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The Impact of Environmental Amenities and Bushfire Risk on Melbourne's Housing Market: A Hedonic Property Values Approach

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Abstract

Melbourne City, Australia is abundant with environmental assets, including the Yarra river and Port Phillip Bay which are considered defining features of the city. However, some of the areas of the city are prone to bushfire risk. This research explores the factors influencing residential property prices in Melbourne, Australia, using the Hedonic property values approach, and reveals the implicit values related to the environmental amenities. Data related to prices of the houses sold in Williamstown, Boronia, Hawthorn and St Kilda suburbs, which were published by the real estate sector, were obtained for the period from 2020 to 2024. Simple random sampling was used, and the ultimate sample consisted of 494 houses. Information on the structural attributes of the houses such as the number of bedrooms, bathrooms and lot size, location, neighbourhood characteristics such as proximity to schools, proximity to amenities, environmental characteristics and bushfire risk were also gathered. Regression analysis was employed to analyze the data. According to the results, the adjusted R-squared value was 0.9308, indicating an acceptable model fit. The model satisfied all the requirements related to multicollinearity, heteroscedasticity, and normality of residuals. The property prices are positively influenced by the number of bedrooms ($\beta=0.097$), the number of bathrooms ($\beta=0.099$), the presence of a pool ($\beta=0.134$), a fireplace ($\beta=0.038$), automatic gates ($\beta=0.083$) and a garden ($\beta=0.047$). The influence of lot size is also positive ($\beta=2.221$). The impact of the distance to government schools is negative. The proximity to bushfire zones negatively affects property values ($\beta= -1.375$). The housing prices increase when moving closer to Yarra River ($\beta= 0.319$) and Port Phillip Bay ($\beta= 0.047$). The Marginal Willingness to Pay values for being closer to the Yarra River and Port Phillip Bay are AUD 584,840.03 and AUD 86,639.08 respectively, which are considerable. The study's findings indicate that buyers in the Melbourne housing market are influenced by bushfire risk, while proximity to environmental amenities like the Yarra River boosts property values. These insights provide valuable guidance for stakeholders in Melbourne's housing market, informing property valuation methods and policy decisions.

Keywords: *Hedonic property values approach, Melbourne housing market, Yarra River, Port Phillip Bay, Bushfire risk*