

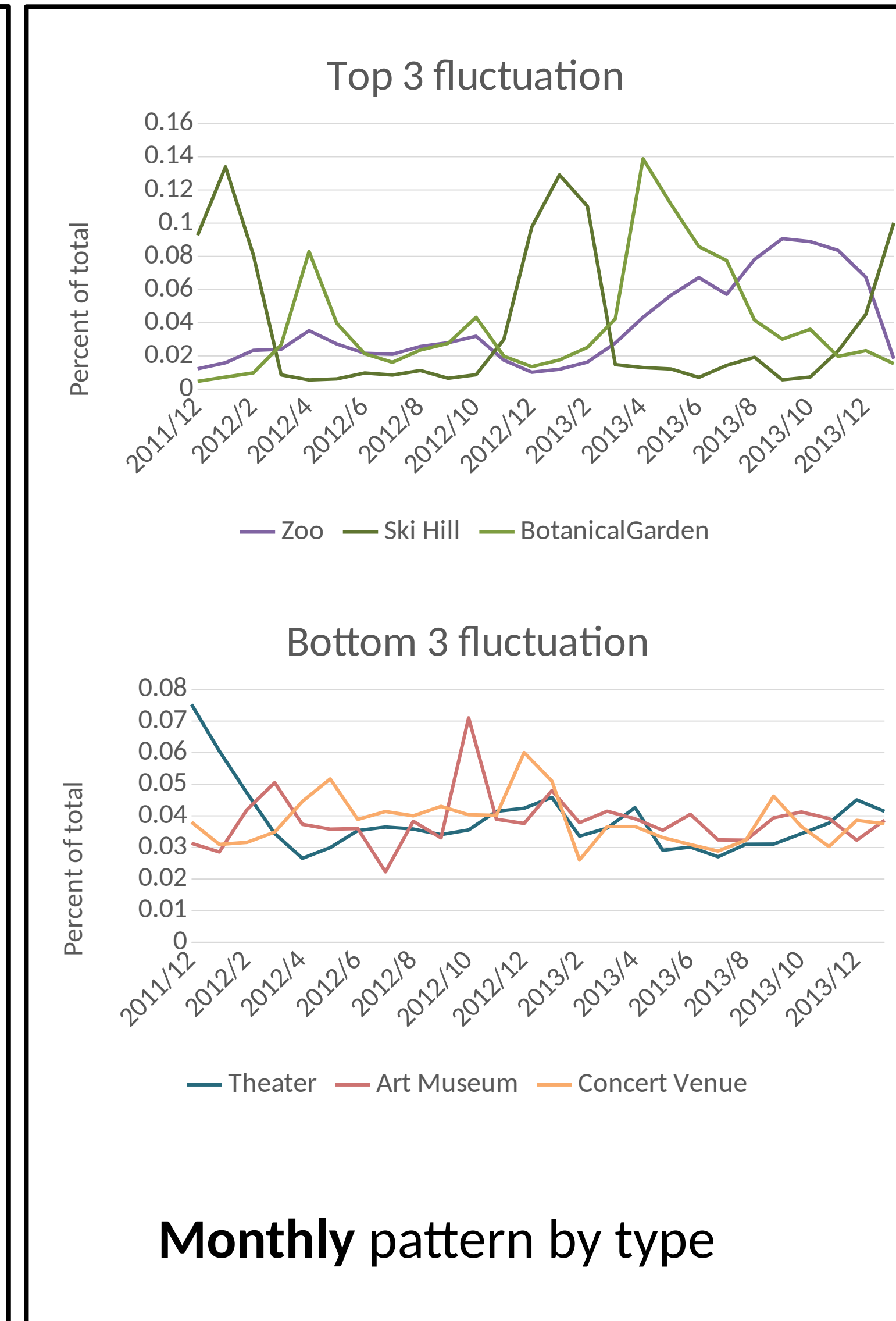
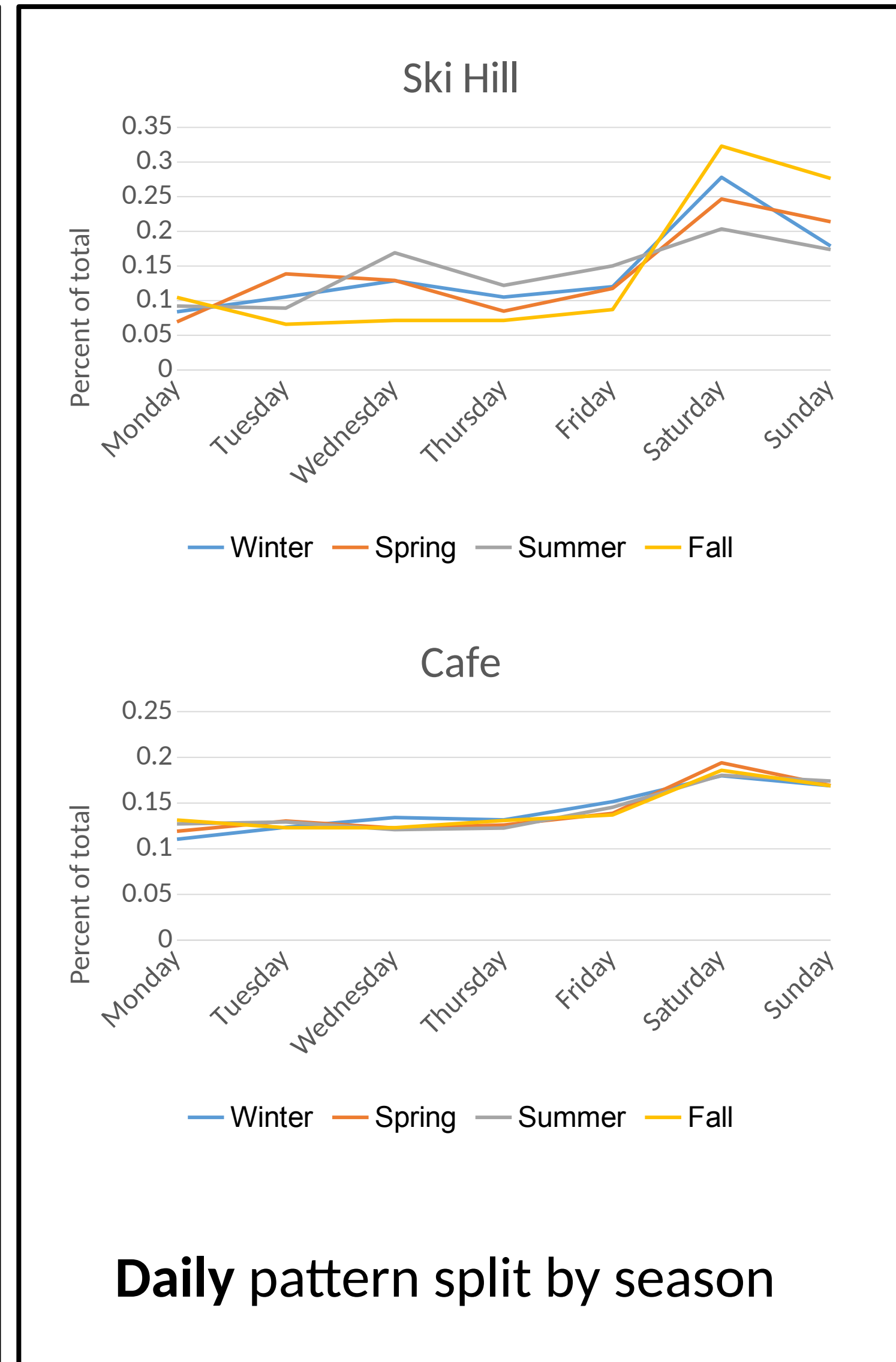
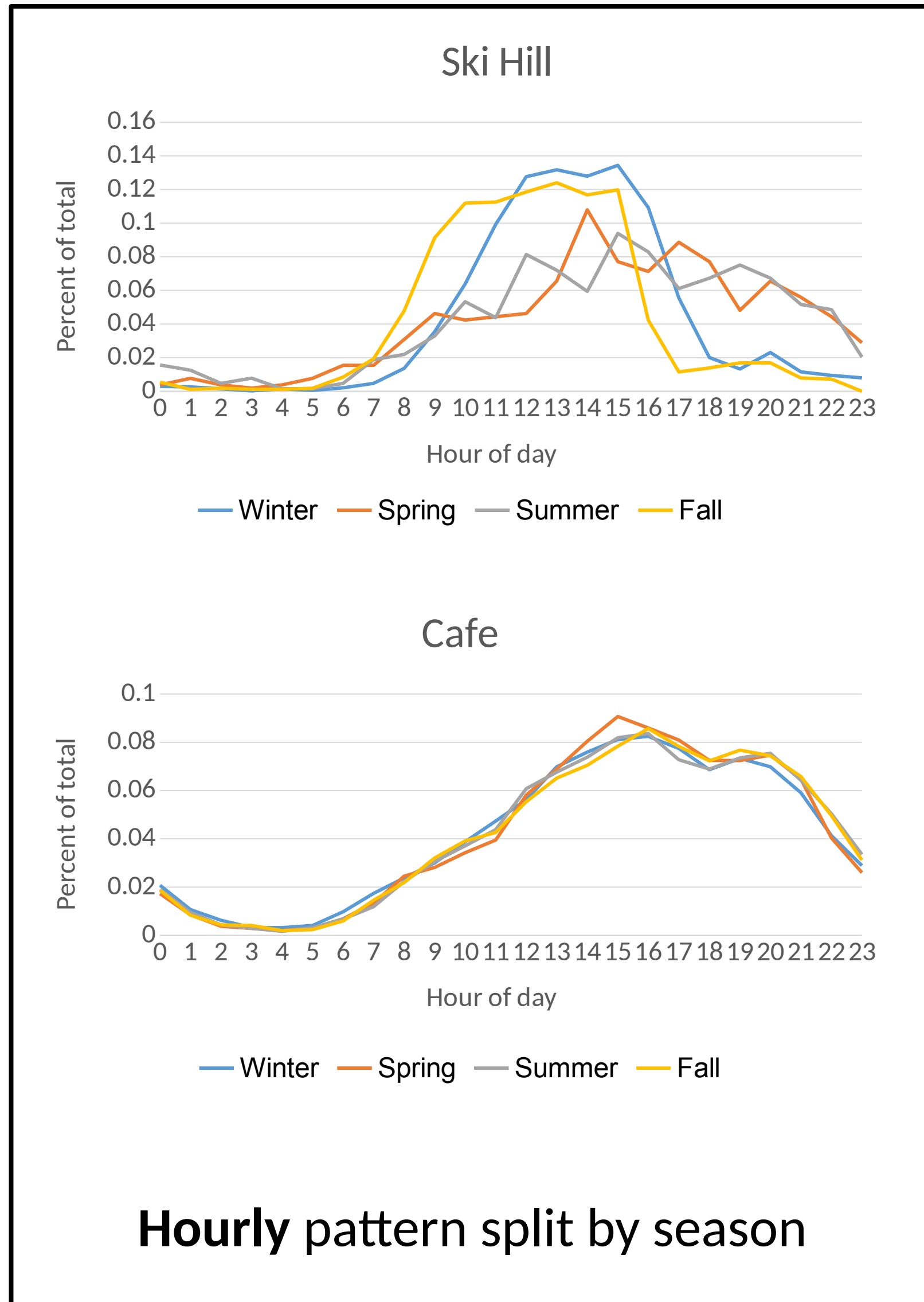
Identifying Spatiotemporal Activity Patterns in Beijing

Based on Geosocial Microblogs



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Temporal Activity Patterns



Research Question

Is there a measurable difference between spatiotemporal activity patterns as determined by point of interest (POI) check-ins to the geosocial media application Weibo?

Methods

Exploratory analysis is carried out to uncover spatiotemporal patterns in geosocial media check-ins. Popular POI types are split by hour, day-of-the-week, and month to demonstrate the variability temporal activity patterns (e.g., Ski Hill vs. Café). Kernel density estimation is used to identify popular regions of Beijing and expose spatial change between summer and winter months as well as between 2012 and 2013.

Preliminary Results

Temporal patterns of POI types under different time scales show different fluctuations. Ski Hills show the largest variance by hour and day of the week while Café shows the least fluctuation. Zoo, Ski Hill, and Botanical gardens demonstrate the largest variance by month with Theater, Art museum, and Concert Venue showing the least variance. Spatially, we see a measurable difference between summer and winter "popular regions." Further investigation of these spatial patterns is needed.

Next Steps

Further exploration will investigate similarities between activity patterns and their role in urban dynamics and place recommendation.

Spatial Activity Patterns (Difference in normalized Kernel Densities)

