How Green Buildings Effect Both Price and Desire in the Real Estate Housing Market

Bryson Lino
Cal Poly San Luis Obispo
San Luis Obispo, CA

There has been a recent emphasis on green building certification. Unlike other conventional building approaches, green building has emerged as a sustainable way of building in the real estate housing market. As a result of the green building revolution, the real estate developers have been prompted to acknowledge the essence of environmental and social factors on the investment properties' value. It is through such a paradigm shift that the green building has redefined the real estate business. Given that climate change has emerged as a major global issue, interventions have been made to avert the emission of high levels of carbon monoxide. It is for this reason that the green building has emerged as an appropriate preventive solution to such serious concerns, especially considering that the real estate sector is one of the largest contributors of carbon dioxide emission globally. By embracing green building, trends have emerged whereby the real estate properties are being built, designed, maintained, and operated using environmentally responsible and resource-efficient processes. Globally, Leadership in Energy and Environmental Design (LEED) and Energy Star are the known certification frameworks aimed at ensuring that the real estate properties adhere to the set standards to be qualified as a green building. Real estate investors have been using such green building certifications as a strategy to attract more customers, especially those that are aware of some of the environmental consequences attributable to a conventional building. The survey results suggest that a majority of people will prefer purchasing green buildings as opposed to conventional ones. However, such green buildings attract comparable higher prices in the real estate housing market.

Key Words: Green Building, Real Estate, Leadership in Energy and Environmental Design (LEED), Environmental Consequences

Introduction

Environmental issues attributed to houses has become a major concern. It is for this reason that there has been a paradigm shift in the real estate housing market (Heinzle & Low Yu Xing, 2013). Focus has shifted from conventional buildings to green buildings to address concerns about natural resource consumption and energy consumption. The paradigm shift to green buildings is a worthwhile cause given that the conventional building approach in the real estate housing market is responsible for an estimated 50% of carbon dioxide emissions and other wastes that have far-reaching consequences on the environment (Zheng, Kahn & Deng, 2012). Green buildings have emerged as an ultimate solution aimed at addressing carbon dioxide emissions and reducing the consumption of building energy. As a result, this explains why there has been a growing interest in green buildings, thus prompting the real estate developers to embrace sustainable and green practices. Unlike conventional buildings, green buildings are comparably more expensive. However, much higher costs are usually justified by the perceived economic value portended by them.

The increasing environmental concerns such as climate change has necessitated the need to address pollution (Zhang & Dong, 2018). Given that the conventional buildings have played a key role in such unprecedented levels of

pollution, the green building approach has emerged as an alternative that can help households live in environmentally sustainable houses. It is for this reason that architecture and urban planning scholars have been keen to establish if green building certification can add value to the real estate housing market. The growing interest in green building in real estate is an indicator of the need to embrace green and sustainable practices. As a result, such a trend has significantly influenced the development processes in real estate. However, it should be acknowledged that the concept of green building has revolutionized the real estate housing market in different ways.

The potential homeowners have been prioritizing green buildings when scouting for real estate properties to purchase (Sichali & Banda, 2017). Equally, the real estate developers have been embracing green building technology to strategically position their properties for demand in the real estate housing market. Nonetheless, the building and acquisition of green buildings are costly compared to conventional buildings. According to urban planning and architectural scholars, the high prices for green buildings is attributable to sustainable building materials that are comparably expensive and the more efficient mechanical systems that are relatively pricey (Nagrale & Sabihuddin, 2020). The high cost of green buildings is attributable to its better modeling, design, and integration. However, it is vital to note that the green buildings' cost premium is determined by the choices that are made by the developer. The operational efficiency attributable to green building has made its higher costs viable economically.

Literature Review

The study by Heinzle & Low Yu Xing (2013) outlines green building as a preventive solution to the pressing issue of climate change. In the argument, green buildings have been described as real estate properties that are operated, built, and maintained using resource efficient and environmentally responsible processes. According to Zheng, Kahn & Deng (2012), implementing environmentally friendly technologies to actualize green buildings is a proven way that can be implemented by real estate developers to minimize the carbon footprint attributed to the real estate properties. Hsieh, Claresta & Bui (2020) further emphasize that for a real estate development to be regarded as a green building, acquisition of green certification by the Leadership in Energy and Environmental Design (LEED) as well as Energy Start is mandatory. Based on the study findings, such green certifications are used as frameworks to affirm that all the set standards for the green building have been adhered to by the real estate properties. Zhang, Wu & Liu (2018) on the other hand argues that green building certifications can be used by the real estate developers and investors as a marketing strategy to attract prospective customers, especially at such a time when people are preferring environmentally sustainable green buildings at the expense of conventional building.

Nonetheless, the study by Zhang & Dong (2018) focuses on different ways in which the real estate business has been disrupted by the green building technology. Subsequent discussions point out that real estate investors embracing green buildings are entitled to higher returns. Sorial (2017) emphasizes that by investing in green buildings, a real estate investor/developer will be guaranteed higher returns on investment. The study findings state that green buildings usually attract high price premiums compared to other conventional properties. For instance, it is highlighted that LEED-certified buildings have the potential of attracting an additional 30% premium cost price when such a property is being sold in the real estate housing market. Equally, the cross-sectional study by Saeed & Mullahwaish (2020) has established that the green accreditation of real estate properties contributed to a higher occupancy rate. In this case, conducted studies establish that the tenants are most likely to be attracted to real estates with green accreditation. As such, this has an impact on decreasing the vacancy rates in the real estate meeting the expected green building criteria.

A subsequent study by the U.S Green Building Council (USGBC) in Washington DC established that family homes constructed using green building technologies attracted higher market value in the real estate housing market. On the flip side, the green buildings real estate investors had the justifiable reasons to demand comparably high rents from their tenants. As part of the government's initiative to encourage sustainable buildings, Heinzle & Low Yu Xing (2013) state that green homes real estate investors were eligible for financial incentives such as tax credits. It is as a result of this that the current real estate investors and developers have become aware of the environmental risks attributable to the conventional building methods, thus prompting them to embrace green building technology in masses. Sichali & Banda (2017) points out that the real estate investors are willing to spend more financial resources to build environmentally friendly and energy-efficient real estate properties that will, in turn, attract high premium cost prices when being sold in the real estate housing market.

In a study examining the social and environmental benefits of green buildings, Nagrale & Sabihuddin (2020) argues that the effect of green building on the real estate investment can be gauged based on the resultant social benefits. For instance, green building technology contributes to less water pollution and greenhouse emission. Equally, the real estate investors and tenants will have the ability to control the quality of the indoor environment by utilizing natural lights through better ventilation. Such aspects can make life enjoyable and in return, the tenants as well as real estate investors will be willing to part with high prices in terms of rent or the purchase price. The study by Walker & Goubran (2020) further affirms that embracing green building technologies can play a significant role in reducing pollution. In this case, the embraced sustainable building framework plays a key role in reducing the emission of greenhouse gasses.

The incorporated green building technologies can also help conserve energy and water. Therefore, Luo & Chen (2020) are convinced that green building technologies are the future of real estate development and investment. By opting for environmentally and socially sustainable buildings, real estate investors can be guaranteed higher returns on investment and high rental incomes. On an additional note, the study by Liu & Lin (2016) has justified the higher market values for green buildings. In this case, it is emphasized that the higher market value attributed to green buildings is based on their economic, social, and environmental benefits. In this regard, Leskinen, Vimpari & Junnila (2020) highlights that the high market value of green buildings is attributed to the fact that they usually use fewer resources throughout their life. Besides this, they are also water and energy efficient. The reduced environmental impact and high quality of indoor air is another reason cited by Jilong (2017) as to why green buildings have high demand and attract higher prices in the real estate housing market.

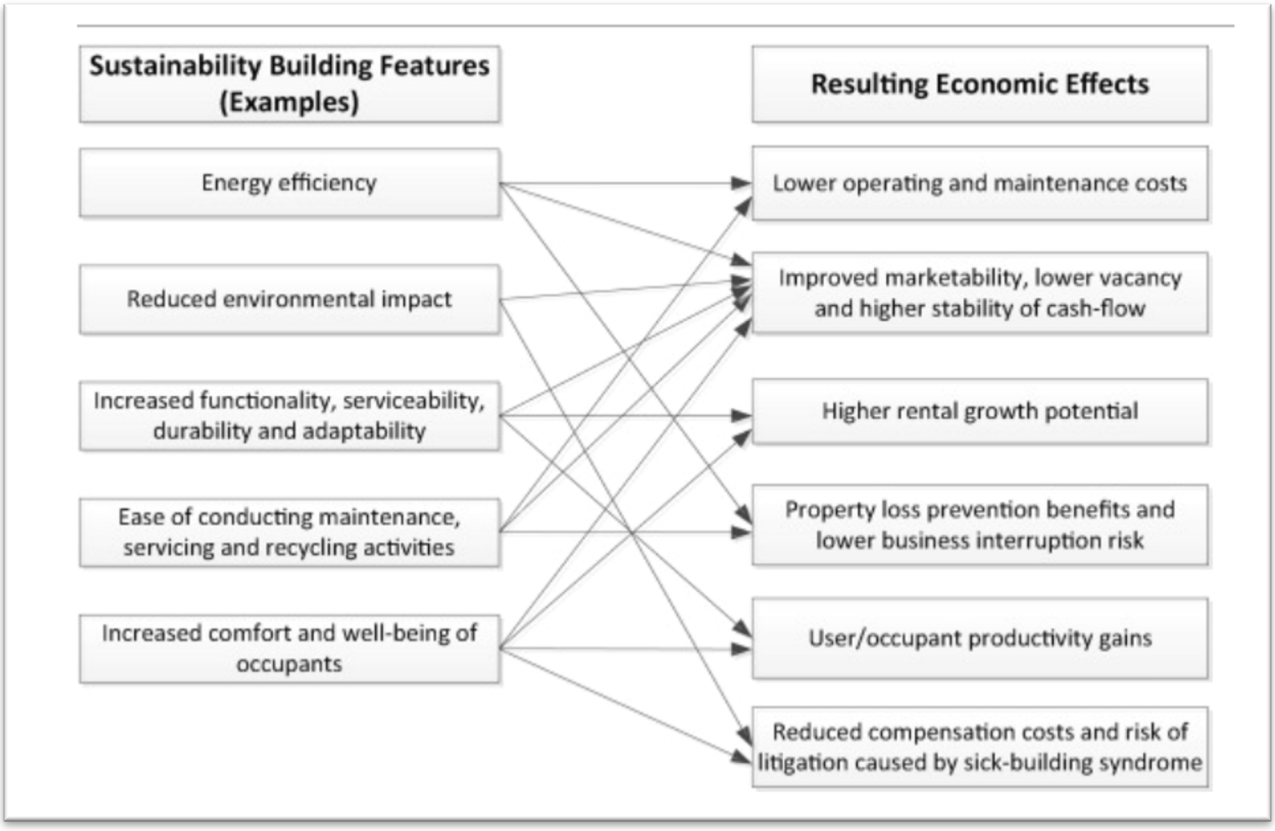


Figure 1: Sustainable Building Economic Impact

Research Goals and Objectives

The project is aimed at understanding the perception of the public about sustainability in the real estate housing market. Through the conducted survey, the research is keen to gain greater insights about the current values that are

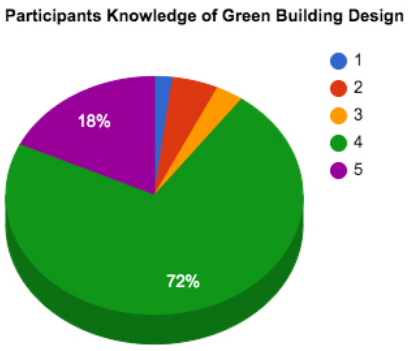
considered by the potential home buyers when purchasing real estate properties. Owing to the increasing prominence of climate change, the study helps to find out the considerations of potential homeowners when they are deciding to purchase the real estate properties in the housing market. Considering that climate change and its resultant effects have provided a few lessons on the essence of environmental sustainability, the study will gauge if sustainability is a principle consideration by the potential home buyers. Through such an approach, the study will outline how the desire for green homes and the prices influence the decision of prospective home buyers. The gathered information will help explain why the green homes are comparably expensive and in high demand compared to other conventional buildings. Equally, it will also help justify the margins of price ranges that the potential homeowners are willing to pay for sustainable green homes.

Research Methodology

The research will utilize qualitative and quantitative methods to gather the necessary data for explaining how the green building design affects both the price and the desire in the real estate housing market. The qualitative research facilitated the gathering of information about concepts, meanings, and characteristics of green building technologies and why they are transforming the real estate housing market. The qualitative research also helped to get insights from urban planning and architectural scholars regarding the green buildings, their design and approach, and the subsequent aspect of environmental sustainability in terms of the reduced greenhouse effect as well as energy and water conservation. Lastly the qualitative research also focused on other conventional building methods and their subsequent impact on the environment. Moreover, in order to fully understand How Green Buildings Effect Both Price and Desire in the Real Estate Housing Market, a 10-question survey was created using the Survey Monkey platform. The 10-question survey that was created for this project was done so with the assistance of a California Polytechnic State University Construction Management Professor. The 10 questions were designed to challenge the way potential home buyer's value Green Building Design. For the means of data collection, this survey will utilize California Polytechnic's State University's Construction Management student body. Such a comparative approach between green building technologies and the conventional building methods will help explain why green homes have higher desires and attract higher prices in the real estate housing market compared to the conventional ones.

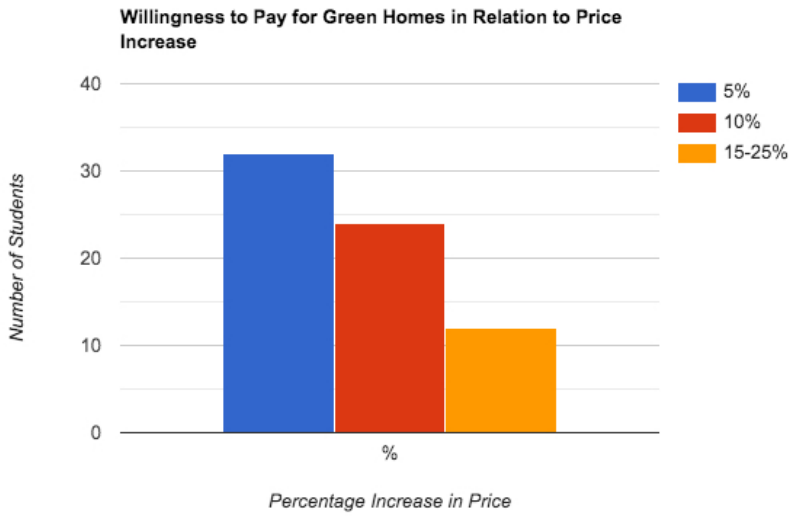
Survey Analysis

Ninety-five of California Polytechnic State University's Construction Management students took the 10-question survey. Of the ninety-five students that took the survey 14 were first years, 23 were second years, 32 were third years and 26 were fourth years. With that said, all participants were asked to rate their knowledge of green building Design on a scale of 1-5 with 1 being not so familiar and 5 being very familiar. Through this, 2% answered with a 1, 5% answered with a 2, 3% answered with a 3, 72% answered with a 4, and 18% answered with a 5. It can be taken from this that about 90% of the Construction Management student body have a strong understanding of what a green building entails, ultimately producing a reliable set of survey results.



Additional survey questions asked the participators how they value both the environment as well as the built environment using the same 1-5 scale. The results received here were quite consistent in the sense that a majority of the students valued both environments as very important, with an average of 4.6 coming in on the scale. When students were asked if they would prefer to buy a home with a sustainable green design, 97% answered yes which accounted for ninety-two of the ninety-five students that took the survey. It can be taken from this that green buildings have that of an extremely high demand in the Real Estate Housing Market.

When the students were asked if they would be willing to pay more for a home with green building design, 81% of participants answered with a yes. Of that 81%, 32 of the participants were willing to pay 5% more, 24 of the participants were willing to pay 10% more, and the last 12 were willing to pay between 15% and 25% more.



Conclusion

Residential buildings constitute a significant source of environmental concerns in terms of greenhouse gas emissions responsible for the environmental change concerns. As a result, green building technologies have emerged as a game-changer in the real estate industry as the demand for these homes is continuing to increase. Through the study that I have conducted on the Cal Poly Construction Management Students it is clear that the majority would prefer to have a home of this design type even with the high market prices. Moreover, the increasing relevance of green buildings has prompted the establishment of green building certification designed to ensure that buildings are built, designed, and operated with minimal impact on the environment. Such plans are aimed at providing the required frameworks for creating green buildings and the key specifications that real estate developers should meet. The increasing preference for environmentally sustainable homes explains why green homes have higher desires and attract higher prices in the real estate housing market. Unlike the conventional building methods, the green building technology prioritizes reduced environmental impact and high indoor air quality. Its other distinguishing features include energy efficiency, increased comfort, and well-being of the occupants as well as the ease of conducting service, maintenance, and recycling activities. All in all, the Cal Poly Construction Management Students high desires for green homes, can be attributed to their low maintenance and operating cost, improved marketability, high rental growth potential, and reduced compensation costs.

Future Research

Future research work should focus on the affordability of green homes. The current research has illuminated on the high desire and prices of green buildings in the real estate housing market. However, there are no insights on whether the prices charged for green homes are affordable and within the reachable range among the potential homeowners. Equally, future research should also work on a model for pricing conventional homes and green

homes. A scholarly and statistically proven model will help eliminate scenarios where some potential homebuyers are discriminated against by being charged exorbitant prices by the real estate investors in the pretext of social, economic, and environmental sustainability offered by green homes.

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