Mapping Areas in Need of Immigrant-Focused Crisis Support

Identifying areas needing immigrant-inclusive crisis support serves as a foundational step toward future work in promoting inclusive services considering immigrants' needs and providing support for immigrants for social cohesion and community resilience to crisis.

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01. Introduction

Public Libraries have been seen as vital public institutions in supporting community resilience to crises by providing information services and coordinating cross-public sectors. Serving immigrants in crisis is an integral component of inclusive service provision.

By pinpointing vulnerable areas, public libraries can offer more tailored, efficient, and impactful services to immigrant communities. This study aims to outline a method to identify the critical areas in need of immigrant-inclusive crisis support by integrating the socioeconomic, natural hazard risk, and broadband use information of counties.

This study serves as a foundational step toward future work that will investigate the status of library services considering immigrants' needs in high-need areas.

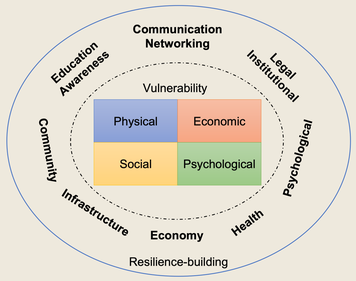
02. Related Literature

Studies focus on the vulnerability of immigrants in disasters but not much on the needs of immigrants from under-resourced communities.

Vulnerability is multi-dimensional, stemming from various sources and intersecting in complex ways.

The Disaster Recovery Framework proposed that a shared effort engaging communities, governments, and cross-sectors should be devoted to the redevelopment, restoration, and recovery of resilience against disasters.

However, there is a lack of comprehensive systematic research that goes beyond case studies on inclusive planning and development of services for immigrants, especially in disaster settings.



03. Data

Utilize multiple sources of geographical information to identify counties with a relatively high proportion of immigrants, and a lack of resources and facilities.

- **American Community Survey**
- **National Risk Index**
- **Indicator of Broadband Need**
- **IMLS Public Libraries in the US**

04. Analysis

To explore the relation of variables, Spearman's Rank correlation test is used. It assesses how well the relationship between two variables can be described using a monotonic function.

INDICATORS OF IMMIGRANTS

All indicators are positively correlated with significance.

	Naturalization	Not US citizen	Spanish	Other
Naturalization	1.00	0.75	0.64	0.53
Not US citizen		1.00	0.82	0.45
Spanish			1.00	0.25
Other				1.00

IMMIGRANTS AND CRISIS RISKS

Counties with more immigrants are more populated areas with more broadband use, however, with higher risk and social vulnerability scores.

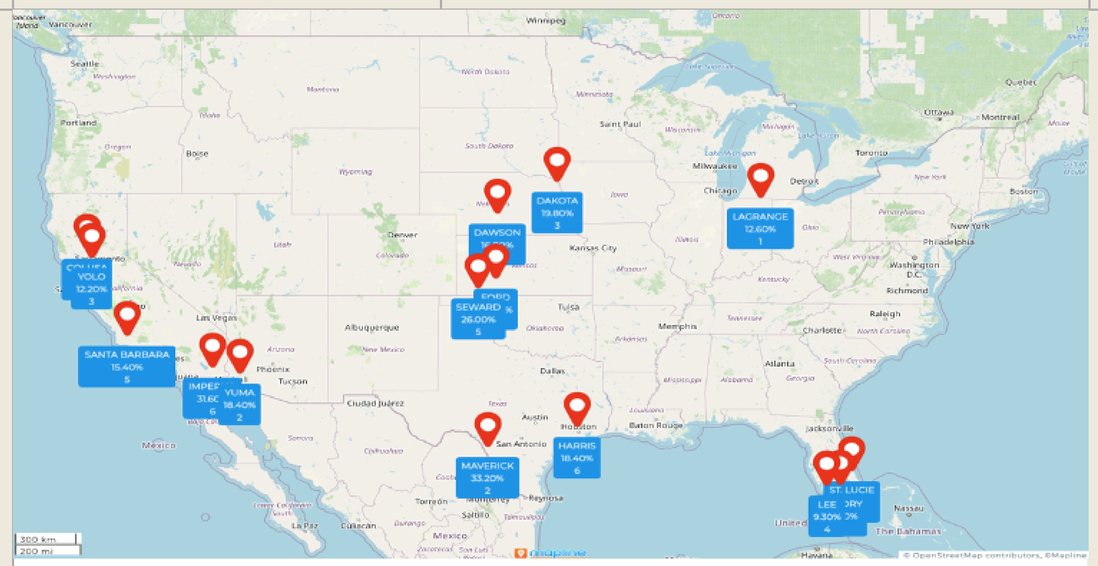
	Naturalization	Not US citizen	Spanish	Other
No computer	-0.57	-0.44	-0.27	-0.40
No Internet	-0.52	-0.37	-0.19	-0.42
Broadband use	0.34	0.26	0.17	0.34
Risk	0.49	0.46	0.39	0.41
Vulnerability	0.12	0.28	0.37	0.06
Resilience	0.16	-0.01	-0.14	0.30
Poverty	-0.27	-0.13	-0.05	-0.16

05. Clustering

We conducted an unsupervised algorithm, Kmeans, to cluster counties into groups, where counties in the same group share similar characteristics. Before the Kmeans, all attributes are normalized. Attributes with high correlations are removed. We decided to run Kmeans with 5 clusters based on the Elbow method. We select counties from one group as targeted counties.

06. Conclusion

Using a robust investigation of data related to public needs, this study identifies the top 15 US counties where immigrant- focused community resilience services may be needed.
The next step in our work is to conduct further investigation on the status of the inclusivity of immigrants in crisis-related services by public libraries



Geographic Distribution of Counties Identified

The label shows the name of the county, the estimated proportion of immigrants in the county, and the number of public libraries serving the county. These counties will be targeted for the following survey and interview studies.

The table shows 15 counties are identified as having a relative deficit of broadband usage, a high risk of natural hazards, and a higher percentage of immigrants and people who are not so well at English. There are in total 48 public libraries identified in these counties.

Counties	States	Population	Broadband	Risk	Naturalization	Not proficient at English	Poverty	#Public Libraries
Seward County	Kansas	22223	57.5%	61.7	11.1%	26.0%	11.4%	5
LaGrange County	Indiana	40085	68.5%	52.9	0.8%	12.6%	5.0%	1
Hendry County	Florida	39439	76.4%	91.2	10.7%	20.0%	22.6%	1
Ford County	Kansas	34426	83.2%	66.0	7.0%	20.9%	10.3%	3
Colusa County	California	21780	83.6%	95.4	12.4%	18.1%	11.7%	1
Imperial County	California	180051	85.7%	98.1	15.2%	31.6%	17.3%	6
Yuma County	Arizona	202944	89.7%	91.7	12.0%	18.4%	15.9%	2
Dawson County	Nebraska	24031	90.2%	78.8	11.0%	16.0%	11.0%	5
Dakota County	Nebraska	21284	90.8%	57.0	12.0%	19.8%	9.6%	3
Lee County	Florida	752251	91.4%	99.5	9.0%	9.3%	10.9%	4
Maverick County	Texas	57769	93.5%	60.2	13.3%	33.2%	21.7%	2
Yolo County	California	216703	94.1%	97.4	10.7%	12.2%	16.1%	3
Santa Barbara	California	447651	94.2%	99.4	8.3%	15.4%	11.9%	5
St. Lucie County	Florida	324599	94.4%	98.3	10.8%	6.6%	10.9%	1
Harris County	Texas	4697957	94.7%	100.0	10.1%	18.4%	13.7%	6