The Environmental "Cent"iment Behind Urban Design - Effect of various urban environmental elements on Singapore's housing price

Objective
With Singapore's high housing costs as a case study, this project aims to explore the pricing models for a new green residential community, Punggol Eco-town, in Singapore's first ever sustainable residential project. Punggol Eco-town is both pathbreaking and integrated in the surrounding area. This new eco-town, Punggol Eco-town is based on sustainable and community-oriented housing systems, including the installation of a green park, underground pedestrian connection, solar lighting, and temperature regulation through cooling pipe. This project will be the first to investigate the effect of these novel features on housing prices.

Analytical Method
Our research question builds on the environmental friendly design of a district that will bring positive impacts to the price of houses. Therefore, we aim to test a hypothesis that specifically measures the effect of housing systems, such as solar panels and temperature regulation, on resale prices.

Descriptive Statistics Analysis
We assume that the Punggol Eco-town has a similar trend of increase in prices compared to Punggol District before the treatment and there will be a positive effect of the announcement of the Punggol eco-town plan in 2007 on the price of resale houses in Punggol.

Descriptive Statistics Analysis

Hypothesis

Singaporians are pragmatic when making choices and would value accessibility to commercial and economic developments more than access to green spaces and natural environments.

Descriptive Statistics Analysis

Hypothesis

The Hedonic Price Model is used to evaluate the socioeconomic value of certain features of a product. It assumes that consumers attribute different (log) price values to each of the features. In the context of the housing market, the prices of the houses can be due to several environmental factors such as distance to parks, schools, and environmental factors, such as distance to transport hubs, retail parks, and schools.

Data Collection and Process
The data of resale housing prices are fetched from the Singapore government's website, including approval date, location of the house, housing area and total price, etc.

We further process the data in two steps.
1. Price per square meter was calculated for each housing
2. Walking distance from each housing unit to the nearest MRT station, shopping mall, schools, parks, and reservoirs was extracted from Google Maps.

Conclusion
Although seemingly contradictory results were obtained for the two-part analysis, there is reason for the justification that environmental factors have negligible effects on the general resale market in relation to other, more tangible factors. However, the value of a favorable environment is more prominent in the case of specialized projects where it is pitched as the main selling point.