



# Sociopolitical economy and spatial accentuation of neighbourhood gentrification in East Malaysia

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## Abstract

The rapid displacement and land expropriation from property owners are generating an imbalance between lower-income households and the developers in many communities in the central area of large cities worldwide. While the need to prevent urban decline, rejuvenate declining/dilapidating neighbourhoods and promote sustainable urban development has always been at the forefront of neighbourhood gentrification, developers are the major beneficiaries of the rapid rise in property prices. This study examines the important drivers of gentrification in East Malaysia from political, economic, social and spatial lenses. This research was analysed using a questionnaire survey data collected from housing developers and other allied professionals with relevant experience in neighbourhood gentrification in East Malaysia. Then, the hierarchical clustering technique followed by the Relative importance index (RII) computation was used to determine the relationship between the identified driving factors, the grouping of drivers into relatable clusters, as well as to determine the most influential cluster and drivers encouraging the course of neighbourhood gentrification. The study uncovers a compelling insight: although political factors exert the greatest influence on neighbourhood gentrification, it is crucial to acknowledge the substantial roles played by economic, social, and spatial drivers in its emergence, albeit to a somewhat lesser degree. Our findings emphasise the pivotal importance of eight political derivatives, which shape and contribute to the complex dynamics of gentrification, underscoring their significance in understanding its multifaceted nature. The findings of this research are a valid reference point for the relevant stakeholders to garner greater insight into the particularities of neighbourhood gentrification in East and Malaysia and many urban communities around the globe.

**Keywords** Neighbourhood gentrification · Sociopolitical economy · Spatial drivers · Hierarchical clustering · Relative importance index

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## 1 Introduction

Gentrification is an age-long concept coined by British sociologist Ruth Glass in the 1960s to describe the displacement of the social class in Central London (Shaw, 2008). The concept describes a phenomenon whereby a working-class area with rundown housing is rehabilitated and transformed into a middle-class neighbourhood (Shaw, 2008). Primarily, gentrification results from middle-class influx into an area as a by-product of desirable public transportation infrastructure, bustling commerce environment and good cultural atmosphere (Shi et al., 2021). While there has been evidence of an increase in the average income level, an improvement in education level, and a change in the racial make-up of the residents in most parts of the world, Malaysia inclusive, other relative features of gentrified localities within the major cities could range from financial reinvestment into the urban area, social class upgrade, urban landscape improvements, to absolute displacement of low-income households (Davidson & Lees, 2005). A similar phenomenon applies to neighbourhood gentrification, a rapidly rising phenomenon often observed in developed and developing countries such as Spain, the United States of America, Canada, England, Thailand, and Malaysia (Shi et al., 2021). The impacts and manifestations of gentrification in Malaysia reflect the broader global understanding of the phenomenon, with specific instances of socio-economic disparities, surging housing prices, dispossession, changes in urban landscapes, and the displacement of low-income households observed within gentrified neighbourhoods (Yang & Chang, 2018; Zukin, 2016).

This study aims to understand gentrification and its underlying determinants in East Malaysia, a rapidly developing region with numerous commercial, residential, and infrastructure projects. These projects often attract middle-class households who gradually displace low-income earners from the newly developed or rejuvenated neighbourhoods with improved amenities and infrastructure (Abd Khalil et al., 2015; Davidson & Lees, 2005). This process aligns with the theory of socio-spatial restructuring, which posits that gentrification occurs as a result of the spatial redistribution of different social groups, driven by factors such as housing availability, economic disruptions, and the preferences of potential residents (Lawton, 2020).

Analysing identified determinants of neighbourhood gentrification makes it possible to discern the most and least influential factors and use these findings to construct a framework for mitigating the consequences of neighbourhood gentrification. When implemented deliberately, gentrification can lead to the revitalisation of deteriorating neighbourhoods, as demonstrated by numerous successful cases worldwide (Chan et al., 2016). However, it is imperative to examine the potential adverse ramifications of gentrification through the socio-political economy and spatial lenses, particularly with a specific reference to the Eastern Malaysia, where discussions on gentrification remain relatively limited. In the subsequent sections, this study will attempt to address the research questions that examine the intertwined dynamics of the socio-political economy and spatial drivers promoting neighbourhood gentrification in East Malaysia. The immediate section is a review of the extant studies, which is followed by the research methodology in the third section. Data analysis, discussion and conclusion are in the fourth, fifth and sixth sections, respectively, while limitations and suggestions for future studies conclude this paper.

## 2 Literature review

Urban researchers have consistently explored gentrification through various theories, offering valuable insights into its drivers and mechanisms. While production-side theories, such as Smith's (1979) rent gap theory and standard filtering models, highlight the role of economic forces and investment decisions, consumption-side theories like Bourdieu's (1987) taste and distinction model and Florida's (2014) creative class model emphasise the preferences and choices of higher-income groups. These complementary perspectives provide a comprehensive understanding of gentrification, acknowledging the complex interplay between structural factors and individual behaviour in shaping urban transformation (Purhonen & Wright, 2013; Smith, 1972; Sweeney, 1974).

However, gentrification disrupts the prevailing belief in a one-way downward filtering process, where lower-income groups are confined to increasingly dilapidated neighbourhoods. It challenges the fundamental assumption of Alonso's (2017) 'structural' theory of the urban land market, which prioritises space and low densities over central city accessibility. By revealing the complexities of urban transformation, gentrification highlights the significance of access to the central city and challenges the conventional understanding of neighbourhood dynamics. This critical perspective invites a re-evaluation of existing theories and underscores the need for a more nuanced approach to understanding the multifaceted nature of urban development.

While filtering theory suggests that gentrification is a result of the interplay between supply and demand in the housing market, scholars emphasise a continuous process of older housing stock renovated and upgraded for higher-income residents who are willing to pay higher prices (Dastrup & Ellen, 2016). This, in turn, drives up property values and creates incentives for further investment and development in the neighbourhood. Still, it is an impetus for neighbourhood displacement of lower-income residents who can no longer afford the rent. As such, cities began to display increased segregation and inequality, as well as a loss of cultural diversity and community ties (Musterd, 2020; Smets & Salman, 2008). (Lees & Ley, 2008). This has led to the development of policies addressing the potential impacts of gentrification on the housing market and the social fabric of neighbourhoods.

The following section will examine the potential factors contributing to gentrification in East Malaysia. During the literature review process, five drivers within each dimension were identified from various studies, including Hwang and Sampson (2014); Peters and Pierre (2012), among others. These twenty drivers will be discussed within political, economic, social, and spatial dimensions.

### 2.1 Political considerations

#### 2.1.1 Government policies

Government policies in recent years can be seen as major contributors to encouraging neighbourhood gentrification (Hochstenbach & Boterman, 2017). In places such as London and Amsterdam, policies such as the Estate Renewal Strategy (Davidson & Lees, 2005) and the Social Housing Sales Covenant (Hochstenbach et al., 2015) were introduced, respectively, to ease property purchasing by developers and wealthier individuals or households, thus encouraging and accelerating the rate of neighbourhood gentrification. Similarly, in

East Malaysia, various policies easing restrictions on property purchasing by developers and property ownership by wealthier individuals were introduced to stimulate economic development and growth (Yap & Ng, 2018). These policies have contributed to the gentrification of neighbourhoods in East Malaysia, as they allow for the influx of wealthier individuals and developers who can afford to purchase and develop property in these areas.

### 2.1.2 Commercialisation of Urban governance

Urban governance commercialisation has been noted to increase private sector involvement in cities' decision-making and service provision processes. This trend has been driven by various factors, including globalisation, neoliberalism, and the search for efficiency and innovation in urban management (Shi et al., 2021). While the commercialisation of urban governance can bring in private sector investment and expertise, it can also have unintended consequences, such as the displacement of lower-income residents and the loss of community diversity (Shi et al., 2020). This is particularly relevant in gentrification, which refers to the transformation of neighbourhoods through the influx of more affluent residents and businesses, often displacing the original lower-income residents.

Research has shown that the commercialisation of urban governance can contribute to gentrification in several ways. There have been instances of private sector actors influencing policy decisions and investment priorities in ways that prioritise the interests of developers and more affluent residents over those of disadvantaged communities (Kaufmann, 2020). In addition, the use of public–private partnerships and other forms of private sector involvement in the provision of urban services and infrastructure can lead to the increased commodification of urban space, potentially driving up land and housing costs (Serin et al., 2020). This can create financial pressures on lower-income residents and contribute to their displacement from gentrifying neighbourhoods.

The commercialisation of urban governance can also contribute to gentrification through digital platforms and data analytics. The proliferation of online real estate platforms and data analytics to target specific neighbourhoods for investment can lead to the rapid appreciation of housing prices, leading to affordability issues for lower-income residents to stay in their communities (Sharam & Bryant, 2017). In addition, the use of data analytics to target specific neighbourhoods for marketing and service provision can create a feedback loop of gentrification, as more affluent residents are attracted to these areas, further driving up housing prices and contributing to the displacement of lower-income residents (Wu et al., 2016).

In addition to commercialising urban governance, East Malaysia is also facing challenges related to providing infrastructure and services. For example, there have been concerns about the reliability and affordability of electricity and water in some areas (Hannan et al., 2018). These issues have been linked to technical and institutional factors, such as inadequate investment and maintenance, regulatory barriers, and market failures. Addressing these challenges will require a comprehensive approach considering both urban development's economic and social dimensions.

### 2.1.3 Growth of the property market

The influx of middle-class households into gentrifying or gentrified neighbourhoods often increases the demand for property. With all the new development projects in these dilapidating neighbourhoods, older residential structures are rejuvenated or replaced with

residential structures more desirable to middle-class households (Shi et al., 2021). As a result, the property market in these neighbourhoods becomes highly desirable and competitive due to increased interest in owning property within the newly reinvigorated and rejuvenated neighbourhoods, leading to the rapid growth of the property market (Krase & DeSena, 2020). Additionally, interest in owning property in these neighbourhoods may extend to richer individuals. These richer individuals will actively attempt to own property within the neighbourhood to rent or sell it at a higher price.

#### 2.1.4 Varied property development investors

The state is the traditional source for investments and reinvestments into development projects for infrastructure improvement, upgrading or development. In recent years, these investments have gradually shifted towards more contemporary investment partnerships between the government, private capital, private enterprises, and other social capital (Krase & DeSena, 2020). These partnerships are known as public–private partnerships (PPP). A common example of PPP in development projects is a partnership between the local city councils, private sectors, and the community sectors. Cited reasons for the preference of PPP over single-state investments are reduced financial risk, better perception of the project, and increased efficiency of project operations (Leigland, 2018).

#### 2.1.5 Urban land use system and housing system marketization

Urban land use and housing marketisation refer to the allocation and use of land resources for urban development and the integration of market mechanisms to facilitate interactions between various actors and institutions involved in the housing market (Koroso et al., 2021). This process involves using market mechanisms, such as demand and supply, to determine the price and allocation of land and housing resources.

In East Malaysia, there is a high demand for residential properties, but the scarcity of large land banks for the construction of landed properties has led to a shift towards the development of high-rise residential properties. The market mechanism determines the price of existing properties, with prices increasing or decreasing depending on the demand for properties in a particular neighbourhood. According to San Ong (2013), the marketisation of the urban land use and housing system in East Malaysia has led to the emergence of more high-rise residential properties as developers seek to take advantage of the demand for housing in the region. The integration of market mechanisms has also impacted the prices of properties, with prices fluctuating based on demand.

### 2.2 Economic variables

#### 2.2.1 Economic globalisation

Global economic interdependence is fostered through the expansion of trade and investment on a global scale, as outlined in Ji and Lim (2021). This process, known as economic globalisation, is characterised by the movement of goods, services, and information across national boundaries to maximise profits and economic benefits. In Malaysia, economic globalisation has resulted in implementing policies that incentivise the creation of export-oriented industries and the promotion of foreign investment, leading to increased economic opportunities in the region (Lee et al., 2020). These policies have contributed

to the integration of market mechanisms, facilitating interactions between various actors and institutions involved in the housing market and shaping the allocation and use of urban land resources. However, the marketisation of the urban land use and housing system has also led to the emergence of high-rise residential properties due to the scarcity of large land banks for landed property development (San Ong, 2013).

### 2.2.2 Gentrifying middle-class housing needs

The middle class, comprising households with improved financial capacity relative to lower-class households, represents a significant segment of the population living within a shared residential space. In Malaysia, the middle class has seen steady growth and has demonstrated an increasing willingness to invest in properties, amenities, and luxury goods (Embong, 2014). As the middle class expands, so does the demand for residential properties. This trend will likely continue as the middle class grows and increasingly seeks to purchase properties and invest in their living spaces.

However, it is important to note that the middle class is not a homogenous group, and the characteristics and experiences of middle-class households can vary significantly depending on factors such as location, income level, and access to resources (Schotte, 2021). As such, it is necessary to consider the specific needs and circumstances of middle-class households in Malaysia when examining the demand for residential properties and other related issues.

### 2.2.3 Reinvestments

Asset value preservation relies on reinvestment strategies, which involve repairing and maintaining existing buildings, constructing new buildings, and improving infrastructure (Shaw, 2008). Without such reinvestments, the value of assets in gentrifying neighbourhoods may decline, leading to a loss of appeal and potentially even depopulation (Shi et al., 2021). However, asset rejuvenation can also contribute to gentrification, resulting in demographic changes and improved living standards in the area (Liu et al., 2019).

Scholars have suggested careful consideration of the potential impacts of reinvestment on gentrifying neighbourhoods, as the process can have both positive and negative consequences (Beck, 2020). On the one hand, reinvestment can help preserve and enhance the value of assets, leading to improved living conditions and increased neighbourhood attractiveness. On the other hand, the process can also lead to displacement and the exclusion of certain groups, particularly if investments are not implemented inclusively and equitably. As such, it is crucial to adopt a nuanced approach to reinvestment that considers the needs and concerns of all stakeholders involved.

### 2.2.4 Job opportunities

Development projects in dilapidated neighbourhoods have the potential to revitalise economic interests in the area, attracting middle and upper-class households and providing opportunities for new economic ventures (Hochstenbach & Musterd, 2018). The influx of young families and gentrifying individuals, drawn by affordable housing in a neighbourhood with improved infrastructure, amenities, and job opportunities, can further contribute to the area's revitalisation.

However, it is important to note that the process of revitalisation and gentrification is not always smooth or seamless and can have both positive and negative consequences for the community (Colantonio & Dixon, 2011). While revitalising dilapidated neighbourhoods may bring new economic opportunities and improved living conditions, it can also lead to displacement and exclusion, particularly if investments are not implemented inclusively and equitably.

## 2.2.5 Industrial and occupational structure transformation

The underlying rationale here is a paradigm shift in development focus from the primary sector to a greater emphasis on the tertiary and secondary sectors (Duernecker et al., 2021). This transformation in industrial and occupational structure can contribute to the economic growth of a nation by fostering the development of new industries and the expansion of existing ones. In Malaysia, the government has placed a particular emphasis on developing the tertiary and secondary sectors as it works towards its goal of transitioning from a developing nation to a developed one. According to data from the Malaysia (2019), The Department of Statistics Malaysia (2019), the tertiary and secondary sectors currently employ 27%, 57.7%, and 14.2% of the country's workforce. These sectors have the potential to drive economic growth and development in Malaysia through the creation of new job opportunities, the expansion of businesses, and the generation of income and wealth.

## 2.3 Social context

### 2.3.1 Social stratification

Social stratification is the hierarchical arrangement of individuals into social classes or strata based on their access to resources and power (Shi et al., 2021). This hierarchical structure creates unequal groups, leading to the segregation of individuals based on their social standing. As a result, individuals tend to associate and live among others similar to them in terms of socio-economic status (Clerval, 2022).

In the context of neighbourhood gentrification, gentrifiers, who are often middle- or upper-class individuals or households, tend to move into areas that already have a high concentration of individuals who share similar socio-economic characteristics, such as income, occupation, education level, and social status—leading to a shift in the demographics of the neighbourhood. With an influx of middle- and upper-class residents, a corresponding decrease in low-income households may emerge (Cocola-Gant & Lopez-Gay, 2020). Displacement can negatively affect the original residents, including losing affordable housing, social networks, and access to services and amenities (Cocola-Gant & Lopez-Gay, 2020; Lees & Ley, 2008). It can also contribute to income inequality and segregation, as low-income households may be forced to move to less desirable neighbourhoods with fewer resources and opportunities.

Reports of broader economic impacts of gentrification, such as changes in property values and taxes, lead to the transformation of neighbourhoods' physical and social character (Davidson & Lees, 2005).

### 2.3.2 Wealth gap

The wealth gap is a pervasive and longstanding social dimension of gentrification affecting many countries and communities worldwide. It refers to the disparities in financial capabilities and resources between different social classes within a given society. In Malaysia, the wealth gap is particularly pronounced due to the country's high levels of inequality in wealth distribution (Thillainathan & Cheong, 2018). This inequality is perpetuated by several factors, including the availability of more lucrative economic opportunities for middle- and upper-class households in the tertiary and secondary sectors of the economy and the preference for low-skilled immigrants over low-skilled local workers due to their lower employment costs.

The wealth gap can have significant impacts on gentrification in Malaysia, as middle- and upper-class households with greater financial resources and access to better opportunities are more likely to be able to afford to move into gentrifying neighbourhoods and displace low-income residents (Hochstenbach & Musterd, 2018). This process can lead to the loss of affordable housing and the displacement of low-income households, who may be forced to move to other, less desirable areas (Thurber, 2018). The wealth gap also contributes to social segregation and inequality within the community, as low-income households may have limited access to the same opportunities and services as their more affluent counterparts (Zhang & He, 2018). Researchers have also identified the role of gentrification in perpetuating and reinforcing racial and ethnic segregation within cities (Goldsmith, 2010; Greene et al., 2017).

### 2.3.3 Demographic changes

The demographics of a neighbourhood can change over time for various reasons. One such reason is the natural displacement of the original residents, which can be triggered by factors such as the desire to migrate to a different location, better job opportunities, an increase in property prices, or a preference for living among others who share similar demographic characteristics (Cocola-Gant & Lopez-Gay, 2020). As neighbourhoods in East Malaysia develop reputations for certain designations, such as education, commercial, and industrial zones, they may become more homogenous in terms of age structure, occupation, education level, and ethnic composition (Krase & DeSena, 2020). This can cause residents uncomfortable with the changing demographics, living costs, or property prices of the neighbourhood to move out, further contributing to the natural displacement of the neighbourhood.

The natural displacement of original residents in such neighbourhoods has been reported to have far-reaching impacts on the community, including the loss of diversity, changes in the local economy and housing market, and increased social segregation (Aune et al., 2020).

### 2.3.4 Tertiary education pursuit

Completion of tertiary education has become the norm for many developing and developed countries worldwide, including Malaysia. One of the paramount issues in this pursuit is the provision of campus-based accommodation for the growing tertiary student population. Then, partnerships between universities, government and the private sector were hyped as



a viable option—an idea that triggered neoliberal investment strategies, where neoliberal restructuring of urban spaces came to the fore (Moos et al., 2019; Van Noorloos & Kloosterboer, 2018).

There have been instances emanating from restructuring the urban space that tends to favour a middle-class student profile. The demand for student housing has also led to an increase in private-owned student accommodation, adversely affecting affordable student accommodation. The high demand and short supply of student housing resulted in high rentals, excluding the neediest, who usually move out since they cannot keep up with the rising property prices in the neighbourhood (Van Noorloos & Kloosterboer, 2018).

### 2.3.5 Deurbanisation trends

Much of the research on urban expansion into the countryside has focused on the concept of deurbanisation (also known as counterurbanization), which refers to the movement of people from urban to rural areas and the physical decentralisation of urban territories (Rojo-Mendoza, 2022). Li et al. (2019) argued that deurbanisation could occur in various contexts and involve different groups of people moving to rural areas. In the Anglo-Saxon context, the process is often linked to the creation of middle-class neighbourhoods (Cloke et al., 2013), while in Latin America, it is more commonly associated with the expansion of metropolitan areas and the resulting concentration of poverty and instability in the fringes. The experience across East Malaysia is slightly different. While frustrations over traffic congestion, poor quality of air and water, and expensive living costs have been cited as the foremost reasons for deurbanisation, more development projects carried out in various dilapidating neighbourhoods across the region are reversing the trend in some locations (Krase & DeSena, 2020).

## 2.4 Spatial dimension

### 2.4.1 Neighbourhood cultural draw

Certain neighbourhoods in East Malaysia possess unique cultural draws, such as cultural histories, architecture, and customs, which tend to attract gentrifiers (Haigh, 2020). These cultural attributes can be an important factor in the decision of gentrifiers to move to a particular neighbourhood and can contribute to the attractiveness and desirability of a neighbourhood for this group (Sigler & Wachsmuth, 2020). One striking quality of the East Malaysian countryside is its rich cultural history and unique architecture, which usually appeal to gentrifiers interested in living in a culturally significant region. As a result, neighbourhoods with a strong cultural draw may be more likely to experience an influx of mid-upper and wealthy classes and undergo gentrification. This process may be driven by a variety of other factors, including the availability of housing, changes in the local economy, and the preferences of potential residents.

### 2.4.2 Lifestyle preferences

Gentrifiers prefer neighbourhoods that align with their desired environment and lifestyle—a desire that their economic status can conveniently support (Krase & DeSena, 2020; Shi et al., 2021). As a result, neighbourhoods that are attractive to them based on their desired lifestyle may be more likely to experience gentrification. Understanding the lifestyle preferences of the

mid-upper and wealthy classes and how they shape housing decisions can inform efforts to mitigate the negative impacts of gentrification and promote more equitable housing outcomes (Lamont, 2018). Researchers have also identified the role of social media and online platforms in shaping the gentrifiers' housing preferences and decision-making processes (Bosma & van Doorn, 2022). These findings suggest that efforts to address gentrification may need to consider the role of digital media in shaping the housing choices of gentrifiers and how these platforms facilitate the gentrification process.

### 2.4.3 Proximity to amenities

Proximity to amenities is an important factor influencing the housing preferences of middle-class and upper-class households. As such, neighbourhoods with a wide range of amenities, such as parks, restaurants, and shopping centres, are often more attractive to these households and may be more likely to undergo gentrification (Zhang et al., 2022). Development projects that bring new amenities to a neighbourhood can increase its appeal and contribute to gentrification (Cocola-Gant, 2019). Researchers have also identified the role of transportation accessibility in shaping the housing preferences and gentrification outcomes of middle-class and upper-class households (Chetty et al., 2016). Neighbourhoods with good transportation connections to employment centres, for example, maybe more attractive to these households and more likely to experience gentrification (Chetty et al., 2016).

### 2.4.4 Uneven distribution of educational resources

In most parts of Malaysia, schools located in wealthier neighbourhoods or with a higher historical reputation tend to receive better quality resources, such as well-qualified teaching staff and educational materials (Rao & Jani, 2011). This advantage can create a perception that students from these schools are more attractive prospects for further education and financial opportunities, leading parents or future parents to seek out neighbourhoods with higher-quality educational resources. However, recent research has highlighted the complex and often contested nature of school choice and how social and economic factors intersect to shape students' educational opportunities and outcomes (Ford et al., 2020).

### 2.4.5 Prior gentrification

Early gentrifiers commonly consist of individuals with high educational, social, and financial capital, making them more adept, capable, and prepared to handle the consequences of neighbourhood gentrification (Ocejo, 2011). As existing lower-income households struggle to cope with the increasing financial burden of surviving in the neighbourhood due to gentrification, displacement will gradually occur by more financially capable households. In comparison, early gentrifiers will remain due to their capability of dealing with the higher prices and rents in those gentrified neighbourhoods (Shaw, 2008).

## 3 Methodology

A questionnaire survey was designed using Google Forms to collect data on the gentrification drivers. The survey consisted of two parts. The first part addresses the respondent's information, while the second solicited the experts' opinions on political, economic, social,

and spatial drivers of gentrification, as identified in the literature review. The second part requested the experts to assess the significance level of the twenty drivers of neighbourhood gentrification on a 5-point Likert scale (1-Not significant, 2-less significant, 3-quite significant, 4-Significant, and 5-Very significant). To improve the validity of responses, clarity was given utmost attention during the data collection (Bamgbade et al., 2019). The twenty drivers are then separated and categorised within the political, economic, social, and spatial dimensions. The different drivers are allocated questionnaire codes as indicated in Table 1.

The invited respondents are the real estate developers from Sarawak Housing and Real Estate Developers' Association (SHEDA) and other allied professionals with credible experience in the gentrification process. The professionals that met these criteria were sampled using a purposive sampling technique because no specific database of gentrification experts exists. These practitioners were identified from the SHEDA webpage, and LinkedIn search and selected relevant institutes and associations such as the Institute of Engineers Malaysia (IEM). After three months of rigorous search, about 106 experts were identified. In order to enhance the response rate, emails containing a hyperlink to an online survey and fillable word documents of the survey were disseminated to these experts. To further expand the pool of potential respondents, these individuals were also asked to forward the survey form and link to any colleagues who fit the predetermined criteria.

To allow adequate time for data collection, an additional 3-month period was designated for the study. Despite the inherent challenges in obtaining expert opinions within the construction industry, 106 responses were obtained and deemed appropriate for

**Table 1** Potential neighbourhood gentrification drivers in East Malaysia

Dimensions	Drivers	Code
Political	Government policies	P1
	Commercialisation of Urban governance	P2
	Growth of the property market	P3
	Varied property development investors	P4
	Urban land use and housing system marketization	P5
Economic	Economic globalization	E1
	Gentrifying middle-class housing needs	E2
	Reinvestments	E3
	Job opportunities	E4
	Industrial and occupational structure transformation	E5
Social	Social stratification	S1
	Wealth gap	S2
	Changes in demographics	S3
	Pursuit of tertiary education	S4
	Deurbanization trends	S5
Spatial	Neighbourhood cultural draw	SP1
	Lifestyle preferences	SP2
	Proximity to amenities	SP3
	Uneven distribution of educational resources	SP4
	Prior gentrification	SP5

analysis following a series of data-cleaning procedures. Although the sample size may be considered relatively small, it was deemed suitable for this study based on the recommendations of Roscoe (1975) that sample sizes between 30 and 500 are generally appropriate for multivariate studies. It is worth noting that previous research (Wuni & Shen, 2022) has suggested that online surveys tend to have low response rates.

The data was analysed using reliability and validity tests, hierarchical clustering analysis, and the relative importance index (RII).

Table 1 shows the potential neighbourhood gentrification drivers in East Malaysia, which were used as questionnaire variables for this study.

**Table 2** Respondents and firm's profile

	Respondents profile		
	Respondents	Frequency	%
Position in the company	Project manager	9	8.5
	Site supervisor	11	10.4
	Consultant engineer	9	8.5
	Site engineer	6	5.7
	Safety & health officer	9	8.5
	Real estate developer	39	36.8
	Director	2	1.9
	Project engineer	6	5.7
	Others	15	14.2
Work experience (Years)	0–5	18	16.9
	6–10	20	18.8
	11–15	41	38.7
	> 15	27	25.5
Company specialisation	Private residential projects	59	28.6
	Private commercial projects	55	26.7
	State construction projects	57	27.7
	Federal construction projects	24	11.7
	Others	11	5.3
Company operational location	Kuching	53	50.0
	Lawas	4	3.8
	Miri	15	14.2
	Bintulu	8	7.6
	Kuala Lumpur	3	2.8
	Sibu	20	18.9
	Kajang	3	2.8
Company age	0–5 years	5	4.7
	6–10 years	10	9.4
	10–15 years	46	43.4
	> 15 years	45	42.5

### 3.1 Respondents' profile

The demographic structure of the sampled experts and their firms is shown in Table 2. The table includes information on the respondent's position in the company, their work experience, their specialisation, the company's operational location, and the company's age.

Two respondents identified Kajang and Kuala Lumpur as their operational locations. Despite operating outside of East Malaysia, their responses were included in the analysis of this research due to their expertise and knowledge of neighbourhood gentrification in East Malaysia. The survey was specifically distributed to individuals with experience in this topic in East Malaysia, making it reasonable to assume that these respondents possess relevant insights on the topic.

The respondents' positions include project manager, site supervisor, consultant engineer, site engineer, safety & health officer, real estate developer, director, and project engineer. The largest group of respondents comprises real estate developers, accounting for 36.8% of the respondents. The respondents have a wide range of work experience, with 18% having 0 to 5 years of experience, 18.8% having 6 to 10 years of experience, 38.7% having 11 to 15 years of experience, and 25.5% having more than 15 years of experience. The companies represented in the survey specialise in various areas, including private residential projects, private commercial projects, state construction projects, federal construction projects, and others. The largest group of companies specialises in private residential projects, accounting for 28.6% of the companies.

The respondents in the survey operate in several locations, including Kuching, Lawas, Miri, Bintulu, Kuala Lumpur, Sibul, and Kajang. The largest group of companies operates in Kuching, accounting for 50% of the companies. The ages of the companies in the survey range from 0 to 5 years to more than 15 years, with the largest group of companies being in operation for 10 to 15 years (43.4%).

The respondents' views on the significance of neighbourhood gentrification drivers are presented in Table 3. The figure in the table indicates the number of respondents who give a specific grade about the significance given to a particular driver.

In Table 5, the responses of "not significant, less significant, quite significant, significant, and very significant are replaced with '1', '2', '3', '4', and '5' respectively, to illustrate the input to be used for data analysis. The values in the table represent the tally of responses chosen by the respondents. These values were adapted and exported into Microsoft Excel and then into SPSS to conduct the data analysis.

## 4 Data analysis

Prior to conducting further statistical analysis, the reliability and validity of the data were ensured. Once the data had been rigorously verified, a hierarchical cluster analysis was performed using SPSS software version 26. The number of clusters was determined using the agglomeration schedule obtained through this process. A dendrogram was then generated, which facilitated grouping the relevant drivers of neighbourhood gentrification into distinct clusters. With the obtained cluster data, RII computation was carried out to determine the relative importance of each cluster and identify the most influential drivers of neighbourhood gentrification.

**Table 3** Number of responses to the level of significance of neighbourhood gentrification drivers

Drivers	Level of significance				
	1	2	3	4	5
P1	0	1	11	55	9
P2	0	1	5	62	8
P3	0	0	10	52	14
P4	0	0	15	51	10
P5	0	0	11	57	8
E1	0	3	12	52	9
E2	1	3	9	53	10
E3	0	4	11	52	9
E4	0	2	7	58	9
E5	0	0	10	59	7
S1	0	3	11	53	9
S2	1	2	10	48	15
S3	1	2	14	53	6
S4	2	1	8	60	5
S5	0	3	19	48	6
SP1	1	3	8	55	9
SP2	1	1	15	46	13
SP3	0	2	8	57	9
SP4	0	2	12	56	6
SP5	0	7	6	56	7

#### 4.1 Reliability and validity testing

Reliability measures the consistency of research results, indicating the likelihood that the same outcome would be obtained if the same phenomenon were observed and the same information was used. Validity, on the other hand, refers to the authenticity and quality of the research results and concerns the extent to which they accurately reflect the research objectives. To assess the reliability of the data collected in this study, Cronbach's Alpha coefficient was calculated using SPSS software. An alpha value greater than 0.7 is generally considered acceptable, indicating that the data is reliable. This analysis showed that the alpha coefficient for the data collected in this study was 0.858, which is much higher than the minimum acceptable threshold of 0.7 and even exceeds the benchmark of 0.8 for high reliability (Nunnally & Bernstein, 1994). This suggests that the questionnaire data collected for this study is highly reliable.

#### 4.2 Validity testing via pearson correlation coefficient

Pearson Correlation Coefficient was carried out to test the data validity. This test was applied to determine the relationship between the gentrification drivers. The validity of the data can be determined by comparing the obtained Pearson Correlation coefficient value with the critical value in the Pearson Correlation coefficient table at 95% confidence level and two-tailed significance test. The data is considered valid if the obtained

**Table 4** Correlation coefficient of the gentrification drivers

Correlations		Pol	Eco	Soc	Spa	
Pol	Pearson correlation	1	0.562**	0.449**	0.421**	
	Sig. (2-tailed)		0.000	0.000	0.000	
	Sum of squares and cross-products	18.371	11.710	9.308	9.027	
	Covariance	0.175	0.112	0.089	0.086	
	N	106	106	106	106	
	<i>Bootstrap<sup>c</sup></i>					
	Bias	0	0.002	0.003	0.002	
	Std. Error	0	0.077	0.089	0.095	
	95% confidence interval					
	Lower	1	0.406	0.270	0.223	
Upper	1	0.703	0.621	0.598		
Eco	Pearson correlation	0.562**	1	0.704**	0.747**	
	Sig. (2-tailed)	0.000		0.000	0.000	
	Sum of squares and cross-products	11.710	23.600	16.538	18.149	
	Covariance	0.112	0.225	0.158	0.173	
	N	106	106	106	106	
	<i>Bootstrap<sup>c</sup></i>					
	Bias	0.002	0	0.002	0.001	
	Std. error	0.077	0	0.051	0.046	
	95% confidence interval					
	Lower	0.406	1	0.600	0.651	
Upper	0.703	1	0.802	0.829		
Soc	Pearson correlation	0.449**	0.704**	1	0.644**	
	Sig. (2-tailed)	0.000	0.000		0.000	
	Sum of squares and cross-products	9.308	16.538	23.369	15.562	
	Covariance	0.089	0.158	0.223	0.148	
	N	106	106	106	106	
	<i>Bootstrap<sup>c</sup></i>					
	Bias	0.003	0.002	0	0.007	
	Std. error	0.089	0.051	0	0.070	
	95% confidence interval					
	Lower	0.270	0.600	1	0.514	
Upper	0.621	0.802	1	0.780		
Spa	Pearson correlation	0.421**	0.747**	0.644**	1	
	Sig. (2-tailed)	0.000	0.000	0.000		
	Sum of squares and cross-products	9.027	18.149	15.562	24.991	
	Covariance	0.086	0.173	0.148	0.238	
	N	106	106	106	106	
	<i>Bootstrap<sup>c</sup></i>					
	Bias	0.002	0.001	0.007	0	
	Std. error	0.095	0.046	0.070	0	
	95% confidence interval					
	Lower	0.223	0.651	0.514	1	
Upper	0.598	0.829	0.780	1		

**Table 4** (continued)

\*\*Correlation is significant at the 0.01 level (2-tailed)

<sup>c</sup>Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

coefficient value is greater than the critical value. The closer the coefficient value gets to the value of 1, the greater the correlation and the greater the validity of the data. The method is used for testing data validity because the method measures the strength in the association between the drivers of gentrification considered in this study. The obtained value of the Pearson Correlation Coefficient using SPSS is shown in Table 4.

Table 4 shows the correlations between the four drivers of gentrification: Pol (Political), Eco (Economic), Soc (Social), and Spa (Spatial). The table presents several types of information for each pair of variables. There is a strong positive correlation between all pairs of variables, except for Pol and Eco, which have a moderate positive correlation, suggesting that as one variable increases, the other variables are also likely to increase. The correlations between Pol and Soc, and Eco and Spa, are the strongest, with Pearson Correlation coefficients of 0.704 and 0.747, respectively. This indicates that these pairs of variables have the most strongly correlated relationship.

All of the correlations are statistically significant at the 0.01 level, indicating that it is highly unlikely that the observed correlations occurred by chance and that the relationships between the variables are likely to be real and meaningful. While these are based on the assumption that the data represent the population and that the statistical tests

**Table 5** Agglomeration schedule

Stage	Cluster combined		Coefficients	Stage cluster first appears		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	9	10	11.500	0	0	6
2	14	18	24.500	0	0	14
3	5	11	38.000	0	0	11
4	6	16	53.500	0	0	12
5	1	2	69.000	0	0	9
6	9	19	84.833	1	0	14
7	12	13	101.333	0	0	16
8	15	20	119.333	0	0	16
9	1	4	137.833	5	0	13
10	3	8	156.833	0	0	13
11	5	17	176.667	3	0	15
12	6	7	197.833	4	0	17
13	1	3	221.633	9	10	15
14	9	14	249.700	6	2	18
15	1	5	279.067	13	11	17
16	12	15	309.817	7	8	19
17	1	6	346.014	15	12	18
18	1	9	390.250	17	14	19
19	1	12	440.450	18	16	0



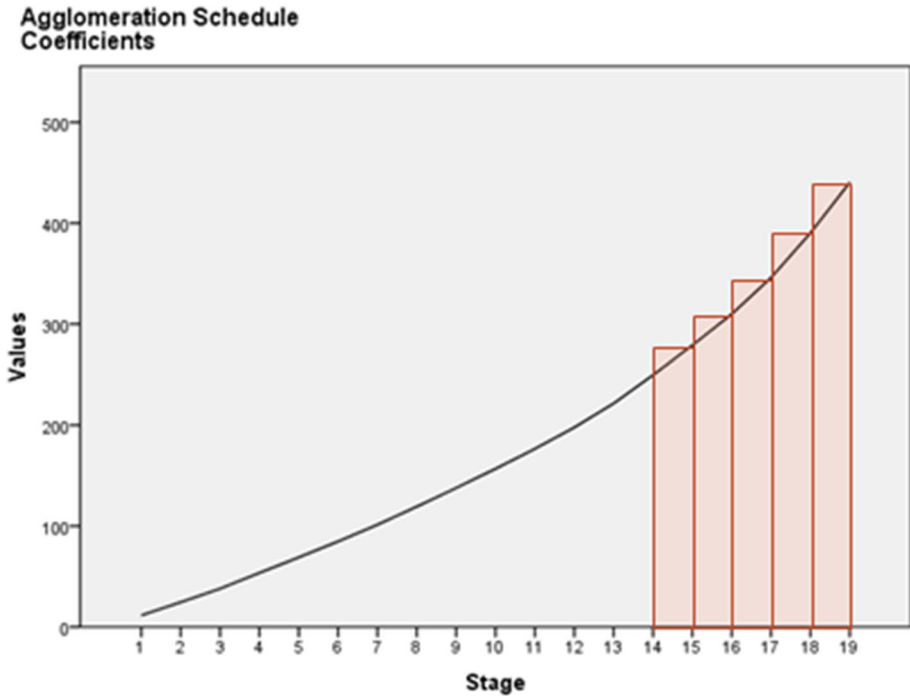
used are appropriate for the data, it should be noted that other potential confounding variables may influence the relationships between these drivers.

The “95% Confidence Interval” of the bootstrapped estimates of the correlations can be interpreted as a range of values that is likely to encompass the true population correlation with a probability of 95%. This interval indicates the precision of the estimates and can assess the reliability of the results in this study. The bootstrap results provide additional information about the uncertainty associated with the estimates and can be used to evaluate the robustness of the findings of this study. Thus, the strength and statistical significance of the correlations between the variables can be taken as evidence of the validity of the measures used in this study (Kimberlin & Winterstein, 2008).

Another statistical method used to analyse the questionnaire data is the hierarchical cluster analysis, employed to relate and group similar variables. The hierarchical cluster analysis is an effective method for addressing the limitations of the traditional mean value approach. Cluster analysis involves grouping a set of objects based on their similarities, such that objects within the same cluster are more similar to one another than objects in different clusters (Kaufman & Rousseeuw, 2009; Landau et al., 2011). Clusters with the closest similarity are merged, and the process is repeated until all the clusters are merged. After the completion of the analysis, a dendrogram was obtained and used to determine the relatibility of the identified drivers and group them into clusters (Fig. 2). As shown in the agglomeration schedule (Table 5), the clusters were combined sequentially, starting with the lowest coefficient value and increasing with each stage. The coefficient values also appear to increase significantly between stages, with large differential gaps occurring at certain stages (e.g. stages 6, 14, and 18). These large

**Table 6** Cluster membership table

Case	8 Clusters	7 Clusters	6 Clusters	5 Clusters	4 Clusters	3 Clusters	2 Clusters
P1	1	1	1	1	1	1	1
P2	1	1	1	1	1	1	1
P3	2	1	1	1	1	1	1
P4	1	1	1	1	1	1	1
P5	3	2	2	1	1	1	1
E1	4	3	3	2	2	1	1
E2	4	3	3	2	2	1	1
E3	2	1	1	1	1	1	1
E4	5	4	4	3	3	2	1
E5	5	4	4	3	3	2	1
S1	3	2	2	1	1	1	1
S2	6	5	5	4	4	3	2
S3	6	5	5	4	4	3	2
S4	7	6	4	3	3	2	1
S5	8	7	6	5	4	3	2
SP1	4	3	3	2	2	1	1
SP2	3	2	2	1	1	1	1
SP3	7	6	4	3	3	2	1
SP4	5	4	4	3	3	2	1
SP5	8	7	6	5	4	3	2



**Fig. 1** Agglomeration schedule coefficients graph

**Table 7** Cluster members based on cluster membership table

Clusters	Members
1	P1, P2, P3, P4, P5, E3, S1, SP2
2	E1, E2, SP1
3	E4, E5, S4, SP3, SP4
4	S2, S3
5	S5, SP5

differential gaps in the agglomeration schedule indicate points where cluster merging slows or stops, usually observed one stage before a large differential gap is observed.

Thus, this section covers how the number of clusters solution is selected, the relationship between the drivers, and what drivers are located within the clusters.

The line graph for agglomeration schedule coefficients (Fig. 1) is obtained by plotting the coefficients of each clustering stage as points on a graph. The number of clusters solution can be determined using the line graph.

In the agglomeration schedule, the first instance of a big coefficient differential gap occurred between stages 13 and 14. The number of solutions is taken as the number of clustering stages occurring after the first big coefficient differential gap is observed in the agglomeration schedule. Thus, based on the agglomeration schedule and coefficient line graph, the solution can be taken as a 5-cluster solution, as shown in Table 6.

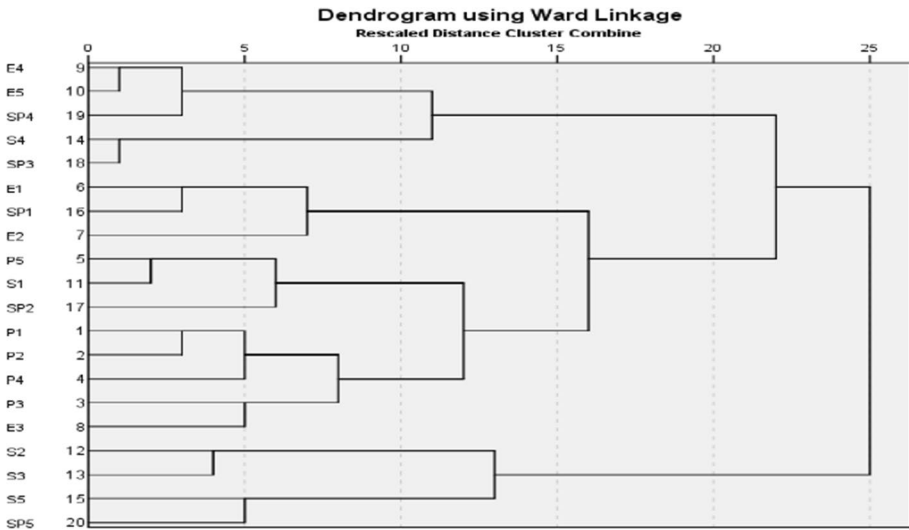


Fig. 2 Dendrogram using Ward linkage

Table 8 Cluster members based on dendrogram

Cluster	Members
A	E4, E5, SP4, S4, SP3
B	E1, SP1, E2
C	P5, S1, SP2, P1, P2, P4, P3, E3
D	S2, S3
E	S5, SP5

Based on the clusters derived from the 5 clusters solution, one cluster is expected to contain drivers P1, P2, P3, P4, P5, E3, S1, and SP2, while another cluster will contain drivers E1, E2, and SP1. Another cluster will contain drivers E4, E5, S4, SP3, and SP4. Of the two remaining clusters, one cluster will contain drivers S2 and S3, while another cluster will contain drivers S5 and SP5, as shown in Table 7.

Table 9 Cluster RII ranking

Clusters	Members	RII	Ranking
A	E4, E5, SP4, S4, SP3	0.7847	2nd
B	E1, SP1, E2	0.7781	3rd
C	P5, S1, SP2, P1, P2, P4, P3, E3	0.7899	1st
D	S2, S3	0.7776	4th
E	S5, SP5	0.7579	5th

### 4.3 Dendrogram using ward linkage

The designation of the cluster name is reassigned to reflect the tree diagram obtained from the Dendrogram (Fig. 2). Further, the Euclidean distance is determined as 13 for the Dendrogram to facilitate the grouping of five clusters. Using the rescaled distance cluster combined as a gauge and reference, the drivers' and clusters' similarities, differences, and relatability can be determined. Drivers and clusters joined by a greater rescaled distance height are deemed less relatable and similar to each other, while drivers and clusters joined by a lower rescaled distance height are deemed more similar and relatable (van de Velden et al., 2019).

As indicated in Table 8, the clusters are assigned the designation 'A', 'B', 'C', 'D', and 'E'. Cluster A contains the drivers E4, E5, SP4, S4, and SP3. Cluster B contains the drivers E1, SP1, and E2. Cluster C contains the drivers P5, S1, SP2, P1, P2, P4, P3, and E3. Cluster D contains the drivers S2 and S3. Finally, Cluster E contains the drivers S5 and SP5.

### 4.4 Relative importance index (RII)

The clusters obtained from the hierarchical clustering analysis comprise the twenty driving factors identified in the literature review. Using the Relative importance index (RII), the clusters are ranked according to their impact on encouraging the course of gentrification in East Malaysia. The collective drivers influencing neighbourhood gentrification the most in East Malaysia can be identified by ranking the clusters. Therefore, the RII assisted in achieving this study's objectives. For this research, the equation for RII computation is shown in Eq. (1):

**Table 10** Most influential drivers

#### *Most influential drivers*

Cluster C	Urban land use and housing system marketization	P5
	Social stratification	S1
	Lifestyle preferences	SP2
	Government policies	P1
	Commercialisation of Urban governance	P2
	Varied property development investors	P4
	Growth of the property market	P3
	Reinvestments	E3

#### *Second most influential drivers*

Cluster A	Job opportunities	E4
	Industrial and occupational structure transformation	E5
	Uneven distribution of educational resources	SP4
	Pursuit of tertiary education	S4
	Proximity to amenities	SP3

#### *Third most influential drivers*

Cluster B	Economic globalization	E1
	Neighbourhood cultural draw	SP1
	Gentrifying middle-class housing needs	E2

$$RII = \frac{\sum_{i=j}^s wx}{A \times N} \quad (1)$$

Where  $RII =$  Relative Importance Index,  $w =$  factor weighting,  $x =$  frequency of response for factor weighting,  $A$  (Highest Likert Scale Value) = 5 (Strongly Agree),  $A$  (Highest Likert Scale Value) = 5 (Strongly Agree)

The ranking of clusters using the relative importance index (RII) method involves determining the frequency values corresponding to a scale of importance ranging from 1 to 5, as described in the methodology. Instead of calculating the RII for individual drivers, the RII for each cluster is calculated by finding the mean of the drivers within the clusters using SPSS and then determining the weighting and frequency for each cluster. The RII values for Cluster A, Cluster B, Cluster C, Cluster D, and Cluster E are 0.7847, 0.7781, 0.7899, 0.7776, and 0.7579, respectively, as shown in Table 6. Table 9 shows that Cluster C is ranked first, followed by Cluster A, Cluster B, Cluster D, and Cluster E.

## 5 Discussion

According to the results of this study, with an RII of 0.79, it appears that drivers in Cluster C have the greatest influence on the process of gentrification in East Malaysia. This is consistent with previous research on the factors contributing to neighbourhood gentrification. For example, Hochstenbach and Boterman (2017) identified government policies such as the commercialisation of urban governance, the expansion of the property market, and the presence of various developers as contributing to neighbourhood gentrification. Clerval (2022) also argued that social stratification, in which people move to neighbourhoods with similar social status, and preferences for certain lifestyles are key drivers of gentrification in East Malaysia. Reinvestment is another significant factor that plays a role in gentrification in East Malaysia. According to Shi et al. (2021), the lack of reinvestment in gentrifying neighbourhoods can lead to asset depreciation, decreased appeal, and population decline. Based on the results of this study, it appears that Cluster C has the greatest impact on gentrification in East Malaysia. Within this cluster are eight driving factors, five of which are political in nature and one from each of the other dimensions. This suggests that the political dimension is the most influential in driving the process of gentrification in East Malaysia.

As shown in Table 10, the second most impactful driver in encouraging the course of neighbourhood gentrification in East Malaysia is Cluster A, with an RII of 0.78. This finding is supported by Hoekstra et al. (2020)'s research, which found that creating job opportunities can attract young families and gentrify individuals to neighbourhoods. Also, an industrial and occupational structure transformation aims to foster the economic growth of a nation. Certain neighbourhoods in East Malaysia possess unique cultural draws such as cultural histories, architecture, and customs which tends to attract an influx of gentrifiers. These gentrifiers are fascinated by residing in a neighbourhood with significant heritage and culture. The more amenities are provided close to the neighbourhood due to development projects, the higher the neighbourhood's appeal (Krase & DeSena, 2020).

The cluster B variables, with a relative index of 0.77, are the third most significant factor contributing to the process of neighbourhood gentrification in East Malaysia. According to Aeria (2005), economic globalisation in the region, through implementing policies

that incentivise the development of export-oriented industries and the promotion of foreign direct investment, plays a significant role in driving gentrification.

### 5.1 Least impactful

According to the findings of this study, the drivers within clusters E and D are the least influential in driving the process of neighbourhood gentrification in East Malaysia. Specifically, the drivers perceived as having the least impact on gentrification are deurbanisation trends (S5) and prior gentrification (SP5) in cluster E, and the wealth gap (S2) and change in demographics (S3) in cluster D. These findings are consistent with the studies of Clerval (2022) and Cocola-Gant and Lopez-Gay (2020), which suggests that social factors are typically the least influential drivers of gentrification. However, it should be noted that three out of the four drivers within these two clusters are social, indicating that although these drivers may not be the most influential, they still play a role in the gentrification process in East Malaysia.

## 6 Conclusion

This study identified specific drivers contributing to neighbourhood gentrification in East Malaysia. Hierarchical clustering analysis was conducted with twenty identified driving factors with certain degrees of relatability. The clusters were then computed using the relative importance index method to rank the importance and significance of each cluster, allowing for the identification and determination of the most and least significant driving factors encouraging neighbourhood gentrification in East Malaysia. The study revealed that urban land use and housing system marketisation, social stratification, lifestyle preferences, government policies, commercialisation of urban governance, varied property development investors, growth of the property market, and reinvestments are the most influential driving factors encouraging neighbourhood gentrification. In comparison, the least influential driving factors are the deurbanisation and prior gentrification, followed by the wealth gap and changes in demographic.

There is a positive correlation between political, economic, social, and spatial driving factors and neighbourhood gentrification in East Malaysia. Political factors were found to be more influential in encouraging gentrification than economic, social, and spatial drivers. However, all of these drivers positively correlated with gentrification, although the extent and strength of their influence varied. Using hierarchical clustering analysis, the study found that neighbourhood gentrification in East Malaysia is influenced by a combination of drivers from different dimensions. The highest-ranked cluster contains both political and non-political dimensions. Additionally, gentrified areas in East Malaysia are driven by similar factors, and respondents largely agreed with the identified driving factors for gentrification. These findings suggest that neighbourhood gentrification in East Malaysia is complex and influenced by a range of factors and that further research is needed to better understand the mechanisms driving gentrification in this region.

## 6.1 Limitations and suggestions for future studies

One limitation of the study is the relatively small sample size. A smaller sample size may not represent gentrification trends in East Malaysia, and the study results may be less robust with a smaller sample. Another limitation is the data sources. The information provided by the respondents may not be comprehensive or fully capture the complexity of gentrification processes in East Malaysia. The data did not account for all relevant factors and did not adequately represent the experiences of different groups of residents. The research design may also be subject to limitations and biases. For example, hierarchical clustering analysis and the relative importance index method may introduce certain assumptions or biases that could affect the analysis results.

Equally, the scope of the study is a possible limitation. The study's results may not be representative of gentrification trends in other regions of East Malaysia or over a longer time frame. Additionally, the study may not be able to provide concrete recommendations for addressing gentrification in East Malaysia, as it is limited in terms of its ability to fully understand the impacts of gentrification and identify specific strategies for mitigating negative impacts. Based on the data collected for this research and the results obtained from the analysis, it is suggested that a discussion should be initiated among relevant stakeholders and authorities about the need to develop guidelines for mitigating the negative impacts of neighbourhood gentrification. Further research could be conducted to better understand the mechanisms driving gentrification in East Malaysia and to identify potential strategies for addressing potential negative impacts, such as displacement and income inequality. Such guidelines could potentially involve policy interventions, such as rent controls or affordable housing requirements, or more holistic approaches, such as community planning efforts that prioritise the needs and interests of existing residents. It is important for policymakers and other stakeholders to consider the potential impacts of gentrification on different groups of residents and to develop strategies that promote social and economic justice.

Other potential areas for future research are examining the impacts of urban land use and housing marketisation on gentrification and displacement. This could involve analysing data on housing prices, rents, and occupancy rates to understand how these factors contribute to gentrification and how they may affect different groups of residents. For example, research could explore whether increased demand for housing in gentrifying neighbourhoods leads to higher prices and rents and whether these changes result in the displacement of low-income residents.

Another potential area of research is investigating the role of lifestyle preferences in gentrification. This could involve exploring how these factors shape the decisions of gentrifiers to move into certain neighbourhoods and how they may influence the perceptions and experiences of different groups of residents. For example, research could examine whether gentrifiers are attracted to neighbourhoods with certain social or cultural characteristics and how these preferences may impact the make-up and dynamics of the neighbourhood.

Finally, further research could also investigate the potential drivers of gentrification identified as least influential in this study, such as the deurbanisation trends and prior gentrification, the wealth gap, and demographic changes. This could involve examining how these factors may or may not contribute to gentrification in East Malaysia. For example, research could explore whether deurbanisation or prior gentrification impact gentrification trends and whether changes in demographic patterns are associated with gentrification.

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## Declarations

**Conflict of interest** The authors have no relevant financial or non-financial interests to disclose.

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