



LINCOLN INSTITUTE
OF LAND POLICY

Methods for Expanding and Improving Data in Mass Appraisal Valuation

July 8, 2020 | Paul Bidanset | pbidanset@gmail.com



Data: Ingredients of the Valuation Cake



DATA

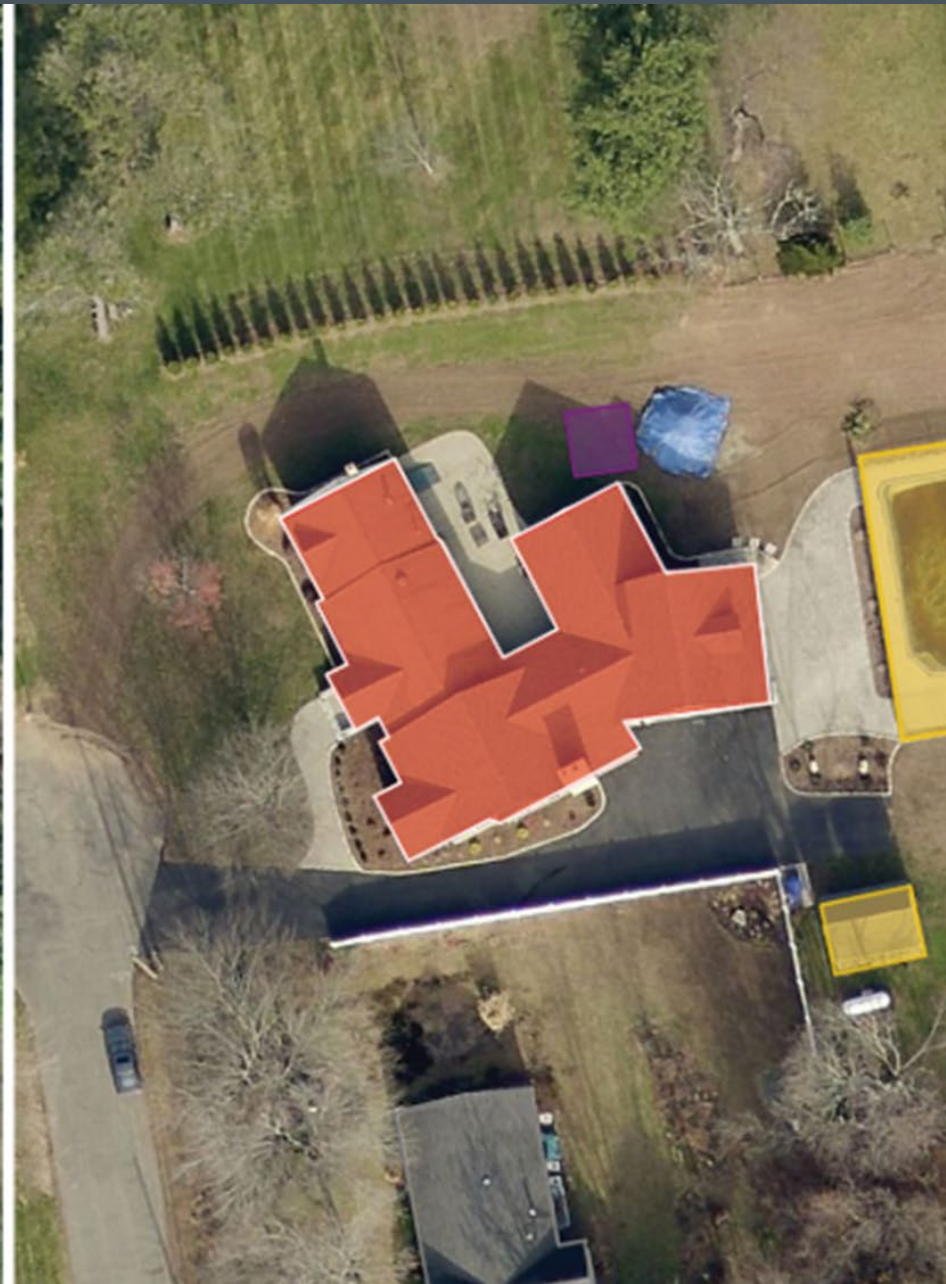


Cadastre & Land Records

- Update, store, and view property information:
 - Ownership history
 - Parcel boundaries
 - Current owner contact
 - Deeds
- In North America, UK, and Europe, these are often part of what's referred to as a "CAMA" (computer-assisted mass appraisal) system, developed by private-sector software companies, that also serve other assessment functions (e.g. mass appraisal)

Remote Data Collection

- Aerial Imagery: can be sourced from satellites, planes, and even drones. Important to understand and follow laws concerned with air space and privacy.
- Images may either be reviewed manually by staff or using image analysis software.





Open
Data

“Open data is data that can be freely used, re-used and redistributed by anyone - subject only, at most, to the requirement to attribute and sharealike.” – OpenDefinition.org



Typically free, easily accessible, and from a reliable source
(e.g. government, NGO, university)

Open Data in Valuation

Add additional data:

- Population data
- Economic data
- Environmental data
- Much more (terrain slope, flood zones, commute times, etc.)

Improves Accuracy
& Defensibility

Search Open Data

Find Bus Routes, Park Services, Schools

Near City, Country



Total Datasets

96,794

Organizations Worldwide Sharing Open Data

5,215

Browse by Categories



Safe

Crime

Disaster

Emergency Response



Prosperous

Demographics

Economy

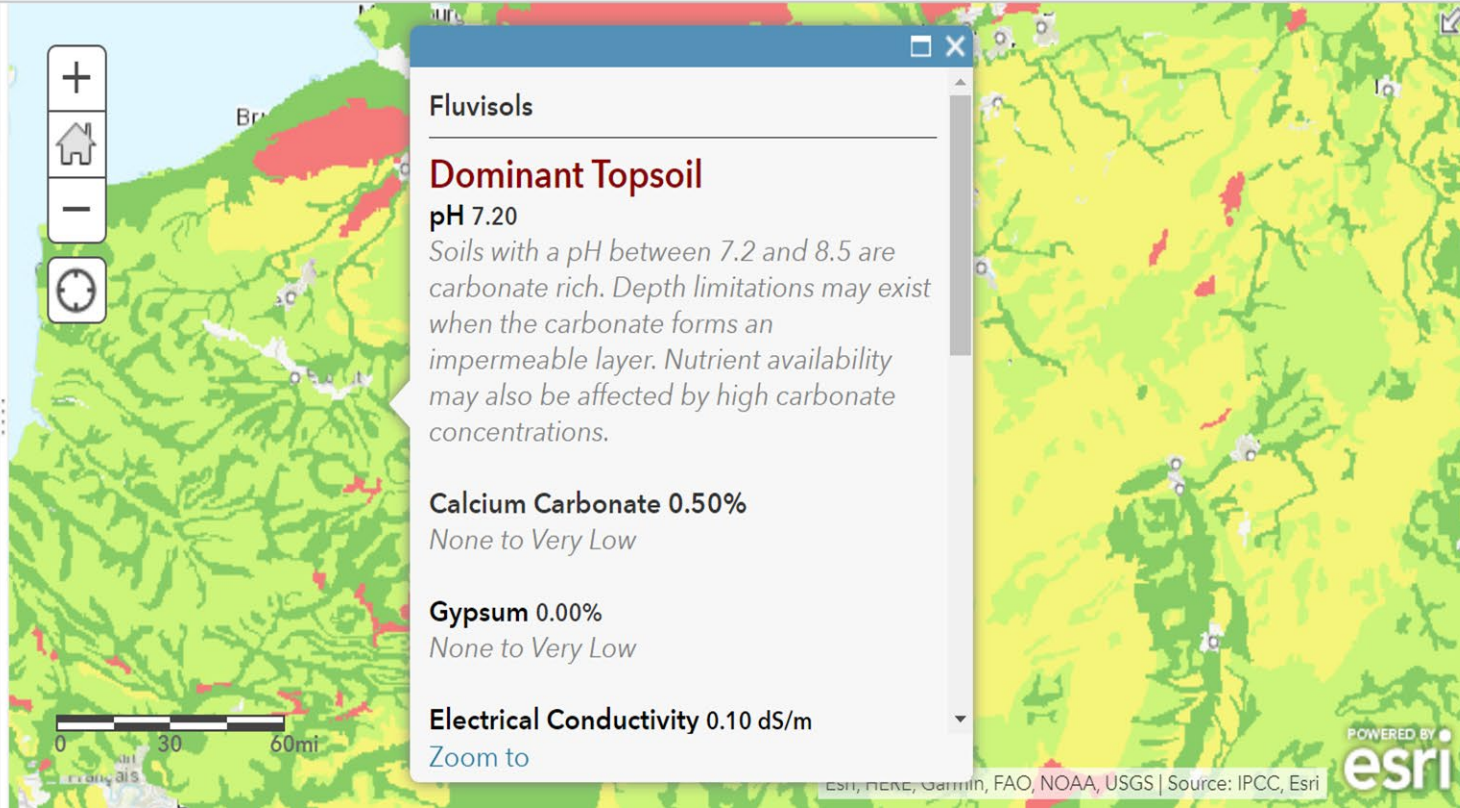
Education

Legend

World Soils Harmonized
World Soil Database -
Chemistry

- 2
- 37
- 38
- 39
- 41
- 44
- 45
- 47

Esri.com · ArcGIS Marketplace · Help · Terms of Use · Privacy · Contact Esri · Report Abuse · Contact Us





Legend

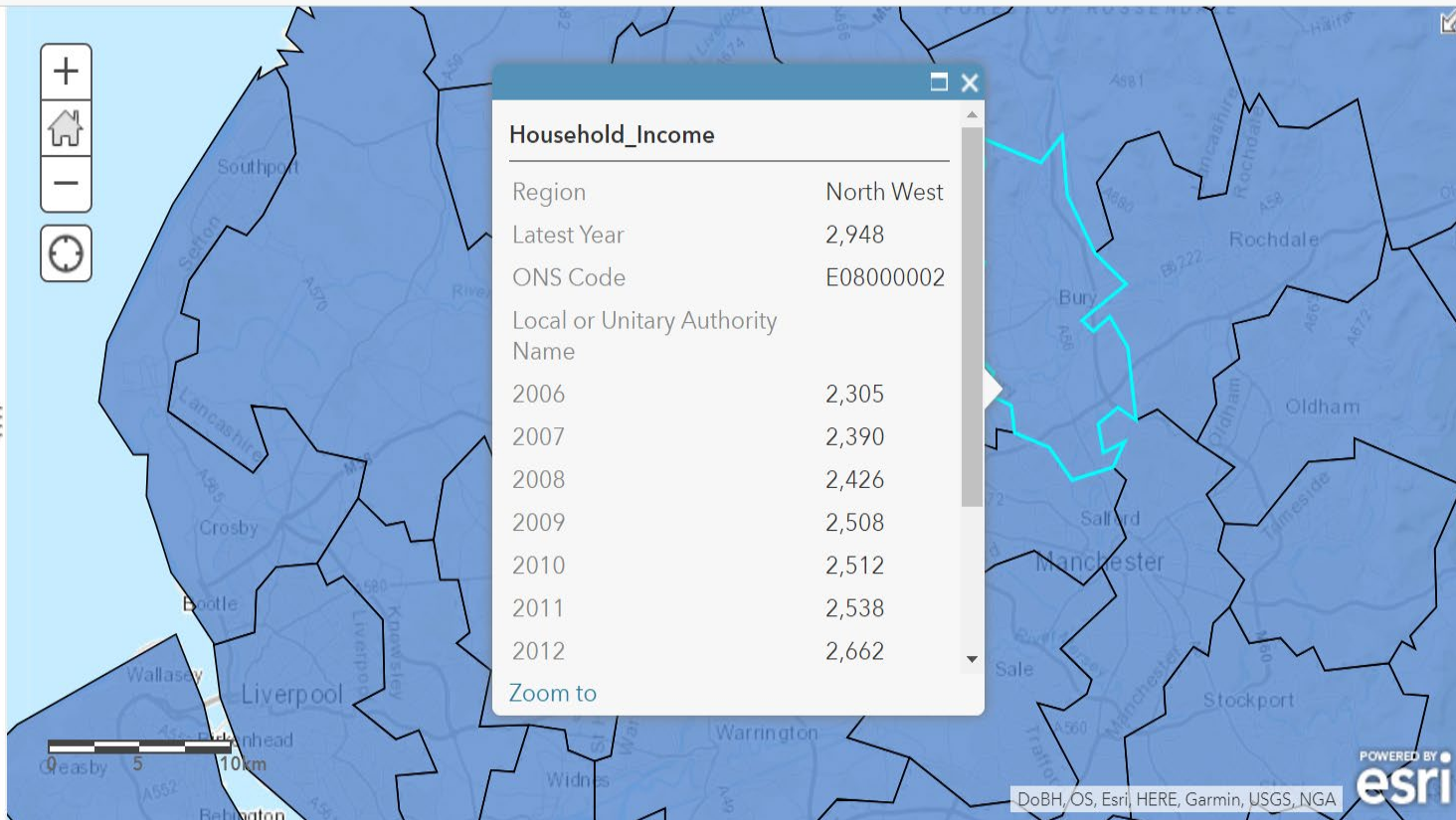
Household Income



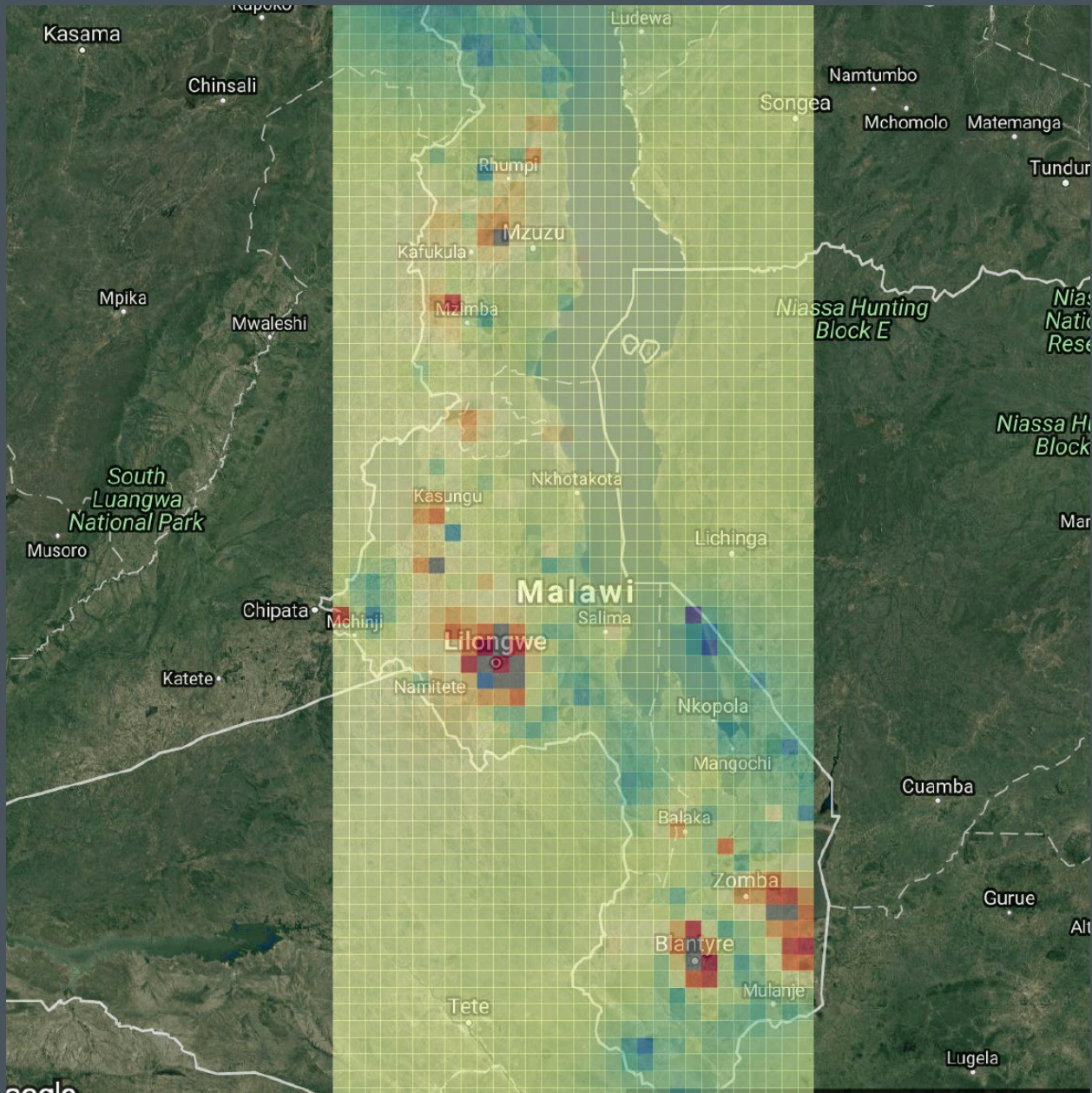
USA Census Populated Places

Pop. Class

- 7 - 10
- 6 - 7
- 5 - 6
- 4 - 5
- 3 - 4
- 1 - 3
- 1



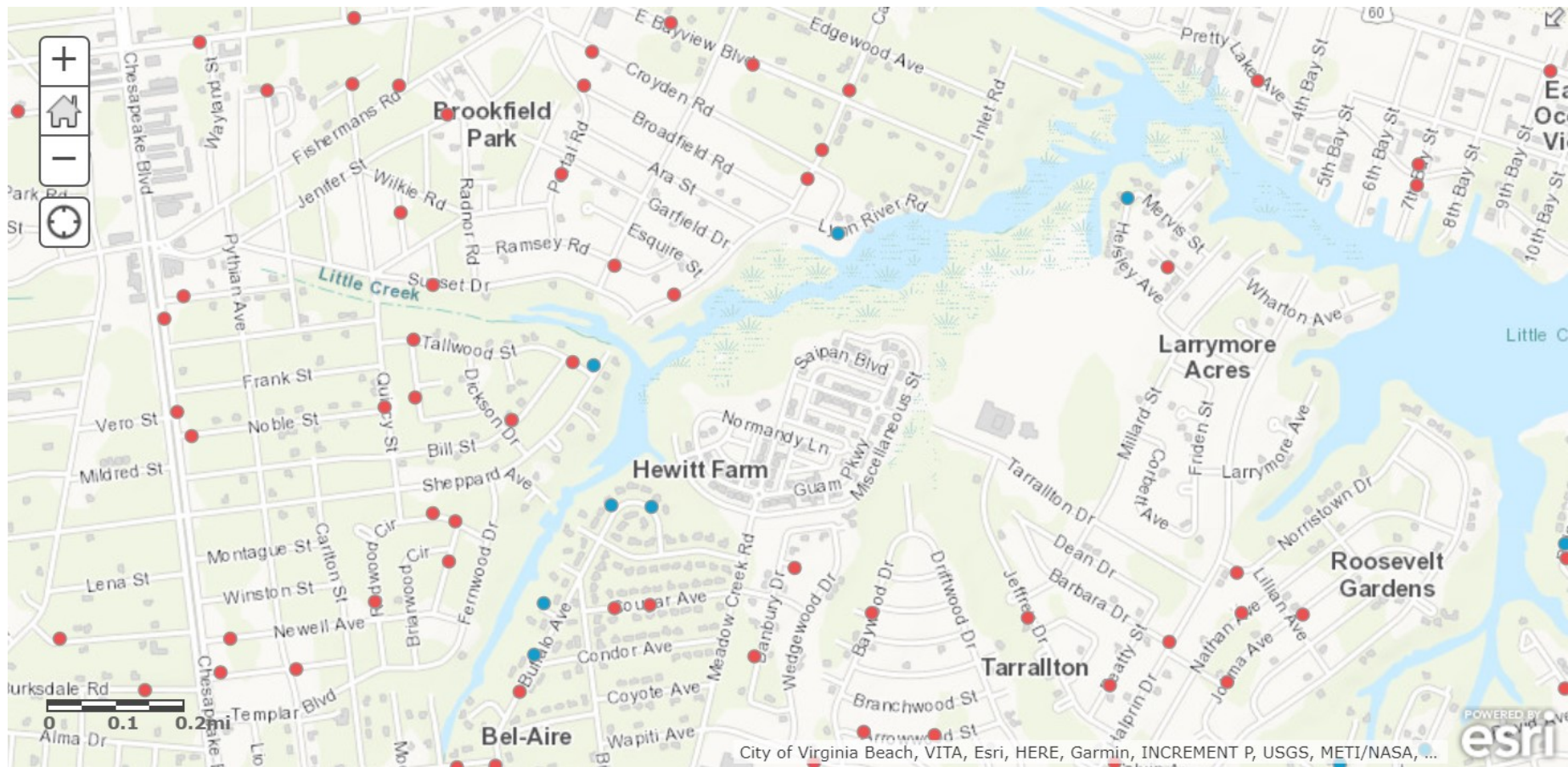
Household_Income	
Region	North West
Latest Year	2,948
ONS Code	E08000002
Local or Unitary Authority Name	
2006	2,305
2007	2,390
2008	2,426
2009	2,508
2010	2,512
2011	2,538
2012	2,662
Zoom to	



Data for Valuation

- Important to remember for property valuation models: garbage in = garbage out
- If data is inadequate, value estimates will be inaccurate and can introduce inequities into assessments
- Data should be accurate and complete before models are created.

GEOGRAPHIC INFORMATION SYSTEMS (GIS)





Source: esri

idx 5, # of predicted objects: 1



idx 5, # of ground truth objects: 1



images/RGB_WORLD_IMAGERY_209246_89705.jpg



idx 6, # of predicted objects: 3



idx 6, # of ground truth objects: 4

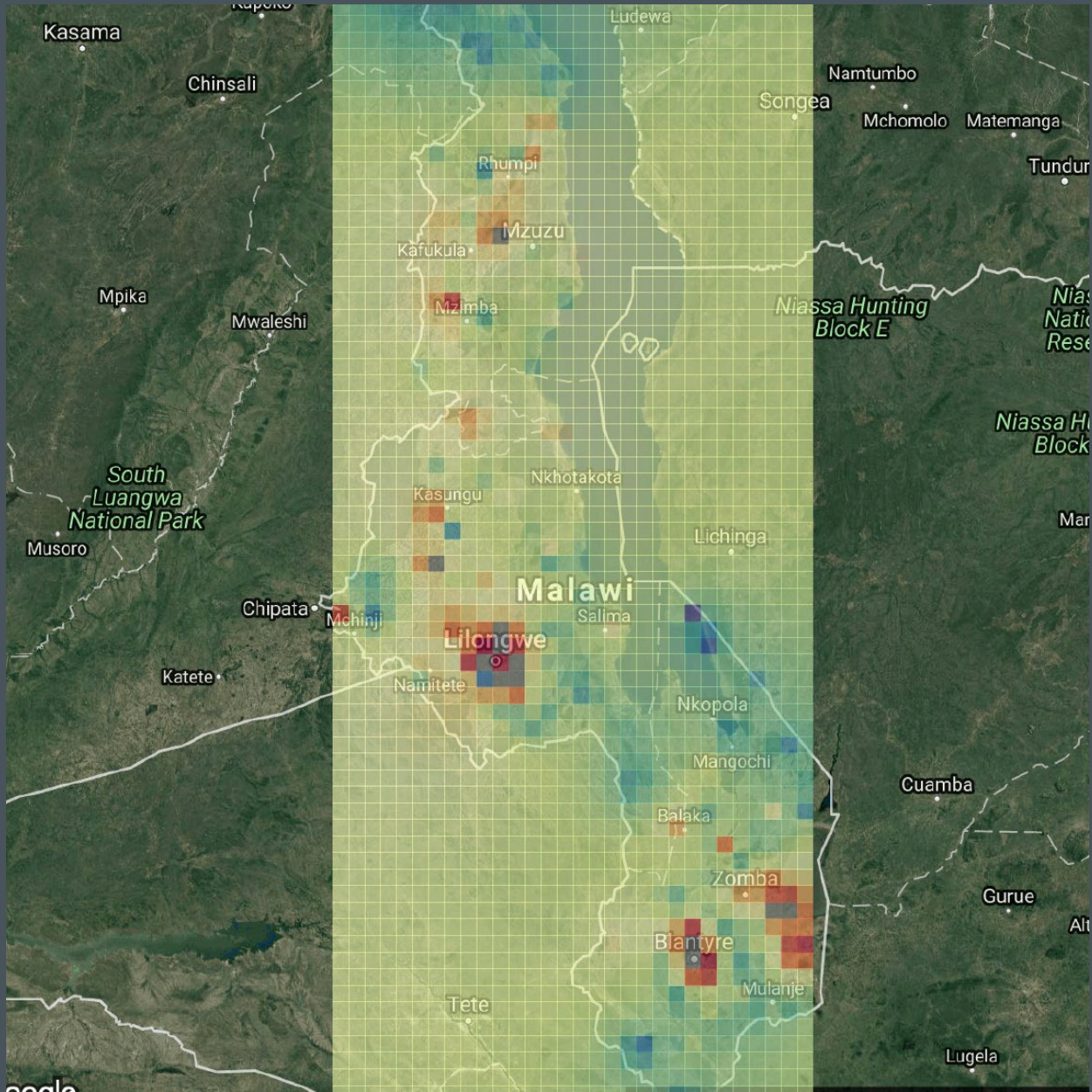


images/RGB_WORLD_IMAGERY_209247_89704.jpg

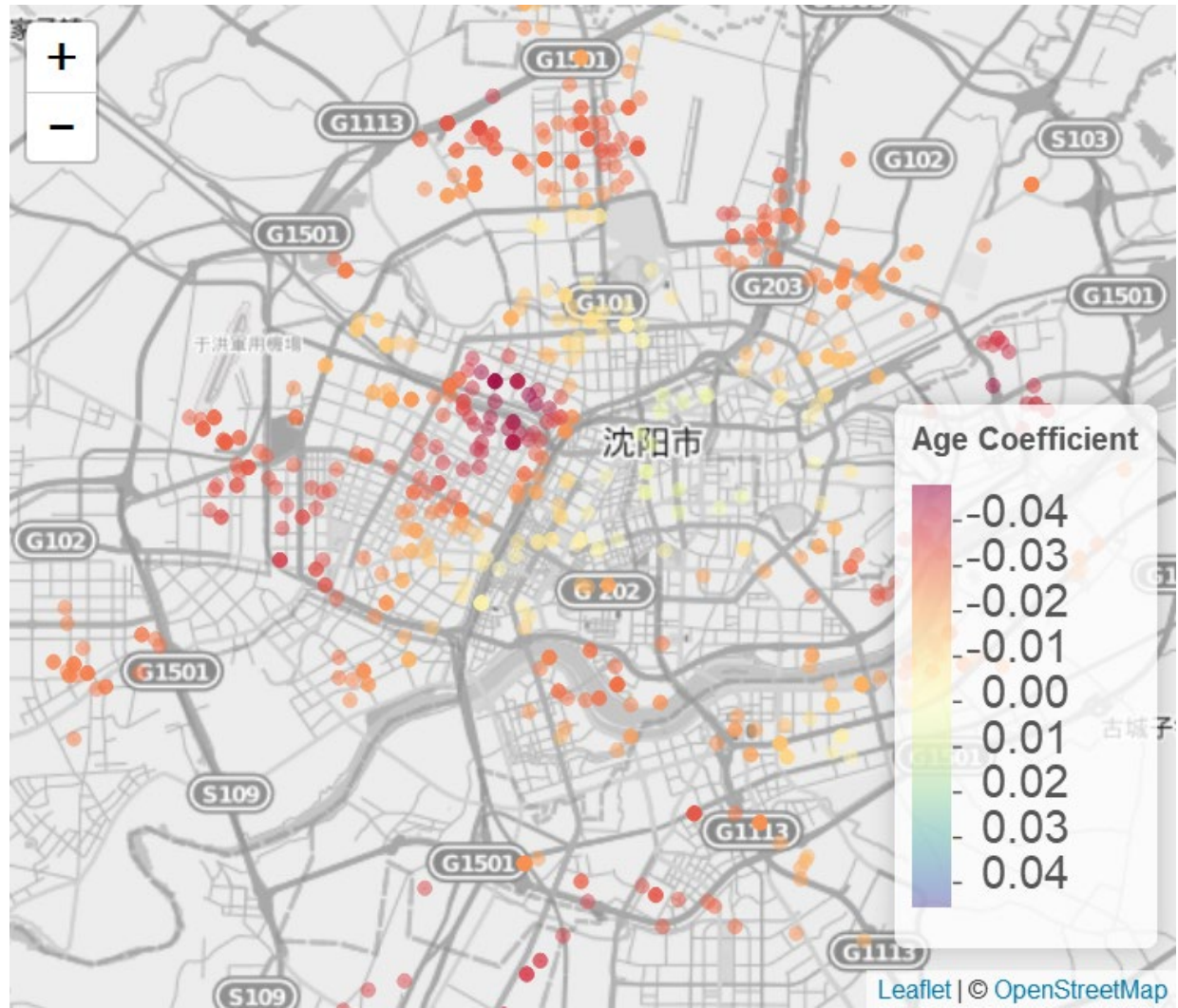




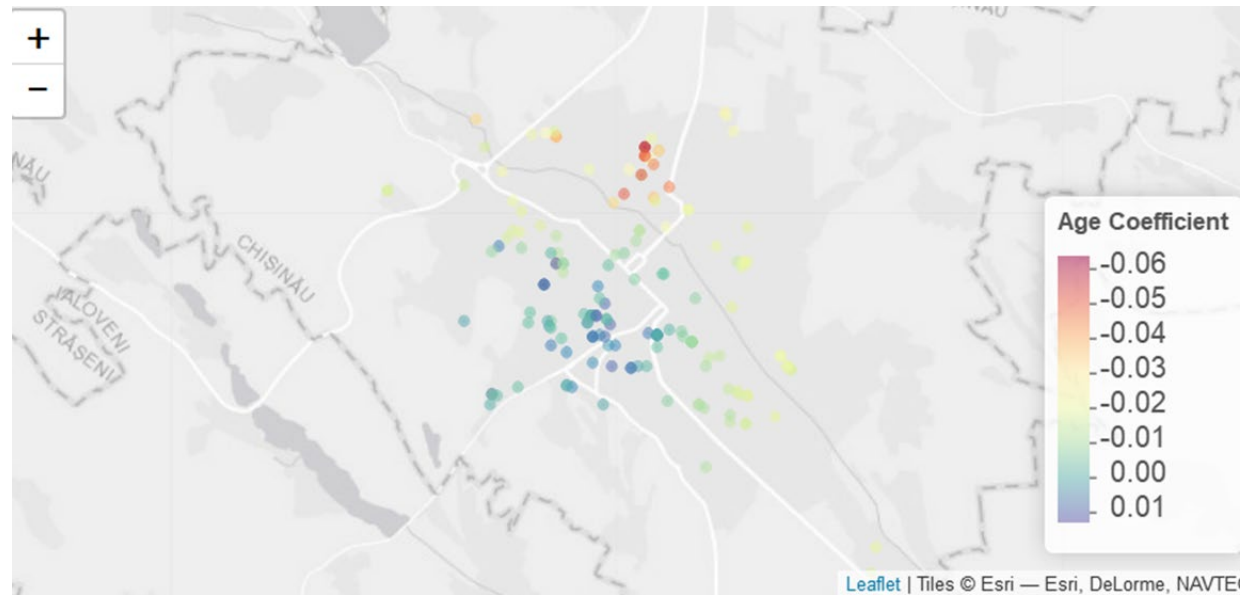
Source: EagleView



China



Moldova



Lack of Dependable or Reliable Transaction Data

- Webscraping listing data for asking prices
- Banding
- Potential case studies
 - Rajasthan
 - China
 - Malawi

Thank you

PAUL BIDANSET
LINCOLN INSTITUTE OF LAND POLICY
pbidanset@gmail.com



113 BRATTLE STREET CAMBRIDGE, MA 02138 @LANDPOLICY LINCOLNINST.EDU