

Introduction

As part of the “Leveraging Open Data for Community Benefit” project, an exploration of open data was undertaken to identify and examine open data sets that could be used in helping public library staff learn about their communities and assist them in planning programs and services.

We developed a set of criteria that we used to guide our evaluation and selection of potential open data sets. The criteria included the following:

- High degree of coverage, preferably national
- Data available at a usable level (e.g. local, census tract or block)
- Data published or updated in past 2 years - preferably updated on annual basis
- Accessible by API or download
- Data completeness
- Data cleanliness
- License / Use

Process

The project team began this process after interviewing a group of public library staff. These interviews informed the topics that we would first research for applicable data sets. We decided to generate examples of questions that *could* be answered through this data to illustrate the potential of open data in addressing the topics mentioned by the staff. The topic areas for which we generated example questions included the following:

- General community demographics
- Digital Equity
- Economic Opportunity
- Food and Nutrition

The example questions and their related open data sets are listed in the tables following this section. The topic area questions were discussed in a workshop activity session to understand if there were shared priorities among the participants. Initial expectations were that this would lead to a winnowing of topics, but instead exposed an important finding from the discussion. Participants expressed that while the questions were useful on their own they would prefer to see an integrated analysis across the topic areas that helped to provide a more holistic picture of their community.

The other topic areas that arose in the interviews were further explored in a second workshop activity in which the participants rather than the project team generated the questions within the topical areas. The topic areas for which the workshop participants generated example questions included the following:

- Employment
- Children & Youth / Education (K12)
- Health

We did not ask participants to limit themselves in any way when thinking about these questions. We were not concerned in the activity with generating only questions that could be answered through the use of quantitative data sets, so the questions generated are very wide-ranging. Our preliminary analysis of the questions is that many of them are most likely not answerable through available open data sets or are only partially answerable. They are still valuable research outputs as they provide insights in the topic areas as to questions that library staff are interested in learning more about as they think about providing programs or services to their community.

Opportunities and Challenges Revealed:

Our analysis of potential data sets revealed several opportunities and challenges in making open data useful to a broad section of public libraries. These were revealed from the project activities at various points, including the interviews, workshop activities, and data set exploration activities.

Opportunities included:

- Participants expressed enthusiasm in how the questions provided an easy entry point for exploration and could serve as a foundation for further exploration
- Participants saw that communities faced similar challenges and that open data could be useful in a variety of settings

Challenges included:

- Many data sets mentioned by the participants were of a local nature that did not have an API for integration into a platform without extensive human labor
- Rural areas often were only covered by datasets at a higher level of granularity that limited the usefulness of the data
- Once data is found, there is still often a lack of time to understand how to best put it to use for developing programs and services
- Library service areas are not limited to legal definitions and data sets organization does not often align with these service areas cleanly

Topic Areas, Questions, and Data Sets:

Notes:

- The topic area is in the top row of the table. For those topic areas that had questions generated, we then also provide the data set from which we think the answer could be found. We also provide the most granular level of coverage that the data set

appears to provide. This was generally found in the description of the data set and was not confirmed through actual analysis.

- It may only be possible to answer a particular question from the data set if additional analysis is done from the data provided.
- Aligning the data sets geospatial parameters to the legal library service area may not be possible, so only estimates may be available.

Demographics		
Question	Dataset	Coverage
What is the average commute time for people in my library's community?	American Community Survey	Block Group
What is the rate of home rental vs. home ownership in my library's community?	American Community Survey	Block Group
What are the levels of educational attainment in my library's community?	American Community Survey	Block Group
What is the income inequality in my library's community?	American Community Survey	Block Group
What is the unemployment rate in my library's community?	American Community Survey	Block Group
How many people are lacking health insurance in my library's community?	American Community Survey	Block Group
What languages are spoken in the homes in my library's community?	American Community Survey	Block Group
Are there veterans in my library's community?	American Community Survey	Block Group
What types of households make up my library's community? (eg - single, married, w/o kids, w/ kids)	American Community Survey	Block Group
What is the school enrollment in my library's community?	American Community Survey	Block Group
How many people with disabilities are in my library's community?	American Community Survey	Block Group
How many building permits were issued last year in my library's community?	Census: Manufacturing, Mining and Construction Statistics	State and MSA

How do the upward mobility rates in my library's community compare to surrounding areas?	Opportunity Insights	Census Tract
How many school-age children in poverty reside in my library's community?	Census: Small Area Income and Poverty Estimates	School district
How are income-level demographics changing in my library's community?	American Community Survey	Block Group
How are race & ethnicity demographics changing in my library's community?	American Community Survey	Block Group

Digital Equity		
Question	Dataset	Coverage
Who has access to a computer at home in my library's community?	Census: Computer and Internet Use	Block Group
Who has broadband at home in my library's community?	Census: Computer and Internet Use FCC Broadband Data	Block Group
Who has access to broadband in my library's community?	Census: Computer and Internet Use FCC Broadband Data	Block Group
Who relies on a smartphone for their primary internet connectivity in the community?	Census: Computer and Internet Use	Block Group
Do people access the internet at public places at a higher rate in my state versus others?	NTIA Digital Nation Data Explorer	State
What types of online activities do people in my state do the most? (e.g searching for a job online or taking classes or participating in job training online)	NTIA Digital Nation Data Explorer	State
Which age groups do online activity X (example) the most?	NTIA Digital Nation Data Explorer	State
Which areas of my community have the lowest rate of broadband subscriptions?	Census: Computer and Internet Use	Block Group

How do the internet speeds in my community compare to state / national averages?	M-Lab Speed Test data	Varies
How knowledgeable are my library's community members about online privacy?	Pew Research	National
What is the level of digital literacy in my library's community?	Pew Research	National
Are there specific groups of people in my library's community who could benefit from digital literacy skills training?	Pew Research	National

Economic Opportunity		
Question	Dataset	Coverage
What are the major employment sectors in my library's community?	American Community Survey	Block Group
What jobs will be available in the future in my library's community?	U.S. Bureau of Labor Statistics - Employment Projections	National
What jobs pay the most in my library's community?	U.S. Bureau of Labor Statistics (Occupational Employment and Wage Statistics)	Metro areas (limited)
What skills do I need for X job and where can I gain those skills in the community?	Skills for job - U.S. Bureau of Labor Statistics (Occupational Requirements Survey)	National
What is the best idea for a small business (based on demand) in my library's community?	Business Dynamics Statistics (BDS) (Potentially)	Metro area and county
What are the demographics of the workforce in my library's community?	Census: Longitudinal Employer	Varies
How many businesses filed for bankruptcy last year in my library's	U.S. Courts	Regions within states

community?		
What are the unemployment rates in my library's community?	U.S. Bureau of Labor Statistics	State, county, or metropolitan area

Food & Nutrition		
Question	Dataset	Coverage
Do library community members suffer from food scarcity?	Food Environment Atlas	Primarily county-level
How does my library community compare to others in terms of access to healthy food?	Food Environment Atlas	Primarily county-level
Are there specific populations in the community that are at greater risk for food scarcity?	Food Environment Atlas	Primarily county-level
How many children are food insecure in my library's community?	Food Environment Atlas	Primarily county-level
How many community members are food insecure and yet don't qualify for nutrition programs?	Food Environment Atlas	Primarily county-level
What percentage of my community is able to maintain a healthy diet?	Food Environment Atlas	Primarily county-level
Are there specific health issues in my community linked to diet (e.g. diabetes or obesity)?	Food Environment Atlas	Primarily county-level
What are the levels of physical activity across my community?	Food Environment Atlas	Primarily county-level
How many households may face transportation challenges in accessing healthy food?	Food Environment Atlas	Primarily county-level
Do certain segments of the community have lower access to healthy food?	Food Environment Atlas	Primarily county-level
Does my community spend more on restaurant food than other communities?	Food Environment Atlas	Primarily county-level
How many K-12 students in my library's community are eligible for free or reduced	Food Environment Atlas	Primarily county-level

meals?		
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The following topic areas were generated from interview or workshop participants' stated interests. The questions within each topic area were generated from the workshop participants as part of a small group activity. Ongoing analysis of these questions and whether they can be answered through open data is one part of the next steps of activities related to this project.

Employment
Question
How many people in the community are underemployed and unemployed vs employed?
What do people identify as personal barriers to employment?
What are the migratory patterns in my community? <ul style="list-style-type: none"> ○ What percent of community workers are commuting in from elsewhere vs. community members commuting out for work?
What types of employment exist in the community? <ul style="list-style-type: none"> ○ Which industries? ○ What levels of employment? ○ How many small business owners and entrepreneurs?
What workforce development resources/organizations are available in the community? <ul style="list-style-type: none"> ○ How many are religious based vs. secular?
Are we (the library) reaching the people in most need of employment resources and services?
How can the library be an institution of trust for seeking resources (when there might be a stigma around using other public services) but not duplicate services that already exist?
What shifts are people working? (When do people have free time?)
What new industries are coming into the community and/or growing? <ul style="list-style-type: none"> ○ What are the industry trends?
What types of non-traditional jobs do people engage in? <ul style="list-style-type: none"> ○ Are there jobs or non-traditional industries that focus on a trade or barter system? ○ What groups in the community are relying on alternative systems of trade?
What languages should programs/services be offered in?
What languages do those who are seeking help with job searches speak?

How many people are under employed due to a non-US professional accreditation?
Does uniformed security have an impact on attendance/participation in employment related services (or any other services)?
Are we duplicating services that other organizations in the community are already offering?
What is the best way to provide services (e.g. we tried a group learning environment and didn't feel it was successful)?

Children/Youth & Education (Pre-K thru 12)
Question
What capacity level do parents have to engage in their children's education? ○ Do we plan programs directly for kids or go through parents or educate parents?
How many students are bilingual? What bilingual education environments exist?
What are specific cultural expectations of the parental role? ○ For example, what services would the Latinx parent community want and embrace?
What is the status of digital access for children, especially when faced with the challenge of switching to a virtual learning environment?
How difficult was it to shift to a virtual learning environment?
How did the lack of access to school lunches affect children?
What is the level of digital literacy of children/families in the community?
What types of education exist (e.g. is the local school high in tech education but low in arts education)?
Can we partner with other organizations to offer employment / learning opportunities (spark) / internships?
What opportunities exist for youth - volunteer, service learning, place-based learning?
What after-school or out-of-school time programs exist in the area?
What are the atypical learning environments available (e.g. parks, etc.)?
Who is available as an educational consultant (e.g. wildlife and fisheries public outreach / education programming)?
How are children being educated (homeschool, private school, public school, other)?
What equipment is most useful to include in a makerspace?

How can the library help with the (non-four-year college) post-secondary educational opportunities such as technical degrees, 2-year programs, apprenticeships?
What organization could the library partner with on grant opportunities?
How can we provide services equitably to a diverse population?
How many children are unhoused?
How many children serve as language interpreters for their families?

Health
Question
What is the health profile of the community and are we providing programs that fit that need (e.g. do we have an aging population, is obesity a health risk in our community)?
Who does not have health insurance (needed at local level)?
Are there gaps in health insurance (e.g. long term care coverage)?
Are there “healthcare deserts” in my service area where it is difficult to access health services?
Is local healthcare affordable?
Who is affected by an aging population? Who needs home health care? How can we support families of those populations?
How many community members are homebound?
How many community members need mental health care and are they being supported and given the resources they need?
What are the general demographics of the community health-wise?
Are the health needs of those experiencing homelessness being met?
What are the changes in the number of people needing mental or emotional care?
How many elderly are “orphaned”?