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Embracing Construction Revolution 4.0 (CR4.0): Transforming Malaysia's Built Environment

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WELCOME SPEECH FROM THE CHAIRMAN

RISM 17th International Surveying Conference for Undergraduates (ISCU 2025)

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ السَّلَام

عَلَيْكُمْ وَرَحْمَةُ اللَّهِ وَبَرَكَاتُهُ

Greetings to all,

It is with great pleasure that I welcome you to the 17th RISM International Surveying Conference for Undergraduates (ISCU 2025), themed “*Embracing Construction Revolution 4.0: Transforming Malaysia’s Built Environment.*” On behalf of the Royal Institution of Surveyors Malaysia (RISM), I also wish to express our sincere appreciation to Universiti Teknologi MARA (UiTM), Perak Campus, for graciously hosting this significant event.

As we navigate the era of the Fourth Industrial Revolution (IR4.0)—or in our context, Construction Revolution 4.0 (CR4.0)—we are witnessing transformative advancements across the global construction sector. Technologies such as Building Information Modelling (BIM), the Internet of Things (IoT), artificial intelligence (AI), robotics, big data analytics, and cloud computing are redefining the way we build, manage, and interact with our built environment. For Malaysia, embracing CR4.0 is a strategic imperative to achieve our socio-economic and environmental goals.

This conference serves as a vital platform to unite surveying undergraduates from various disciplines, fostering critical dialogue on industry challenges, enhancing professional networking, and preparing a new generation of talent for the rapidly evolving construction landscape. It is also an opportunity for employers to engage with and inspire our future professionals.

I would like to extend my heartfelt thanks to all industry speakers, paper presenters, judges, and participants for their time, contributions, and support in making ISCU 2025 a success. I also commend the organising committee for curating a meaningful and dynamic conference experience.

May the knowledge gained, connections formed, and ideas exchanged during this event inspire all participants to lead and innovate in their future endeavours.

Wishing everyone a productive and memorable conference.

Prof. Ts Sr Dr. Adi Irfan Bin Che Ani'

Chairman, Universities' Partnering Committee

RISM Session 2024/2025

May 2025

WELCOME SPEECH FROM CO-CHAIRMAN

RISM 17th International Surveying Conference for Undergraduates (ISCU 2025)

Bismillahirrahmanirrahim.

السلام عليكم ورحمة الله وبركاته and greetings to all.

It is my great pleasure to welcome everyone to the 17th International Surveyor Conference for Undergraduates (ISCU 2025), proudly hosted by Universiti Teknologi MARA (UiTM) Perak Branch in collaboration with the Royal Institution of Surveyors Malaysia (RISM). This event is a meaningful platform for students in the built environment to share ideas, showcase innovations, and build professional networks. We are honoured by your presence and enthusiastic participation, with 135 accepted papers and 78 poster presentations this year.

UiTM Perak, home to the College of Built Environment, has long been a hub for academic excellence in architecture, planning, and surveying. Our commitment remains strong in nurturing competent graduates who meet industry demands and contribute to nation-building.

While you're here, we invite you to experience the heritage and culture of Perak Tengah from the architectural richness of Rumah Kutai to the historical towns of Pasir Salak, Bota, and Kampung Gajah.

To all presenters and winners, congratulations on your achievements. Let your work today be a catalyst for future success and academic growth. We hope this conference will inspire you to explore new ideas, foster collaboration, and make lasting memories.

My deepest thanks to the Royal Institution of Surveyors Malaysia (RISM) and the organising committee for making this event a success.

We hope your experience here will be rewarding and unforgettable.

Thank you. Selamat datang dan selamat berjaya.

Associates Professor Dr. Nur Hisham Ibrahim, *PMP*

Co-Chairman, Universities' Partnering Committee

RISM Session 2024/2025

May 2025

WELCOME SPEECH FROM THE PROJECT DIRECTOR

RISM 17th International Surveying Conference for Undergraduates 2025

Alhamdulillah, all praise to Allah S.W.T. for His guidance and blessings in making the RISM 17th International Surveying Conference for Undergraduates (ISCU) 2025 a reality.

It is with great honour and gratitude that I welcome all participants, guests, academicians, and industry professionals to this prestigious event, proudly organized under the Royal Institution of Surveyors Malaysia (RISM). This 17th edition of ISCU stands as a proud testament to our collective dedication toward academic excellence, professional collaboration, and youth empowerment in the field of surveying.

I extend my heartfelt appreciation to RISM for its unwavering support, to the hardworking ISCU 2025 Organising Committee, and to all 16 partnering universities across Malaysia for their commitment and contributions. Your efforts have shaped this conference into a dynamic platform for knowledge exchange, innovation, and professional growth.

To the academicians and practitioners present, your insights are invaluable in bridging the gap between academic theory and real-world practice. To our undergraduate participants, your passion, curiosity, and commitment are the very foundation of our future. May this conference not only deepen your academic journey but also ignite a spirit of leadership, integrity, and sustainable thinking.

Let this gathering serve as more than an academic milestone. May it foster lifelong networks, inspire transformative ideas, and chart new directions in our shared professional journey.

Wishing everyone a rewarding and inspiring conference experience.

Sr Dr. Nurul Fadzila Zahari

Project Director

RISM 17th ISCU 2025

EVALUATING THE DYNAMICS OF PRE-WAR COMMERCIAL PROPERTY VALUE IN BANDAR PENGKARAM HERITAGE ZONE (2014-2024)

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ABSTRACT

The dynamics of commercial property market for pre-war buildings within the heritage zones always presents a complex and evolving scenario. Challenges such as low transaction volumes, limited comparable evidence, and significant urban conservation and preservation issues have made it challenging to accurately assess property values. Moreover, economic fluctuations and recovery after COVID-19 pandemic have further complicated trends in this sector. This study aims to comprehensively analyse trends in the commercial property values of pre-war buildings in Bandar Penggaram's heritage zone from 2014 to 2024. It will also seek to identify key factors influencing these property values. A qualitative research approach will be adopted, relying on data collected through an extensive review of sales transaction documents. The primary data sources will include the sales data transaction obtained from Valuation and Property Services Department (JPPH) and property market reports from the National Property Information Centre NAPIC), focusing on commercial property transactions within the said period. To effectively analyse the data, Microsoft Excel will be used to identify trends and dynamics in pre-war building transactions. Additionally, Multiple Regression Analysis (MRA) will be conducted using the Statistical Package for the Social Sciences (SPSS). This research will enable for understanding and to gain deeper insights into the factors influencing property values for commercial pre-war buildings within Batu Pahat Heritage Zone.

Keywords: Commercial Property, Pre-war Buildings, Heritage Zone, Property Valuation

I. INTRODUCTION

Commercial real estate plays a crucial role in providing workspaces for businesses, generating income through leasing or appreciating in value. The valuation of these properties is influenced by factors such as location attributes, structural characteristics, and neighbourhood features (Gwamna et al., 2015). In the context of heritage zones, which encompass cultural assets like buildings and monuments, need preservation to maintain property values and attract tourism, thereby promoting economic growth and job creation (UNESCO, 2015; Towse & Hernández, 2020). Proper maintenance of heritage sites enhances their efficiency, prolong the lifespan, and increases property values, further encouraging investment and fostering community pride (Rahman et al., 2012). This has inspired me to analyse the trend of prewar commercial building and factor influencing them focusing in the heritage zone of Bandar Penggaram.

Historic or pre-war buildings, often associated with the preservation of historical events for future generations, can be classified as heritage buildings when recognized by agencies such as UNESCO or as abandoned if they fall into neglect (Ahad et al., 2023). In addition, according to NAPIC (2024), there were 617 commercial prewar buildings recorded in the system.



Figure 1.0: Heritage Zone within Bandar Penggaram
(Source: Batu Pahat Municipal Council (MPBP))

The heritage zone in Batu Pahat consists of pre-war buildings in which bring historical value to the area, showcasing architectural styles influenced by the Eclectic, Early Colonial/Anglo Indian, and Art Deco styles. These buildings not only represent the cultural history of the region but also add to the unique identity of the area. The preservation of heritage buildings is vital for urban regeneration (Bin Hasbollah & Baldry, 2016). Local authorities like MPBP actively working to conserve the Batu Pahat heritage zone, which includes commercial properties along the Batu Pahat River (Radzuan et al., 2024). This commitment to preservation aligns with the broader urban development goals, as maintaining heritage sites can enhance both the cultural and economic value of the area. Moreover, unique shop designs, landmarks, and historical significance play a role in their classification within Local Plans, which in turn enhances profitability and increases commercial property values (Radzuan et al., 2024). Factors that influence valuation include location attributes, structural characteristics, and neighbourhood features (Gwamna et al., 2015), as well as subjective elements like aesthetic appeal and investor risk tolerance (Goddard, 2021). Taking into consideration, this study investigates the transaction of prewar commercial building in BP, aiming to analyse the dynamics of commercial property transactions over a 10-year period, from 2014 to 2024. By examining these transactions, the study seeks to provide insights into the trends and factors affecting the commercial property market in this heritage zone.

PROBLEM STATEMENT

Rapid urbanization in Malaysia, driven by population growth, economic development, and physical expansion, poses a threat to heritage zones (Tamjes et al., 2017). Heritage sites play a crucial role in the economy, particularly in tourism and business sectors, and conservation efforts can align these sites with economic goals or the highest and best use (HABU) (Throsby, 2014). The public's misconceptions regarding the purpose and importance of conservation efforts contribute to a dismal attitude towards the preservation of local heritage buildings, which complicates adherence to established conservation principles that prioritize the retention of original structures and fabrics to maintain national heritage in its authentic value (Harun, 2011). Moreover, the effort of preservation also faces challenges such as economic pressure, the condition of buildings, their locations, and a lack of cooperation from property owners (Thirunavukkrasu et al., 2021).

These factors collectively hinder effective conservation practices often leading to inconsistencies in valuing heritage properties. The interplay between economic considerations and the inherent value of heritage buildings often create tension, further complicating conservation efforts. Furthermore, common issue that arises from heritage property value is the misvaluation of assets, where the existing market price does not accurately represent the current market condition (McMillen & Weber, 2008). In the real estate market, the availability of transaction data is a vital element in the valuation process based on the comparison approach, as urban areas exhibit a higher frequency of property sales and purchases transactions compared to rural regions (Azmi & Maimun, 2022). This lack of comparable evidence led to price bias (Anderson et al., 2007) and market manipulation (Mohamad & Junainah, 2012). The uniqueness of heritage properties complicates their valuation through conventional methods, as their value cannot be solely expressed by statistics but is also influenced by various factors, including non-use value and intrinsic value (Mohamad et al., 2021). In contrast, the heritage zones can revitalize the property market by boosting tourism, generating income, attracting investments, and creating jobs (Mat Zin et al., 2018). Additionally, studies indicate that residential areas near heritage sites often see increased market values, influenced by factors like location, structural traits, and neighbourhood characteristics (Ganesalingam et al., 2023).

RESEARCH QUESTIONS AND OBJECTIVES

Based on the above issue, has transpires a few research question

- i. What are the trends in commercial property value for prewar buildings within the heritage zone of Bandar Penggaram from 2014 to 2024?
- ii. What factors influencing the value of commercial properties in prewar buildings within the heritage zone of Bandar Penggaram?

This research aims to analyse the dynamic of prewar commercial property transaction in Batu Pahat. The analysis taken from 2014 to 2024 with the objective of

- i. To analyse the trends of commercial property value on prewar buildings within the heritage zone of Bandar Penggaram from 2014 to 2024
- ii. Identifying the factors influencing the value of commercial property on prewar buildings in the heritage zone of Bandar Penggaram

II. LITERATURE REVIEW

A 'heritage zone' is a specific region or section of an area set aside for the conservation and protection of the rural and urban landscape, whether constructed or natural, that has considerable cultural value (PLANMalaysia, 2023). The summary for benefit of establishment of heritage designation is shown in table 1, where heritage zone can be categorized into 4 (four) aspects of social (Jimura, 2011), economic (Lo Piccolo & Todaro, 2014), culture (Riganti & Nijkamp, 2004) and environmental (Al-Bqour, 2020) impacts.

Table 1: Benefit of Establishment of Heritage Designation

Author(s)	Impact of Heritage Designation			
	Social	Economic	Culture	Environment
(Jimura, 2011)	✓	✓	✓	
(Svels, 2015)		✓		✓
(A. Broeders, 2015)		✓		✓
(Kim, 2016)	✓	✓		✓
(Jimura, 2016)	✓		✓	✓
(Jimura, 2019)	✓		✓	✓
(Nasrolahi et al., 2019)	✓	✓		
(Al-Bqour, 2020)	✓	✓		

Based on the table 1, it shown that mostly the issue dominant is social and economic. Thus, economy and social are the most impact the element of heritage. Refer appendix 1.

Furthermore, the property market trend analysis a detailed examination of the real estate market to estimate the value of property, identify current trends and make informed decisions. The related factors are demography (Lieser & Groh, 2014), economy condition (Olszewski, 2012) and technological advancement (Maududy & Gamal, 2019). This analysis is important to study due to its ability to ensure the potential and risk taken before purchasing or investing to such property (David M. Geltner et al., 2013; Linneman, 2021). Before the outburst of COVID19, the commercial property market has seen significant fluctuations in recent years, characterized by distinct phases. Initially, prices rose due to market optimism but later declined as demand weakened. The COVID-19 pandemic escalated this decline, leading to substantial reductions in property values. By 2022, however, the market began to recover, supported by improving economic conditions and renewed investor confidence. Currently, the market is experiencing steady recovery, driven by sustained economic growth and gradual upward trends. These trends were influenced by demography, economic condition and technological advancement. The summary of this analysis can

be seen in table 2.

Table 2: Factors Affecting Property Market Trends

Author(s)	Factor Influencing Property Market Trends		
	Demography	Economics Condition	Technological Advancement
(Lieser & Groh, 2014)	✓	✓	
(Majid et al., 2012)	✓		
(Kumar & Khandelwal, 2019)	✓		
(Bencardino & Nesticò, 2017)	✓		
(Harms & an de Meulen, 2013)	✓		
(Olszewski, 2013)		✓	
(Olszewski, 2012)		✓	
(Maududy & Gamal, 2019)			✓

Based on the table 2, it shown that property market trends are affected by demography, economic condition and technological advancement. Among all, it was mainly affected by demography. Refer appendix 2.

On the other hand, commercial property is defined as any property that can generate income (Hamson, 2016). This income-generating aspect is particularly important in the context of commercial real estate, which includes a variety of properties such as hotels, office spaces, and retail units. The success of these retail units mainly depends on their location and the quality of services and products offered, especially in urban settings where population density and consumer spending are elevated. Factors influencing commercial property value can be identified through 3 (three) factors which are locational (Oni et al., 2015), neighbourhood (Abidoye & Chan, 2016) and structural (Margaretha & Anastasia, 2015). This can be seen in table 3.

Table 3: Factors Influencing Commercial Property Value

Author(s)	Location	Neighbourhood	Structural
(Worzala, 2001)	✓	✓	
(Wyatt, 2001)	✓	✓	
(Azmi C A. Noraziah, 2006)			✓
(Horowitz et al., 2009)	✓		
(Pagliara C Papa, 2011)	✓		
(Parkinson C Cooke, 2012)			✓
(Gwamna et al., 2015)			✓
(Oni et al., 2015)	✓		
(Oladokun, 2016)			✓
(Abidoye C Chan, 2016)		✓	
(Komisarov et al., 2016)	✓	✓	
(Nduti C Mr. Wambugu, 2017)	✓	✓	
(Wibisono et al., 2017)	✓	✓	

(Joachim et al., 2017)	✓		✓
(Ping et al., 2019)	✓	✓	✓
(Yusuf et al., 2021)	✓		

Table 3 indicates the important element of the commercial property building in the property market. It shown that the factor mostly revolves around location. Thus, location are the most influential factors affecting commercial properties. Refer appendix 3.

III. RESEARCH METHODOLOGY

This study adopting quantitative method due to the factors derived from literature review and analyse quantitatively. The data collected via document review of transaction data from Valuation and Property Service Department (JPPH) from 2014 to 2024. Quantitative research is particularly effective in establishing cause-and-effect relationships, testing hypotheses, and assessing the opinions, attitudes, and practices of large populations. This approach generates factual and reliable outcome data that are typically generalizable to broader populations. It often utilizes deductive reasoning, relying on experimental and survey methods to evaluate specific hypotheses derived from general principles. Additionally, it is robust in its capacity for inductive reasoning, facilitating the development and expansion of theories regarding the relationships among various phenomena. By applying this methodology, the study aims to rigorously analyze the trends and factors influencing the value of commercia properties in commercial prewar building in Bandar Penggaram heritage zone. The research design is attached as table 4.

Table 4: Research Design

Objectives	Research approach	Data collection
To analyse the trends of commercial property on prewar buildings in heritage zone of Bandar Penggaram from 2014 to 2024	Transaction data of commercial property collected from Valuation and Property Service Department (JPPH), and National Property Information Centre (NAPIC)	Quantitative using sales analysis, and growth rate analysis.
Identifying the factors that influence the value of commercial property on prewar buildings in the heritage zone of Bandar Penggaram	Transaction data of commercial property collected from Valuation and Property Service Department (JPPH), and National Property Information Centre (NAPIC)	Quantitative using Multiple Regression Analysis (MRA) to show the dynamic of the factors toward the property.

V. EXPECTED OUTCOME

This study examines trends and determinants of commercial property values for pre-war buildings within Bandar Penggaram's heritage zone from 2014 to 2024. The research focuses on three distinct market phases: pre-pandemic (2014-2019), pandemic (2020-2022), and post-pandemic (2022-2024). Multiple Regression Analysis (MRA) will be used to identify key factors influencing property values, including location, lot size, proximity to landmarks, structural characteristics, neighbourhood attributes, and economic conditions. The study aims to provide insights for policymakers, investors, and local authorities in making informed decisions regarding urban conservation and commercial property development, while also highlighting the economic benefits of heritage preservation.

CONCLUSION

This study examines the factors influencing commercial property values in Bandar Penggaram's heritage zone from 2014 to 2024, considering economic fluctuations and urban conservation. Using Multiple Regression Analysis, the study identifies key factors, including location, building characteristics, neighborhood attributes, and economic conditions, that impact property values.

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