 0.18 | 0.02 | 0.09 | 0.02 | 0.01 | 0.02 | 0.08 | 0.14 | 0.17 | 0.07 | 0.15 |
| Schuyler | 6730 | 27.37 | 398 | 0.20 | 0.28 | 0.09 | 0.19 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.01 | 0.00 | 0.12 |
| Scott | 5193 | 45.82 | 317 | 0.50 | 0.11 | 0.03 | 0.04 | 0.03 | 0.00 | 0.02 | 0.00 | 0.12 | 0.09 | 0.03 | 0.04 |
| Shelby | 21803 | 30.69 | 1409 | 0.37 | 0.17 | 0.02 | 0.07 | 0.03 | 0.00 | 0.01 | 0.04 | 0.07 | 0.09 | 0.03 | 0.09 |
| Stark | 6019 | 20.48 | 455 | 0.38 | 0.12 | 0.02 | 0.08 | 0.02 | 0.01 | 0.01 | 0.06 | 0.09 | 0.10 | 0.00 | 0.11 |
| Stephenson | 46537 | 15.24 | 2175 | 0.28 | 0.15 | 0.05 | 0.05 | 0.03 | 0.01 | 0.04 | 0.08 | 0.08 | 0.10 | 0.06 | 0.08 |
| Tazewell | 132466 | 19.05 | 4461 | 0.10 | 0.14 | 0.02 | 0.09 | 0.02 | 0.01 | 0.04 | 0.10 | 0.10 | 0.15 | 0.06 | 0.15 |
| Union | 18005 | 18.47 | 716 | 0.15 | 0.15 | 0.06 | 0.09 | 0.02 | 0.00 | 0.03 | 0.04 | 0.03 | 0.21 | 0.03 | 0.20 |
| Vermillion | 80067 | 32.26 | 3460 | 0.13 | 0.19 | 0.02 | 0.13 | 0.02 | 0.00 | 0.06 | 0.05 | 0.07 | 0.15 | 0.05 | 0.13 |
| Wabash | 11997 | 1.63 | 609 | 0.35 | 0.09 | 0.01 | 0.10 | 0.00 | 0.00 | 0.05 | 0.00 | 0.14 | 0.11 | 0.04 | 0.11 |

AG: Agriculture, Forestry, fishing, and related activities CON: Construction MFG: Manufacturing RET: Retail Trade WS: Wholesale Trade IT: Information Technology TRAN: Transportation and warehousing FIN: Finance and insurance EDU: Educational services PRO: Professional, scientific, and technical services ART: Arts, entertainment, and recreation OTHR: Other services, except public administration

Portion of Self-Employed ...

| County | Population | Per Capita Library Exp. | No. Self-Employed Persons | AG | CON | MFG | RET | WS | IT | TRAN | FIN | EDU | PRO | ART | Other |
|------------|------------|-------------------------|---------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Warren | 17409 | 74.85 | 947 | 0.24 | 0.20 | 0.02 | 0.03 | 0.05 | 0.00 | 0.09 | 0.03 | 0.12 | 0.03 | 0.05 | 0.14 |
| Washington | 14560 | 33.13 | 1079 | 0.31 | 0.10 | 0.00 | 0.07 | 0.02 | 0.00 | 0.10 | 0.03 | 0.13 | 0.09 | 0.03 | 0.12 |
| Wayne | 16294 | 32.15 | 871 | 0.31 | 0.18 | 0.01 | 0.11 | 0.01 | 0.01 | 0.02 | 0.03 | 0.02 | 0.10 | 0.04 | 0.15 |
| White | 14661 | 35.04 | 768 | 0.32 | 0.11 | 0.00 | 0.12 | 0.03 | 0.00 | 0.02 | 0.03 | 0.07 | 0.11 | 0.07 | 0.12 |
| Whiteside | 58961 | 92.87 | 2789 | 0.16 | 0.17 | 0.06 | 0.08 | 0.01 | 0.01 | 0.07 | 0.07 | 0.05 | 0.11 | 0.05 | 0.16 |
| Will | 685251 | 36.31 | 25470 | 0.02 | 0.19 | 0.04 | 0.09 | 0.04 | 0.01 | 0.06 | 0.10 | 0.11 | 0.20 | 0.06 | 0.10 |
| Williamson | 65169 | 9.86 | 2588 | 0.03 | 0.18 | 0.04 | 0.11 | 0.02 | 0.01 | 0.02 | 0.10 | 0.10 | 0.20 | 0.06 | 0.14 |
| Winnebago | 299702 | 8.84 | 10727 | 0.02 | 0.14 | 0.09 | 0.10 | 0.03 | 0.02 | 0.03 | 0.07 | 0.12 | 0.17 | 0.06 | 0.16 |
| Woodford | 38862 | 14.81 | 1642 | 0.20 | 0.21 | 0.04 | 0.07 | 0.02 | 0.01 | 0.04 | 0.03 | 0.08 | 0.16 | 0.05 | 0.10 |

AG: Agriculture, Forestry, fishing, and related activities CON: Construction MFG: Manufacturing RET: Retail Trade WS: Wholesale Trade IT: Information Technology TRAN: Transportation and warehousing FIN: Finance and insurance EDU: Educational services PRO: Professional, scientific, and technical services ART: Arts, entertainment, and recreation OTHR: Other services, except public administration

References

- Aabo, S. (2009). Libraries and return on investment (ROI): a meta-analysis, *New Library World*, 110(7/8), 311-324.
- Choy F.C. (2011). From Library Stacks to Library-in-a-Pocket: Will users be around? *Library Management*, 32(1/2), 62-72.
- Coker, S. (1993). Libraries versus users? How and how not to deter library users, *Library Management*, 14(2) 24-31.
- Hamilton-Pennell, C. (2008). Public libraries and community economic development: Partnering for Success, *Rural Research Report*, 18(10),
- Manjarrez, C., Miller, K., Craig, T., Dorinski, S., Freeman M., Isaac, N., O'Shea, P., Schilling, P., Scotto, J. (2011). Data File Documentation: Public Libraries Survey: Fiscal Year 2009 (IMLS-2011-PLS-01). Institute of Museum and Library Services. Washington, DC.
- Monroe, M. (1979). Emerging patterns of community service, *Library Trends*, Fall, 129-138.
- Porter, M. (2005). *Competitive Advantage*. New York: The Free Press.
- Rossiter, J. R. (196). *Buyer Behavior*, NSW, Australia: Australian Graduate School of Management.
- Sciacca, J. (1998). Economic Development and the Public Libraries: Perspectives on the Impact of an LSCA-Funded Research Project, *Illinois Libraries* 80(2), 80-83.

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