Location- Based Analytics: Using GIS to Improve Programs and Delivery of Services

Aynalem Adugna, PhD
Patrick Delaney, PhD
Akhtar Khan, PhD

California Department of Social Services
Research Services Branch
Location-Based Analytics: Using GIS to Improve Programs and Delivery of Services

- Overview of what is GIS and how CDSS uses GIS analytics
- Applications of GIS in California Health and Human Services programs:
  - CalFresh dashboard
  - CHHS Program dashboard
- Additional GIS tools available to:
  - Conduct Micro-level spatial analysis
  - Tell data stories
CDSS’ Use of GIS to Improve Program Access

- Geocoding
- Geo-mapping
- Spatial statistics
- Dashboarding

Inform policy

- CalFresh/WIC dual enrollment
- Child welfare
- CDSS facilities
- Foster care/education

Natural hazards risk assessment (facilities and clients)

Program access

Monitoring

- CalFresh/Medi-Cal dual enrollment

United States Census Bureau
Bureau of Labor Statistics
California Department of Education
GIS/Geocoding and Spatial Analysis
GIS and its Components

**Software**
A technology for storing and analyzing location and attribute data

**People**
Project coordinators
Data analysts
Programmers
Managers

**Data**
Attributes about people or cases

**Hardware**
Systems to support rapid graphic analysis and processing

**Methods**
Guidelines
Procedures
Standards
GIS Data Layers

The ability to ‘stack’ layers in GIS allows us to ask questions about the relationship between different aspects of an issue.

Data source
- Non-participants
- Program participants
- Area poverty
- Boundary shape file

Data layers

Source: GAO.
GIS can help by Improving Planning, Management and Decision Making... and Providing Critical Infrastructure
GIS Applications

CHHS Program Dashboard
Improving Program Oversight by Informing Policymakers

- Example of these concepts from Health & Human Services Program Dashboard project:
  - Internal & external data sources
  - Geocoding & geomapping
  - Enhanced dashboarding with geomaps
Scenario

In light of pending federal legislation, CDSS wanted to know:

“How would budget cuts to more than one program affect families?”
Contextualize an Area by Combining Internal & External Data

**Internal Data** ➤ what we already know about our clients from “in-house” sources

**External Data** ➤ characteristics about clients’ local areas
Internal CHHS Data

- CalWORKs
- CalFresh
- Medi-Cal
- IHSS
- Foster Care

External Data

- Poverty / Unemployment
- Language
- Demographics
- Homeownership / Rental Stats
- What other outside factors impact your program?

- Unique Identifiers
- Location (i.e., street address)
- Program Usage
  - benefit amount
  - household composition
  - enrollment history

- Internal CHHS Data

- External Data

- United States Census Bureau
- State of California Employment Development Department
- Bureau of Labor Statistics
- California Department of Education
Geocoding & Geomapping

- Getting a latitude/longitude from a street address
  - Challenges involved
- Development of summary statistics for geographical areas
  - In this case, legislative districts
Geocoding & Geomapping

- Using boundary shapefiles in combination with geocoded data, visualize the data by geomapping

- Layers of data on top of each other
  - Geographic boundaries (legislative districts)
  - Client locations and demographics
  - Census poverty / income profiles

Medi-Cal & CalFresh Dual Enrollment, July 2017
Prevalence of Group Home Facilities in the Bay Area, July 2017
Enhanced Dashboarding

- In addition to traditional charts, graphs, and tables, incorporate geomaps to give users spatial visualization of your data.
• Now we know how many of our clients are enrolled in various programs simultaneously by district
  • Moving away from siloed view of client-program participation toward holistic perspective
• Informing federal and state legislators, as well as county stakeholders and public
  • CHHS Open Data Portal
• Incorporation into future dashboard projects
GIS Applications, cont.

CalFresh County-Level Analysis

- CalFresh dashboard (PRI)
- CalFresh dashboard /Race-ethnicity
- CalFresh access /In-depth
ADDITIONAL GIS TOOLS
MICRO-LEVEL

Neighborhood CalFresh in Three Solano County ZIP Codes
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Case Study: Neighborhood CalFresh in Three Solano County ZIP Codes

Merged Data Provides a Powerful Insight Into Welfare Dynamics
Case Study: Neighborhood CalFresh in Three Solano County ZIP Codes

Number of CalFresh Recipients

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Neighborhood CalFresh: Heat Map
GIS Data Analysis Results

Neighborhood CalFresh

ArcGIG Online

Storytelling with Data

Dashboard

CalFresh In-depth

Tract-Level: CalFresh and language
Thank You

Questions?

For further questions write to....

Latitude: 38.587640
Longitude: -121.493410

https://www.latlong.net/convert-address-to-lat-long.html