A Spatiotemporal Look into Chicago's Bike Share Program: Divvy Bikes

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INTRODUCTION

Biking has many benefits. When people choose to bike, impacts are made in the fields of health, environment, travel, and safety. However, bikes are expensive, can easily be stolen, are bulky to transport, and often only cater to the needs of certain demographics.

Chicago’s bike-sharing service, Divvy, helps provide a solution to many of these obstacles by providing and maintaining over 6,000 bikes across Chicagoland. Within the past year, Divvy has made efforts to expand their services by placing more stations in disadvantaged areas on the Southside of Chicago and introducing ebikes which do not need to be docked.

This analysis seeks to provide insight into various aspects of historical Divvy rides. Focusing on 2020, data analyses from the months of March through October is displayed. Noticeable trends are observed in response to a couple of city-wide shutdowns. By examining kernel densities and other key insights, popular travel patterns and demographic data is further explained.

RESULTS

Figure 2: April had a significantly lower value of total rides, making it the outlier of an otherwise inverted-U shape trend. August had almost double the number of rides compared to June as a result of citywide re-opening of businesses/ recreational areas and the introduction of ebikes.

Figure 4: With approximately 66% of all designated bike paths in Chicago as a street lane or buffered street lane, there is currently little protection from other forms of traffic. Besides the lakefront, there are very few continuous bike paths with greenery, illustrating that bike paths are far underdeveloped compared to the road networks.

Figure 5: There is only a slight increase in distance travelled from start to end stations that is shown throughout the warmer months.

METHOD

Drawing data from the Divvy website and the Chicago Data Portal, data for relevant months was extracted and manipulated in ArcGIS Pro using various tools. Results were then uploaded to ArcGIS Online and added into Dashboard and Experience Builder platforms to visualize biking behaviors (seen to the right in Figure 1).

DISCUSSION

Divvy is bike share system that serves the city of Chicago by continuing to expand its services to become an accessible and reliable mode of transportation for all. House in a city with great seasonal variation, Divvy is accustomed to seeing great fluctuations in the total number of rides, both by day (as a result of weather or social unrest) and by month (as a result of COVID restrictions or climate). With various pricing options, Divvy caters well to both the transportation needs of city residents and seasonal visitors alike. Working closely with the City of Chicago in further developing transportation networks, Divvy will play a key role in helping improve the long-term sustainability of the city’s environment and the health of its inhabitants. This analysis contributes to previous studies examining spatiotemporal trends in transportation, particularly in urban areas.

REFERENCES


EXPERIENCE BUILDER

ArcGIS Online...