Taking a Data Informed Look at the Prosperity of City Neighborhoods

A Decision Support Tool for the City of Austin

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Office of Innovation

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The Innovation Office is a **nimble team with well-rounded expertise**. We are unique in that we:

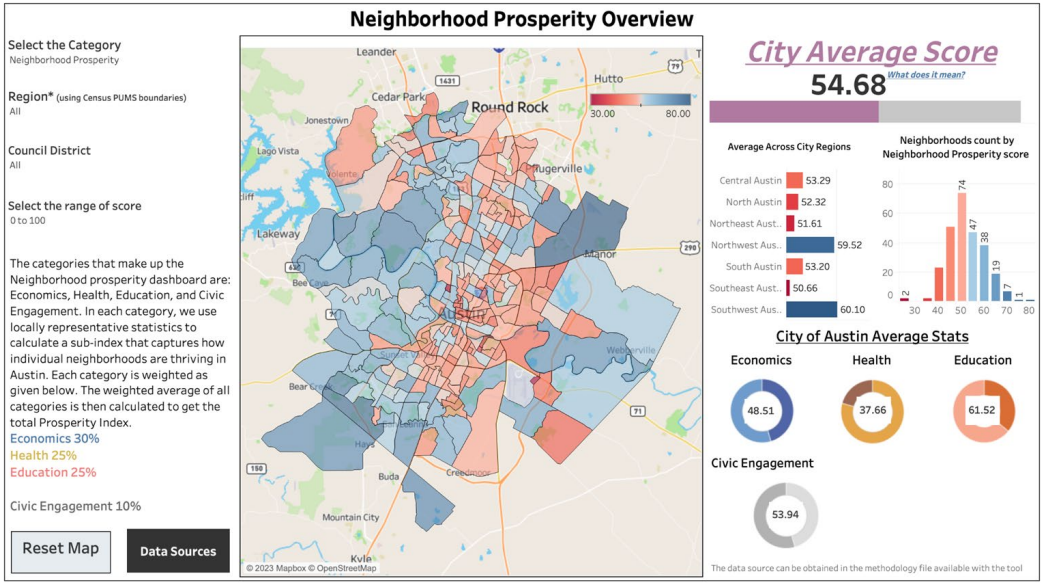
Work effectively with **internal and external partners** on civic innovation projects.

Can work at all levels, from **informal advising** to **full-scale program design** and management.

Collaborate with **diverse teams** on **complex topics**, beginning at high levels of abstraction.

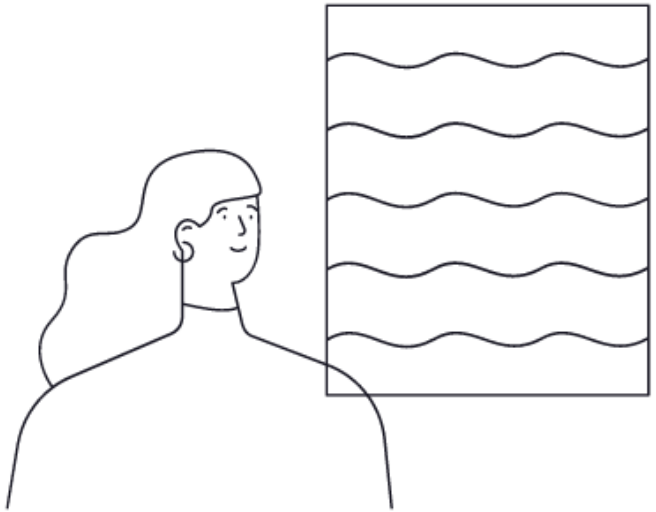
Are **topic-agnostic:** we can work on almost anything, and collaborate/hand off as appropriate.

The Neighborhood Prosperity Dashboard



- Current state of demographic, health, economic, and social factors on a neighborhood scale.
- Most recent data available, automatically updates.
- Supports insights and decisions that are more current, clear, and specific.

Decision Support Tools



Decision Support Tools sharpen our ability to **analyze large amounts of data from disparate data sets** so that the organization can **operate in a data-informed** way.

They:

• Use **visuals** to present data in various formats and can include, maps, graphs, charts, icons, toggles, illustrations, animations and more.

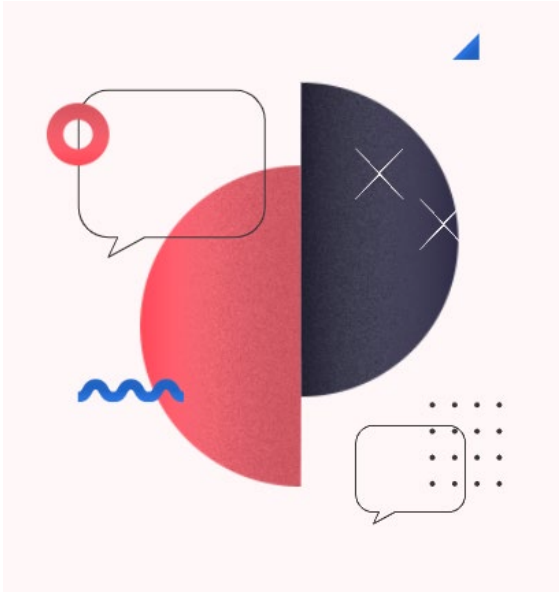
• Can be **interactive, dynamic,** and **automated**.

• Can point us in certain directions, but we **must combine them with practitioner knowledge to address the complexity in our environments of practice**.

Data-informed Decision-making Challenges

Data often does not cross org silos, but people's life experiences are much more complex than the divisions in our org structure.

Data is often presented at a city-wide or zip code level, but reality at the neighborhood level is often more nuanced.



It is difficult to see and interpret the complexity of residents' lived experience because our data sets are not combined and sometimes not racially disaggregated.

Data in reports and plans are static snapshots that depend on manual updating, which usually does not occur.

Without a meaningful way to integrate qualitative inputs, our practice stays superficial and we risk being tone deaf to community sentiment.

COA’s Neighborhood Prosperity Dashboard (NPD)

- **Holistic:** provides a way to think across categories of the experience: health, economics, education, civic engagement, incorporating 34 different locally representative statistics.
- **Precise:** neighborhood-level data for 266 census tracts.
- **Outcomes-oriented:** factors depict outcomes experienced in neighborhoods, pushing NPD users to consider outcomes when assessing and planning action.
- **Up-to-date:** incorporates automatically ingests and analyzes new data as it is available.

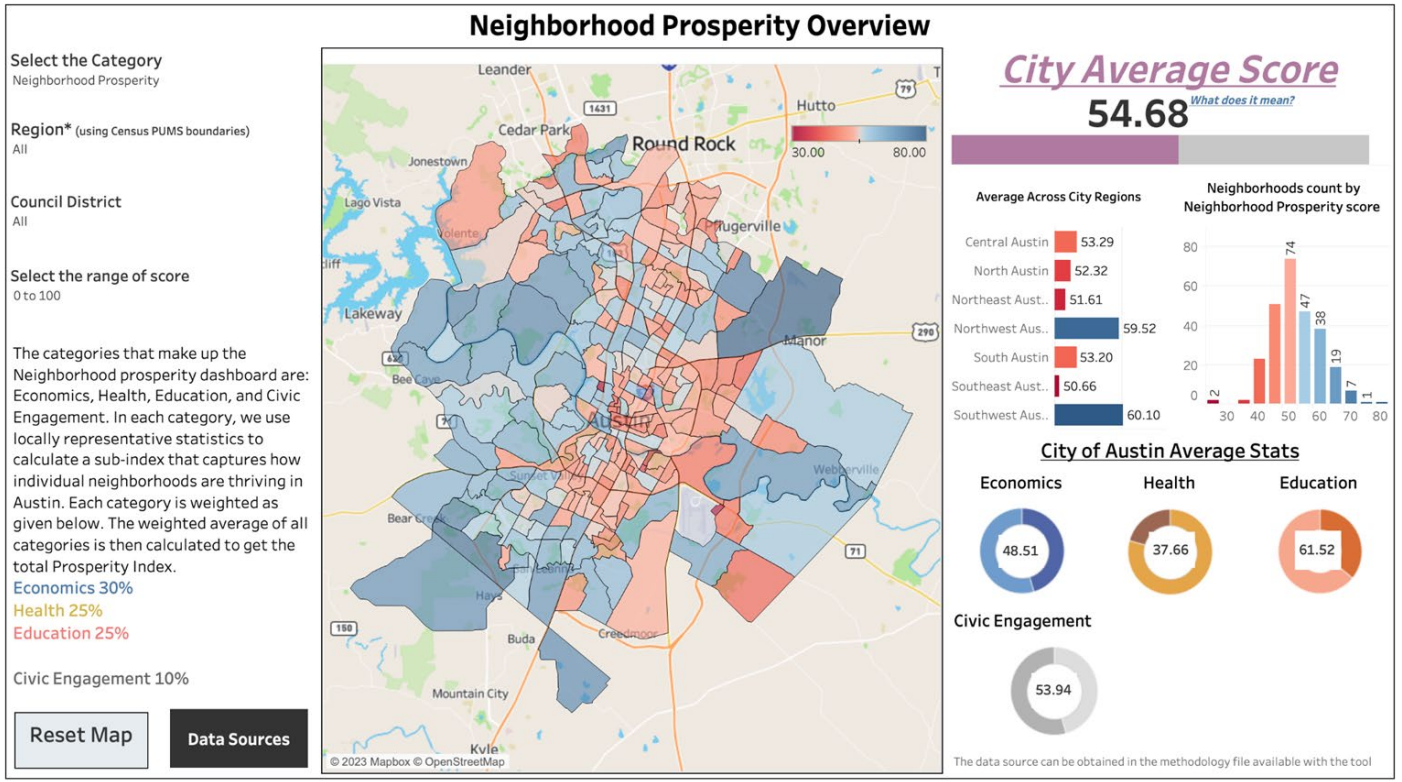
Methodology

- Census tract-level data for the entire Austin MSA region.
- Uses publicly available sources including the American Community Survey (ACS), CDC PLACES, and others. Also uses data sources from the City of Austin's Open Data Portal, and others that City departments provide.
- Pulls ACS data with an in-house tool that uses the Census public API.
- The tool performs specific functions for each dataset to produce the final combined dataset.
- Data is cleaned and scaled against the highest valued neighborhood. Measures are then combined using a weighted average method.
- Weights and calculations for index scoring are based on methodology from the National Urban League.

Overview

Navigate by clicking through tabs to see other dashboards

Dropdown filters to select different geographies and prosperity category



Count of neighborhood by range of total score

Link to go to methodology and data sources document

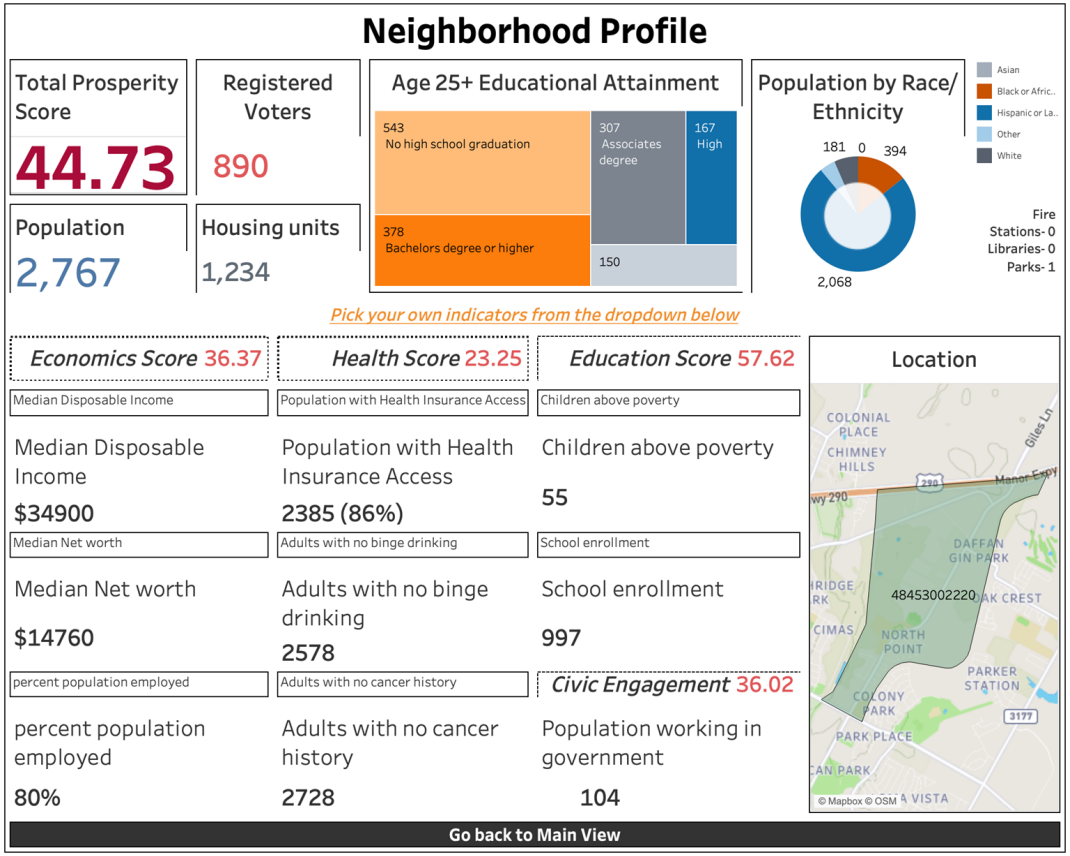
Map shows census tract boundaries and total score as a color factor (High score -> Bluer Color)

Neighborhood Profile View

Every census tract has a dashboard view where you can view all factors.

You can also use dropdowns to customize what is displayed on the dashboard.

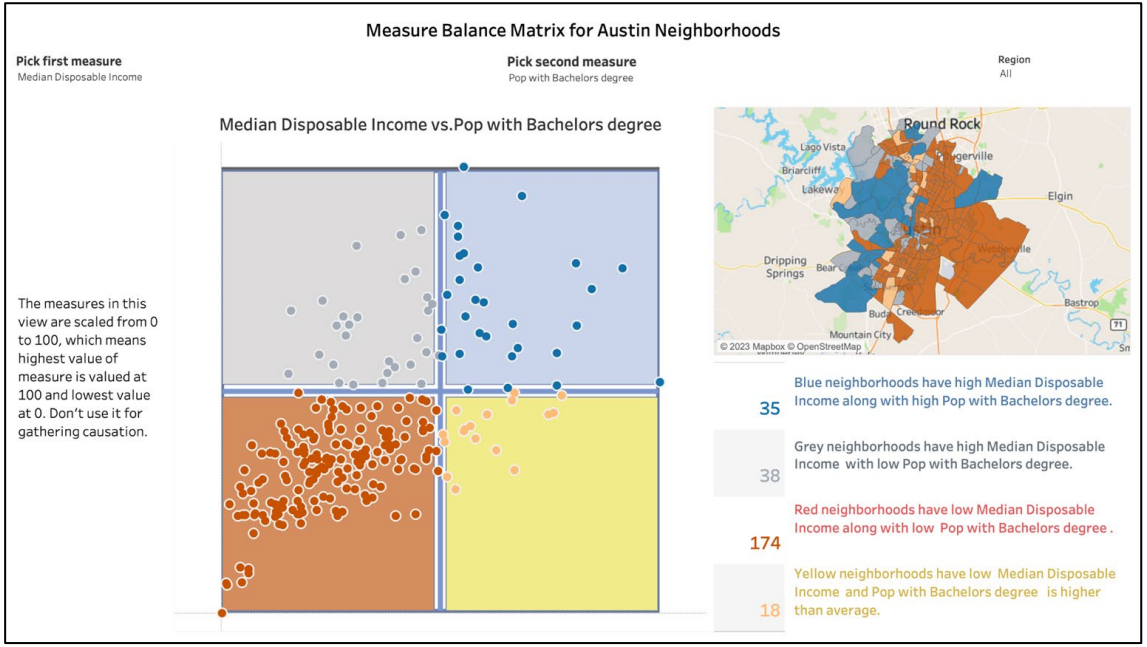
There is also a comparison view where you can view dashboards for two neighborhoods side-by-side



Measure Comparison Scatter Plot - Concept

This view lets you see how and where the combined effects of two factors are distributed along a trend line.

“How, where, and to what extent do these two factors manifest in Austin neighborhoods?”



Measure Comparison Scatter Plot - Income vs Age 25+ with Bachelor's Degree

Measure Balance Matrix for Austin Neighborhoods

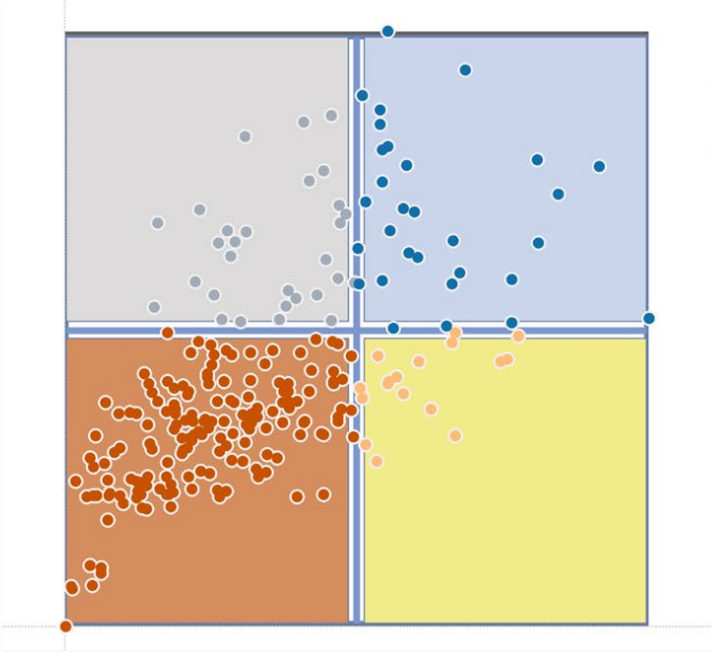
Pick first measure
Median Disposable Income

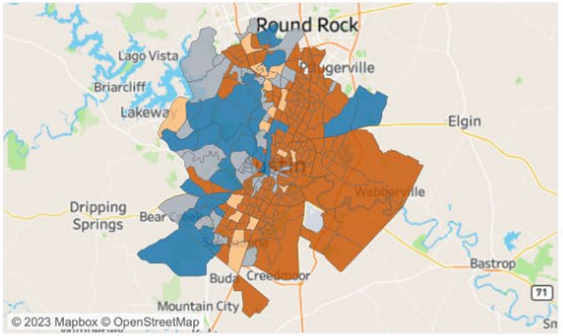
Pick second measure
Pop with Bachelors degree

Region
All

The measures in this view are scaled from 0 to 100, which means highest value of measure is valued at 100 and lowest value at 0. Don't use it for gathering causation.

Median Disposable Income vs.Pop with Bachelors degree





35 Blue neighborhoods have high Median Disposable Income along with high Pop with Bachelors degree.

38 Grey neighborhoods have high Median Disposable Income with low Pop with Bachelors degree.

174 Red neighborhoods have low Median Disposable Income along with low Pop with Bachelors degree .

18 Yellow neighborhoods have low Median Disposable Income and Pop with Bachelors degree is higher than average.

Measure Comparison Scatter Plot - Income vs Employment Rate

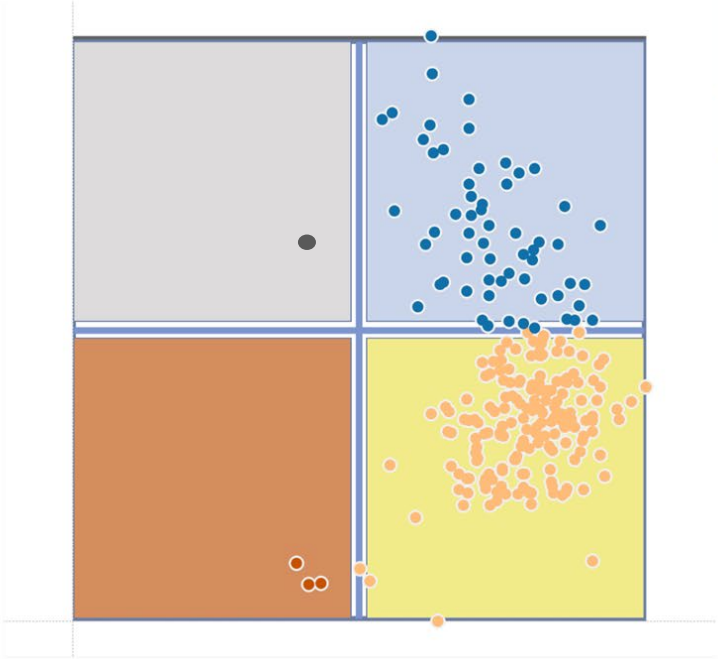
Measure Balance Matrix for Austin Neighborhoods

Pick first measure
Median Disposable Income

Pick second measure
Employment

Region
All

Median Disposable Income vs.Employment



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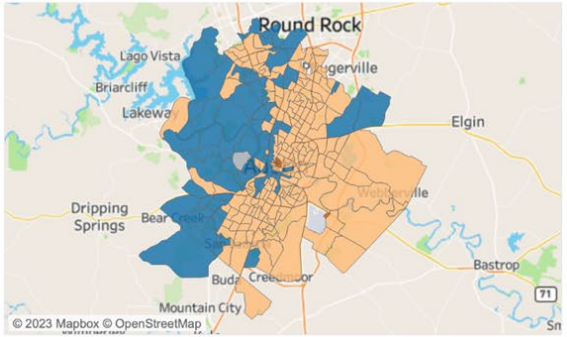


72 Blue neighborhoods have high Median Disposable Income along with high Employment.

1 Grey neighborhoods have high Median Disposable Income with low Employment.

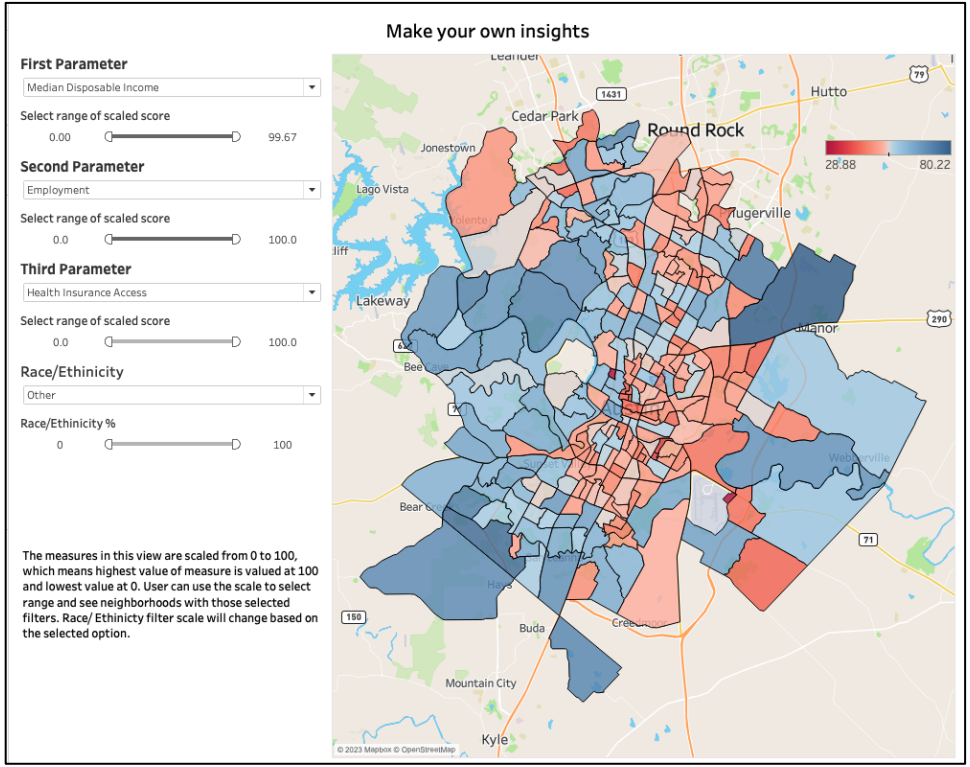
4 Red neighborhoods have low Median Disposable Income along with low Employment .

188 Yellow neighborhoods have low Median Disposable Income and Employment is higher than average.

Make your own insights - Concept

This view lets you create combinations of factors at different intensity levels to see where those conditions are true.

“Show me where conditions X, Y, and Z are true.”



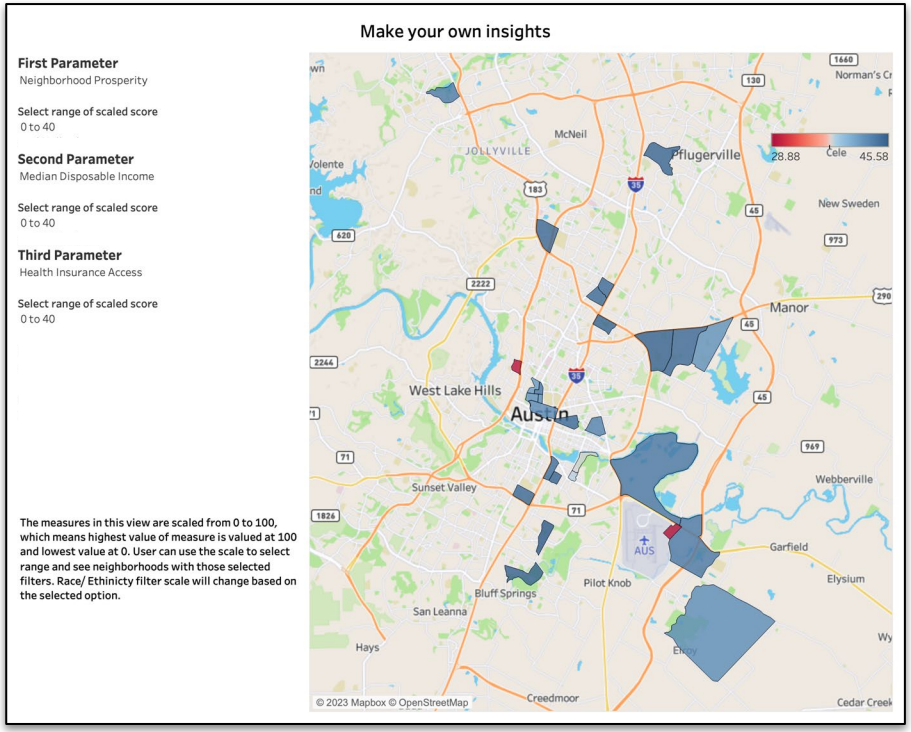
The measures in this view are scaled from 0 to 100, which means highest value of measure is valued at 100 and lowest value at 0. User can use the scale to select range and see neighborhoods with those selected filters.

Make your own insights- Result

Hypothetical: Where can we best direct program resources to improve access to health care?

We used following filters:

- Bottom 40% for overall prosperity score
- Bottom 40% for Median Disposable Income
- Bottom 40% for Health Insurance Access



The measures in this view are scaled from 0 to 100, which means the highest value of the measure is valued at 100 and lowest value at 0. The user can use the scale to select range and see neighborhoods with those selected filters.

Data Sources

Data Source	Link to access
American Community Survey (ACS)	https://www.census.gov/programs-surveys/acs/data.html
CDC PLACES	https://www.cdc.gov/places/index.html
ESRI Demographics Data	https://www.esri.com/en-us/arcgis/products/data-management
Austin ISD Open Data	https://www.austinisd.org/planning-asset-management/district-demographics
Travis County Voters record	https://tax-office.traviscountytx.gov/about-us/reports-data/voters
City of Austin Open Data Portal	https://data.austintexas.gov/

Data Currently Available

Economics
Median Disposable Income
Age 16+ Employed Population
Above Poverty Population
Median Net Worth
Median Rent
Median Housing Cost
Access to internet
Access to a car

Education
Population over 25 with bachelor’s degree
Population over 25 with High School diploma
School Enrollment for all ages
Children living above Poverty
Children with Internet Access

Health
Adults with no cancer history
Adults with no diagnosed diabetes
Adults with no kidney disease history
Adults with no stroke history
Adults with no obesity
Health Insurance Access
Adults with routine checkup last year
Adults with self-rated good health
Adults with no binge drinking
Adults with good mental health for last 14 days
Adults with no depression record

Civic Engagement
Percentage of voters who voted in last national election
Residents who work in government

Other Variables
Population by Race/ Ethnicity
Population by Educational Attainment
Number of Parks, Libraries and Fire Stations
Housing Units
Registered Voters

All potential factors

1. Median Household Income (Real) Dollars
2. Median Male Earnings, Dollars
3. Median Female Earnings, Dollars
4. Total population
5. Race: White
6. Race: Black or African American
7. Race: Asian
8. Race: Hispanic or Latino
9. Race: Other
10. Population Living Above Poverty Line
11. Children above poverty line
12. Population Living Below Poverty Line (18-64)
13. Percent of population employed
14. Unemployment Rate
15. State government workers
16. Local government workers
17. Federal government workers
18. Percent of Owner-Occupied Households
19. Percent of Renter Occupied Households
20. People with health insurance
21. Median Home Value
22. Median Home Value
23. Households With Computer at Home (Desktop or Laptop)
24. Households With Internet Access
25. Adult Users with Broadband Access
26. Under 18 with internet access at home
27. Means of Transportation to Work: Drive Alone
28. Means of Transportation to Work: Public Transportation
29. Car ownership by household
30. Median Gross Rent
31. Employment (Male)
32. Employment (Female)
33. Employment (Ages 16-19)
34. In Workforce (16-19)
35. In Workforce (16 and older)
36. Median monthly housing costs
37. People over 25 - High school graduation
38. People over 25 - Some college, no degree
39. People over 25 - Associates degree
40. People over 25 - Bachelor’s degree or higher
41. People over 25 - No high school graduation
42. School Enrollment: All Ages

All potential factors cont.

43. Preprimary School Enrollment %
44. Ages 3-4 enrolled in school %
45. Ages 5-9 enrolled in school %
46. Ages 10-14 enrolled in school %
47. Ages 15-17 enrolled in school %
48. Ages 18-19 enrolled in school %
49. Ages 20-24 enrolled in school %
50. Ages 25-34 enrolled in school %
51. Ages 35 and over enrolled in school %
52. Bachelor's degree or higher: Science and Engineering
53. Bachelor's degree or higher: Business
54. Bachelor's degree or higher: Education
55. Bachelor's degree or higher: Arts, Humanities and Others
56. year
57. Crashes
58. FatalCrashes
59. All teeth not lost among adults aged >=65 years
60. No arthritis among adults aged >=18 years
61. No binge drinking among adults aged >=18 years
62. No cancer (excluding skin cancer) among adults aged >=18 years
63. Cervical cancer screening among adult women aged 21-65 years
64. Cholesterol screening among adults aged >=18 years
65. No chronic kidney disease among adults aged >=18 years
66. No chronic obstructive pulmonary disease among adults aged >=18 years
67. No coronary heart disease among adults aged >=18 years
68. No asthma among adults aged >=18 years
69. People with health insurance among adults aged 18-64 years
70. No smoking among adults aged >=18 years
71. No depression among adults aged >=18 years
72. No diagnosed diabetes among adults aged >=18 years
73. Good self-rated health status among adults aged >=18 years
74. Fecal occult blood test, sigmoidoscopy, or colonoscopy among adults aged 50-75 years
75. No high blood pressure among adults aged >=18 years
76. No high cholesterol among adults aged >=18 years who have been screened in the past 5 years
77. Mammography use among women aged 50-74 years
78. Mental health good for >=14 days among adults aged >=18 years

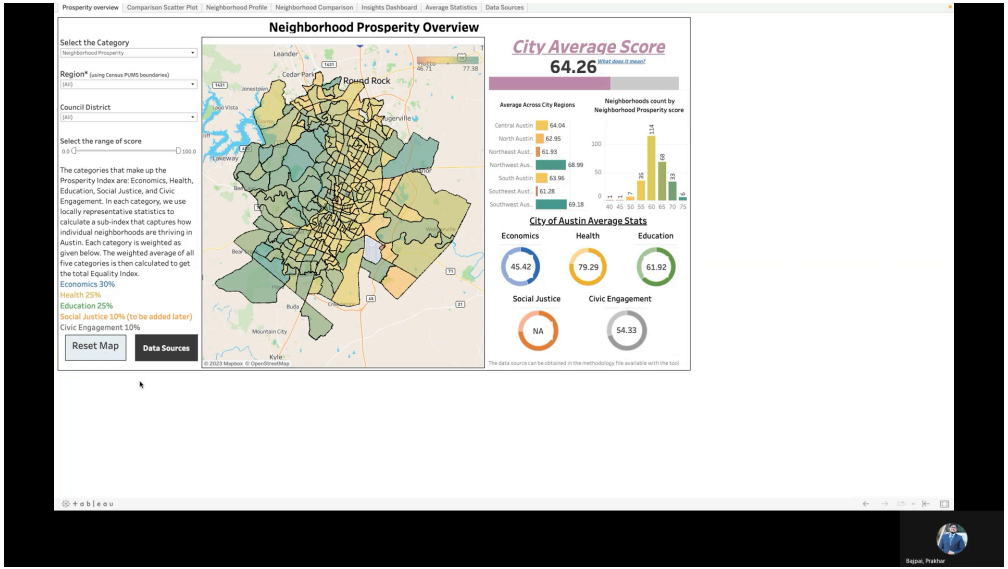
All potential factors cont.

79. Leisure-time physical activity among adults aged >=18 years
80. No obesity among adults aged >=18 years
81. Older adult men aged >=65 years who are up to date on a core set of clinical preventive services: Flu shot past year, PPV shot ever, Colorectal cancer screening
82. Older adult women aged >=65 years who are up to date on a core set of clinical preventive services: Flu shot past year, PPV shot ever, Colorectal cancer screening, and Mammogram past 2 years
83. Physical health good for >=14 days among adults aged >=18 years
84. Sleeping more than 7 hours among adults aged >=18 years
85. No stroke among adults aged >=18 years
86. Not taking medicine for high blood pressure control among adults aged >=18 years with high blood pressure
87. Visits to dentist or dental clinic among adults aged >=18 years
88. Visits to doctor for routine checkup within the past year among adults aged >=18 years
89. AFD: Priority 1
90. AFD: Priority 2
91. AFD: Priority 3
92. AFD: Priority 4
93. AFD: Priority 5
94. AFD: Abdominal Pain
95. AFD: Alarm Activation Med
96. AFD: Allergic Reaction
97. AFD: Altered Mentation
98. AFD: Animal Bite
99. AFD: Assault
100. AFD: Attended Patient
101. AFD: Back Pain
102. AFD: Burn
103. AFD: Chest Pain
104. AFD: Choking
105. AFD: Diabetic
106. AFD: Electrocution
107. AFD: Environmental Exposure
108. AFD: Eye Injury
109. AFD: Fall
110. AFD: Gunshot Wound
111. AFD: Hanging
112. AFD: Headache
113. AFD: AFD: Heart Problems

Demo 1: A holistic approach to vulnerability

Commonly used terms like “vulnerable”, “economic mobility”, or “wealth” used across many City publications, programs, service, and resources are often undefined or oversimplified. This makes them difficult to measure.

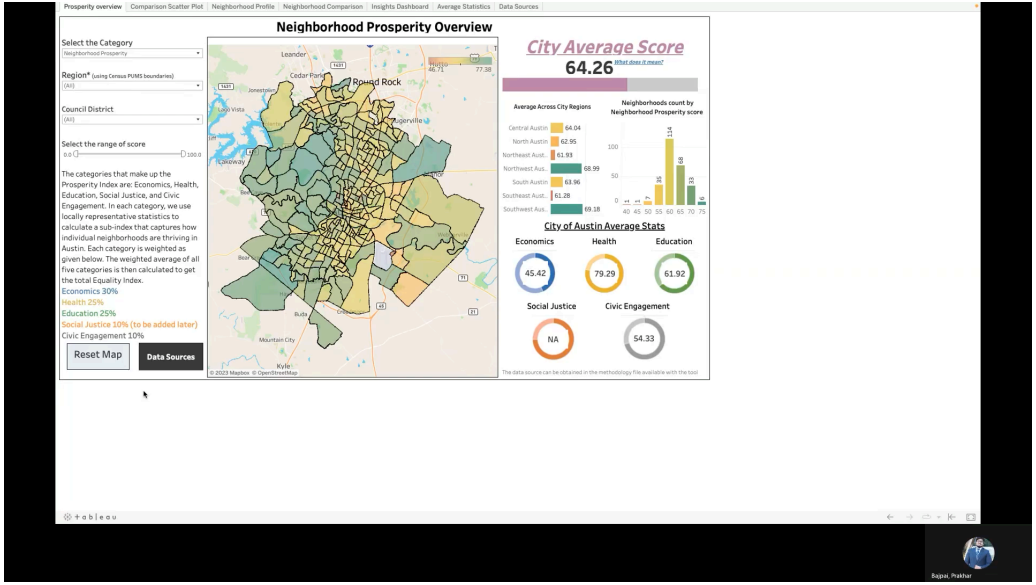
How can a decision support tool help the City define and measure practice terms toward a more calibrated, data-informed approach?



Demo 2: Index score vs. single indicator

We can miss the full picture of lived experience and even misrepresent it, cause erasure, or exclude people when we **use single indicators to determine how we deliver** programs and services or to establish selection criteria.

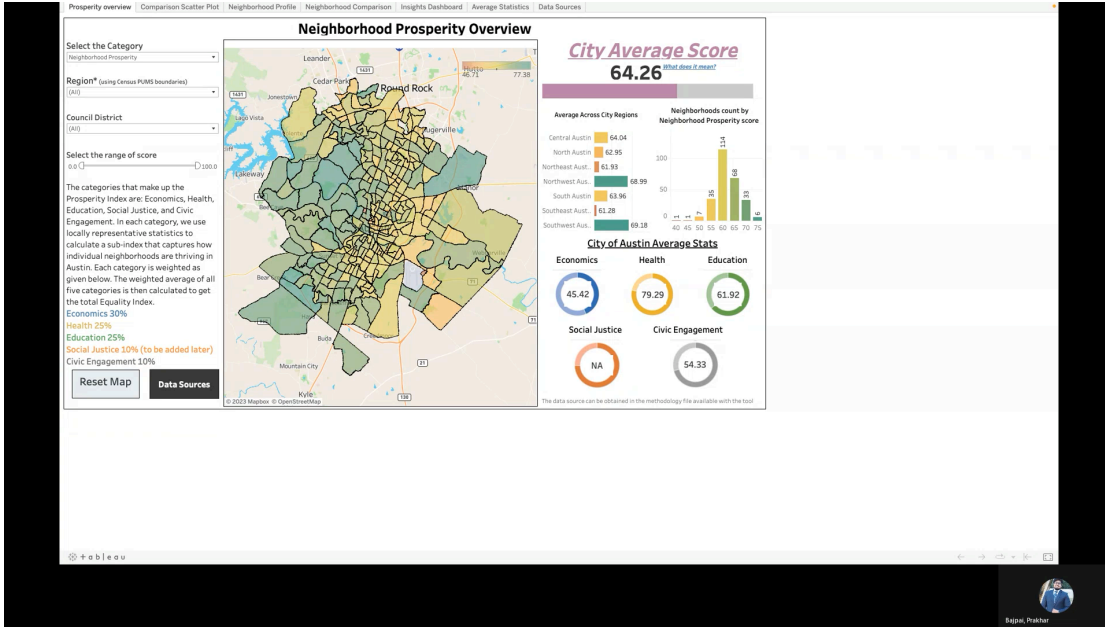
What happens when you consider the prosperity of neighborhoods based on a single indicator like the employment rate vs. looking at a more robust group of indicators together like the Neighborhood Prosperity Index Score?



Demo 3: Make your own insights

Static reports, briefs, and neighborhood profiles don't let the end user interact with data to craft insights; they restrict the user to predetermined insights that may not be useful for their use cases.

What is possible with a Decision Support Tool v. a static offering?



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Sustainability - Food Systems Team
APH - Office of Violence Prevention
EMS
Office of Police Oversight

Executive Sponsor

City Manager Office

External Collaborators

AISD

Next Steps

The NPD is growing over time to include both **current state** and **forecasting and scenario visualizations.**

In 2023:
•The current state **component is available to City Staff (Q1 2023)**.
•IO has initiated **continuous improvement** for the current state component by constructing and integrating **departmental use cases** with City staff
•IO is undertaking a **sprint** to explore how we might integrate **neighborhood assets data**. We will ID the types of decisions this data can support, and what data is feasible to obtain, integrate, and upkeep.
•IO is working with UT researchers to architect and **integrate forecasting and scenario analysis** models that will help the City grow its futures practice.

Thank you !

Questions?

Contact
prakhar.bajpai@austintexas.gov
Link to Neighborhood Prosperity Dashboard