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RESIDENTIAL SETTLEMENTS AND SPATIAL INEQUALITY

A STUDY OF GREATER KUALA LUMPUR NEIGHBOURHOODS

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ABREVIATIONS

API	:	Application Programming Interface
B40	:	Bottom 40%
CBD	:	Central Business District
DOS	:	Department of Statistics Malaysia
ECER	:	East Coast Economic Region
EOI	:	Export-oriented industrialisation strategy
ETP	:	Economic Transformation Programme
FELCRA	:	Federal Land Consolidation and Rehabilitation Authority
FELDA	:	Federal Land Development Authority
FTZ	:	Free Trade Zone
GKL	:	Greater Kuala Lumpur
GQHS	:	Good Quality Housing Standard
HPM	:	Hedonic Price Model
ICT	:	Information and communication technology
IMP	:	Industrial Master Plan
ISI	:	Import substitution industrialisation strategy
JPPH	:	*Jabatan Penilaian dan Perkhidmatan Harta* (Valuation and Property Services Department)
k	:	Thousand
km	:	Kilometre
LCH	:	Low-cost housing
M40	:	Middle 40%
MNC	:	Multinational company
MOR	:	Method of reflections
MQA	:	Malaysian Qualifications Agency
MSC	:	Multimedia Super Corridor
NAPIC	:	National Property Information Center
NCER	:	Northern Corridor Economic Region
NHS	:	National Housing Standard
NKEA	:	National Key Economic Area
NIMBY	:	Not in my Backyard
NUP	:	National Urbanisation Policy
PPA1M	:	Perumahan Penjawat Awam 1 Malaysia
PPR	:	Projek Perumahan Rakyat
R&D	:	Research and development
RCA	:	Revealed Comparative Advantage
RMR1M	:	Rumah Mesra Rakyat 1 Malaysia
RTO	:	Rent-to-Own
SCORE	:	Sarawak Corridor of Renewable Energy
SDC	:	Sabah Development Corridor
sq. ft	:	Square feet
T20	:	Top 20%
TPM	:	Technology Park Malaysia
WTP	:	Willingness To Pay

GLOSSARY

Agglomeration economies	:	Agglomeration economies are the benefits derived when firms and people collocate together in cities and industrial clusters. *Source:* Glaeser (2010)
Assortative-ordered networks	:	Characterized by high within group links and linear group hierarchy *Source:* Barabási (2016)
Cluster	:	An agglomeration of inter-linked or related activities comprising industries, suppliers, critical supporting business services, requisite infrastructure and institutions. *Source: Industrial Master Plan 2, as cited in* GRIPS (n.d.)
Energised crowding	:	Energised crowding defined as face-to-face interaction. Energised crowding leads to a variety of secondary effects such as community formation, local economic growth, amongst others. *Source:* Kostof (1991)
Explicit knowledge	:	Academic knowledge or "know-what" that is described in formal language, print or electronic media, often based on established work processes, use people-to-documents approach. Source*:* E. A. Smith (2001)
Localisation economies	:	Localisation economies are the agglomeration economies which accrue to a group of firms within the same industrial sector located at the same place. *Source:* McCann (2013)
NIMBY effect	:	"Not-in-my-backyard" effect. It represents the protectionist attitude and oppositional tactics adopted by community groups facing an unwelcomed development in their neighbourhood. Source*:* Dear (1992)
Place differentiation	:	The quantification of the set of diverse places that are accessible by being located in a neighbourhood.
Policy driven cluster	:	Cluster that is pre-planned and 'made to order' by policymakers. *Source:* Richardson, Yamin, and Sinkovics (2012)
Social capital	:	Features of social organisation such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions *Source:* Putnam, Leonardi, and Nanetti (1993)
Overhang	:	A newly launched residential property is defined as an 'overhang' when the unit receives its certificate of completion and compliance but remains unsold for over 9 months. *Source:* NAPIC (Various years)
Tacit knowledge	:	Practical, action-oriented knowledge or "know-how" based on practice, acquired by personal experience, seldom expressed openly, often resembles intuition. *Source:* E. A. Smith (2001)
Urbanisation economies	:	Urbanisation economies are those economies of agglomeration which accrue to firms across different sectors. *Source:* Jacobs (1969)

INTRODUCTION

By Suraya Ismail
On behalf of the Agglomeration Team, December 2022

What are the necessary conditions for 'diverse and thriving' neighbourhoods? What is the opposite of 'diverse and thriving' neighbourhoods? Are thriving neighbourhoods more expensive to live in? Are our capacities to grow into middle-income earners limited by the neighbourhoods we reside in? Can one explain the diversity of a neighbourhood without explaining the attributes of the host city?

This report attempts to answer the above questions. The answers, however, appear not to be as straightforward. A city is a complex system. Neighbourhoods are both microcosms of cities and regional conurbations. It is often said that the growth of the economy facilitated the materialization of many opportunities to its people, especially in cities. However, growth and development can also create wealth inequalities and regional imbalances.

This report examines inequality as demonstrated spatially by agglomeration economies to complement the wider discussion of inequalities in Malaysia. It also expands inequality not just from a 'what-money-can-buy' perspective, but concepts of well-being as represented by having accessibility to different typologies of shelter and amenities. Well-being is not merely about what one earns, but it has more to do with the different types of freedom and functionings one can have access to. Therefore, we complement the study of 'inequality' by investigating parameters of well-being bounded by space or 'places'.

Chapter 1 provides an overview of cities as a catalyst for meaningful activities, where the close correlation of population density and high wages strongly supports the advent of agglomeration economies. Agglomeration economies are the benefits derived when firms and people collocate together in cities and industrial clusters. The Greater Kuala Lumpur (GKL) conurbation provides interesting discourses in analysing developmental policies that has shaped its landscapes; in increasing returns to scale (at the level of conurbations) and the perceived inadequacies of contemporaneous initiatives at the local level (at the scale of residential areas).

Chapter 2 appropriates a methodology in quantifying place differentiation of each neighbourhood. The GKL Amenity Space and Method of Reflection (MOR), depicts the diversity (or ubiquity) of a neighbourhood. The network analysis findings describe neighbourhood structures based on an 'assortative-ordered network' which suggests that neighbourhoods exhibit different functions and could be ranked according to their level of specialisation and diversification. This chapter provides a methodology that residents, businesses and local councils can utilise to advance collective well-being and promote thriving neighbourhoods.

Chapter 3 explores the 'housing experience' of homebuyers in hedonic price models (HPM) to estimate willingness-to-pay (WTP) in acquiring homes with distinct housing characteristics. Housing units are conceived as means to an end, either in accessing job markets or fulfilling households' needs for amenities. Therefore, the selection of homes largely depends on the different households' objectives during distinct periods of their lifecycles. These different prioritizations during a lifecycle (single professionals; parents with children, or retirees) were reflected in the WTP.

Chapter 4 outlines several policy recommendations based on the combinations of findings in the preceding three chapters. The policy recommendations are structured as Policy Briefs; designed to provide a) an overview of the problem, b) a summary of the major findings and c) provide policy recommendations for the consideration of relevant stakeholders.

CHAPTER

01

AGGLOMERATION: CITIES AS A CATALYST FOR MEANINGFUL ACTIVITIES 4

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CHAPTER 1

AGGLOMERATION: CITIES AS A CATALYST FOR MEANINGFUL ACTIVITIES

By Theebalakshmi Kunasekaran

"The common good is what makes cities great."

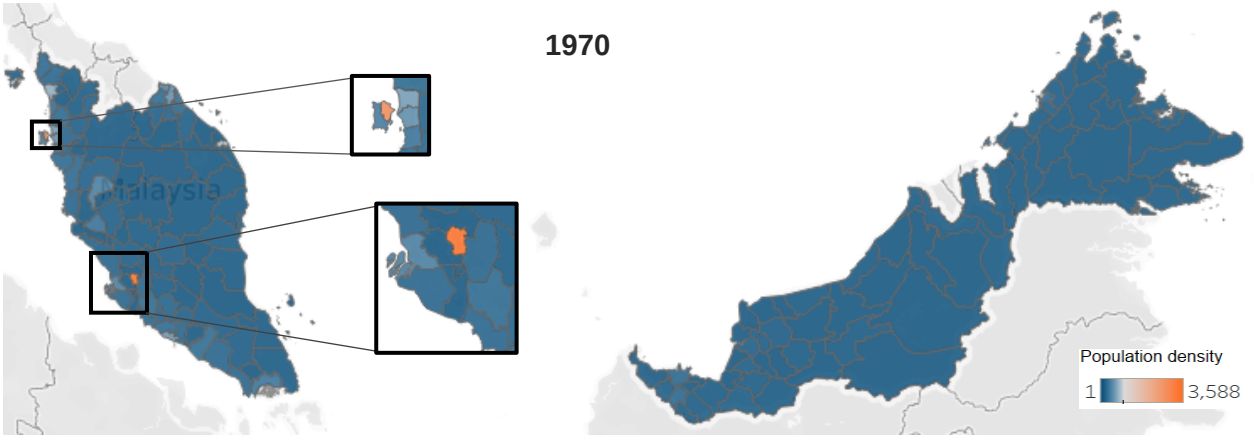
Machiavelli[1]

1.1 Historical Overview of Greater Kuala Lumpur (GKL) Developments

Over the past several decades, the country's urbanisation rate has accelerated. In 2020, Malaysia's urbanisation rate stands at 75.1%, compared to 28.4% in 1970[2]. The various economic and developmental policies that took place since the 1970s drove the increasing trend in urbanisation rate, consequently causing the emergence of sprawling cities surrounding the major economic centres in the country.

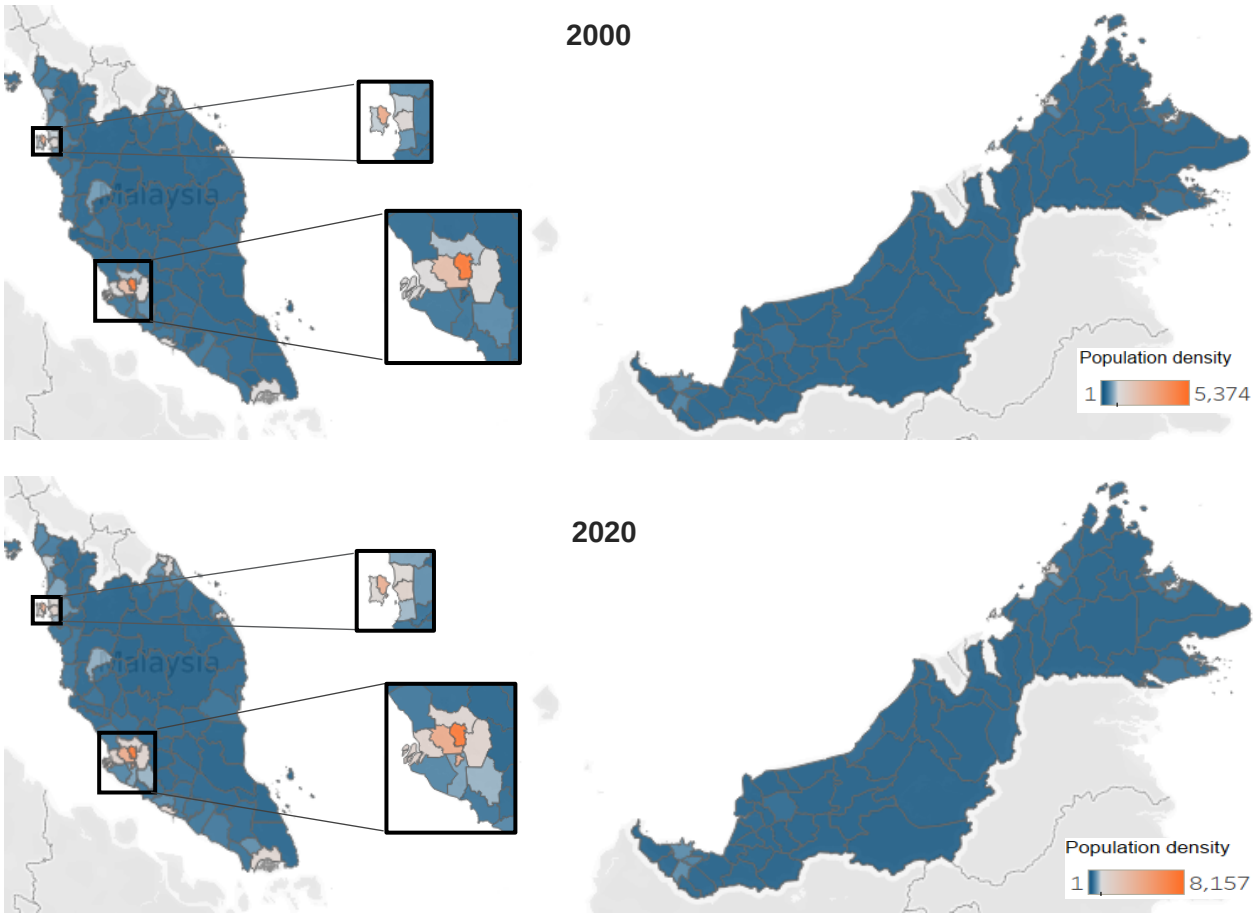
This was also the resultant effect of changes in Malaysia's economic structure, as we transitioned from an agrarian economy to manufacturing, and from manufacturing to the now knowledge-based economy. Citizens from rural areas migrated to urban areas to gain better economic prospects and social benefits. Figure 1.1 illustrates the change in population density by district from 1970 to 2020.

Figure 1.1: Population density by district, 1970 – 2020



[1] As cited in Reinert (1999)
[2] Source: DOS (2022)

Figure 1.1: Population density by district, 1970 – 2020 (cont.)



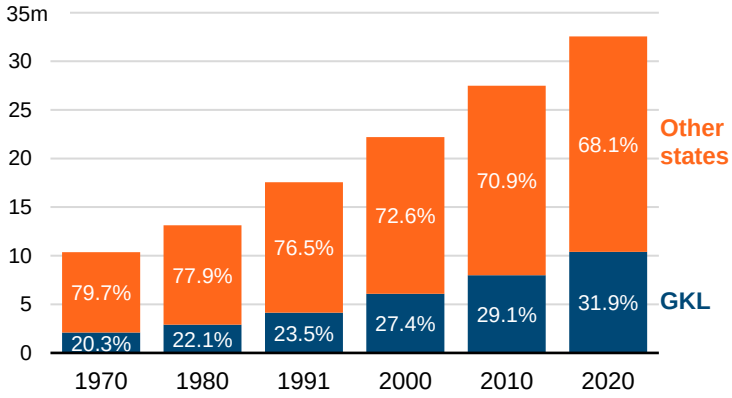
Source: DOS (2022) and KRI calculations

It is observed that Kuala Lumpur and Pulau Pinang were the major cities with high population density in the 1970s. However, over time, as more people migrated to cities at an increasing rate, this resulted in more districts having higher population densities and consequently affected the dynamics of urban sprawl today (as demonstrated in Figure 1.1).

Today, more Malaysians live in densely populated cities as compared to decades ago. This is evident in Kuala Lumpur and the adjacent states such as Selangor, Putrajaya and Negeri Sembilan which make up the Greater Kuala Lumpur (GKL) conurbation[3]. As demonstrated in Figure 1.2, the GKL conurbation registered a population share of nearly 32% in 2020 compared to 20.3% four decades ago. The population share has been increasing steadily since 1970s and have an estimated population of 10.4 million as of 2020.

[3] KRI's definition of GKL conurbation in this report includes four states, namely Kuala Lumpur, Selangor, Putrajaya and Negeri Sembilan. Refer to Box 1 for more details.

Figure 1.2: GKL share of population, 1970 – 2020



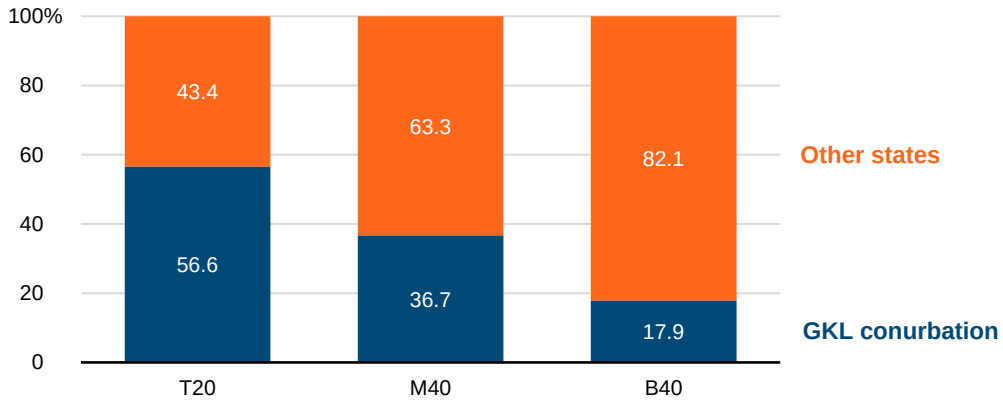
Top 5 densely populated states	
Kuala Lumpur	8,157/km^2
Putrajaya	2,215/km^2
Pulau Pinang	1,659/km^2
Labuan	1,034/km^2
Selangor	880/km^2

Note: KRI's definition of GKL conurbation in this report includes four states, namely Kuala Lumpur, Selangor, Putrajaya and Negeri Sembilan. Refer to Box 1 for more details.
Source: DOS (2022) and KRI calculations

The latest Census 2020 released by the Department of Statistics Malaysia (DOS) shows that Kuala Lumpur topped the list of states with the highest population density of 8,157 residents per square km. Meanwhile, Selangor emerged as the most populous state with 7 million people.

The inward migration to the major cities and towns in GKL conurbation can be linked to the vast opportunities that the conurbation presents to its inhabitants in terms of employment, income, education and healthcare services amongst others. Affluent cities like Petaling Jaya host major economic centres and provides job opportunities with relatively higher income compared to the lagging regions. Statistics show that Kuala Lumpur recorded the highest median household income of RM10,549 in 2019, followed by Putrajaya (RM9,982) and Selangor (RM8,210)[4]. The statistics also indicate that half of the GKL households earn approximately 1.5 times the median income of a Malaysian household.

Figure 1.3: GKL composition of households by household group, percentage, 2019



Note: KRI's definition of GKL conurbation in this report includes four states, namely Kuala Lumpur, Selangor, Putrajaya and Negeri Sembilan. Refer to Box 1 for more details.
Source: DOS (2020) and KRI calculations

[4] DOS (2020)

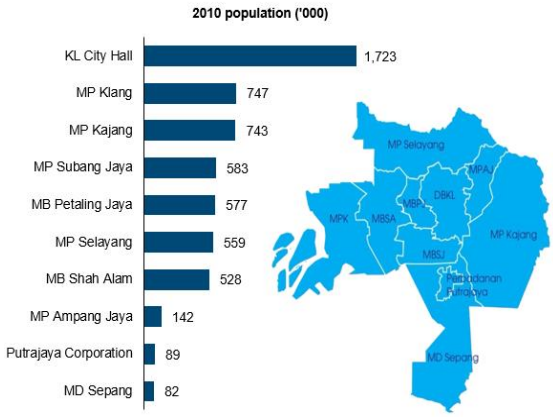
Nearly 57% of Malaysian T20 households reside in the GKL conurbation. The fact that more than half of T20 households live in one conurbation suggests that the GKL conurbation possess characteristics that are associated with the desirable characteristics that enable a wealthy population to benefit from being in a closer proximity to employment centres, and various amenities including shopping malls, cafes, social centres, wellness centres which also assist in building social capital among the residents.

Box 1: The definition of GKL conurbation

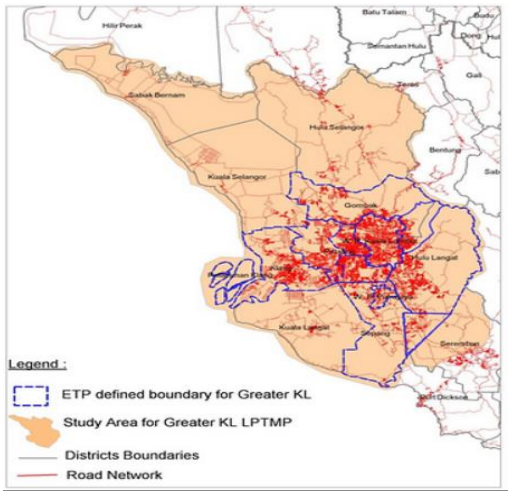
There is some ambiguity in defining the GKL region. Figure 1.4 outlines a couple of definitions employed over the past decade:

Figure 1.4: The definition(s) of GKL

(a) GKL outlined in the ETP



(b) GKL outlined in SPAD's Land Public Transport Masterplan



Source: PEMANDU (2010), SPAD (2011)

The initial inception of the GKL region was made in the Economic Transformation Programme (ETP) when GKL was identified as one of the 12 National Key Economic Area (NKEAs) to drive economic growth. Under the ETP, GKL is defined as the area covered by 10 municipalities, as illustrated in Figure 1.4(a).

However, an alternate definition is a functional one based on mobilities and the co-location of homes and employment centres. In that spirit, the Land Public Transport Commission (SPAD) has employed a larger area of study for their GKL Land Public Transportation Masterplan that is based (refer to Figure 1.4(b)). Given that close to a decade have passed since the inception of this definition, we believe this definition ought to be updated.

If there is a sizeable portion of residents who live in Seremban, but travel daily to Kuala Lumpur for work, there exist some degree of economic and social integration between these neighbourhoods. If the GKL region is defined according to functional mobilities, it can be argued that Seremban ought to be considered part of the GKL region, despite being in Negeri Sembilan.

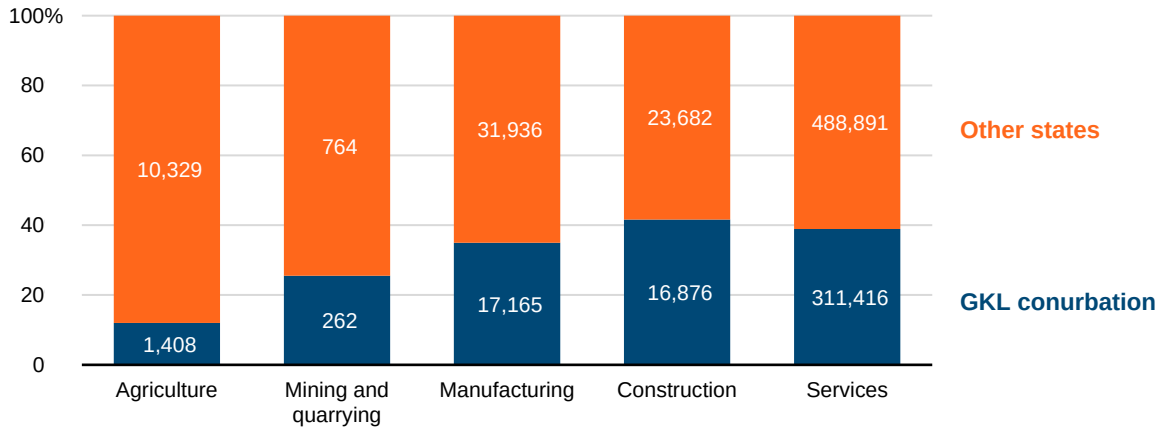
However, in the absence of a comprehensive Origin-Destination study, we have made the decision to include the whole of four states, namely Kuala Lumpur, Selangor, Putrajaya, and Negeri Sembilan in our analysis of the GKL conurbation in this report. This definition is overinclusive by design as it would include some neighbourhoods that may not have high degree of economic or social integration with GKL city.

1.2 The GKL Conurbation Thrives due to Agglomeration Economies

The GKL conurbation is among one of the productive, competitive, and prosperous conurbations in Malaysia, besides other regional conurbations like Greater Penang Conurbation and South Johor (Iskandar Malaysia) conurbation. It extends westward from the metropolitan area of Kuala Lumpur to Port Klang and southward towards KLIA, links several new and older satellite towns such as Petaling Jaya, Subang Jaya, Ampang Jaya, Shah Alam, Kajang, Cyberjaya and Putrajaya. With an estimated population of 10.4 million in 2020, GKL is nearly two times the population size of our neighbour, Singapore[5].

GKL has evolved to become one of the country's major economic powerhouses with abundant opportunities and potential to be realised by its inhabitants. According to the Establishment Statistics in Economic Census 2016, GKL emerged as the prime location for more than one third of the business establishments in both the construction and services sector, as illustrated in Figure 1.5.

Figure 1.5: GKL share of business establishments by sector, 2015

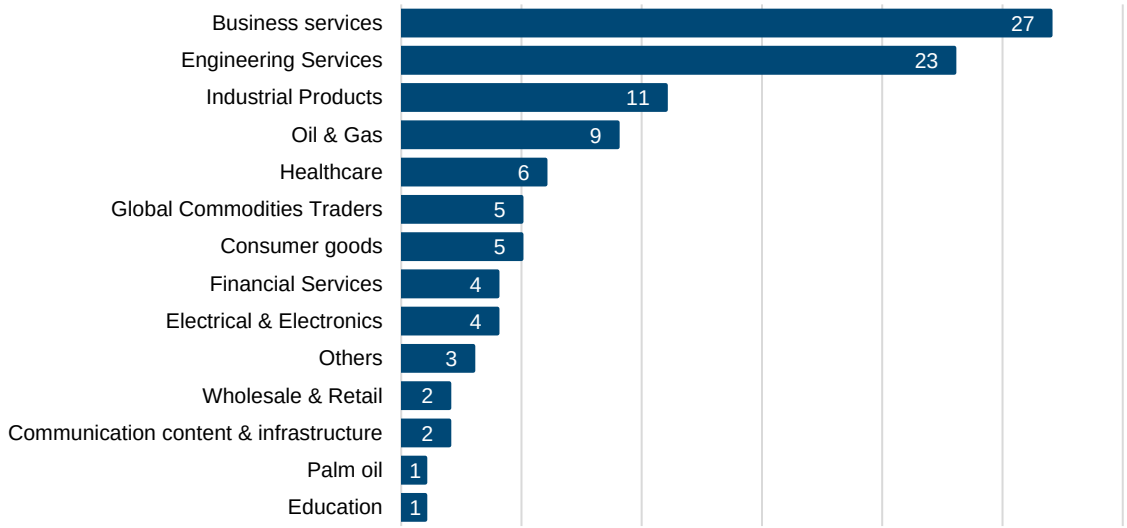


Note: KRI's definition of GKL conurbation in this report includes four states, namely Kuala Lumpur, Selangor, Putrajaya and Negeri Sembilan. Refer to Box 1 for more details.
Source: DOS (2017) and KRI calculations

Today, GKL is also dubbed as the commercial and financial hub providing various support services to both domestic and multinational companies (MNCs). As of 2020, InvestKL has reported that 103 MNCs from countries from all regions including US, UK, France, Japan, China and India have invested in GKL[6], mostly concentrating in the business services, engineering services and industrial products. Additionally, GKL has also emerged as top 10 cities in Asia, prominent for its business-friendly environment and cost-competitive economy[7].

[5] The population size of Singapore in 2020 was 5.69 million. Source: DOS Singapore (n.d.)
[6] InvestKL (2020)
[7] PwC (2017)

Figure 1.6: Number of MNCs by sector, 2020



Source: InvestKL (2020)

Why do some cities thrive, while others lag? There are many reasons that contribute to certain areas emerging as leading areas. Some leading areas flourish due to its innate advantages such as natural endowments like ports and natural resources while some cities have additional advantages in terms of infrastructure investment and carefully curated, effective developmental policies, amongst others. For example, cities like George Town and Melaka thrive for the advantage it possessed in being closer to trading ports. Indeed, a review of literature on urban economics suggests that geographical agglomeration is another key factor that allows cities to have an economic advantage and prosper[8].

The transformation of Kuala Lumpur city to the gigantic GKL conurbation over the past three decades can be linked to greater concentration of high value-added industries, developmental policies that support the business ecosystem, adequate infrastructure and so on. Additionally, this massive transformation is also an evidence of the strong presence of agglomeration economies taking place.

Agglomeration economies are the benefits derived when firms and people collocate together in cities and industrial clusters[9]. When there is a close proximity between firms and people, they become more productive by realising gains from the economies of scale effect. This facilitates the formation of agglomeration economies.

According to Edward Glaeser (2010), a close correlation between density and high wages strongly supports the existence of agglomeration economies[10]. The fact that cities in GKL are in the list of cities with greater population density coupled with higher wages (refer to Figure 1.2 and Figure 1.3) gives credence to the presence of agglomeration economies in the GKL conurbation.

[8] Glaeser and Gottlieb (2009), Krugman (1991), Marshall (1890), Jacobs (1969) and Martin and Ottaviano (2001)
[9] Glaeser (2010)
[10] Ibid.

According to Krugman's (1991) model, people tend to live in cities for greater wages and variety of goods and services whereas firms concentrate in cities to advantage from the larger markets that the cities offer for their products[11]. The model explains the emergence of successful cities in GKL due to growth of people and economic activities.

1.3 What Drives Agglomeration Economies?

The earlier section describes productivity gains as being generated through the collocation of firms and people. In this sub-section, we will discuss the multiple drivers that contribute to the development of agglomeration economies, namely transportation costs, labour market pooling and knowledge spill overs.

1.3.1. Transportation costs

One of the drivers of agglomeration is the lower transportation costs associated with having the advantage of geographical proximity[12]. When firms are strategically located nearby both their suppliers and customers, they would naturally incur a lower transportation cost when moving their goods and services and thus achieving substantial cost savings[13]. Additionally, low transport costs in a given area also exert a strong centripetal pull for firms choosing to locate their plants in the same area, as evidenced in Krugman's 'core-periphery' model. The model explains that firms that were originally dispersed tend to strategically relocate from one-region to another when transportation cost in that region is low, thus realizing the gains from spatial agglomeration in that particular area, as more and more firms migrate to optimize logistical costs.

For example, the concentration of manufacturing industries in Shah Alam can also be attributed to its central location—having a closer proximity to the leading port in Port Klang as well as Subang airport, providing easy access for industrial firms to ship their goods in addition to well-connected major highways such as KESAS and NKVE.

Historically, cities had a primary advantage of having access to water-based transport systems and railway systems for shipping goods. However, the advancement in transport technology has weakened the strong argument of transport cost savings engendering agglomeration economies. For example, at the turn of the century, the increased use of newer transport modes such as trucks, cars and airplanes coupled with transport infrastructure such as highways and airports/cargo terminals have certainly reduced the cost of moving goods over space[14].

In a world where the cost of moving goods around has become generally affordable, the key factors that drive agglomeration economies shifted to the movement of labour and ideas; labour cost is high due to specialisation and skills embedded in each labourer[15]. This brings us to the next two crucial drivers of agglomeration which are labour market pooling and knowledge spill overs.

[11] Krugman (1991)
[12] Krugman (1991)
[13] Fujita, Krugman, and Venables (2001)
[14] Glaeser (2008)
[15] Ibid.

1.3.2. Labour market pooling

Overman and Puga (2010) demonstrated that labour market pooling permits an efficient allocation of labour resources following any productivity shock[16]. For example, when there is a high density of employers in a given area, these employers create the market with which workers can compare the productivity of firms, find suitable jobs with wages that matches their skills and hence allowing them to switch from the not so productive firm to a more productive one.

Similarly, the existence of a strong and large labour market in an area enables firms to access both a diverse and specialised set of labourers and thus incentivising firms to re-locate their premise in that area. Having access to a large local skilled labour market means firms can benefit from a lower search cost to find suitable matches with their desired level of quality that fits their needs and allow them to perform efficiently and effectively.

Firms can also fetch cost savings in terms of training and skills acquisition costs. When there exists a diverse and specialized labour pool, job hunting activities also enrich firms because workers bring along a certain set of skills acquired in their previous jobs. These set of skills can be diffused to their new colleagues. Thick labour market allows firms to engage in the process of 'sharing, matching and learning', contributing to improved productivity for both firms and workers[17].

1.3.3. Knowledge spill overs

As mentioned earlier, geographical proximity is imperative to enable knowledge spillovers[18], another major agglomeration driver. Unless patented, information and ideas are considered public goods in the context that the information used by a firm would not reduce its content for other firms. There are two types of knowledge i.e. tacit knowledge and explicit knowledge. Tacit knowledge refers to knowledge or even experience exchanged via a face-to-face interaction whereas explicit knowledge refers to codified knowledge that can be acquired through books, instruction manuals, or recorded videos on YouTube for example[19].

The term knowledge diffusion refers to the sharing of information and ideas among firms and people. Geographical proximity is imperative to enable quicker knowledge diffusion or adaptation of ideas across firms and people[20]. The shorter the distance between firms, the quicker the spread of knowledge and innovation.

However, to generate knowledge spillovers, the establishment of social capital is required. Social capital refers to networks and trustful relationships[21]. While a closer proximity is vital for firms to engage in social interaction and benefit from the spillovers of tacit knowledge, this will not necessarily occur if firms fail to build the social environment that is required for social networks and trustful relationships to flourish[22]. Social capital is crucial to foster collaboration and knowledge exchange.

[16] Overman and Puga (2010)
[17] Duranton and Puga (2004) as cited in Grover, Lall, and Maloney (2022)
[18] Marshall-Arrow-Romer model cited in Glaeser et al. (1992) and D. B. Audretsch and Feldman (1996)
[19] Polanyi, M. (1985) as cited in Döring and Schnellenbach (2006)
[20] D. B. Audretsch and Feldman (2004)
[21] Hospers and Beugelsdijk (2002) and Ionescu (2005) as cited in Richardson, Yamin, and Sinkovics (2012)
[22] Richardson, Yamin, and Sinkovics (2012)

1.4 Policies Anchoring the Agglomeration Economies in Malaysia

Several industrial and developmental policies, particularly those outlined in Malaysia's 5-year plans and Industrial Master Plans (IMPs) have played a pivotal role in shaping the structure of agglomeration economies and gigantic conurbations that we experience today in Malaysia. This section discusses some of these policies that are segmented into three categories which encompass the pull factors for agglomeration economies namely: 1) policies promoting industrial development, 2) policies facilitating the development of new urban centres and 3) transportation networks.

1.4.1. Policies promoting industrial development: agglomeration of firms

Post-Independence, industrialisation arose as a crucial source of economic growth for Malaysia. The government adopted a diverse set of industrial policies between 1970s to 1990s to advance its industrial development, aiming to become a fully industrialised country. The policies include shifting from Import Substitution Industrialisation strategy (ISI) to Export-Oriented Industrialisation Strategy (EOI) in the 1970s and subsequently focusing on heavy industrialisation in the 1980s.

Some of the major industrial clusters emerged through Free Trade Zones (FTZs) that were implemented to promote the development of EOI. The first FTZ developed in Bayan Lepas, Pulau Pinang was successful in attracting foreign investment by large multinational firms including National Semiconductor, Clarion and Intel and eventually became a productive electronic and electrical cluster. The potential of FTZs to operate on the gains of the agglomeration economies prompted the government to create eight other FTZs in various states including Melaka (Batu Berendam), Selangor (Sungai Way, Teluk Panglima Garang) and Kedah (Kulim) by end of 1980[23].

The accomplishment of the larger FTZs can be attributed to primary factors that stimulated the agglomeration of firms or the industrial clusters that we see today; the factors include the favourable location of FTZs (in urban areas) with adequate infrastructure facilities (i.e. access to telecommunications systems, international airports, roads and railways), the availability of trained labour supply, simplified administrative procedures for duty free importation and exportation, and easy access to services such as insurance and financing besides government's fiscal incentives (i.e. tax exemption for pioneer status firms)[24].

In addition to FTZs, a series of comprehensive IMPs also laid the foundation of manufacturing industries and accelerated the industrial development. For example, IMP 1 (1986 – 1995) focused on the intensive development of resource-based industries whereas IMP 2 (1996 – 2005) widened the capabilities of manufacturing sector to include research and development (R&D) and design capability besides operations, with the specific focus on cluster-based industrial development[25]. Among some of the eight clusters identified were electrical and electronic, textiles and apparel, chemical, food processing, transportation equipment and machinery and equipment.

[23] 4th Malaysia Plan (1981 – 1985). Source: EPU (1981)
[24] Anazawa (1985)
[25] JICA Malaysia Office (1998)

A cluster is defined to be "an agglomeration of inter-linked or related activities comprising industries, suppliers, critical supporting business services, requisite infrastructure and institutions".

IMP2, p.23[26]

As highlighted in the 6th Malaysia Plan (1991 – 1995), efforts were also taken to further diversify and modernise the industrial base through the development of high value added, high technology industries bolstered with strong R&D to facilitate product and process innovation[27].

The shift in the focus of economic development from manufacturing to a knowledge-based and service-oriented economy was also reflected in measures to create specialised clusters, for example the Subang Industrial Aerospace Park—focusing on the development of aerospace-related services and general aviation; information and communication technology (ICT)—the establishment of Multimedia Super Corridor (MSC), Cyberjaya and Technology Park Malaysia (TPM) to nurture and develop high technology start-up companies[28]. Critical mass of entrepreneurial firms, networking capabilities, technology management and transition and skill formation were among the critical factors addressed to ensure the development of dynamic clusters[29].

In the 10th Malaysia Plan (2011-2015), the government recognised the opportunities presented by urban agglomerations and thus engaged in the establishment of regional economic corridors around existing high-density clusters demonstrating sector and geographic advantages[30]. The regional corridors allow the firms and businesses to benefit from economies of scale, improve the quality of life of the local population as well as bridge regional economic imbalances. The identified priority sectors include the creative cluster in Iskandar Malaysia; automotive and aeronautics industries in Northern Corridor Economic Region (NCER); petrochemical industries in the existing industrial parks in East Coast Economic Region (ECER); tourism and palm oil downstream processing in Sabah Development Corridor (SDC); as well as energy-intensive industries including aluminium, steel and glass in Sarawak Corridor of Renewable Energy (SCORE)[31]. Selangor, Negeri Sembilan and Melaka are the three states not covered by these corridors as they have benefitted from the developments in the GKL conurbation.

[26] As cited in GRIPS (n.d.)
[27] EPU (1991)
[28] 7th Malaysia Plan (1996 – 2000) and 8th Malaysia Plan (2001 – 2005). Source: EPU (1996), EPU (2001)
[29] 8th Malaysia Plan (2001 – 2005). Source: EPU (2001)
[30] EPU (2010)
[31] 11th Malaysia Plan (2016 – 2020). Source: EPU (2015)

1.4.2. Creation of new urban centres: agglomeration of business and people

A review of various Malaysia Plans shows that the government remained committed to undertake several urban development strategies. One of them includes the development of new urban centres of varying sizes and specialisation. Existing towns demonstrating a favourable outlook to benefit from the effects of agglomeration economies were identified and structure plans[32] were devised for these towns[33]. To maximise the potential of these towns becoming prospective growth engines for their respective regions, a greater emphasis was also placed on the provision of adequate infrastructural and communication facilities to ensure the diffusion of commercial and service activities to these specialised areas[34].

Effort was also undertaken to spread population growth that was concentrated in Kuala Lumpur to neighbouring towns and cities. It is evident that the concentration of urban population in the Central region has accelerated the agglomeration process and thus boosted the expansion of industrial, commercial, financial, and administrative activities within the Kuala Lumpur conurbation areas. However, this mass concentration of population has engendered all sorts of negative externalities such as congestion and inadequate supply of affordable housing, amongst others. Thus, to tackle this issue as well as to complement the growth of regional centres, more satellite towns were developed. For example, the development of Shah Alam, Klang, Kajang, Bangi, Rawang and Sepang within the GKL conurbation were identified to benefit from the dissemination of urbanisation processes[35].

However, it is noted that some of these new urban centres' progress were hindered by their poor absorptive capacity to facilitate the flourishing of economic activities. These centres did not achieve the estimated population targets in the structure plans. Hence, National Urbanisation Policy (NUP) was formulated in the early 1980s[36]. The policy provided a comprehensive guide for urban planning, ensuring in-flow of a wide spectrum of urban-based activities including consumer-oriented services and other small-scale businesses to the new townships[37].

Moreover, the relocation of federal government administration from Kuala Lumpur to Putrajaya as well as the development of Cyberjaya are also part of the efforts undertaken to reduce increased urban tensions in Kuala Lumpur[38]. This move is perceived to contribute to the growth of new development corridors between Kuala Lumpur, Putrajaya and Sepang.

[32] The structure plan included focus areas such as spatial zoning, traffic arrangements, urban drainage, sewage and waste disposal, and the provision of adequate housing and utilities.
[33] 4th Malaysia Plan (1981 – 1985). Source: EPU (1981)
[34] EPU (1981)
[35] Ibid.
[36] 5th Malaysia Plan (1986 – 1990). Source: EPU (1986)
[37] Ibid.
[38] 7th Malaysia Plan (1996 – 2000). Source: EPU (1996)

1.4.3. Transportation networks driving agglomeration activity

In the previous section, we discussed the pertinent role of transportation infrastructure in driving agglomeration forces. As highlighted in the various Malaysia plans, our government has continued to place emphasis on the development of an integrated, efficient and reliable transportation infrastructure. This is to cater for the various industrial needs of firms and minimizing any major locational disadvantage that might impede the diversification of local economies[39].

The improvement of transportation networks ensures a free flow of resources, goods and services and it creates a conducive environment for industrial investment and the generation of spillover effects in economic activities. Some of the measures to improve the transportation network include but not limited to:

1. The construction of major highways such as the Kuala Lumpur-Seremban and Kuala Lumpur-Karak highways during the 3rd Malaysia Plan along with the construction of new development and feeder roads in regional development schemes such as Johor Tenggara and Pahang Tenggara[40].

2. The construction and upgrading of roads and expressways such as North-South Highway (PLUS), North-Klang Valley Expressway (NKVE) and Damansara-Puchong Highway (LDP) that paved the way for the establishment of townships such as Nilai and Bandar Baru Klang, as well as the creation of new townships such as Bukit Beruntung and Bandar Bukit Puchong[41].

3. Investment in the public transport services for better connectivity in the GKL conurbation. This includes the construction of KL Sentral, a major public transport terminal integrating both Keretapi Tanah Melayu Berhad (KTMB) inter-city and commuter services with the ERL, LRT PUTRA, Monorail, buses, taxis and pedestrian facilities, was completed in December 2000. The ERL and LRT PUTRA stations were completed in October 2000. This transport hub which also functions as a city air terminal, provides an important link to KLIA, Putrajaya and Cyberjaya[42]. The availability of more public transport modes facilitated the migration to satellite towns.

4. Major urban road projects implemented to improve traffic flow in Kuala Lumpur included the Stormwater Management and Road Tunnel (SMART) project[43].

[39] 4th Malaysia Plan (1981 – 1985). Source: EPU (1981)
[40] 3rd Malaysia Plan (1976 – 1980) and 4th Malaysia Plan (1981 – 1985). Source: EPU (1976) and EPU (1981)
[41] 7th Malaysia Plan (1996 – 2000). Source: EPU (1996)
[42] 8th Malaysia Plan (2001 – 2005). Source: EPU (2001)
[43] EPU (2001)

1.5 Types of Agglomeration Economies

The aforementioned forces of agglomeration economies can either allow clustering of firms within the same industry or clustering of firms of different industries in a particular location, thus forming two types of agglomeration economies, namely localisation economies and urbanisation economies.

1.5.1. Localisation economies

Localisation economies[44] refer to the clustering of a group of firms from the same industrial sector at a particular location[45]. For example, the automobile clusters in Detroit and Germany, whereas in Malaysia, we have the automobile clusters in Selangor and electrical and electronic clusters in Pulau Pinang. Firms of the same industry choose to agglomerate in a location as to benefit from a closer proximity-induced localisation externalities such as sharing the same set of input supplier firms, customer firms as well as the requirement for similar workforce for their production and operation. The localisation externalities are also known as Marshallian externalities, named after the founder of the concept, Alfred Marshall.

For instance, when local supply firms are strategically located close to their major customer firms, the former may benefit from increased information exchange (i.e. knowledge diffusion) with the latter, and thus creating an opportunity for both firms to improve their mutual understanding and familiarity at various phases of the production process and at times warranting the need for exchange of personnel and consultants for improved productivity[46].

Following the footsteps of some successful firms, more new firms from the same industry are more likely to be attracted to concentrate in that region to benefit from localisation economies and this generates a massive cluster of firms producing similar sets of product and services. A simple example to better illustrate localisation economies is the clustering of various textiles and warehouses and suppliers at Nilai 3, offering similar products at similar price ranges.

1.5.2. Urbanisation economies

Urbanisation economies[47], refer to the clustering of firms across different sectors, providing complementary services to each other in a particular area[48]. Localisation economies are driven by the co-location of firms engaging in similar kind of economic activities and thus achieving increased economies of scale. For a diverse set of economic activities or industries to cluster in the same region or cities, they must also experience economies of scale[49].

[44] Localisation economies are also referred to as industry-specific economies of agglomeration.
[45] McCann (2013)
[46] Ibid.
[47] Urbanisation economies are also called city-specific agglomeration economies.
[48] Jacobs (1969)
[49] McCann (2013)

To put this into perspective, workers who live and work in the sectors driving localisation economies may also require other forms of services to perform their daily routines, for example housing, retail, educational, healthcare, and leisure services. Likewise, firms may also need other services for the efficient running of their business operations. This includes but not limited to legal, marketing, advertising, and transportation. While these various economic activities are independent of the firm's production structure, however, their availability greatly enhances different aspects of the firm's operation within the local economy[50].

For example, a resident in Seksyen 13 Petaling Jaya would have access to as many vehicles service centres such as Nissan, Proton, Honda and Quill (BMW), clustering in the same street, benefiting from the effects of localisation economies. These firms share the same set of suppliers and customers. Within the same vicinity, there is an automotive college—The Automotive College (being primarily an educational institute) located in a closer proximity to these companies, provides fresh graduates for internships or permanent employment opportunities, while benefitting from the demand of these prospective students. The colocation of vehicle service centres and educational institutions in the automotive industry is an example of urbanisation economies.

Then, there are also the presence of healthcare facilities i.e. Columbia Asia Hospital, alongside a number of shopping malls e.g. Jaya Shopping Malls covering various services such as retail, eateries, book stores, as well as the availability of residential centres (terrace houses and condominiums) which all play an important role in a flourishing neighbourhood.

Diversity contributes to the growth of vibrant cities. As such, urbanisation economies are crucial for the development of large and diverse cities as it generates diversity through the co-location of a vast array of industries, offering various jobs and amenities that attract a skilled and productive workforce.

1.6 Reflections on the Structure of GKL Conurbation

As demonstrated in the previous section, a substantial portion of the agglomeration structures were created on the backdrop of strong industrial development policies that advantaged from agglomeration economies. Similarly, some of these policies were also instrumental for the development of mega projects which makes up the GKL conurbation covering an area of 2,739 km^2 connecting Kuala Lumpur to major cities in Selangor to Putrajaya and even extending to Seremban city in the neighbouring state.

For example, Malaysia's vision to transform into knowledge-based economy resulted in the establishment of MSC—a policy driven cluster of ICT firms and associated institutions. MSC development also involved the construction of KLIA airport upon acknowledging the incapacity of the Subang airport to support new/high demand and to be on an equal footing with Singapore's and Bangkok's transport hub[51]. Under the MSC project, the government built Cyberjaya city with the vision to become Asia's Silicon Valley city and to reflect the global trend to capitalize on technology advancements.

[50] McCann (2013)
[51] King (2008)

Meanwhile, the migration of federal government administration away from Kuala Lumpur resulted in the establishment of Putrajaya. The planning involved the location of the new governance along a linear spatial connection from KLIA to KL city centre[52]. The development of twin cities—Putrajaya and Cyberjaya was also accompanied with the provision of infrastructures such as ERL and KLIA Express train services and a dedicated highway connecting KL to KLIA via Putrajaya and Cyberjaya[53].

It appears that GKL has a balanced composition of both manufacturing- and services-oriented economy. The conurbation constitutes notable industrial clusters such as Port Klang, Sungai Way, Shah Alam and Petaling Jaya and the residential centres are also built around these clusters as evidenced by the concentration of people living in close proximity to their jobs. At the same time, GKL also consists of knowledge clusters like MSC and TPM and the concentration of services sector in Kuala Lumpur city.

Moreover, there are several projects in the pipeline to strengthen the GKL conurbation. This includes Bandar Malaysia based on transit-oriented development, Tun Razak Exchange visioned to create world class financial district, Digital Free Trade Zone, KLIA Aeropolis and Putrajaya MRT[54].

1.6.1. Policy driven cluster: The case of the Malaysian Multimedia Super Corridor

The industrial and knowledge clusters in Malaysia today are predominantly policy-driven clusters rather than organic or spontaneous clusters. The former refers to the cluster formation facilitated by the government via policies, fuelling the necessary conditions to conceive the clusters. Whereas the latter is capable of emerging and evolving from entrepreneurial-structured venture capital and social capital[55]. The continuous evolution results in close networking within spontaneous clusters. Spontaneous clusters are normally concentrated in Western countries, while Asian countries are more prone to develop policy-driven clusters[56].

Malaysia's MSC is an example of policy-driven cluster of ICT firms and related institutions; developed to accomplish the country's transition towards a knowledge-based economy. Rather than leveraging on the opportunities available in KL Central Business District (CBD) to strengthen the ICT industry, the government decided to build an entirely new agglomeration of ICT firms in a suburb, located 20 – 40 km away from Kuala Lumpur. This was in contrast to international practices where the IT companies in both developed and developing countries were concentrated in CBDs or subcentres like Tokyo or New York[57].

The government-regulated corridor offered a wide range of incentives and privileges to attract the international and local multimedia and ICT firms. This includes the provision of basic infrastructure and incentives for firms with MSC status such as reduced tax provision, exemption of the 30% Bumiputera quota, easy immigration procedures for foreign workers, access to grants and government markets[58]. Firms with MSC status can easily access these incentives on the condition that they are located within MSC boundaries.

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[52] Ibid.
[53] Ibid.
[54] PwC (2017)
[55] Su and Hung (2009)
[56] Ibid.
[57] Seta, Onishi, and Kidokoro (2001)
[58] Seta, Onishi, and Kidokoro (2001), Richardson, Yamin, and Sinkovics (2012), Rizzo and Glasson (2012)

Despite the provision of the facilities to promote the creation of a dynamic knowledge hub, the MSC struggled to attract adequate firms during its initial phase. Several studies found that the MSC did not materialise its vision of becoming Asia's "Silicon Valley" that it aspired to be[59]. It is reported that during the period between 1996 – 2005, approximately 60% of more than 1,000 firms with MSC status were based outside the legal boundaries[60] of MSC, ignoring the condition that was imposed on firms to located within MSC boundaries.

Several factors behind the low-key performance of MSC during its initial phase were identified. One of them is the location of MSC was lacking in terms of the set of readily accessible amenities and a strong presence of agglomeration of firms with established network with other firms, clients and customers that was naturally present in KL city centre[61]. This led to many companies choosing to locate their headquarters outside MSC boundaries.

Moreover, most of the companies concentrated in Cyberjaya were mainly call centres and engaged in data processing activities. This did not generate the environment for creative thinking or high-technology activities that was necessary to drive innovation and contribute to increased productivity, that was consistent with its aspiration to be Asia's "Silicon Valley". Research also found that Cyberjaya lacked high-tech endowments that were pivotal for firms' patenting capabilities and had a low absorptive capacity among local firms[62].

Additionally, MSC was also constrained by the lack of social amenities that deterred the spontaneous informal interaction among employees and firms—crucial for tacit knowledge spillovers. During the initial period, Cyberjaya have limited housing units, approximately 2,800 units for employees to reside in the city[63]. Many of the employees were staying in Kuala Lumpur, which meant that nearly 60% of the estimated 35,000 of MSC's working population had to commute to Cyberjaya for work on daily basis[64]. The city was described as a "nine-to-five city". As social interaction was limited to just office hours, the social infrastructure for employees to participate in the localised informal interaction was somewhat lacking. This delayed the formation of social capital associated with the diffusion of tacit knowledge.

In essence, it is observed that policy-driven cluster has its own challenges in generating the benefits associated with the presence of creative and talented workers at least in the short run. The challenges include the existence of adequate density of firms. Even so, any progress made will be hampered without the presence of social amenities as it contributes to the creation of a dense social network—vital to facilitate knowledge spillovers that potentially help internationalising firms.

Although MSC encountered the above challenges in becoming a productive knowledge hub during its initial phase, current statistics show that MSC Malaysia has attracted 2,794 active MSC status companies since 1996. As of December 2020, these companies brought in a total investment of RM384 billion, contributing to the creation of 184,030 high-skilled jobs and RM588 billion of revenue[65].

[59] Richardson, Yamin, and Sinkovics (2012), Rizzo and Glasson (2012)
[60] Lepawsky (2009)
[61] Seta, Onishi, and Kidokoro (2001)
[62] Evers, Nordin, and Nienkemper (2010)
[63] Jabatan Perancangan Bandar dan Desa (2009) as cited in Evers, Nordin, and Nienkemper (2010)
[64] MDeC (2009) as cited in Evers, Nordin, and Nienkemper (2010)
[65] The Star (2022)

1.7 Concluding Remarks

Cities are created over the years. Historically, most of the earliest cities used to be political cities—built on leaders' political power and administration for example, Rome and Beijing. In comparison, most cities today are economic cities—leveraging their growth on the agglomeration economies[66].

The emergence of varied economic activities and the evolution of technological advancement have mainly contributed to the creation and growth of economic cities. Many countries started off their economic trajectory as an agrarian economy, built on mainly rural settlements, including Malaysia. However, there was a gradual shift towards manufacturing-and service-oriented economy, influenced by the gigantic growth of Industrial Revolution back then.

As discussed in this chapter, the economic transition has primarily contributed to the growth of Malaysian cities, particularly the GKL conurbation, supported with a myriad of government policies. Urban areas emerge as the preferred choice of location for firms and businesses to benefit from the present agglomeration economies and other urban opportunities including efficient transportation networks and increased access to utilities (e.g. water and electricity). Likewise, it is the similar amenities, infrastructure and most importantly, the availability of high wage employment opportunities that attract people to migrate to cities, and thus giving the life and soul to the cities. In fact, Jane Jacobs (1961) identifies concentration of people as one of the crucial conditions for city diversity.

"There must be sufficiently dense concentration of people, for whatever purposes they may be there. This includes dense concentration in the case of people who are there because of residence"

Jane Jacobs[67]

One can say that all cities are still work-in-progress; the local authorities and planners are consistently trying to figure out what works in transforming their city to a thriving city. In that sense, we still have a chance to change its course to bridge the gaps that we can see. For example, Chapter 01 highlights several gaps in terms of lack of innovative economic activity to attract skilled professional, shortage of social amenities and adequate housing that are crucial for daily life routines.

On one hand, a thriving city should have a good mix of economic activities and skilled labour force that is able to boost local productivity growth. On the other hand, it should also host a diverse set of amenities including basic necessities like schools and hospitals, and additional amenities like universities, financial services, movie theatres and cafes that is believed to improve household well-being and assisting them in climbing up the social mobility ladder. Hence, the following chapter will discuss in greater detail on place differentiation—a driver for aspirational neighbourhood.

[66] M. E. Smith and Lobo (2019)
[67] Jacobs (1961)

CHAPTER

02

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CHAPTER 2

GREATER KUALA LUMPUR AND ITS PLACES

By Gregory Ho Wai Son and Suraya Ismail

"To occur is to take place. In other words, to exist is to have being within both space and time."

Donna J. Peuquet[68]

2.1 Introduction

Cities compete for its inhabitants, targeting firms and households as semi-autonomous decision-makers[69]. This is because cities are perceived as engines of development and growth. They serve as both sites of production and consumption, as well as places where new products, systems, and platforms are identified, designed and prototyped[70]. Gradually, the wealth of cities as compared to the hinterland is perceived to be a result of synergies – where people of many different trades and professions share a community – a common weal[71]. In lieu of this, cities are also known to be correlated with a variety of desirable attributes – higher standards of living, personal incomes, and creative employment[72].

2.2 Place Differentiation – The Driver Behind Aspirational Neighbourhoods

According to Abraham Maslow, there exists a "hierarchy of needs"[73] that humans must first satisfy before they move on to higher order needs. Humans first satisfy needs in relation to sustenance - basic physical needs such as food, shelter and security, and once these are fulfilled, we then strive to satisfy higher order needs that reflect social class, esteem and self-actualisation.

On the other hand, production networks and the delivery of final goods and services tends to be spatially bounded. Thus, different regions in Malaysia experience different levels of development and these create heterogeneities in terms of what functionings[74] (both market and non-market) individuals might have access to. Even within one region, there exists spatial inequalities that may encumber households' ability to live lives they value. This chapter explores the satisfaction of needs and wants in relation to the availability and accessibility of places in GKL neighbourhoods.

[68] Peuquet (2002), Zhong et al. (2012)
[69] Markusen and Schrock (2006)
[70] Clark (2020)
[71] And in so doing, derive utility from having access to the public good.
[72] Bettencourt et al. (2007)
[73] Maslow (1943)
[74] Sen (1999). Amartya Sen proposes that development can be seen as a process of expanding freedoms that people can enjoy, with the explicit focus to empower people to choose the lives that they have reason to value.

Every neighbourhood ought to be equipped with a sufficient amount of places that facilitate social primary goods[75]. For ease of reference, we refer to these places as 1st tier amenities (places)- these places exist to fulfil basic needs. For example, these places may be markets, grocery stores or supermarkets for inhabitants of the city to acquire food and other necessities. Each neighbourhood should also have a sufficient amount of shelter[76] for its inhabitants. Other basic 'places' for communal living would include public services – schools, fire stations, police stations, post offices, hospitals, clinics and the like as well as recreational, social and religious congregations such as public parks and religious centres.

On the other hand, 2nd tier amenities refer to places that serve higher-order needs (or wants) of its inhabitants. Certainly, there exists places such as spas or artisan coffee cafes, that may be categorized as outside the definition of a social primary good. In a world where there exists an abundance of places which serve the basic functioning of localities, the formation of more places that serve higher-order needs should be encouraged. This is because these places represent a shift in household wellbeing from the mere satisfaction of basic needs to a culture of consumption that better represents the idea of an aspirational class[77]. The existence of a healthy middle-class is said to be main driver of local economic demand for higher-order goods and services such as private education tuitions, music classes or art galleries.

In the GKL region, the landscape of neighbourhoods has also been influenced by policies targeted at regional development. Chapter 01 outlines some of such examples ranging from the MSC, Putrajaya as a central hub for government administration, or even the upcoming Bandar Malaysia which is a more transit-oriented development.

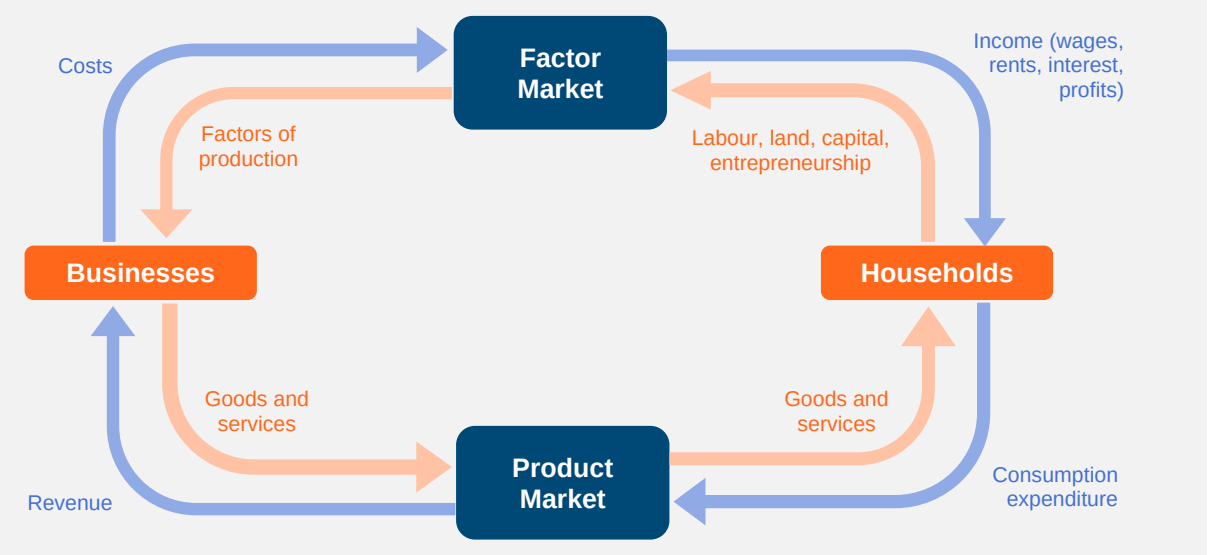
However, from a spatial perspective, the dynamics of the economic processes undergirding the agglomeration of firms and the movement of labour does not always align with the socio-dynamics that people desire to have. For example, it was claimed that the reason why MSC has fallen short of initial expectations has to do with limited 'soft' infrastructure and the lack of social amenities to facilitate a more vibrant neighbourhood[78]. Such instances give credence to the notion where the city is sometimes described as a contested space where "the distinction between citizen and consumer is actively being contested"[79].

Economists define the circular flow of the economy[80] as being represented by major exchanges in which there is an exchange between money and the provision of goods and services.

Figure 2.1 depicts the circular flow of the economy where the orange arrows represent the movement of goods and services between exchanges, while the arrows in blue represents the flow of money in exchange for those goods and services. In light of this abstraction, how might the interaction between various agents affect the landscape of a neighbourhood?

[75] Rawls (1971)
[76] The topic of shelter is explored further in the subsequent chapter.
[77] Currid-Halkett (2017; Hamid, Son, and Ismail (2019)
[78] Chapter 01
[79] Clark (2020)
[80] The circular flow of the economy has its roots in the Tableau Economique. The depiction is frequently attributed to Richard Cantillon and Francois Quesnay.

Figure 2.1: The circular flow of the economy



Source: Adapted from Xiao and Van Zandt (2012)

A top-down perspective of firm and household location describes the agent's choices as an optimization process. On the one hand, firms that are motivated by profit organize themselves across a geographical landscape in a way that allows them to access resources conveniently – the theory of industrial location or localisation economies as described in Chapter 01. This optimizes market capture, logistical costs and availability of labour, amongst other things.

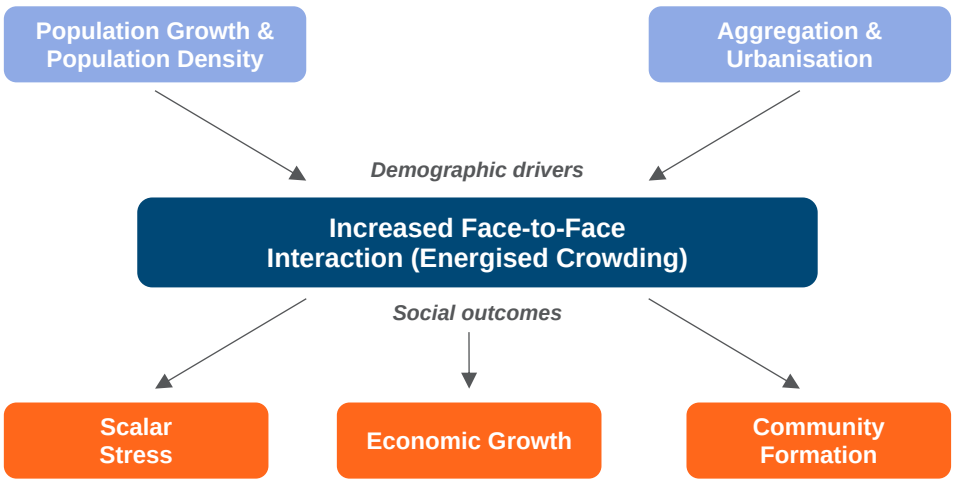
On the other hand, households and individuals also organize themselves to have access to household resources. The individual or household choice of location optimizes between housing affordability, the burden of travelling to and from work and other distances related to leisure and social capital formation[81]. The landscape of neighbourhoods are the outcomes of the resultant interaction between the different exchanges in the circular flow of the economy.

A bottom-up approach to this phenomenon focuses on the how these desirable traits emerge as a result of "energised crowding"[82] (Figure 2.2).

Energised crowding focuses on how social change emerge as a biproduct to facilitate human functionings[83]. It focuses on the idea that travelling to work, shopping in local markets, exercising in public parks, attending religious events are all activities that are affected by the volume of face-to-face interactions we experience from day to day. And it is this factor that catalyses the emergence of the desirable attributes associated with a flourishing neighbourhood as described above.

[81] Suraya Ismail et al. (2019)
[82] Kostof (1991). At a very fundamental level, Spiro Kostof defines *energised crowding* as face-to-face interaction. Energised crowding leads to a variety of secondary effects such as community formation, local economic growth, amongst others.
[83] Sen (1999). Amartya Sen proposes that development can be seen as a process of expanding freedoms that people can enjoy, with the explicit focus to empower people to choose the lives that they have reason to value.

Figure 2.2: Energised Crowding



Source: Gyucha (2019)

2.3 GKL Amenity Space – Describing the Structure of Place Differentiation

The GKL Amenity Space[84] (as described in Figure 2.3 and Figure 2.4) is a network model of place embeddings in each GKL neighbourhood. While there might be a qualitative basis to categorize places such as hospitals, schools and fire stations as basic necessities of cities, the GKL Amenity Space allows for the identification and categorisation of place typologies without making any prior qualitative assumptions.

Figure 2.3: The GKL Amenity Space

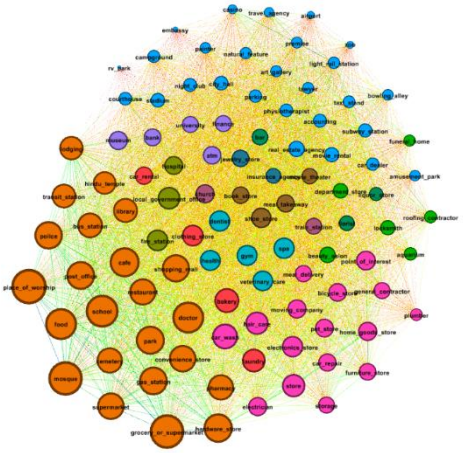
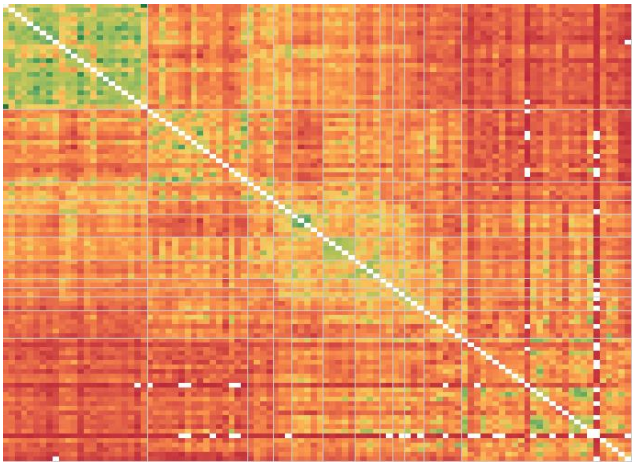


Figure 2.4: GKL Amenity Space Adjacency Matrix



Source: KRI calculations based on Google (n.d.a)

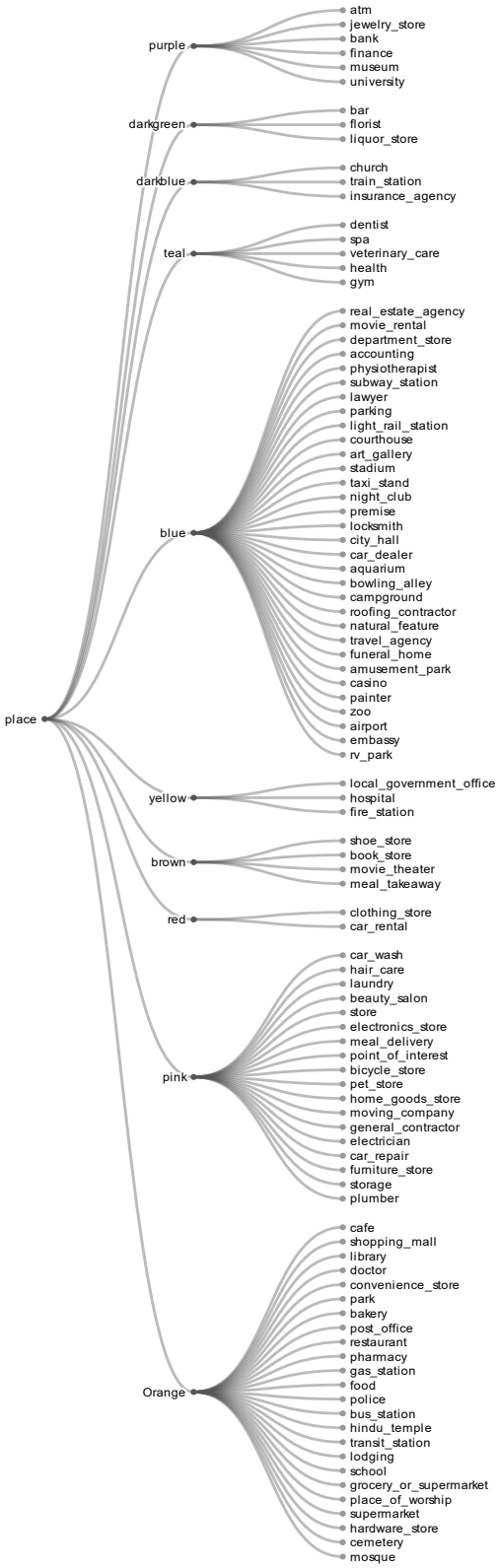
[84] A more detailed overview of the methodology can be viewed via our Working Paper: "What makes your neighbourhood 'better'? Socio-economic variabilities of Greater Kuala Lumpur neighbourhoods". The GKL Amenity Space was constructed following a series of papers focused on the principle of relatedness. Hidalgo et al. (2007), Hidalgo et al. (2018), Hidalgo, Castañer, and Sevtsuk (2020)

Network analysis is undertaken to study the structure of place co-location. Specifically, network analysis allows us to investigate how nodes (places, establishments, etc.) differ, the underlying patterns of behaviour between nodes, and what processes shaped the formation of the structure that is observed.

In order to categorize how places, relate to one another, the next step is to conduct community analysis[85]. A community is one where each member in the community experiences stronger association with one another as opposed to members of other communities. In the GKL Amenity Space, community analysis is used to group and classify each place based on how places are associated with one another via their co-location probabilities. Figure 2.5 outlines the community groups that is obtained from Blondel's Algorithm[86].

The results of our network analysis indicate that the GKL Amenity Space is structured as an assortative-ordered network[87]. The structure of the GKL Amenity Space allows us to interpret the places as in an assorted and ordered manner. An assortative view of places suggest that places exhibit different function. For example, gas stations have stronger association with grocery stores, as opposed to a furniture store or a bar. On the other hand, the ordered view suggests that there is rank specialization in the agglomeration of places.

Figure 2.5: Tree Diagram of Community Groups



Source: KRI illustration based on Google (n.d.a)

[85] In the context of graph theory, a community refers to locally dense connected subgraphs.
[86] Blondel et al. (2008)
[87] Assortative-ordered networks are characterized by high within group links and linear group hierarchy

2.4 Method of Reflections

The method of reflections[88] (MOR) was initially developed as an index to measure product-country complexity. In this segment, the MOR is employed to analyse the matrix of neighbourhood-place types. Fundamentally the MOR produces the following metrics in Table 2.1.

The MOR is an iterative method that first incorporates the property of place availability into neighbourhoods and of neighbourhoods as a property of places. Subsequent iterations of the MOR results in metrices which incorporate the former definitions into subsequent counterparts to produce an information-denser metrics.

Table 2.1: Interpretation of k-iterations (k<3)

Definition	Description: Short Summary (Question Form)
$\kappa_{N,0}$	Number of place types accessible from neighbourhood N *(How many place types are accessible from neighbourhood N?)*
$\kappa_{P,0}$	Number of neighbourhoods having place type P *(How many neighbourhoods have place P?)*
$\kappa_{N,1}$	Average ubiquity of place types accessible from neighbourhood N *(How common are the place types accessible from neighbourhood N?)*
$\kappa_{P,1}$	Average diversification of neighbourhoods containing place type P *(How diversified are the neighbourhoods that contain place type P?)*
$\kappa_{N,2}$	Average diversification of neighbourhoods with a place type structure similar to N *(How diversified are neighbourhoods that have similar place type structure to N?)*
$\kappa_{P,2}$	Average ubiquity of place types in neighbourhoods that contain place type P *(How ubiquitous are the place types contained in neighbourhoods that contain P?)*

The result of which are metrices of diversity and ubiquity of both the places based on which neighbourhoods contain them, as well as a metrics of place differentiation of the neighbourhood based on the places available at the neighbourhood. Over the iteration regime, these metrices converge into a steady state. Figure 2.8 and Figure 2.9 exhibits the Top 25 of most varied neighbourhoods and the Top 25 of most diverse place types in GKL.

The metrices obtained from the MOR allows for the quantification of the 'degree of urban-ness' based on place differentiation in GKL. For example, the MOR suggests that neighbourhoods like Desa Pandan, Bukit Tunku or KL Sentral were ranked higher in terms of place differentiation, meaning that these neighbourhoods possess a good mix of 1st and 2nd tier amenities in its vicinity.

On the other hand, a ranking of place ubiquity suggests that places such as LRTs, Zoos and Physiotherapists are ranked lower in terms of its ubiquity score. This meant that these places were not as common as other places.

[88] Hidalgo and Hausmann (2009)

Figure 2.6: Ranking on Generalized measure of Neighbourhood Diversity

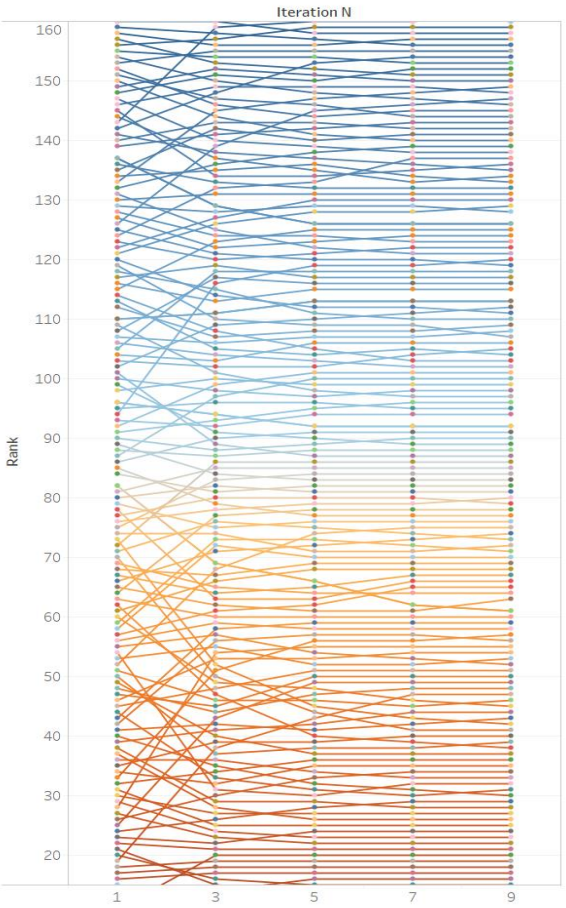
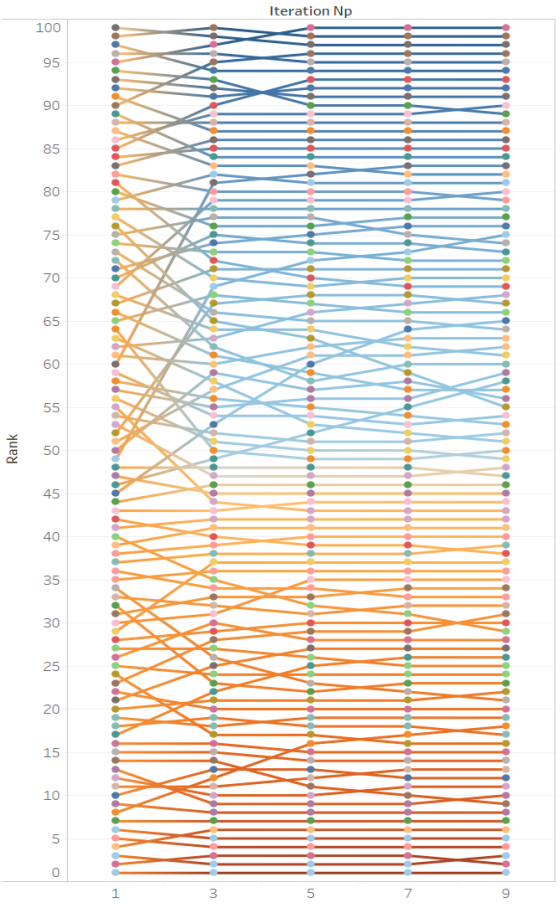


Figure 2.7: Ranking on Generalized measure of Place Ubiquity



Source: KRI calculations based on Google (n.d.a)

Figure 2.8: Top 25 most varied neighbourhoods by rank

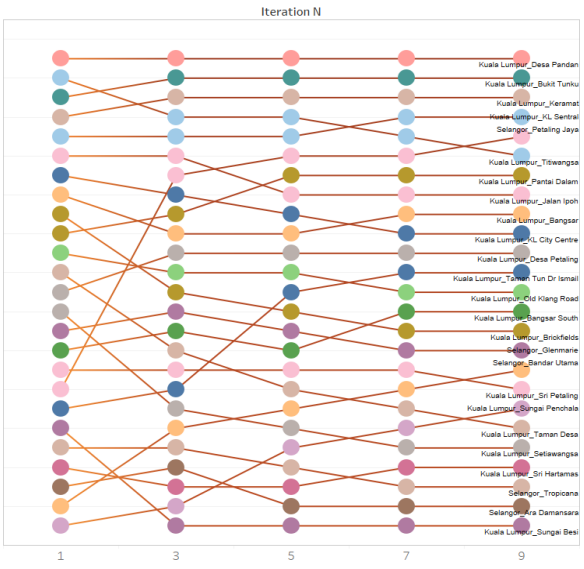
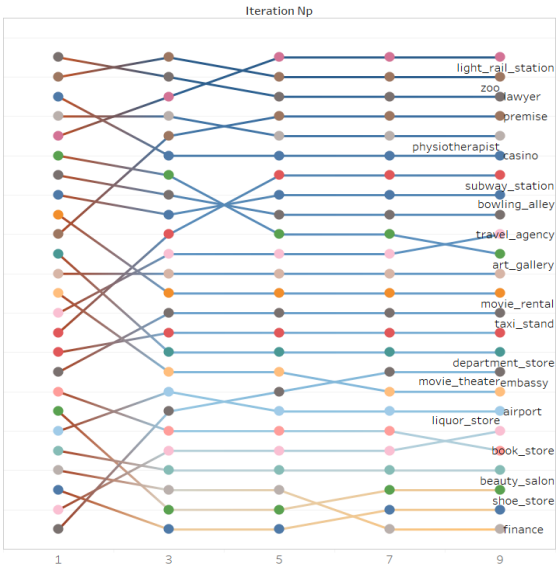


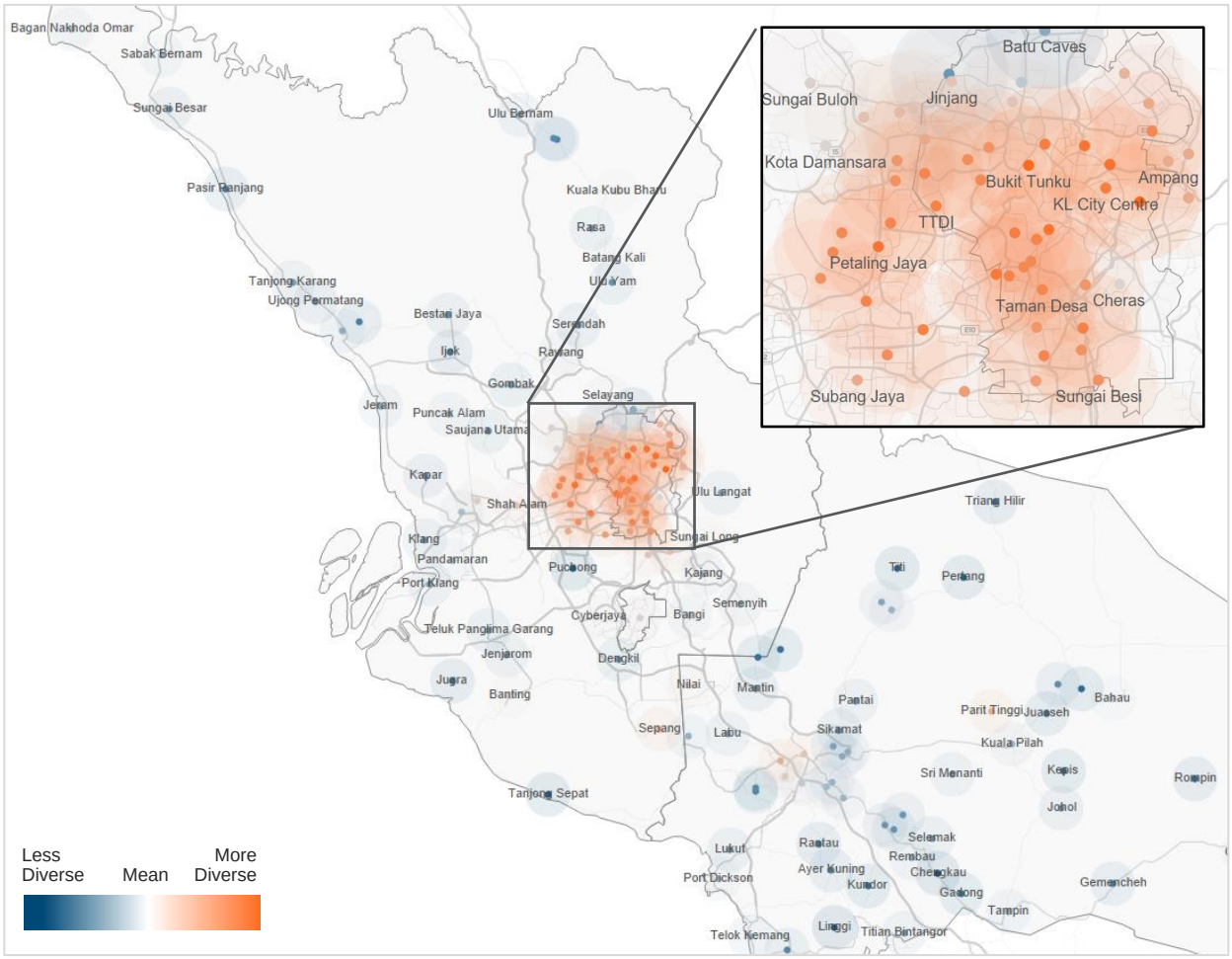
Figure 2.9: Top 25 most diverse place types by rank



Source: KRI calculations based on Google (n.d.a)

Figure 2.10 exhibits the metrics of place differentiation by the various neighbourhoods located in GKL.

Figure 2.10: Geographical Distribution of Place Differentiation, by neighbourhood



Note: Shaded circles are 3.5km radiuses from each neigbourhood centre.
Source: KRI calculations based on Google (n.d.a)

According to the Department of Statistics Malaysia (DOS), an urban area is defined by "Gazetted areas with their adjoining built-up areas, which had a combined population of 10,000 or more at the time of the Census 2010 or the special development area that can be identified, which at least had a population of 10,000 with at least 60 % of population (aged 15 years and above) were involved in non-agricultural activities"[89]. DOS's definition of an urban area is one that is based on population density, the built environment and economic activity.

Since the MOR produces a metrics of urban-ness based on place differentiation, we believe this can be used as an alternate definition that complements the urban definition by DOSM. We suggest that these metrics might be better suited for use in regression equations as the metrics is continuous, allowing for a tiered hierarchy of which areas are more or less urban based on the types of places that are accessible in each neighbourhood.

[89] DOS (n.d.)

In light of this, the results of our analysis suggest that neighbourhoods with high place differentiation might be differentiated with neighbourhoods with low place differentiation in Table 2.2 as follows:

Table 2.2: Amenities present in neighbourhoods with higher place differentiation vs lower place differentiation

Amenities	Neighbourhoods with higher place differentiation	Neighbourhoods with lower place differentiation
Services	Legal/Law practices Physiotherapy Financial services Beauty Salons	Medical practices (doctor) Moving companies Storage companies
Leisure	Casinos[90] Bowling alleys Art galleries Movie theatres Zoo	Open parks Public libraries
Consumption	Book Stores Liquor stores Shoe stores Department stores	Supermarkets Restaurants Cafes Bakeries Convenience stores Hardware stores
Mobility	LRT stations Taxi stands Airport	Bus stations

Note: places listed in the table are not exhaustive.

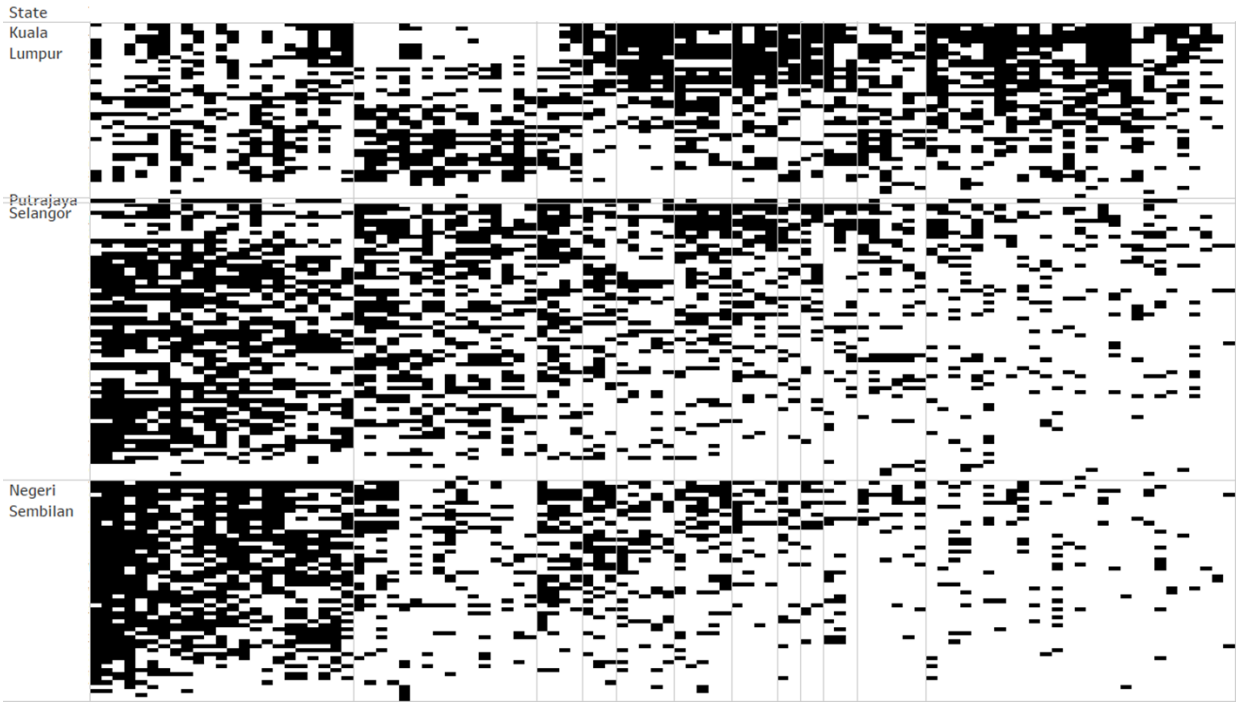
As observed in Table 2.2, neighbourhoods with lower place differentiation are characterised by the presence of moving and storing companies, parks, public libraries, supermarkets, restaurants, cafes, bakeries, convenience stores and hardware stores. On the other hand, neighbourhoods with higher place differentiation are characterised by the presence of legal practice, physiotherapy, financial services, beauty salons, lottery outlets, bowling allies, movie theatres, book stores, liquor stores and department stores in addition to what the neighbourhoods with lower place differentiation generally have.

Given how the GKL Amenity Space is able to characterize and rank neighbourhoods according to place differentiation, it could also be employed to describe the future development trajectories of neighbourhoods themselves. Inevitably, during the iterative process behind MOR, the ranking of neighbourhoods also sorts neighbourhoods that share similarities next to one another. Neighbourhoods of a similar rank would thus share a similar place characterization.

Figure 2.11 exhibits the raw Revealed Comparative Advantage (RCA) matrix representing place concentration for each place in each GKL neighbourhood. Figure 2.12 aggregates this representation by each neighbourhood to produce a profile based on place type.

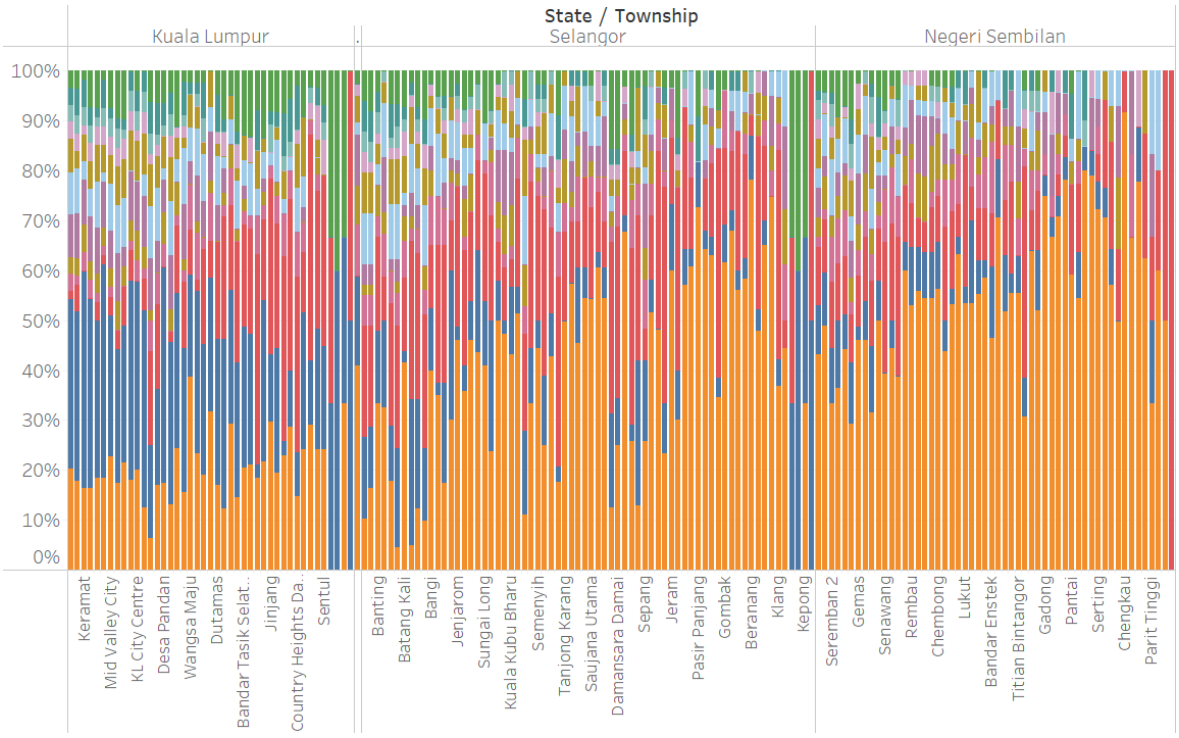
[90] Casinos in the context of GKL refer to lottery outlets

Figure 2.11: RCA Matrix of Neighbourhood by Places



Note: Rows are sorted according to state, place differentiation, columns are clustered into communities obtained from Blonde's Algorithm
Source: KRI calculations based on Google (n.d.a)

Figure 2.12: Concentration of place typologies in each neighbourhood

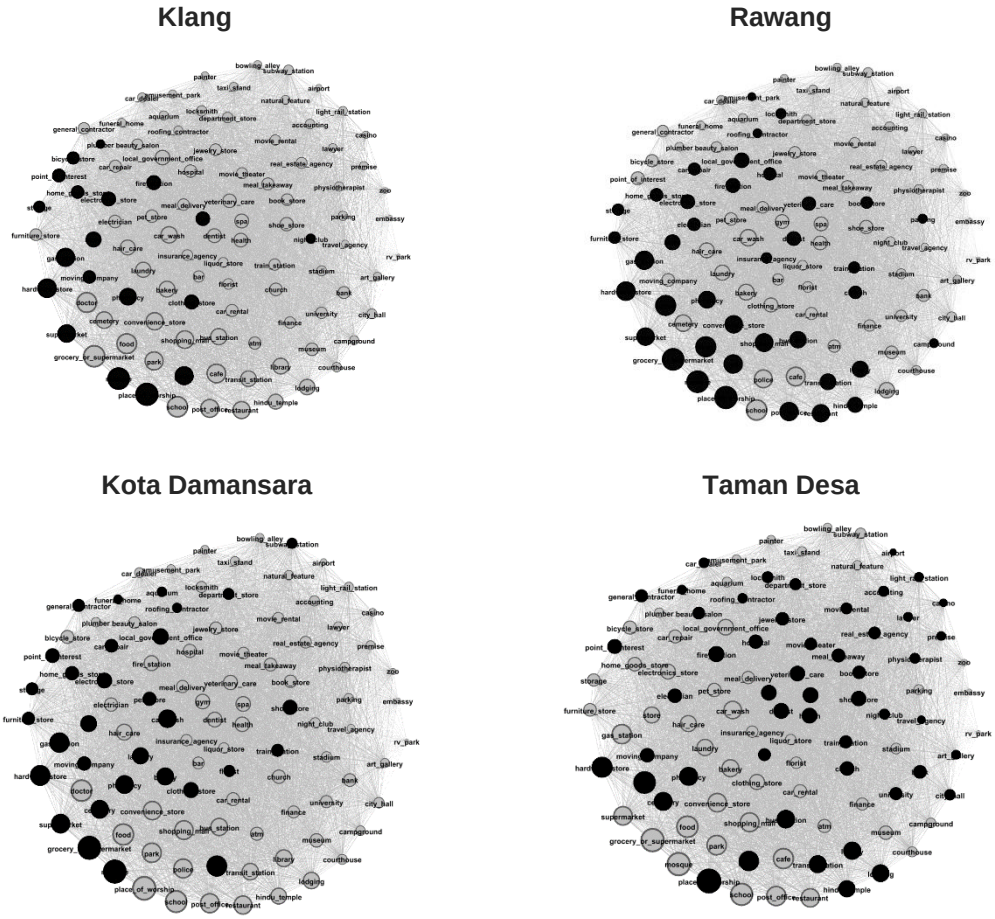


Source: KRI calculations based on Google (n.d.a)

The more urban neighbourhoods that are situated in Kuala Lumpur and those that were surrounding Petaling Jaya were observed to have a good, diversified mix of different place typologies, while those in the more rural areas seem to be made out mostly of places which serve basic functionings of the neighbourhood.

Since place typologies exhibit an assortative-ordered structure, the exact place concentrations of each neighbourhood can be described and compared as illustrated in Figure 2.13.

Figure 2.13: Place concentration, by neighbourhood



Source: KRI calculations based on Google (n.d.a)

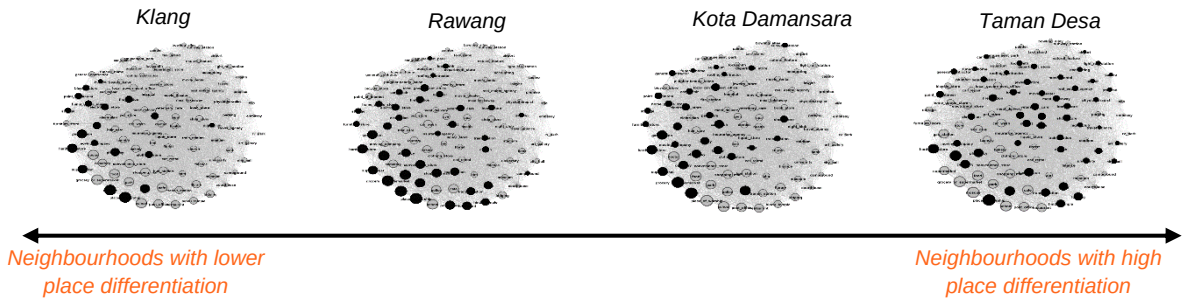
2.5 Discussion

In this chapter we have constructed a model based on on-site development that has emerged in neighbourhoods across GKL. Not surprisingly, our findings suggest that the more diverse neighbourhoods are situated in Kuala Lumpur and Petaling Jaya, and by implication will be more conducive for the attainment of higher-order (2nd tier) needs. Moreover, we found that all neighbourhoods have been equipped with 1st tier amenities. This suggests that in terms of 'place equality', all neighbourhoods have the basic amenities to fulfil everyday 'functionings' or livelihoods.

However, in terms of creating the aspirational 'middle-class' consumption, only those households situated in thriving neighbourhoods will prosper and enjoy higher order 'urbanisation economies'. This is one form of spatial inequality we found due to the model showing place typologies that exhibit an assortative-ordered structure. We believe that this is a generally positive trend since most of the neighbourhoods that housed 2nd-tier amenities was correlated with higher costs of living, as exemplified primarily in the prices of houses[91]. Therefore, GKL may be considered as an 'inclusive' region since it hosts various different neighbourhoods with high place differentiation to house a varying income strata of inhabitants.

Following the construction of the GKL Amenity Space, we propose the following applications of the GKL Amenity Space. Firstly, the GKL Amenity Space might be used to describe probable pathways in the development of thriving neighbourhoods.

Figure 2.14: Sorting neighbourhoods by place similarity



Source: KRI calculations based on Google (n.d.a)

Since neighbourhoods share similarities with one another, the GKL Amenity Space might be used in conjunction with a needs analysis to identify what amenities are currently lacking in a particular neighbourhood. Additionally, the model might serve as a decision filter to identify what amenities would likely thrive based on the existing neighbourhood structure.

Secondly, the GKL Amenity Space may also be used as a monitoring tool to track the development of lagging neighbourhoods in terms of place differentiation. As a result of the aforementioned spatial imbalances, lagging neighbourhoods would likely suffer from a vicious cycle of dis-investment, as entrepreneurs would more likely prefer to be located in a neighbourhood with higher place differentiation in order to benefit from urbanisation externalities.

[91] As discussed subsequently in Chapter 03 where house prices are used as a proxy to thriving neighbourhoods.

CHAPTER

03

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CHAPTER 3

CITIES AND HOUSING

By Gregory Ho Wai Son and Adam Manaf Mohamed Firouz

Houses are more than just shelter above one's head. It is the anchoring point from which individuals and households access jobs, goods and services, as well as interact with one another as part of communities.

Suraya Ismail et. al[92]

3.1 Introduction

This Chapter posits that another core defining feature of neighbourhoods and spatial inequality is housing. This is in addition to the diversity of services and amenities within neighbourhoods as discussed in Chapter 02.

The delivery of positive housing outcomes involves the coordination and cooperation of many different parties, including but not limited to developers, governments and the banking sector. Together, these parties play a part in contributing to the value of housing outcomes, thus improving the living standards for households and individuals.

There are a wide variety of housing outcomes that are considered desirable. If possible, all individuals and households would prefer to reside in good-quality housing with adequate space, no maintenance issues, no worry of safety and security, access to an efficient transportation network, and access to a wide range of amenities that satisfy theirs needs and wants (Chapter 02).

Principally, houses serve as shelters to individuals and households[93], but it is also an embodiment of so much more. Our houses serve as an 'anchoring point' from which we access jobs, goods and services, as well as interact with one another as part of communities[94]. One's access to desirable occupations and good schools are partly dependent on one's accessibility to good locations based on this 'anchoring point'. Likewise, the degree to which people can access a variety of places to enjoy a range of different freedoms and functionings[95]—whether it be restaurants, shopping malls, cinemas, and others—are also influenced by their housing location. Housing provides a means to an end (or various ends).

[92] Suraya Ismail et al. (2019),
[93] The 11th SDG on Sustainable Cities and Communities seek to "make cities inclusive, safe, resilient and sustainable", with Goal 11.1 on Safe and Affordable Housing being focused on "ensuring access for all to adequate, safe and affordable housing and basic services and upgrade slums by 2030".
[94] Suraya Ismail et al. (2019), Oldenburg (1999)
[95] Sen (1999)

In GKL, in addition to housing unaffordability, the housing market is presently facing an overhang issue. This is characterized by an excessive oversupply of housing units that are built but remain unsold[96]. In theory, in a market where housing is homogeneous, a housing glut is expected to drive house prices down as consumers have access to an abundance of supply to purchase. But when there is a housing shortage, housing is scarce and consumers don't have access to homes that they can purchase. This would drive prices up. However, the GKL housing market can be quite heterogeneous as houses feature numerous characteristics that house buyers value differently.

House buyers at different life stages would have different considerations and preferences over their desired housing experience[97]. For example, a first-year university student wishing to live alone might be interested to rent a studio apartment within walking distance of her university. But years later, her preferences might shift depending on various circumstances. Should she wish to start a family and have children, her preferences for a house might shift to owning a unit that has more bedrooms and space, and one that is in a neighbourhood with good schooling options. With different prioritizations over the lifecycle, the underlying housing attributes are hence valued differently.

In this chapter, we first explore the housing overhang issue in GKL[98], setting a backdrop where the existing housing supply may not be fully catered to the values of prospective house buyers. We then explore the trends in housing transactions in GKL by the different typologies of housing. To further understand what house buyers in GKL value, we use hedonic price models to estimate the willingness to pay to acquire (or avoid) certain housing characteristics.

3.1.1. Housing Overhang in GKL: Supply to Demand Mismatch?

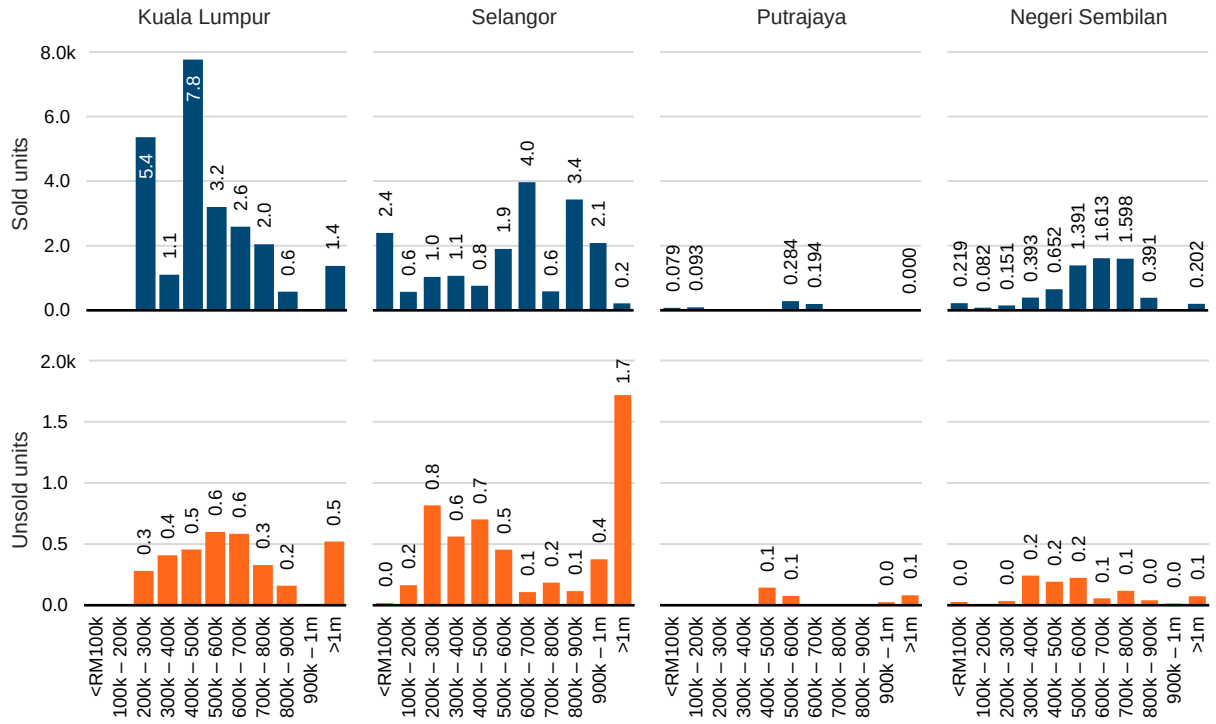
In a vibrant housing market, there should always be a healthy percentage of housing stock that is available for purchase at any given time. This serves as a buffer so that home buyers need not wait for houses to be constructed to buy them, and that prices are not driven up by too much demand such that buyers of varying income levels (particularly the poor) can purchase the homes that they value. However, housing overhangs may be indicative of an oversupply of housing units that are not in line with the needs of the population or affordable price range.

Figure 3.1 describes the volume of housing that are sold and unsold by state and price range. Figure 3.2 describes the same figures but as a proportion of total launched units (which are not yet completed). There are a few trends that are observable.

Firstly, of residential properties that are newly launched as at Q1-2022, most transactions (units sold) were concentrated between RM200k to RM500k. Secondly, in some areas of GKL, there is an increasing number of luxurious residential units priced above RM1.0 million that have been launched but remains unsold. Thirdly, there is a significant number of homes in Selangor that are priced at a rate of between RM300k to RM400k that remains unsold.

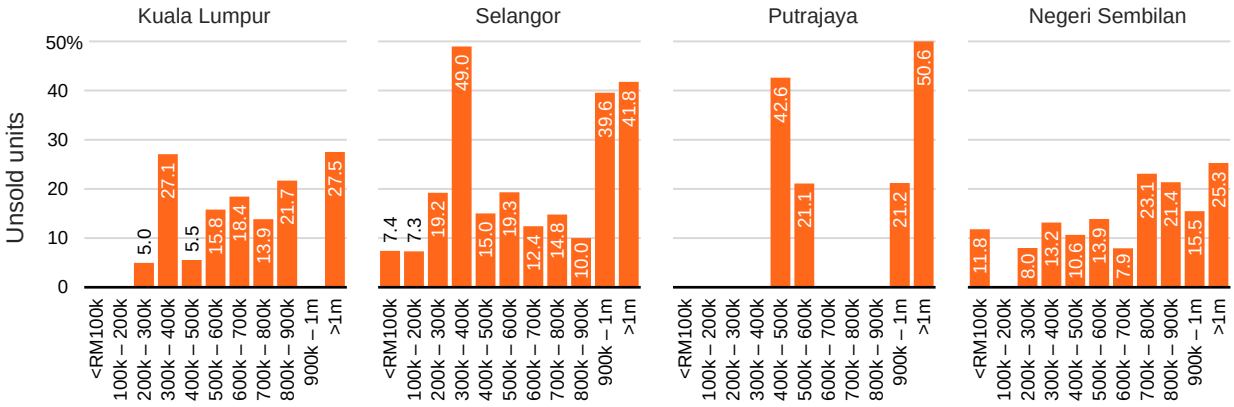
[96] According to NAPIC, a newly launched residential property is defined as an 'overhang' when the unit receives its certificate of completion and compliance but remains unsold for over 9 months. NAPIC also reports units as 'unsold' for houses yet to receive the certificate.
[97] McAuley and Nutty (1982)
[98] As with the rest of the report, our definition of GKL includes Selangor, Kuala Lumpur, Putrajaya and Negeri Sembilan, encompassing the areas and districts within these states. See Chapter 01 and Box 1 for further discussion on the demarcation of the GKL conurbation.

Figure 3.1: Sold and unsold residential housing units, by state and price range, Q1 2022



Note: Scales for sold and unsold residential units are not the same. Commercial housing units such as service apartments are excluded.
Source: NAPIC (2022a)

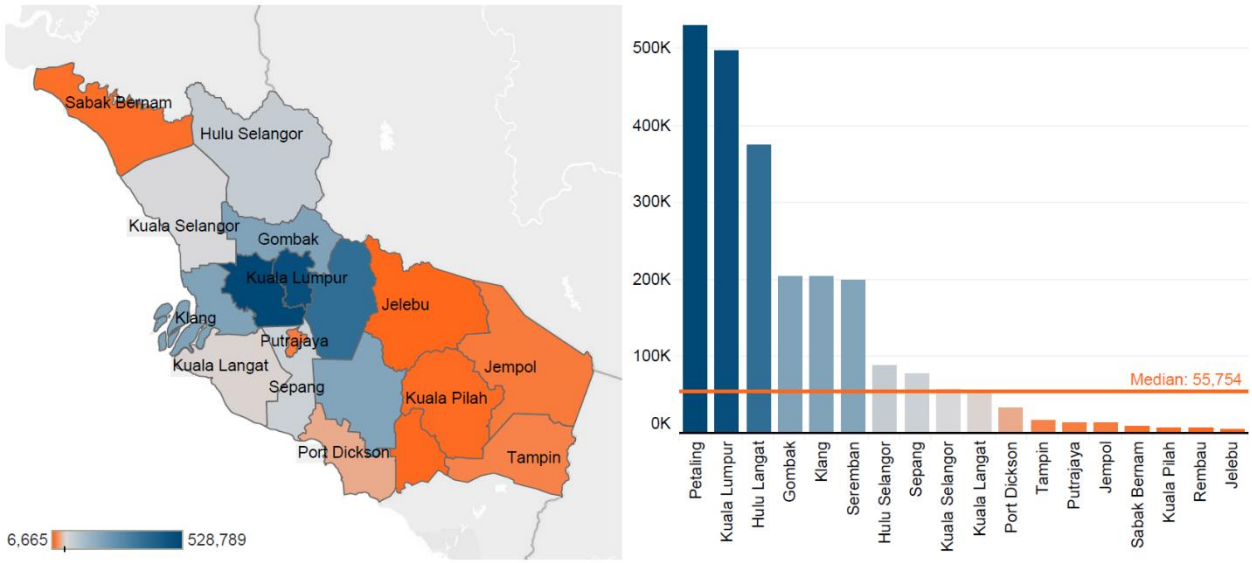
Figure 3.2: Share of unsold units out of total housing units launched, by state and price range, Q1 2022



Note: Commercial housing units such as service apartments are excluded.
Source: NAPIC (2022a) and KRI calculations

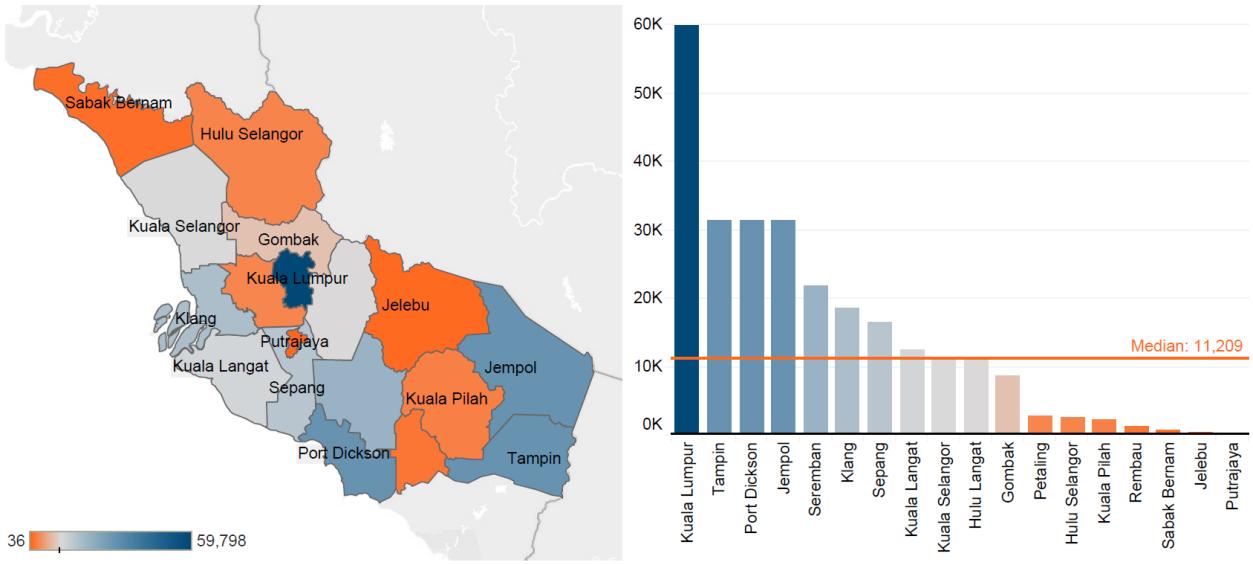
The following figures examines whether the housing overhang is concentrated in or away from the CBD of KL City Centre. Firstly, Figure 3.3 and Figure 3.4 describes the existing stock[99] and planned supply[100] of housing as at Q1-2022 to establish the baseline context of this phenomenon.

Figure 3.3: Existing stock of housing units, by administrative district, Q1 2022



Source: NAPIC (2022a) and KRI calculations

Figure 3.4: Planned supply of housing units, by administrative district, Q1 2022



Source: NAPIC (2022a), NAPIC (2022b) and KRI calculations

[99] Existing stock of housing refers to units that were issued with Certificate of Fitness (CF). This includes accumulative totals from previous and current review periods. Source: NAPIC (Various years)

[100] Planned supply refers to housing units whose building plan was submitted and approved. The construction of these units has not commenced. This includes accumulative totals from previous and current review periods. Source: NAPIC (Various years)

Unsurprisingly, the top three districts with the largest amount of existing stock of housing are Petaling (529k), Kuala Lumpur (496k) and Hulu Langat (375k). This is expected as these districts either contain or are adjacent to the CBD of KL City Centre. Trailing behind these 3 districts, the districts of Gombak, Klang and Seremban have about 200k existing houses each.

On the other hand, planned supply for housing appears to be concentrated in Kuala Lumpur (60k approved units). The trailing districts such as Tampin, Port Dickson and Jempol all have around 30k approved units each. These are those whose CBDs may reside outside KL City Centre as well.

Next, Figure 3.5 describes the stock of overhang units by district, while Figure 3.6 to Figure 3.8 expresses this metric as a percentage of existing stock, incoming supply[101] and planned supply.

In terms of the volume of housing units currently categorized as 'overhang', they seem to be concentrated in the administrative districts of Kuala Lumpur, Gombak, Klang, Petaling and Seremban. However, when measured as a proportion of existing stock, incoming supply and planned supply, housing overhang seem to be more of an issue in the districts of Gombak, Klang, Kuala Langat and Sabak Bernam.

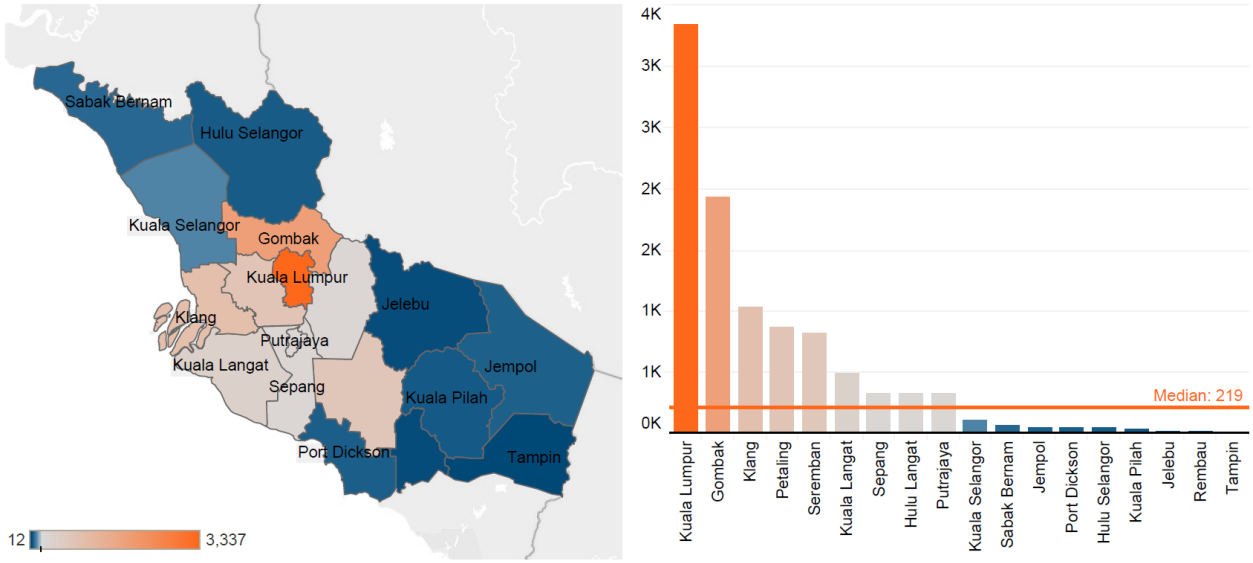
It is observed that these districts tend to be located further away from the main CBD of KL City Centre. House buyers who purchase or rent in these locations might be incentivised to own a private vehicle, and to absorb higher costs of transportation (both monetary costs and in time spent travelling) to work in Kuala Lumpur[102]. While public transportation might be a cheaper option, it typically takes longer because of mode switching and the various wait times.

However, in the absence of more granular data on the exact location of overhang housing units and their associated characteristics, it would be difficult to ascertain the factors that drive overhung houses in the first place. It is also likely that overhung houses emerge as a result of a mix of factors that ought to be evaluated on a case-by-case basis.

Alternately, instead of surveying the market for newly launched houses, desired characteristics of houses can be inferred from actual transactions in the sub-sale market. While past KRI research[103] have explored the housing market from a macro perspective, this chapter explores the topic of housing by focusing on the implicit/inherent value of housing characteristics to the individuals and households who purchase them.

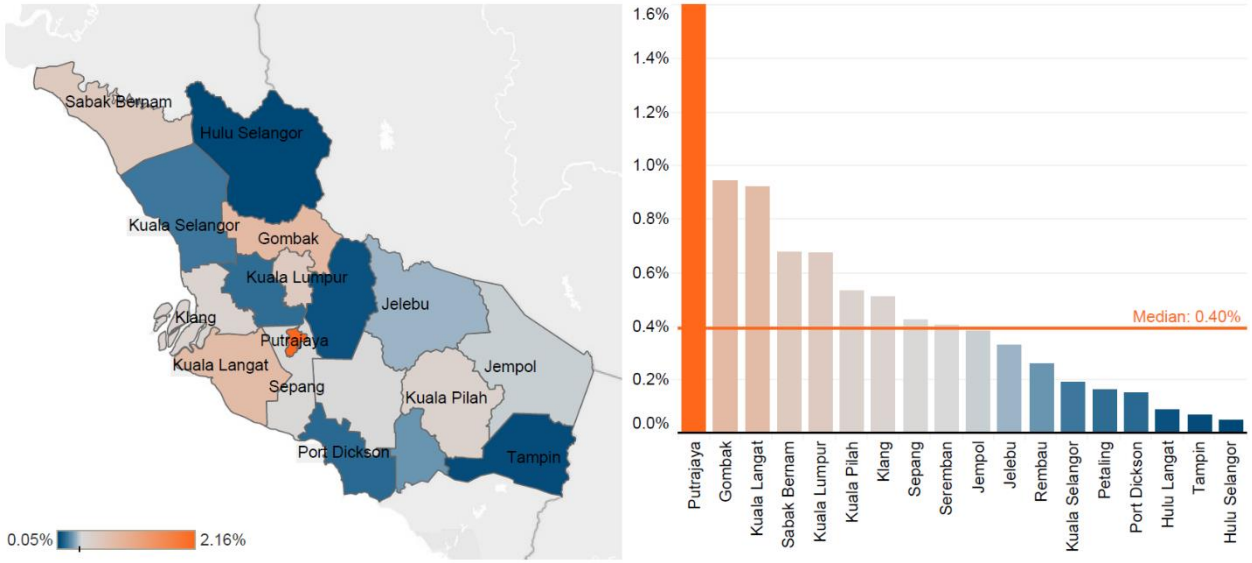
[101] Incoming supply comprises units where physical construction works are in progress including starts and CCC/CF/TCF have not been issued during the review period. Units in the incoming supply represent accumulative totals where units under construction in the review quarter and from the previous quarter are added to the units that have started construction in the review quarter. Source: NAPIC (Various years)
[102] Suraya Ismail et al. (2019). Living in these districts, while working in the CBD would typically demand a travel time of around an hour during peak periods.
[103] Suraya Ismail et al. (2019), KRI (2015)

Figure 3.5: Overhang units of housing, by administrative district, Q1 2022



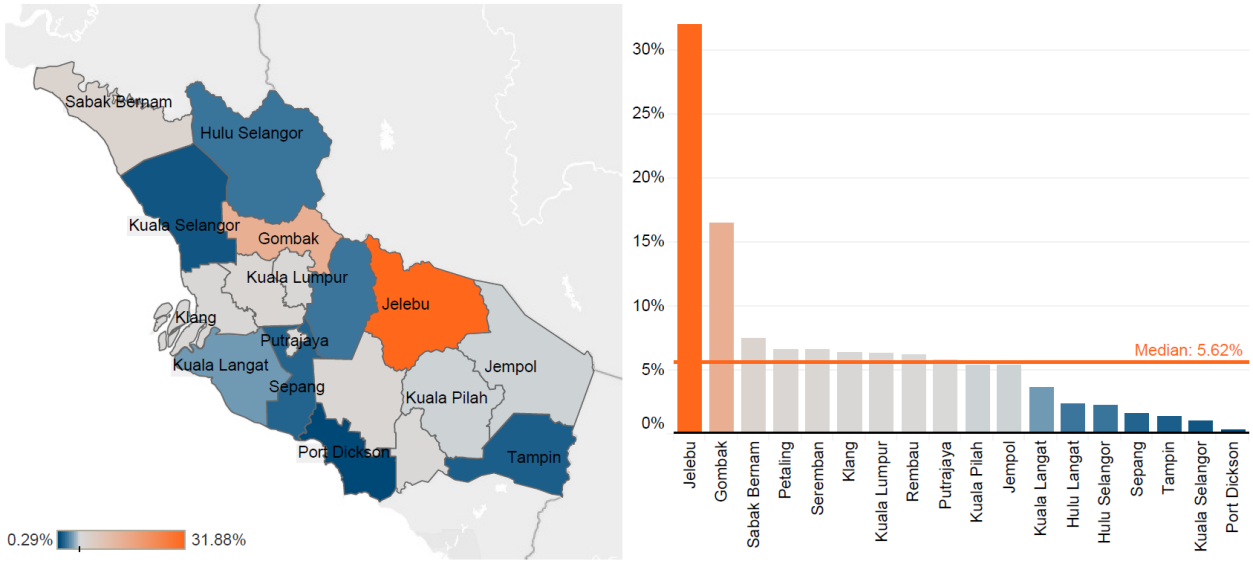
Source: NAPIC (2022a), NAPIC (2022b) and KRI calculations

Figure 3.6: Overhang units of housing, as % of existing stock, by administrative district, Q1 2022



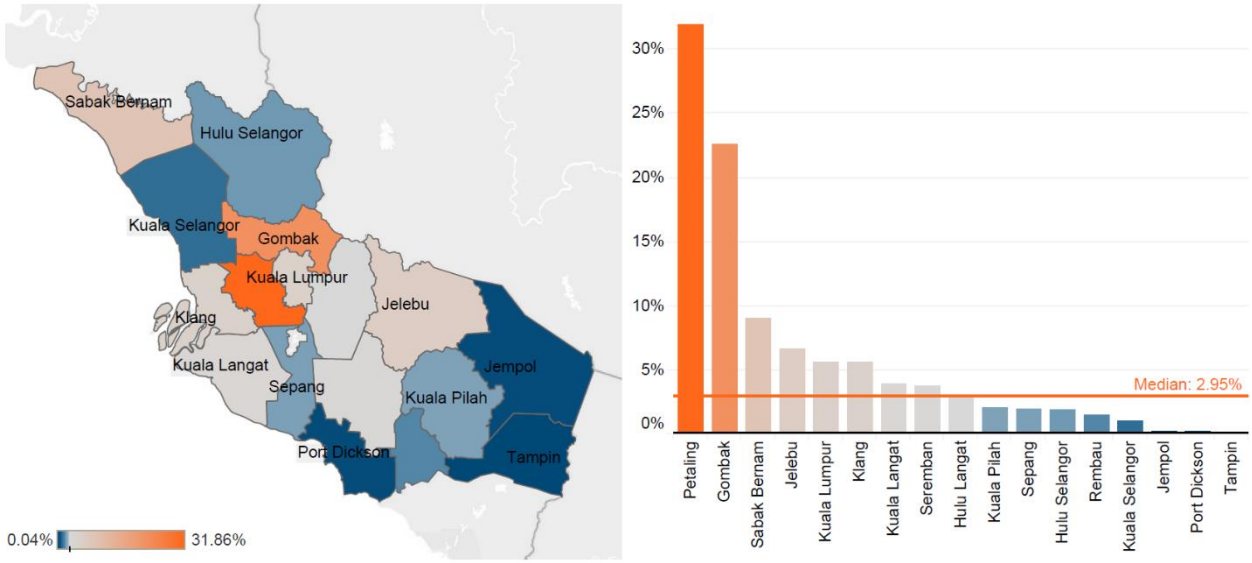
Source: NAPIC (2022a), NAPIC (2022b) and KRI calculations

Figure 3.7: Overhang units of housing, as % of incoming supply, by administrative district, Q1 2022



Source: NAPIC (2022a), NAPIC (2022b) and KRI calculations

Figure 3.8: Overhang units of housing, as % of planned supply, by administrative district, Q1 2022



Note: Putrajaya is an outlier. It has been excluded from the chart on the RHS for having overhang of 9x planned supply
Source: NAPIC (2022a), NAPIC (2022b) and KRI calculations

3.2 Data Used

The subsequent analysis in this chapter is based on a dataset constructed from each transaction of individual residential properties in the sub-sale market from 2015 to 2019. The raw data was extracted from Brickz[104]. Brickz publishes transacted real estate data that is compiled by the National Property Information Centre (NAPIC) of the Valuation and Property Services Department (JPPH). Each record contains the following information in Table 3.1.

Table 3.1: Description of the residential transactions' dataset

No.	Dimension	Description
1.	**SPA Date**	The date when the Sales Purchase Agreement (SPA) is legally stamped.
2.	**Address**	Shortened Address. Normally recorded in the following format: *<Unit No., Road Name>*
3.	**Building Type**	Building categorization. Landed: Bungalow, Cluster House, Semi-D, Terrace House, Townhouse Non-Landed: Apartment, Condominium, Flat, Service Residence
4.	**Tenure**	Freehold/Leasehold
5.	**Floors**	Number of floors
6.	**Rooms**	Number of rooms
7.	**Land Area**	Land area (sq. ft)
8.	**Built Up**	Land area (sq. ft)
9.	**Price**	Transacted price as recorded in SPA
10.	**Price psf**	Transacted price per unit of land area (or per unit of built-up area for non-landed)

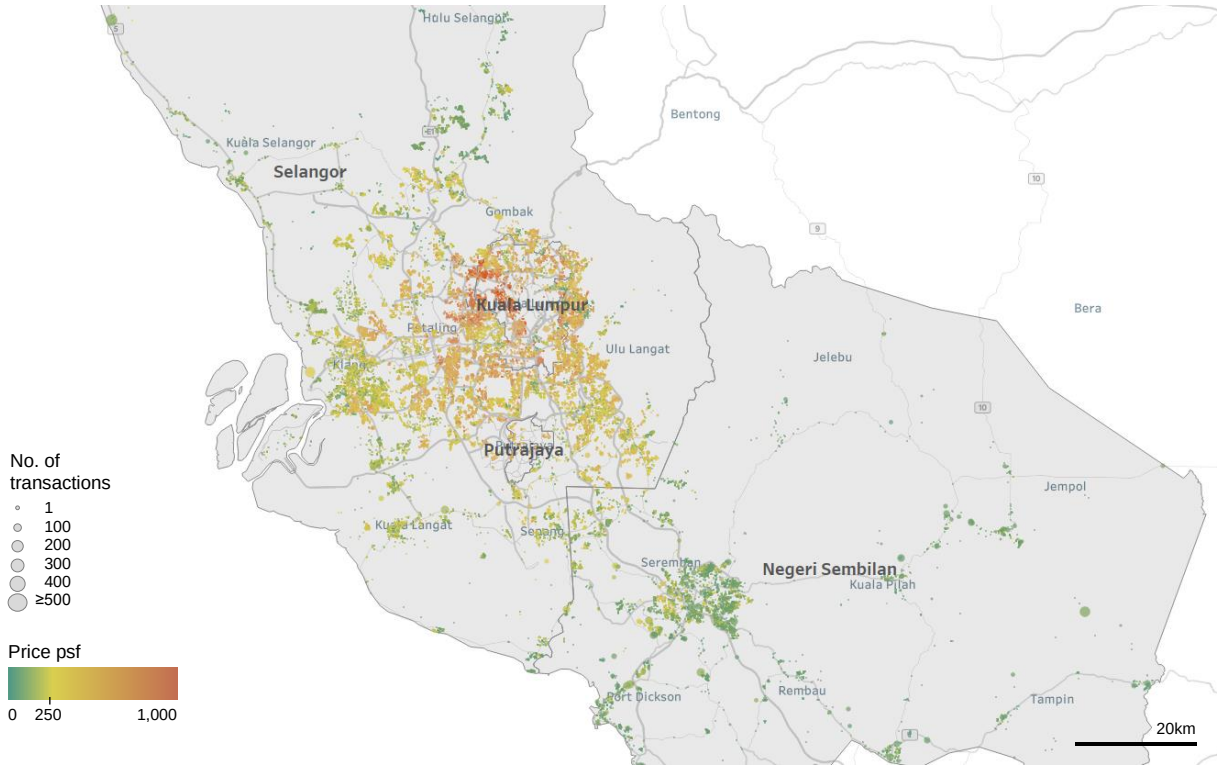
3.2.1. Feature Generation

Features refer to dimensions or characteristics of a certain datapoint. Feature generation is the process of expanding the feature space with new features based on existing information[105].

Firstly, each residential sub-sale transaction was geocoded and mapped by using Google's Geolocation API based on its street name and township. The mapping of our dataset is described in Figure 3.9 and Figure 3.10.

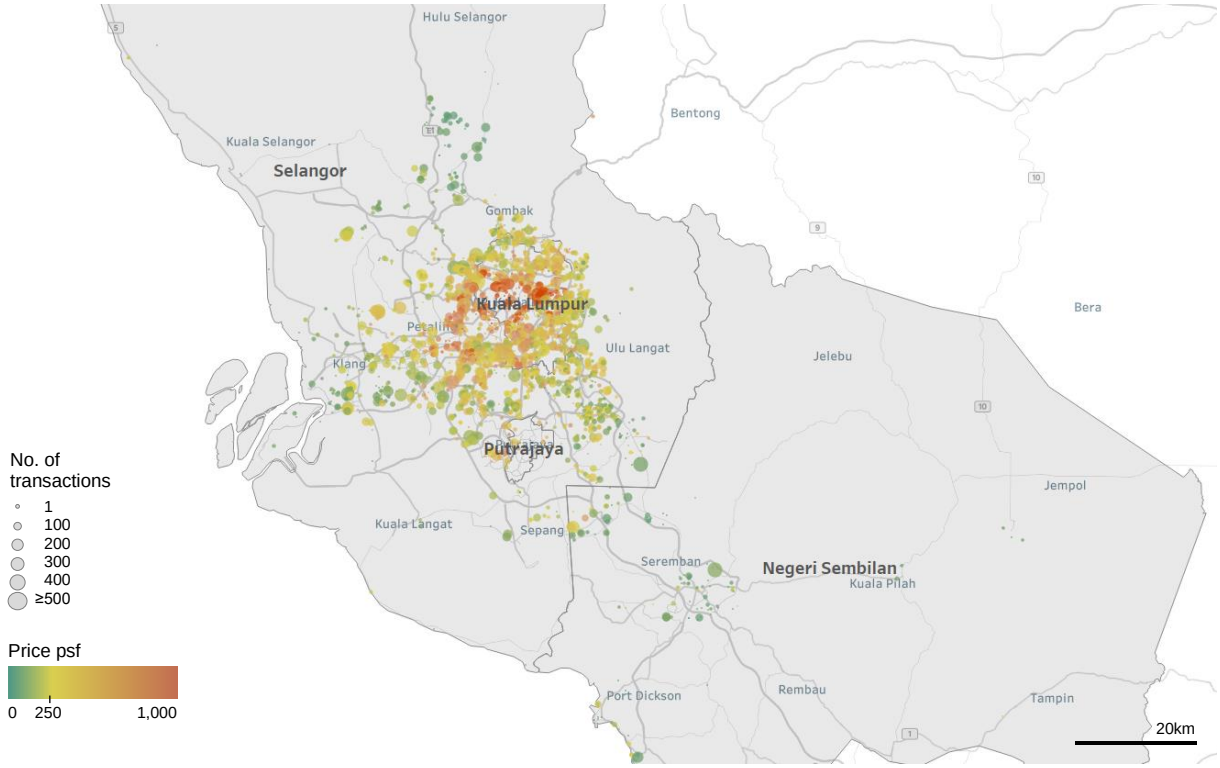
[104] Brickz (n.d.)

Figure 3.9: Map of Landed Residential Transactions



Source: KRI illustration based on Brickz (n.d.)

Figure 3.10: Map of Non-Landed Residential Transactions



Source: KRI illustration based on Brickz (n.d.)

Secondly, in addition to geocoding each individual address of the residential unit in the sub-sale market, locational and neighbourhood features were also obtained (Table 3.2).

Table 3.2: Neighbourhood feature generation

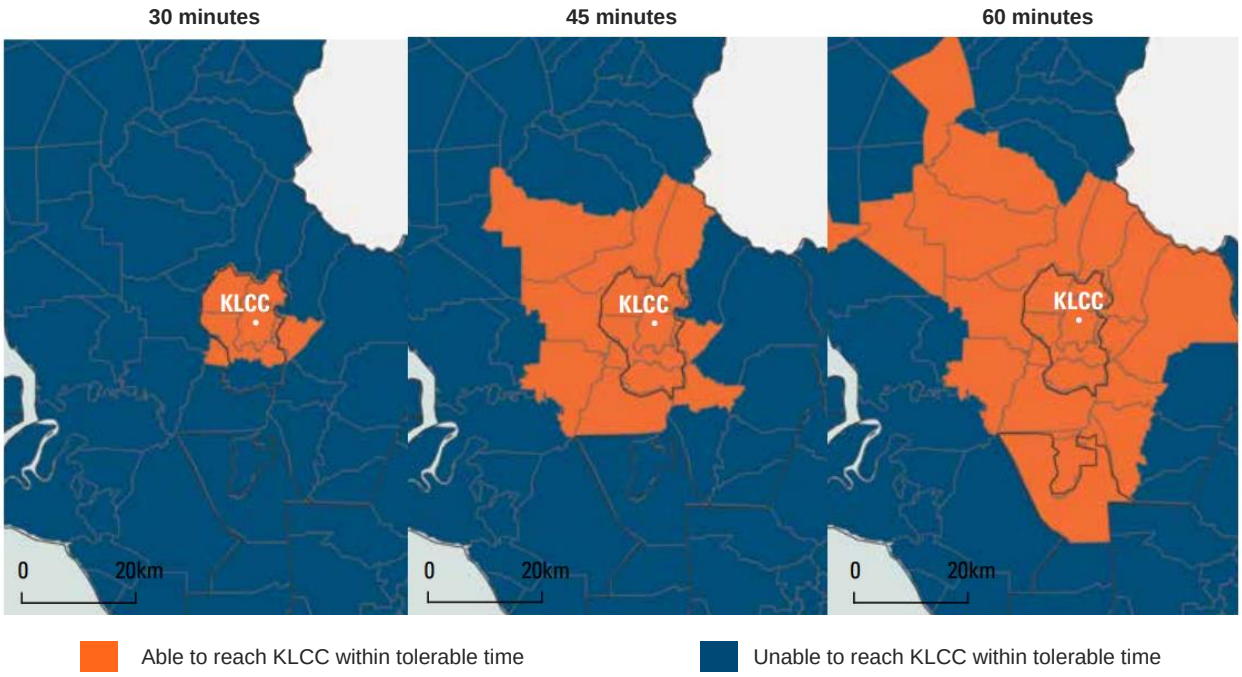
No.	Feature	Description
1.	**Distance to KL City Centre**	Accessibility of the neighbourhood in relation to KL City Centre. Source: Google (n.d.b)
2.	**Distance to Nearest Train Station**	Accessibility of the neighbourhood to rail public transport (LRT, MRT, KTM and Monorail). Source: Google (n.d.a; n.d.b)
3.	**Distance to Nearest Hospital**	Accessibility to hospitals registered under Act 586 under the Ministry of Health. Source: MOH (2019a; 2019b) and Google Geolocation API
4.	**Distance to Nearest University**	Accessibility of the neighbourhood to universities accredited under the Malaysian Qualifications Agency (MQA). Source: MQA (2021) and Google Geolocation API
5.	**Distance to Nearest Shopping Centre**	Accessibility of the neighbourhood to shopping centres. Source: Google (n.d.a; n.d.b)
6.	**Distance to Nearest Cinema**	The cinema is used as a loose proxy for a large shopping centre (e.g., One Utama, MidValley, etc.). Source: Google (n.d.a; n.d.b)
7.	**Distance to Low-Cost Housing**	The presence of privately managed low-cost housing (non-landed and landed transacted at RM42,000 or below). Source: Brickz (n.d.) and Google (n.d.b)

Note: Distances are based on straight-line calculations
Source: KRI compilation

As a context, Figure 3.11 describes the accessibility of each mukim to KL City Centre based on any given tolerable commute time up to 60 minutes. This serves as a loose proxy of the extent of the GKL conurbation. The extent of the GKL conurbation at a tolerable commute time of 30 minutes is roughly 10km away from KL City Centre, reachable from the centre of Bandar Petaling Jaya or Damansara *mukims*[106]. At 45 minutes, this extent becomes roughly 22km. While at 60 minutes, the extent is around 36km in the south-east direction, but above 40km along the north-west direction. At 60 minutes, even residents from Putrajaya or Sepang can access KL City Centre. However, only at 75 minutes can residents from mukims in Negeri Sembilan (Setul, Labu and Rasah) find KLCC accessible. Given how housing areas tend to be distributed along the KL – Petaling – Seremban area, residents who live in Seremban may experience daily commutes from areas as far as 70km from the city centre[107].

[106] A *mukim* represents an administrative boundary that is normally made of a few neighbourhoods.
[107] Suraya Ismail et al. (2019)

Figure 3.11: Accessibility of mukims to KL City Centre based on tolerable commute time

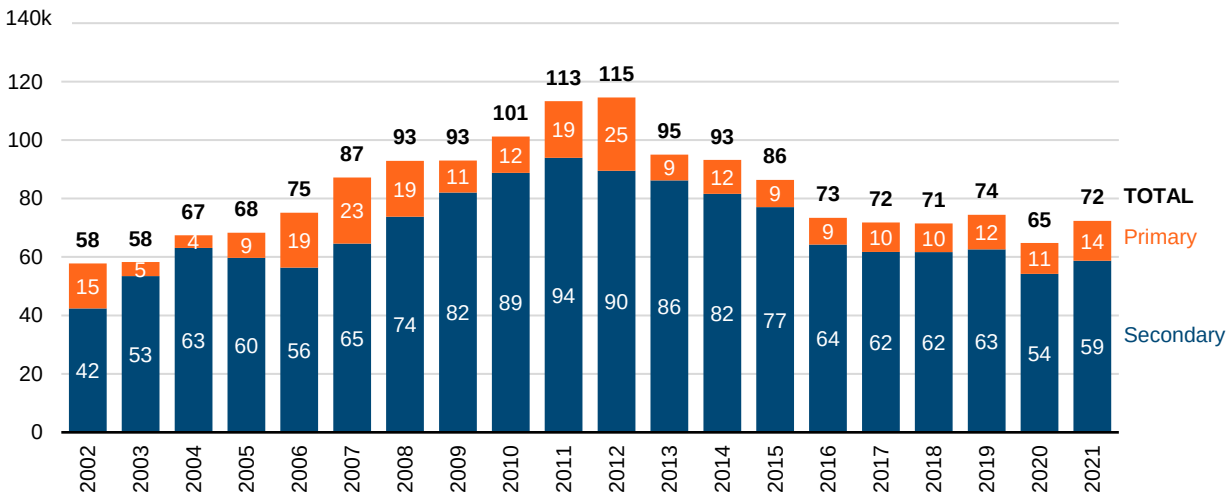


Note: Commute times are based on travel by private car on an average working day at 8.30am. Mukims are categorised as accessible when commutes from their centres are within the tolerable time. Source: Google (n.d.c), extracted Sep 2017

3.3 The Nature of Housing Transactions in GKL

From 2000 to 2012, the housing market in GKL saw a steady rise in transactions, doubling from 58k transactions to 115k (Figure 3.12). Since then, transactions gradually declined and stabilized. The trends have been driven by the secondary market where most housing units are bought and sold.

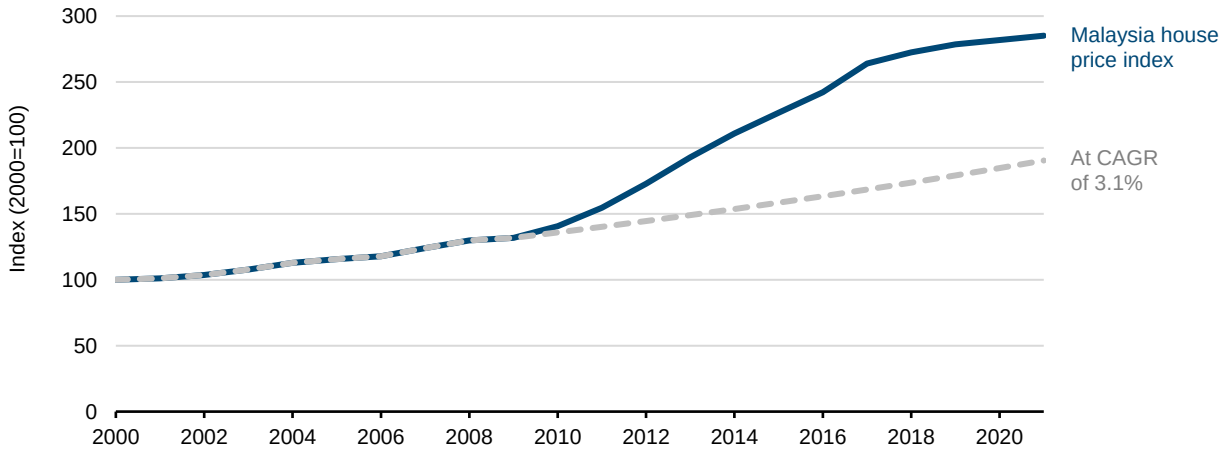
Figure 3.12: Number of housing transactions in GKL, 2002 – 2021



Note: Commercial housing units such as service apartments are excluded.
Source: NAPIC via CEIC (n.d.)

Following the boom in transactions, Malaysia's overall housing market experienced rapid price escalation especially between 2010 and 2014 (Figure 3.13). This growth has since tapered down from 2017.

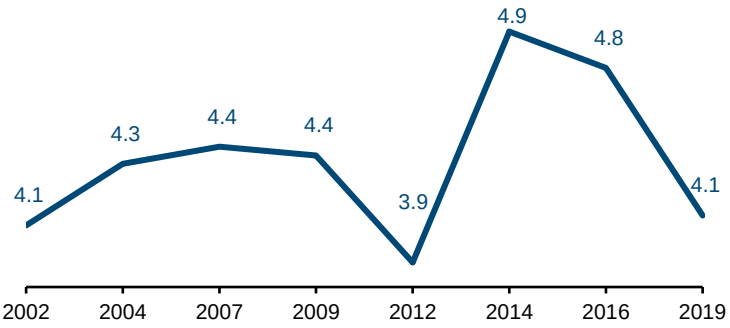
Figure 3.13: Malaysia House Price Index, 2000 – 2021



Source: NAPIC via CEIC (n.d.) and KRI calculations

This rapid growth in house prices outpaced the growth in household incomes. The median multiple[108] indicates that housing affordability worsened between 2012 and 2014, rising from 4.4 to 4.9 (Figure 3.14). It improved in the following years to 4.1 in 2019 but remains above the 3.0 threshold for housing affordability.

Figure 3.14: Median multiple affordability, 2002 – 2019



Affordability category
5.1 & above: Severely unaffordable
4.1 to 5.0: Seriously unaffordable
3.1 to 4.0: Moderately unaffordable
3.0 and below: Affordable

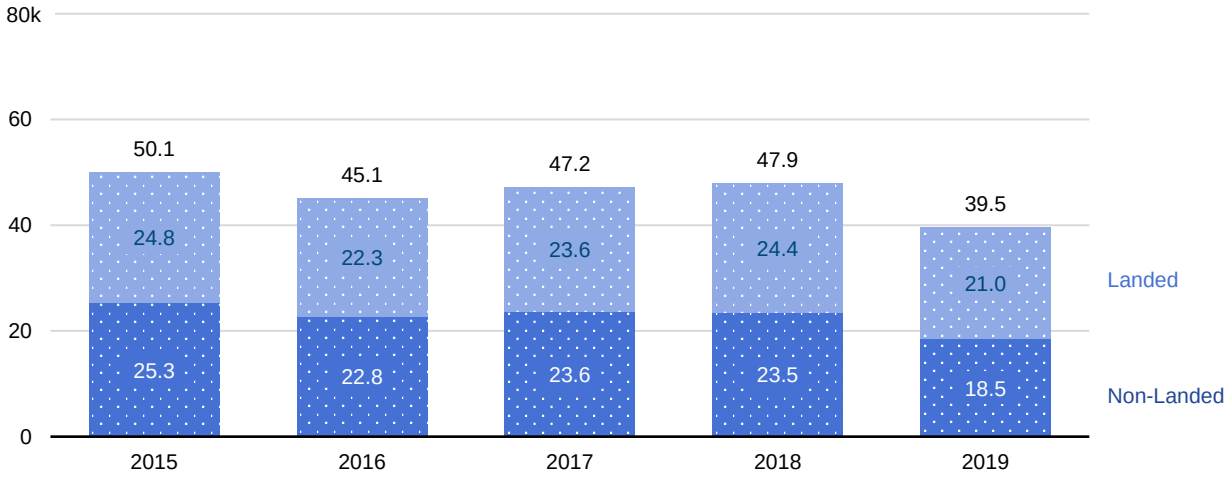
Source: NAPIC (Various years), DOS (2020), and KRI calculation

Against this context, all tables and figures henceforth are based on sub-sale housing transactions that occurred between 2015 and 2019. This period is selected as it represents the phase at which the GKL housing market underwent a correction in price movement, after a brief period of rapid price escalation. From 2015 to 2019, transactions would be less about pure asset speculation, but more reflective of fundamental values intrinsic to the transacted housing unit.

[108] The median multiple expresses the median house price as a multiple of median gross household income. The housing market is considered affordable if the median house price is less than three times the median gross household income.

Based on the Brickz dataset, a subset of the official data that we base the rest of our analysis, sub-sale transactions for both landed and non-landed housing has generally moved in tandem (Figure 3.15).

Figure 3.15: Number of sub-sale housing transactions in GKL (Brickz data), 2013 – 2019



Note: Commercial housing units such as service apartments are included in the Brickz dataset.
Source: Brickz (n.d.) and KRI calculations

3.3.1. Transactions by price

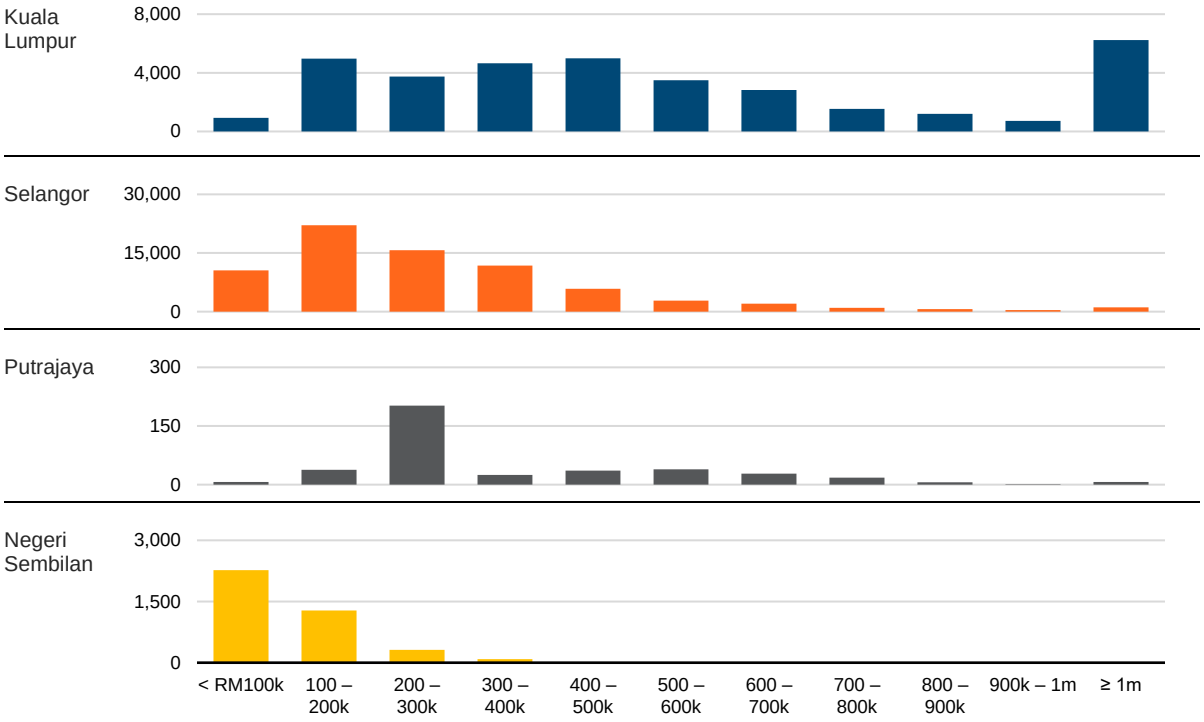
The sub-sale housing market in the GKL area can be somewhat polarized, particularly regarding its price distribution. Figure 3.16 and Figure 3.17 describe the number of transacted units across RM100k price ranges, with a similar pattern to the overall market in transaction and overhang as shown earlier in Figure 3.1.

For non-landed housing, sub-sale transactions in Kuala Lumpur priced RM100k to RM700k are relatively substantial compared to those priced RM700k to RM1 million. However, houses priced above RM1 million recorded a substantial number of transactions as well. This signals some degree of polarity in sub-sale housing transactions. There exists a market catered for the households who can afford houses priced above RM1 million, while there are a range of different prices centring around RM300k for the rest population.

On the other hand, transacted landed houses in Selangor appears to be distributed in a more unimodal pattern, with most houses being transacted between RM100k to RM400k. Negeri Sembilan is similar but with a concentration leaning below RM300k.

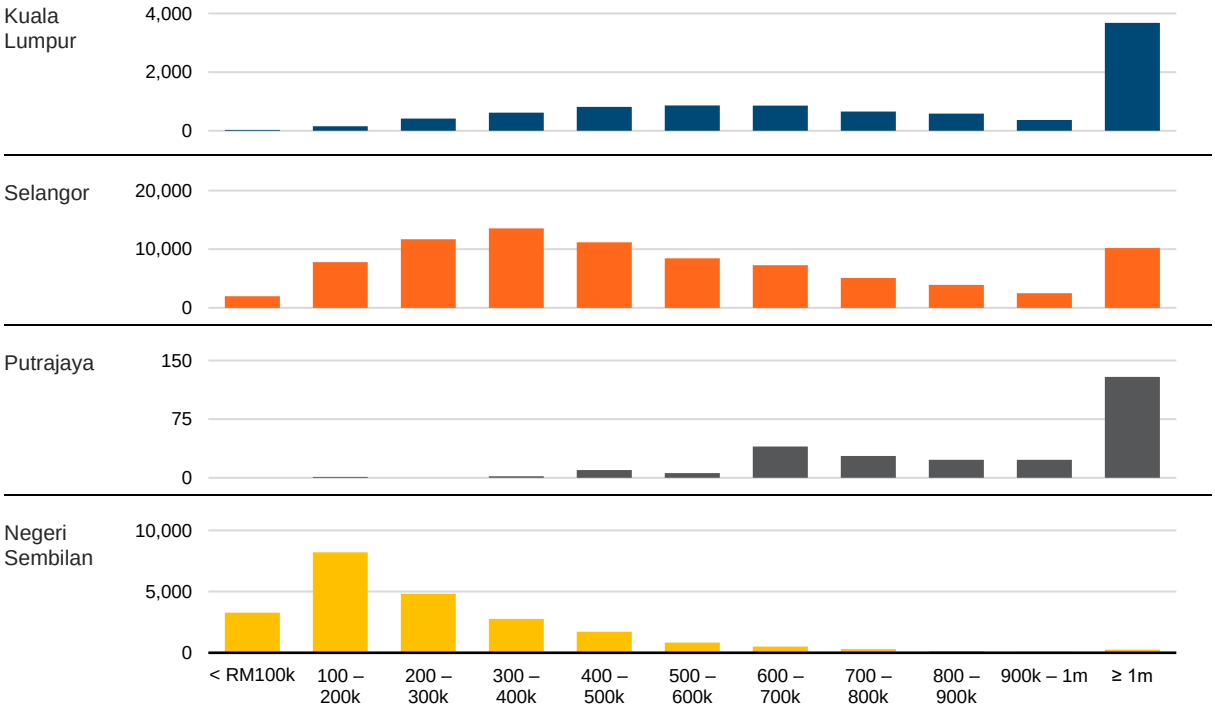
The landed housing market also displays some degree of polarisation. In Kuala Lumpur, the share of housing transacted above RM1 million is even higher, while those priced around RM500k is less, compared with the non-landed housing market. It is similar also in Selangor and Putrajaya, signifying a polarised sub-sale market for landed housing unlike for non-landed housing in those states.

Figure 3.16: Number of non-landed GKL sub-sale transactions, by state and price, 2015 – 2019



Note: Scales are different for each state
Source: Brickz (n.d.) and KRI calculations

Figure 3.17: Number of landed GKL sub-sale transactions, by state and price, 2015 – 2019



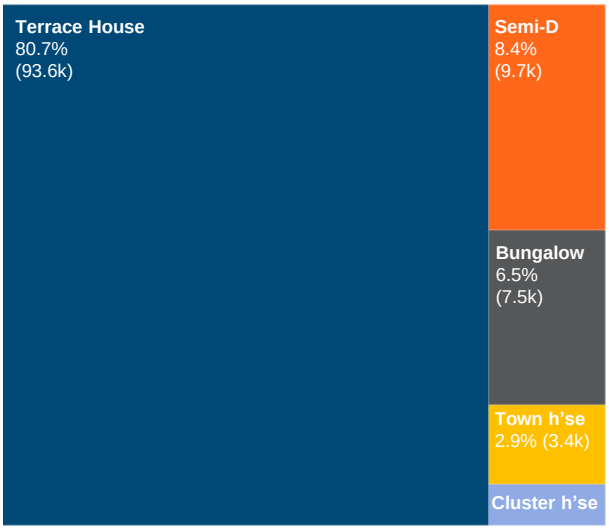
Note: Scales are different for each state
Source: Brickz (n.d.) and KRI calculations

3.3.2. Transactions by house type and size

As for the structural attributes of housing units transacted in the sub-sale market in GKL, Figure 3.18 and Figure 3.19 below describes the distribution by house type in the study period.

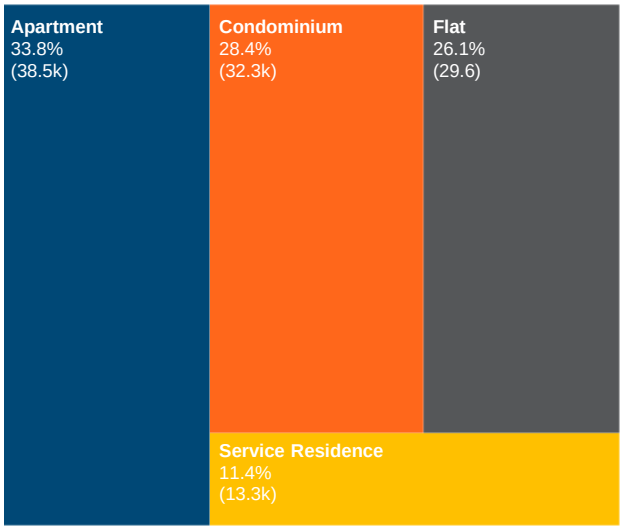
For landed housing, most transactions were terrace houses at 80.7%, while semi-Ds and bungalows account for 8.4% and 6.5% respectively. For non-landed homes, transactions by type were more uniform, with apartments and condominiums constituting 33.8% and 28.4%, while flats and service residences accounted for 26.1% and 11.4% respectively. As shown in Figure 3.15, the transacted volume of landed and non-landed houses was similar in a given year throughout 2015 to 2019.

Figure 3.18: Distribution of GKL sub-sale transactions, by landed house type, 2015 – 2019



Source: Brickz (n.d.) and KRI calculations

Figure 3.19: Distribution of GKL sub-sale transactions, by non-landed house type, 2015 – 2019



Source: Brickz (n.d.) and KRI calculations

Disaggregating the housing types further, Figure 3.20 and Figure 3.21 show the distribution of transactions based on the number of rooms by each housing type.

For landed housing, most transacted units have 2 floors and at least 3 rooms. Terrace houses (80.7% of landed transactions) typically have 3 to 4 rooms, while bungalows and semi-Ds (jointly 14.9% of landed transactions) have more 4 rooms or more. Townhouses (2.9% of landed transactions) are like terrace-houses but are typically stacked above one another and most have 3 rooms. Cluster houses (1.5% of landed transactions) normally have 4 rooms or above.

On the other hand, most non-landed properties have only 3 rooms. Condominiums and apartments (33.8% and 28.4% of non-landed transactions) share similar traits, but there is a sizeable amount of condominiums that have more rooms than apartments with at least 4 rooms. On the other hand, flats (26.1% of non-landed transactions) are typically smaller in size, and a significant portion only have 2 rooms. Service residences only account for 10.2% of non-landed transactions. However, these transactions exhibit dissimilar qualities relative to other non-landed house types. While most of service residences come with 3 rooms, service residences only make up 7.91% of 3 roomed non-landed transactions. On the other hand, 69.8% of single-roomed non-landed transactions were service residences.

Figure 3.20: Share of landed GKL sub-sale transactions, by rooms and house type, 2015 – 2019

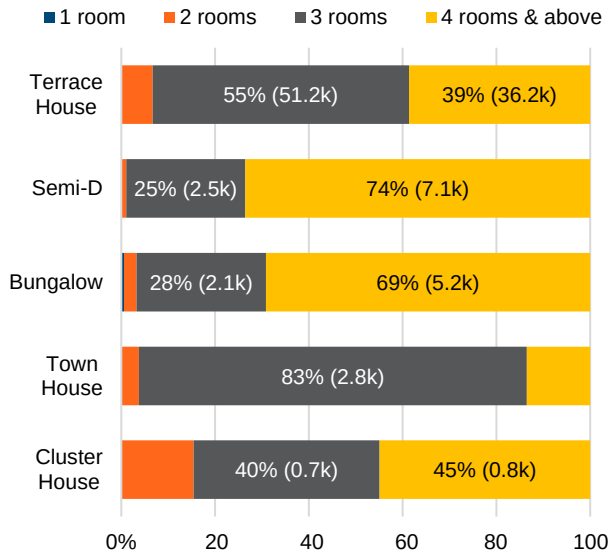
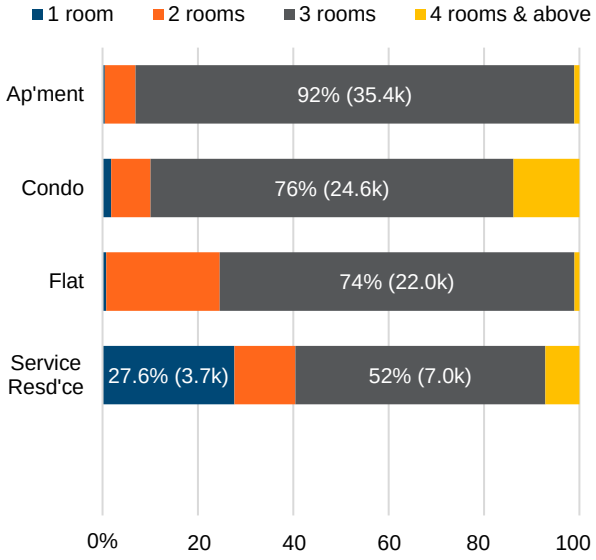


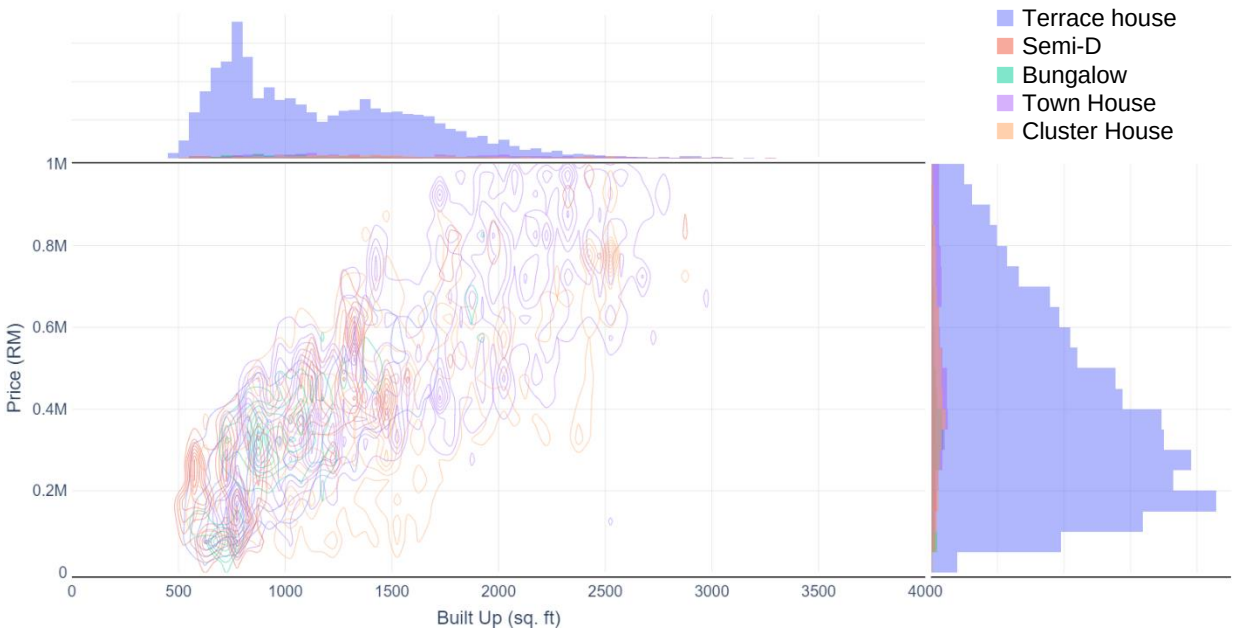
Figure 3.21: Share of non-landed GKL sub-sale transactions, by rooms and house type, 2015 – 2019



Note: The housing types are ordered based on transaction volume (see Figure 3.17 and Figure 3.18). Transactions volume in brackets.
Source: Brickz (n.d.) and KRI calculations

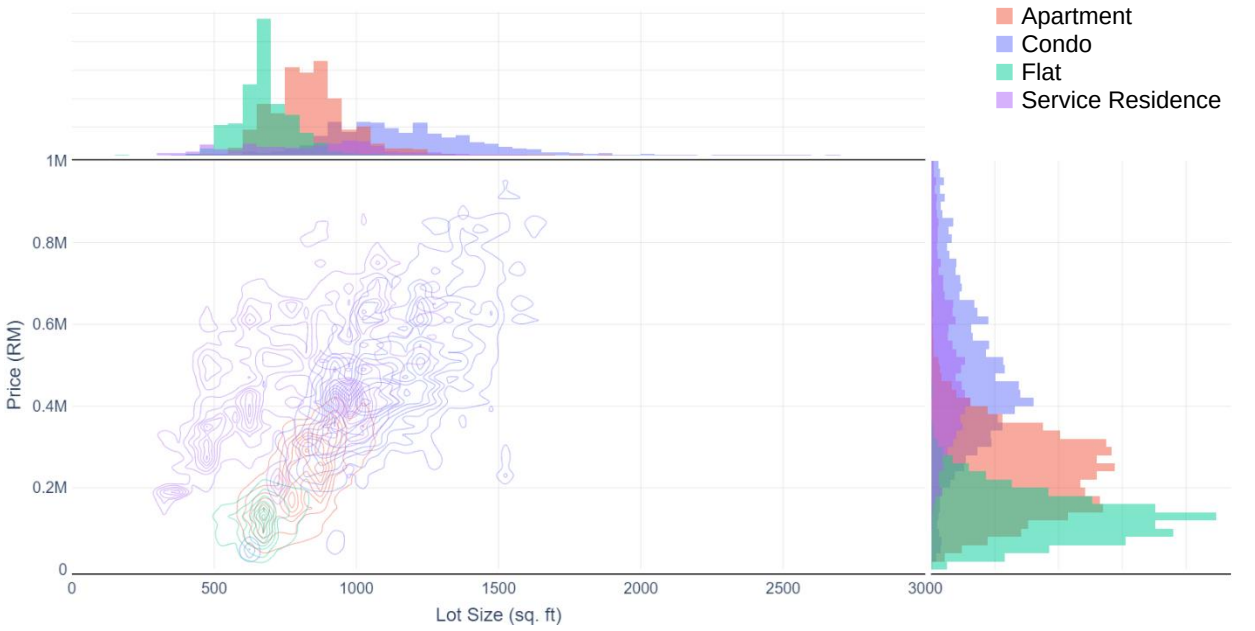
Factoring in the size and price of transactions for housing units across the housing types, Figure 3.22 and Figure 3.23 below describe its co-distribution as contour plots for landed and non-landed housing respectively. Contour plots visualise the concentration of transactions over a range of prices and built-up sizes. Comparing the two graphs in a glance, one notable observation is that landed housing units are expectedly generally larger than non-landed units.

Figure 3.22: Contour plot of sub-sale GKL transactions, by price vs built up area, 2015 – 2019 (landed housing)



Source: Brickz (n.d.) and KRI calculations

Figure 3.23: Contour plot of sub-sale GKL transactions, by price vs unit size, 2015 – 2019 (non-landed housing)



Source: Brickz (n.d.) and KRI calculations

For landed housing, focusing on the variations by building type and the distribution of transacted units by built-up area, there are two modal sizes for transacted terrace houses. Firstly, one is sized around 700 to 800 sq. ft, of which nearly 70% of transactions are priced between RM100k to RM300k. The second modal size of terrace house are 1,300 to 1,400 sq. ft, of which only 14.4% are priced RM100k to RM300k while nearly 70% are priced RM300k to RM700k.

On the other hand, bungalows and semi-ds exhibit greater variability. While units priced above RM1.0 million only make up under 7% of transactions for terrace, cluster and town houses, over 40% of transactions for bungalows and semi-ds were above RM1.0 million. There also isn't a clear unimodal or bimodal built-up size for bungalows and semi-ds, though the portion of units above 1,000 sq. ft are notably higher than the other landed house types.

For non-landed housing, the modal size for transacted flats is 600 to 700 sq. ft, of which 95.1% are under RM200k. Apartments are generally larger and more expensive. Its mode is between 800 and 900 sq. ft, of which over 90% are transacted at RM100k to RM400k (50% are RM200k to RM300k). Condominiums are yet larger than apartments, though the size distribution is wider and overlaps with apartments with two modal sizes. One is 1,000 to 1,100 sq. ft, where 77.2% are transacted at RM300k to RM600k. The second is 1,200 to 1,300 sq. ft, where 70% are RM400k to RM700k.

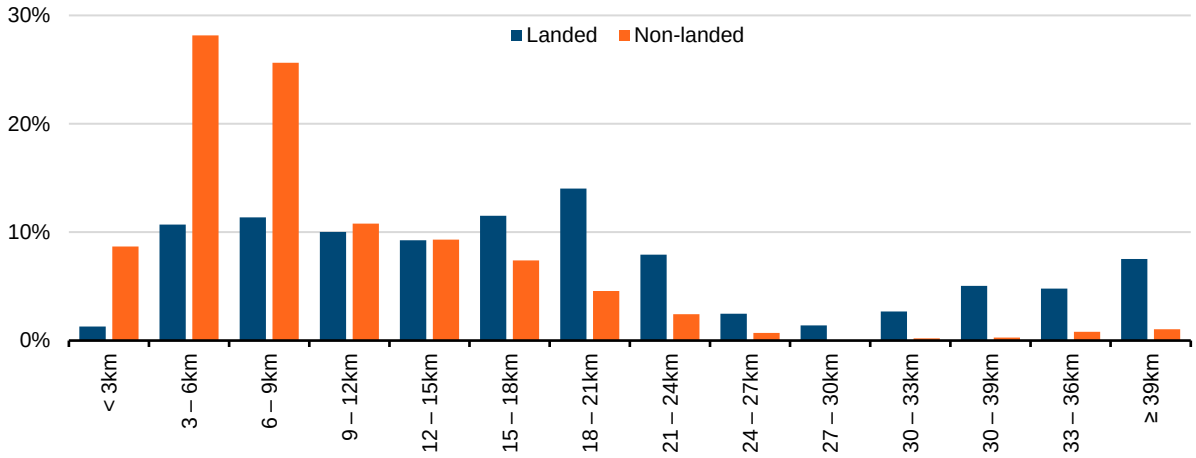
In comparison, service residences are more distinct than the other non-landed housing types. The median size is smaller than condominiums, similar to apartments and larger than flats. However, there exist three distinct modal sizes. Firstly, there exist a substantial segment that is much smaller than that of the median sized apartment and condominium, at 400 to 500 sq. ft, of which 80% are RM200k to RM500k. Secondly are units sized 600 to 700 sq. ft, that are generally priced higher as 80% are priced RM300k to RM700k. Third are units sized 900 to 1,000 sq. ft, generally priced even higher than flats, apartments and condominiums. 83.1% are transacted at RM300k to RM800k.

3.3.3. Transactions by distance to city centre and unit size

In terms of the locational features of transacted housing in the GKL sub-sale market, Selangor makes up most of the transactions at nearly 70%[109]. Kuala Lumpur is nearly 20%, followed by Negeri Sembilan at 11.7%. Putrajaya is only 0.29%.

Figure 3.24 illustrates the distribution across 3km ranges. For context, houses located within a radius of 10km from the CBD have a one-way commute time of 30 minutes or less, while those situated 10km to 22km from the CBD have a one-way commute time of 30 to 45 minutes (Figure 3.11). Houses located 22km to 36km away have a one-way commute time of 45 to 60 minutes.

Figure 3.24: Distribution of GKL sub-sale transactions, by distance to KLCC and type, 2015 – 2019



Source: Brickz (n.d.) and KRI calculations

Transacted non-landed housing units are concentrated at closer distances to KL City Centre (KLCC), the main CBD of GKL, though less at the <3km range. The share of housing within 3km of KLCC is also small for transacted landed housing, though even smaller than non-landed housing. Transacted landed housing is more uniformly distributed across long distances from 3km to 18km.

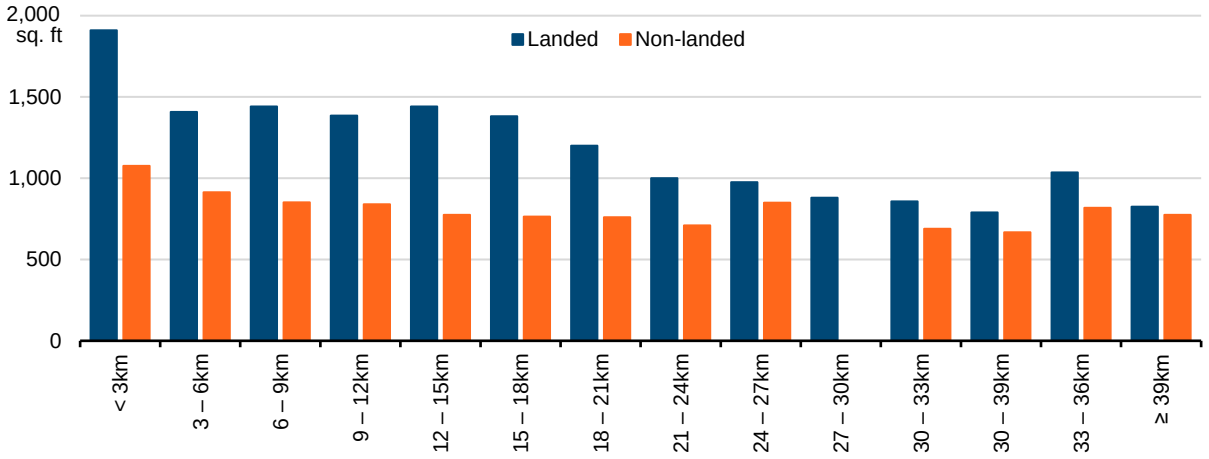
Overall, transacted housing units beyond 21km away from KLCC are mostly attributed to housing in Negeri Sembilan[110], rather than Selangor as much of the peripheral land is for agricultural or natural conservation[111].

As for the sizes of the transacted units across the distances, landed housing units are larger than non-landed units based on median sizes (Figure 3.25). This is most prominent for units closer to KLCC, as much as nearly two times larger.

Table 3.3 and Table 3.6 further breakdown the distribution of sub-sale transactions by price range and by distance to KL City Centre, as well as their associated size.

[109] This is also reflected earlier by the mapping of the locations in Figure 3.9 and Figure 3.10
[110] This is also reflected earlier by the mapping of the locations in Figure 3.9 and Figure 3.10
[111] JPBD Negeri Selangor (2017)

Figure 3.25: Median built-up size of GKL sub-sale transactions, by distance to KLCC and type, 2015 – 2019



Source: Brickz (n.d.) and KRI calculations

Table 3.3: Number of landed GKL sub-sale transactions, by price range and distance to KLCC, 2015 – 2019

	< RM100k	RM100k – 200k	RM200k – 300k	RM300k – 400k	RM400k – 500k	RM500k – 600k	RM600k – 700k	RM700k – 800k	RM800k – 900k	RM900k – 1m	≥ 1m
< 3km	3	8	17	23	57	85	70	57	64	42	1,070
3 – 6km	37	247	694	1,359	1,480	1,397	1,352	911	762	520	3,654
6 – 9km	57	237	636	1,318	1,737	1,475	1,519	1,039	892	698	3,572
9 – 12km	67	320	809	1,517	1,752	1,380	1,376	1,041	880	482	1,998
12 – 15km	67	471	1,172	1,691	1,454	1,208	1,041	977	702	426	1,520
15 – 18km	167	844	1,841	2,692	1,890	1,456	1,303	916	673	336	1,233
18 – 21km	328	2,219	3,369	3,266	2,252	1,559	1,138	581	426	313	804
21 – 24km	520	1,917	2,186	1,906	1,107	645	345	211	127	83	137
24 – 27km	197	727	794	472	333	154	74	43	18	15	43
27 – 30km	187	466	465	219	124	45	33	40	16	5	16
30 – 33km	487	1,039	711	351	228	128	100	28	12	11	22
30 – 39km	870	2,530	1,358	613	228	130	70	26	15	5	11
33 – 36km	514	1,506	1,219	699	737	356	167	108	60	38	147
≥ 39km	1,796	3,641	1,662	830	365	156	109	107	22	5	26

Source: Brickz (n.d.) and KRI calculations

Table 3.4: Median built-up size (sq. ft) of landed GKL sub-sale transactions, by price range and distance to KLCC, 2015 – 2019

	< RM100k	RM100k – 200k	RM200k – 300k	RM300k – 400k	RM400k – 500k	RM500k – 600k	RM600k – 700k	RM700k – 800k	RM800k – 900k	RM900k – 1m	≥ 1m
< 3km		1,040	888	888	958	1,115	1,101	1,672	1,735	1,681	2,439
3 – 6km	828	736	738	830	933	1,100	1,260	1,491	1,627	1,652	2,263
6 – 9km	900	720	708	826	1,009	1,250	1,379	1,489	1,680	1,781	2,584
9 – 12km	713	705	746	945	1,204	1,377	1,390	1,500	1,738	1,921	2,749
12 – 15km	627	670	770	880	1,266	1,436	1,606	1,857	2,030	2,068	2,811
15 – 18km	653	774	890	1,010	1,384	1,534	1,678	1,838	2,027	2,276	2,692
18 – 21km	697	756	875	1,067	1,422	1,617	1,732	1,902	2,012	2,206	2,518
21 – 24km	688	716	843	1,129	1,540	1,682	1,702	2,045	2,045	2,359	2,642
24 – 27km	680	774	841	1,150	1,554	1,701	1,980	1,855	2,478	2,150	2,402
27 – 30km	620	796	879	1,269	1,630	1,964	2,075	2,193	2,197	3,030	2,384
30 – 33km	680	751	870	1,440	1,612	1,800	1,943	2,140	1,995	2,227	2,886
30 – 39km	691	767	897	1,313	1,610	1,807	2,000	1,828	2,217	2,217	2,554
33 – 36km	693	767	902	1,466	1,717	1,798	1,916	2,050	2,320	2,351	3,059
≥ 39km	651	764	1,051	1,438	1,660	1,855	2,173	2,513	2,513	2,762	2,995

Note: Ranges with fewer than five observations are excluded
Source: Brickz (n.d.) and KRI calculations

For landed homes, two trends can be observed via Table 3.3. Firstly, most sub-sale residential units transacted were above 21km away from the CBD of KL City Centre. Secondly, for transacted units below 21km, the highest number of transactions were priced above RM1.0 million.

Landed houses that were transacted at higher prices also tended to have larger built-up sizes (Table 3.4). Similarly larger sized landed houses were transacted at a relatively cheaper rate the further away it is from the central business district.

These observations on landed housing indicate that there exists a premium both in price and built-up size associated with the choice of locating closer to the CBD. However, for homebuyers who purchased houses away from the CBD, a relatively higher proportion of these homes were larger and transacted at a relatively cheaper rate.

Table 3.5: Number of non-landed sub-sale GKL transactions, by price range and distance to KLCC, 2015 – 2019

	< RM100k	RM100k – 200k	RM200k – 300k	RM300k – 400k	RM400k – 500k	RM500k – 600k	RM600k – 700k	RM700k – 800k	RM800k – 900k	RM900k – 1m	≥ 1m
< 3km	125	644	686	878	1,117	1,082	888	502	432	293	3,220
3 – 6km	1,129	7,002	4,851	5,026	3,979	2,544	2,055	1,126	798	449	3,059
6 – 9km	2,283	6,613	5,739	5,214	3,432	1,880	1,474	688	490	358	970
9 – 12km	1,230	2,974	2,880	2,506	1,457	569	317	155	67	38	68
12 – 15km	2,023	4,095	2,338	1,272	502	158	106	52	32	1	10
15 – 18km	1,840	2,904	1,785	1,328	357	112	46	16	8	2	14
18 – 21km	1,999	1,911	1,055	184	29	10	6	3	6		3
21 – 24km	1,023	1,238	427	69	2	1		3			
24 – 27km	452	319	22	1	1						
27 – 30km											
30 – 33km	191	17	7	9			1				
30 – 39km	221	71	26								
33 – 36km	509	299	71	34	1						
≥ 39km	730	314	96	27	12	4	1		1		1

Source: Brickz (n.d.) and KRI calculations

Table 3.6: Median unit size (sq. ft) of non-landed sub-sale GKL transactions, by price range and distance to KLCC, 2015 – 2019

	< RM100k	RM100k – 200k	RM200k – 300k	RM300k – 400k	RM400k – 500k	RM500k – 600k	RM600k – 700k	RM700k – 800k	RM800k – 900k	RM900k – 1m	≥ 1m
< 3km	592	614	799	871	980	1,001	1,078	1,109	1,167	1,302	1,679
3 – 6km	624	650	818	926	1,040	1,141	1,206	1,302	1,389	1,523	2,013
6 – 9km	650	657	829	927	1,012	1,145	1,235	1,389	1,410	1,513	1,930
9 – 12km	657	700	848	893	1,012	1,181	1,292	1,442	1,537	1,505	1,776
12 – 15km	650	740	850	949	1,061	1,132	1,394	1,518	1,642		3,035
15 – 18km	661	743	813	920	1,127	1,340	1,337	1,362	1,356		2,266
18 – 21km	678	753	863	1,023	1,851	947	1,091		1,158		
21 – 24km	667	721	753	904	1,264						
24 – 27km	850	896	1,358								
27 – 30km											
30 – 33km	657	764	2,034	2,196							
30 – 39km	667	958	995								
33 – 36km	632	818	1,012	1,018							
≥ 39km	710	829	910	1,006	1,044						

Note: Ranges with fewer than five observations are excluded
Source: Brickz (n.d.) and KRI calculations

Conversely, two trends are observable for non-landed residential transactions from Table 3.5 and Table 3.6. Firstly, most of the transacted units are closer to the CBD, within 3km to 9km. A substantial portion of transactions were concentrated at a price range of between RM100k and RM500k. Most of these homes had a median lot size of between 650 sq. ft and 1,100 sq. ft. Secondly, there were also a sizeable proportion of these transactions occurring above RM1.0 million. These non-landed homes had a median lot size of above 1,600 sq. ft.

It was also observed that around 40% of non-landed transactions priced below RM400k[112] were for units sized below that which is recommended in Malaysia's National Housing Standards[113]. However, it is likely because many of the transacted non-landed homes transacted in the sub-sale market were built prior to the revision of the housing standards in 2019. Nevertheless, this trend serves as an indication of the unit sizes that can be afforded by the GKL population with their incomes.

3.4 How Housing Attributes are Valued: Hedonic Pricing Model (HPM)

3.4.1. Features of the HPM and attributes tested

In the context of the housing market, the hedonic price model (HPM) is frequently used to investigate variations in house prices based on the inherent attributes of a house. Prices between different houses will differ based on the different attributes that each individual house offers as well as the "willingness to pay" (WTP) for these attributes[114]. For example, homebuyers might value lot size over the location of the house. By using the hedonic estimation technique, the degree to which home buyers value lot size over location can be estimated[115].

In our study[116], the hedonic pricing model is broadly defined as follows:

$$P = f(S, L, N)$$

whereby:

P : sales price of a property,
S : structural attributes of the property,
N : neighbourhood attributes of the property
L : locational attributes of the property

In this view, the price of a house P, is determined by inherent attributes such as structural attributes S (e.g., lot size, built area, age of building, design, etc.), neighbourhood attributes N (e.g. proximity to hospitals, shopping centres, environment quality, etc.) and locational attributes L (e.g., distance from CBD, land lease, accessibility to public transport, etc.). Table 3.7 outlines the variables that are employed to analyse the willingness to pay to acquire or avoid the said variables.

[112] The 3x median multiple in Kuala Lumpur was around RM380k in 2019.
[113] According to our National Housing Standards, the minimum lot size for a 3-bedroom apartment should be above 800 sq ft.
[114] Preez and Sale (2013; Epple (2011; Haab and Mcconnell (2002; Sirmans, Macpherson, and Zietz (2005)
[115] Ridker and Henning (1967) were credited to be the pioneers who applied the approach to model residential properties.
[116] Ho and Lim (2021)

Table 3.7: Hedonic Price Model Variables

Category	Variables	Description
Dependent Variable	*PRICE*	Property sales price
Structural Attributes	*ROOMS*	Number of rooms
	FREEHOLD	Dummy variable for holding type (1 indicates freehold, 0 indicates leasehold)
	*LANDAREA**	Land area of landed property
	*BUILTUP**	Built-up of landed property
	*FLOORS**	Number of floors of landed property
	*LOTSIZE***	Lot-size of non-landed property
Neighbourhood Attributes	*DUNIVERSITY*	Distance to nearest university
	DHOSPITAL	Distance to nearest hospital
	DSHOPPING	Distance to nearest shopping centre
	DMOVIE	Distance to nearest movie theater
	DPRIVATELOWCOST	Distance to nearest private low-cost housing
Locational Attributes	*DTRAIN*	Distance from the nearest train station
	DCITYCENTER	Distance from Kuala Lumpur (KL) City Center

*Landed properties only; **Non-landed properties only

In terms of structural attributes, various authors agree that unit size and freehold tenure typically fetches a higher premium in Malaysia[117]. This is expected as properties with a bigger living area correspond to a higher degree of flexibility in terms of functional space. Similarly, freehold properties would naturally fetch a higher premium because house-buyers who purchase a leasehold property would have to go through the trouble of renewing the leasehold agreement at some point in time, which would also be a hassle should they sell the house in the future.

Locational attributes reflect spatial fixities—fixed attributes that inhabitants enjoy from being located in a particular area. For example, certain locations provide house-buyers with improved access to central business districts. Accessibility, in its various forms all provide value to the inhabitant through shorter travelling time, lower costs of travel, higher convenience or even having a flexibility of transport modes[118].

On the other hand, neighbourhood attributes reflect both the characteristics that are specific to the neighbourhood at hand. These attributes correspond to socio-economic variables such as social class and occupations of its inhabitants, the quality of service of local governments—schools, hospitals, markets, places of worship, and exposure to negative externalities such as crime rates, noise or congestion from traffic, airports, hospitals, shopping centers, etc. It has been recognized that neighbourhood attributes are slightly more difficult to quantify and value in the marketplace.

[117] Mar Iman, Hamidi, and Liew (2009) , Ooi, Le, and Lee (2014), Kam et al. (2016)
[118] Dziauddin, Alvanides, and Powe (2013)

In that regard, the presence of universities and hospitals are studied. Universities were included as they represent an inflow of students that drives demand for a rental market which in turn drives prices of surrounding houses upwards. Hospitals were included to represent the benefit of being able to access healthcare. Shops were also included to represent access to places that provide necessities and other groceries. Cinemas are included as they serve as a proxy to larger shopping centres such as One Utama or MidValley Megamall, as theatres tend agglomerate in large, centralized malls, but not in the smaller ones.

The presence of low-cost housing is also accounted for to infer the existence of a "not in my back yard" (NIMBY) [119] effect associated with the close presence of low-cost housing. Only privately managed low-cost housing is included based on a previous KRI working paper that found that the NIMBY effect is less clear with government managed low-cost housing, in addition to how nearly 90% of the total 814 low-cost housing projects are attributed to private low-cost projects[120].

Given the polarisation in the price distribution of the sub-sale housing market below and above RM1 million (Figure 3.15 and Figure 3.16), it is important to isolate the WTP according to the market in which consumers are operating in when investigating the WTP for a particular set of housing. Thus, the subsequent HPM analysis differentiates between sub-sale transactions priced below RM1 million and above RM1 million.

3.4.2. Results of the HPM: The estimated value of housing attributes

General housing market under RM1 million

An overview of the HPM for the general sub-sale market under RM1 million is described in Table 3.8.

The results of the HPM regression are mostly in line with what has been concluded in other studies, with the following observations:

- There is a premium on freehold houses as opposed to leasehold: RM31.4k or RM48.4k on average for a landed or non-landed housing unit.
- The greater the number of rooms in a landed house, the higher its price.
- The larger the unit size (built up or lot size), the higher its price.
- The further away the house is to hospitals, universities and shopping places, the lower its price.
- The further away the house is to low-cost housing, the higher its price.
- The further away the house is from train stations (KTM, LRT and MRT), the lower its price.
- The further away the house is situated to KL City Centre (the main GKL CBD), the lower its price.

[119] The NIMBY phenomena is often also used in relation to a variety of different contexts, such as the construction of a nuclear power plant, a new railway station, or even hospitals and shopping centres.
[120] Ho and Lim (2021)

However, the HPM also reveals some interesting observations. For example:

- The greater the number of floors in a landed house, the lower its price.
- The greater the number of rooms in a non-landed house, the lower its price
- The further away the house is from cinemas (a proxy for larger malls), the higher its price

Table 3.8: Hedonic price model, general sub-sale housing transacted under RM1 million in 2015 – 2019

		Dependent Variable: Price (RM)	
		Landed	Non-Landed
Constant		156,881.18	109,559.77
Structural attributes	Freehold	31,368.06	48,426.13
	Floors	-4,572.40	NA
	Rooms	29,242.03	-55,154.60
	Built up / lot size (sq. ft)	249.63	463.35
	Land area (sq. ft)	0.01	NA
Neighbourhood attributes	Distance to hospital (km)	-2,014.09	-6,798.56
	Distance to university (km)	-2,426.42	-801.42
	Distance to shopping centres (km)	-3,599.22	-8040.02
	Distance to cinema (km)	-580.62	4,177.72
	Distance to private low-cost housing (km)	5,194.23	18,531.30
Locational attributes	Distance to train station (km)	-1,419.94	-1,701.24
	Distance to KL City Centre (km)	-3,830.39	-8,373.55
R-squared Adj.		**0.65**	**0.64**
Observations		**100,504**	**105,349**

Note: Outliers removed based on 99 pct CI. Variance inflation factor <4 for all coefficients. S.I. = Statistically Insignificant
Source: KRI calculations

Regarding locational attributes, the premium for housing units closer to KLCC corroborates with how KLCC is often described as a main focal point of workspaces[121], despite the continued expansion of GKL and the emergence of new CBDs. While the earlier Land Public Transport Masterplan also identified employment destinations aside from KLCC, KLCC ranks highest in the corridor hierarchy. A potential caveat moving forward would be how future mega townships (such as the Tun Razak Exchange) may change this.

On how prices are positively related to farther distances from private low-cost housing, this affirms the presence of the NIMBY effect, where residents or house buyers are opposed against the close presence of low-cost housing or its associated features. It is likely that this relates to the deteriorating physical conditions of low-cost housing, rising from maintenance challenges. This points to the need to consider the policy solutions needed to ensure that GKL continues to be an inclusive city that, safeguarding the rights of all to shelter and a decent standard of living. Box 2 further discusses these issues and the NIMBY effect of low-cost housing on neighbouring house prices.

[121] SPAD (2016). The Land Public Transport Masterplan identifies KL City Centre as the primary economic centre and key employment area.

Regarding structural attributes, what are the factors that associate lower prices with more rooms in a non-landed house? This interesting difference may be partly attributed to the different housing typologies that exist in GKL. As discussed in Section 3.3.2, the modal sizes of flats, apartments and service residences are below 1,000 sq. ft, while landed housing units are generally larger. Thus, with modal households being composed of 3 to 4 persons per home[122], building houses with more than 3 rooms without an accompanying increase in unit size results in less functional space for the house buyer[123].

Hence, three-room units are the most common among all non-landed house types, while units with 4 or more rooms are less prominent compared with landed housing. Service residences are the only housing type that have a sizeable segment of single-room units at around 28% of transactions while other housing types mostly registered less than 1%. Thus, it may be a driver behind the negative relationship between rooms and price. Hence, it is worth isolating service residences from other non-landed house types in estimating the value of housing attributes.

Table 3.9 describes the HPM for non-landed homes when separating serviced residences from other types. When the service residences were isolated, the HPM for rooms in non-landed were positive (these were negative in Table 3.8). The difference between serviced residences and the other non-landed housing typologies is partly responsible for why an extra number of rooms is associated with a lower transacted price of the non-landed property (in Table 3.8).

There is a sizeable number of single-roomed serviced residences transactions at priced much higher than the flats and apartments, even though they are slightly larger in size and have more rooms but are going for a much lower rate than the single-roomed service apartment. So, the overall effect for 'more rooms' in non-landed housing appears to be negative because of differences between service residences and other non-landed house typologies.

Apart from the interpretation on the relationship between prices and rooms, there are also differences with the relationship of price with a few neighbourhood and location attributes that are less expected for service residences:

- The further the closest shopping centre, the higher the price. However, the further the closets cinema (a proxy for larger malls), the lower the price.
- Proximity to private low-cost housing is not associated with price at a statistically significant level.
- The further the closest train station, the higher the price.

[122] DOS (2020)
[123] Otherwise, if no other factors are controlled for, the number of rooms is found to be positively correlated with the transacted prices. A similar argument may explain the relationship found between the number of floors and price for landed homes.

Table 3.9: HPM, serviced residences vs. other non-landed sub-sale housing transacted under RM1 million in 2015 – 2019

		Dependent Variable: Price (RM)	
		Service Residences	Non-Service Residences
Constant		274,320.74	-84,199.59
Structural attributes	Freehold	48,880.97	30,950.39
	1 Room (vs 3)	37,519.36	95,068.09
	2 Rooms (vs 3)	51,680.10	SI
	>3 Rooms (vs 3)	48,746.30	22,525.21
	Lot Size (sq. ft)	352.46	471.74
Neighbourhood attributes	Distance to hospital (km)	-27,413.08	-5,689.88
	Distance to university (km)	-10,408.33	-688.85
	Distance to shopping (km)	47,535.67	SI
	Distance to cinema (km)	-4,725.20	2,711.83
	Distance to private low-cost housing (km)	SI	12,005.42
Locational attributes	Distance to train station (km)	25,782.66	-624.47
	Distance to KL City Centre (km)	-13,183.19	-6,943.96
R-squared Adj.		**0.49**	**0.7**
Observations		**10,677**	**94,672**

Note: Outliers removed based on 99 pct CI. Variance inflation factor <4 for all coefficients. SI = statistically insignificant. The 3-room mode is absent in this table because it was used as the reference mode. For example, a service residence of 1 room transacts at about RM50k more on average as compared to a service residence of 3 rooms.
Source: KRI calculations

On the relationship of prices with distances to train stations, the difference between service residences and other non-landed house types is interesting and warrants further study. The association of further distances to train stations may perhaps reflect how public transport use in GKL remains relatively low at under 20% of modal share[124], especially if compared to other international cities such as Hong Kong (90%), Singapore (63%) or London (55%)[125]. There are many reasons why Malaysians heavily rely on private vehicles. It is argued that Malaysia's policies are more inclined towards car ownership, with the government emphasis on developing a Malaysian automotive manufacturing industry[126]. Moreover, it is frequently argued that the public transportation system has longstanding issues ranging from poor last-mile connectivity to the unreliability of feeder busses and KTM services that disincentivize public transport[127]. Thus, a housing unit with proximity to train stations may not necessarily fetch a premium, without considering the accessibility features of the specific train station and its connecting lines.

Nonetheless, it is overall worth noting that the HPM for service residences has a lower R-squared value than for other non-landed house types. This means that a smaller percentage of the variation in price is explained by the HPM with the specified variables. This suggests that there are more or other factors outside our specified model for service residences that are inherently more valuable to prospective house buyers. This may relate to more specific features relating to structural attributes such as the quality of furnishings used, and neighborhood or house complex features such as complex facilities.

[124] World Bank (2015)
[125] SPAD (2016)
[126] Azuddin and Omar (n.d.)
[127] Ibid.

Higher-end housing market above RM1 million

Table 3.10 shows an overview of the HPM for sub-sale housing transactions at the higher end of the market at above RM1 million though still excluding the ultra-luxury end of houses priced in the top 1%.

Table 3.10: HPM, sub-sale housing transacted above RM1 million in 2015 – 2019

		Dependent Variable: Price (RM)	
		Landed	Non-Landed
Constant		796,405.99	799,588.26
Structural attributes	Freehold	120,806.97	SI
	Floors	SI	NA
	Rooms	33,821.96	-10,735.41
	Built up / lot size (sq. ft)	308.01	528.66
	Land area (sq. ft)	53.95	NA
Neighbourhood attributes	Distance to hospital (km)	-17,167.23	SI
	Distance to university (km)	12,419.40	-12,775.22
	Distance to shopping centres (km)	SI	-123,158.32
	Distance to movie theatre (km)	-7,316.60	-107,397.71
	Distance to private low-cost housing (km)	37,666.78	143,007.07
Locational attributes	Distance to train station (km)	-7,567.45	39,671.52
	Distance to KL City Centre (km)	-21,910.81	-74,903.33
R-squared Adj.		**0.44**	**0.53**
Observations		**13,119**	**6,956**

Note: Outliers removed based on 99 pct CI. Variance inflation factor <4 for all coefficients. S.I. = Statistically Insignificant
Source: KRI calculations

Comparing with the general market of transacted housing below RM1 million, there are some notable observations on differences and similarities:

- Freehold tenure does not command a premium for non-landed units above RM1 million, though it still does for landed housing.
- More rooms in a non-landed house are associated with lower price, similar to units below RM1 million.
- Distances to hospitals is not associated with price for non-landed housing.
- The further away the house to a cinema (a proxy for large malls), the lower its price and significantly more for non-landed housing than landed housing.
- The further away the house to a private low-cost housing, the higher its price.
- The further away the house to a train station, the higher its price for non-landed housing though the opposite is true for landed housing.

Some of the observations are less expected. One includes the differences in the association between price and distance to train stations. This is similar to the difference observed between service residences and other non-landed house types below RM1 million shown earlier. A similar explanation can be offered as before—i.e., the low use of public transport in GKL and how service quality varies significantly depending on the transit lines.

Nonetheless, the HPM for the higher-end market also has a lower R-squared value than that of the general housing market and even the HPM for service-residences. With the smaller variation explained by the specified variables in the HPM, there are likely other factors that prospective house buyers seek and value at the higher-end market that may be more qualitative in nature.

Box 2: Shelter is a basic human right and the 'Not in my Backyard' effect of low-cost housing

While this chapter explores the housing market using hedonic price theory, this box article focuses more on houses as shelter for households and individuals who cannot afford to purchase a house in the private market.

Apart from food and clothing, shelter is a basic human right. But unlike food and clothing, which tends to be more transient in nature, shelter tends to be a more enduring fixture of city living. Where one habituates influences a variety of freedoms and functionings one can have access to. Shelter for the poor has always been at the forefront of all of Malaysia Plans[128]. Initially, the provision of shelter for the poor took the form of constructing multi-storey low-cost homes. This trend was also driven with the intention to combat the formation of squatters, a phenomenon faced by most developing countries over the past few decades. Beginning in the 9th Malaysia Plan, emphasis was placed on maintenance and cleanliness of low-cost housing. The Housing Maintenance Fund was established for major repair and maintenance work.

However, over time the focus shifted towards constructing affordable homes for all income groups. More recently in the 11th and 12th Malaysia plan, housing programs have become more diversified. There were programs such as the PPR and PAKR where the government played a more direct role in the allocation of social housing and its management. There were also programs such as PR1MA, PPA1M, MyHome or Rent-to-own (RTO) that intended to give affordable options for those outside social housing, as well as with a larger focus on making home financing more accessible.

Over the years, the various programs and policies put in place have generated an uneven landscape of housing. While there has been some indication that allude to sub-standard living conditions of social housing[129], the general level of preparedness to face housing challenges for each class of social housing remains unknown. For example, would maintenance be better managed if the entire housing complex (non-market) is owned and managed by local councils, as opposed to where there is mixed ownership, or as opposed to the case for which the entire complex is privately owned?

To gauge the general condition of non-market homes, we constructed a regression model based on Hedonic Pricing to quantify the willingness to pay to locate further away from non-market housing. We refer to this effect as "Not in my Backyard" (NIMBY).

[128] Ho and Lim (2021)
[129] JPN KPKT (2018b), Daim (2021)

Historically, this approach was undertaken to examine if the presence of low-income housing brings down real estate values in the vicinity130. Most of these studies were done in United States. Results from the various literature on this matter were inconclusive. While there were a substantial number of findings which detected the presence of a NIMBY effect, there were also studies which did not find statistical evidence of such effects.

Sources of variation seemed to differ from place to place, and from project to project. Other studies suggest a potential reason why the NIMBY effects persist is when the environment in low-income houses and its surroundings become slum-like – meaning that they lack proper maintenance in addition to other public goods such as security and sanitation.

In our regression model, we found the presence of a NIMBY effect for privately managed low-cost homes, but not for government-managed homes. There were also different statistical regularities in relation to NIMBY that were conditioned by housing typology (landed vs. non-landed properties).

Nevertheless, the study has several limitations. By analysing the entire GKL area, the regression model merely describes baseline effects that are experienced on the aggregate. While we were able to quantify the existence of a NIMBY effect on average, we were unable to deterministically associate such effects to the building condition and the environment for each and every low-cost home. The quantitative findings may be enriched if coupled with qualitative studies that examine the built condition of these homes, in addition to on the ground perceptions of safety, sanitation and liveability in order to describe a more wholistic view of non-market housing and issues surrounding them.

3.5 Conclusion

Amid a housing market in GKL that is characterised by its unaffordability and overhang, this chapter explores focuses on the inherent value of housing characteristics based on the Hedonic Pricing Model. Individuals and households who purchase houses are purchasing more than just shelter above their heads. Different houses embed both desirable and non-desirable characteristics that can be described by the HPM.

[130] Nguyen (2005)

For the general housing market priced below RM1 million, our HPM regression results for GKL are somewhat in line with other HPM research on what households and individuals value when purchasing a home:

- The larger the unit size (built up/lot size), the higher the transacted price of the home.
- The closer the house is situated to KL City Centre (the main central business district in the GKL region), the higher the transacted price of the home.
- There is a premium on freehold houses as opposed to leasehold.
- The closer the house to train stations (KTM, LRT and MRT), the higher the transacted price of the home.
- The closer the home is to hospitals, universities and shopping places, the higher the transacted price of the home.
- The further away the house to a private low-cost housing, the higher its price.

We show also that the greater the number of rooms, the higher the house price, but only when the effects of service-residences were isolated. Otherwise, it was observed that without a corresponding increase in unit size, more rooms is associated with lower prices for non-landed housing.

In using the HPM to study service residences and the higher-end market with the same set of variables for the general market, less variation is explained by the model with fewer expected relationships observed. One namely is the associated lower price of houses closer to train stations, which may reflect the large variations in service quality associated with specific stations and lines, as well as the low use of public transport in GKL to leading a potential lowering in value of price associated with proximity to train stations in general. Overall, while the HPM may find that the higher-end segment may also value size and proximity to the city centre, the lower explanatory power of the HPM in these cases suggests that there are other attributes that may be valued by prospective house buyers in the higher end market, including more specific and qualitative attributes related to the house and neighbourhood.

Overall, we highlight two main findings that are important for housing policy in ensuring decent living for all. The first relates to the sizes of houses, in which the HPM confirms that there is price premium for larger units, yet many units transacted at a more affordable price were smaller than the Malaysia's National Housing Standards. The second main finding relates to how the presence of low-cost housing negatively affects the prices of nearby houses, reflecting the deteriorating conditions of low-cost housing due to maintenance challenges. These two main issues and the suggested policy options are further discussed in Chapter 04.

It should also be borne in mind that house prices are skewed to last transacted prices, as the conventional approach of property valuation is the sales comparison approach[131]. With this approach, the last transacted price of a similar housing unit determines the value of new comparable housing projects or transactions in an area. Hence, prices may not always reflect fundamentals (i.e., the housing attributes) if speculation is rampant and there is a rapid escalation in price.

[131] Suraya Ismail et al. (2019)

CHAPTER

04

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CHAPTER 4

KEY FINDINGS AND POLICY RECOMMENDATIONS

By The Agglomeration Team

"Towns are dwelling places that nations use when they have reached the desired goal of luxury and of the things that go with it. Then, they prefer tranquility and quiet and turn to using houses to dwell in. The purpose of (building towns) is to have ***places for dwelling and shelter.*** *Therefore, it is necessary in this connection to see to it that harmful things are kept away from the towns by protecting them against inroads by them****, and that useful features are introduced and all the conveniences are made available in them****."*

Emphasis added in bold by authors

Ibn Khaldun, Muqaddimah 1377, translated by Frank Rosenthal, 1990

The Approach Undertaken in this Book. Why Places and Housing?

A city is a complex system. It consists of a variety of actors, institutions and organizations that are inherently different, with distinct motivations, and interact in a multitude of ways. In turn, the associated political, economic and social processes players interact in are embedded in some form of formal governance and informal social norms. These are the political, socio-economic relationships typical of human settlements.

The growth of the economy facilitated the materialization of many opportunities to its people. However, growth can also create imbalances in wealth and regional development. This report examines inequality as demonstrated spatially by the agglomeration processes to complement the wider discussion of inequalities in Malaysia. It also expands inequality from not just what money can buy to concepts of well-being. As opposed to how much money one earns, well-being has more to do with the different types of freedom and functionings that one might have access to, given resource constraints spatially. This book is an attempt to quantify the existence of factors that catalyse 'freedoms and functionings'[132]. Therefore, we complement the study of 'inequality' by investigating parameters of well-being bounded by space or 'places'.

As countries develop, the ethos of development shifts from merely providing for basic needs towards creating an enabling environment to expand the freedoms and functionings that allow people to live the lives that they value. Malaysia's shared prosperity vision is a commitment to provide a decent standard of living[133] to all Malaysians by 2030.

[132] Sen (1999), the concept of freedoms and functionings have been elaborated in Chapter 2

[133] Decent standard of living – Financially capable to meet basic needs, ability to participate in community, family and social activities, and ability to lead a meaningful and dignified life. EPU (2019)

Due to the complex and interconnected nature of cities, the scope of our research is limited to residential settlements and place differentiation. Residential settlements are studied because they are anchoring points through which households lead their lives. A good house enables its inhabitants to capitalize on a wide array of positive factors, from cost of living, jobs, education, health, security and many more. However, this positive housing experience may not be accessible to every inhabitant of the city as spatial inequalities persists.

On the other hand, place differentiation is studied as a means to quantify the different types of freedoms and functionings that city-inhabitants have access to. Are all neighbourhoods similar? Some neighbourhoods continue to be prime areas to live in, while other neighbourhoods are 'stuck' in a vicious cycle of non-investment. We argue that place differentiation is an indicator that determines the diversity of freedoms and functionings one might enjoy[134].

The chapter outlines several policy recommendations based on our analysis. The following sub headers are structured as Policy Briefs that are designed to provide a) an overview of the problem, b) a summary of the major findings and c) provide policy recommendations for the consideration of relevant stakeholders.

Part I: Major Findings and Policy Recommendations for Chapter 1 and 2

Executive Summary

Prosperous neighbourhoods are characterized by higher levels of place differentiation. In these neighbourhoods, the diversity of places plays a significant role in enhancing the categories of functionings individuals and households are able to access. This in turn raises the standard of living for inhabitants in the neighbourhood as well as increases the valuation of real estate.

However, not all neighbourhoods in GKL enjoy similar high place differentiation. There is a mismatch between economic growth with the 'even' development of social amenities. The nature of agglomeration economies catalyses development and economic growth in cities, but with some neighbourhoods 'stuck' in a vicious cycle of non-investment. As a result, there are geographical/spatial constraints as represented by place differentiation, on the prospects of GKL to nurture the growth of a large and healthy middle-class across the board.

The "New Urbanism" model—a widely popular and influential urban planning movement in the West outlines some principles in developing a diverse, multifunctional and well-integrated neighbourhoods. The principles of New Urbanism mostly revolve around the ideas of promoting walkable neighbourhoods with well-connected transportation networks and greater integration of mixed land uses at neighbourhood level which include the provision of adequate affordable housing, workplaces, shops, education, public space amongst others[135]. The ultimate aim of the model is to rejuvenate the physical design and social values of the neighbourhoods, creating a stronger sense of community and thus promoting a positive and quality living lifestyle.

[134] However, there are many other instrumental city-related themes that would contribute to the triumph of cities; as exemplified by Ibn Khaldun's quote on 'city-making initiatives' but are not explored in this study. Source: Irwin (2018)
[135] Fulton (1996)

Therefore, we recommend the inclusion or institutionalizing of "new urbanism" apparatus as a balancing mechanism to strengthen the voice of residents in to influence the agglomeration of places that they desire their neighbourhoods to have, and also as a means to overcome algorithmic bias[136].

In order to promote better place differentiation in urban neighbourhoods which are less diversified, we propose:

- The use of the GKL Amenity Space and Method of Reflections (MOR) as a means to quantify place differentiation in various neighbourhoods. It may also be employed as a monitoring tool to track development trajectories of neighbourhoods over time.
- The use of GKL Amenity Space as a data-driven decision filter to assist local councils, developers, and resident associations path out prospective development trajectories of neighbourhoods based on neighbourhood similarity.

Key Facts

Relevance

Over the course of economic development, countries eradicate poverty and facilitate the emergence of the middle-class. The middle-class is both a proxy of aspirational/conspicuous consumption[137] (the idea that individuals/households prosper[138]) and drivers of economic growth[139].

A better measure of household wellbeing is based on consumption. Wellbeing is less about your level of income, but more about the diversity of items that income can buy, and the different types of functionings[140] you might achieve. Nonetheless, in order to acquire a wide variety of goods and services, as well as to participate in recreational and social activities with ease, being in a neighbourhood with high place differentiation helps.

Problem 1

There is no standardized measure with which local councils, residents' associations, real estate developers might use to quantify place differentiation.

What is known from the data

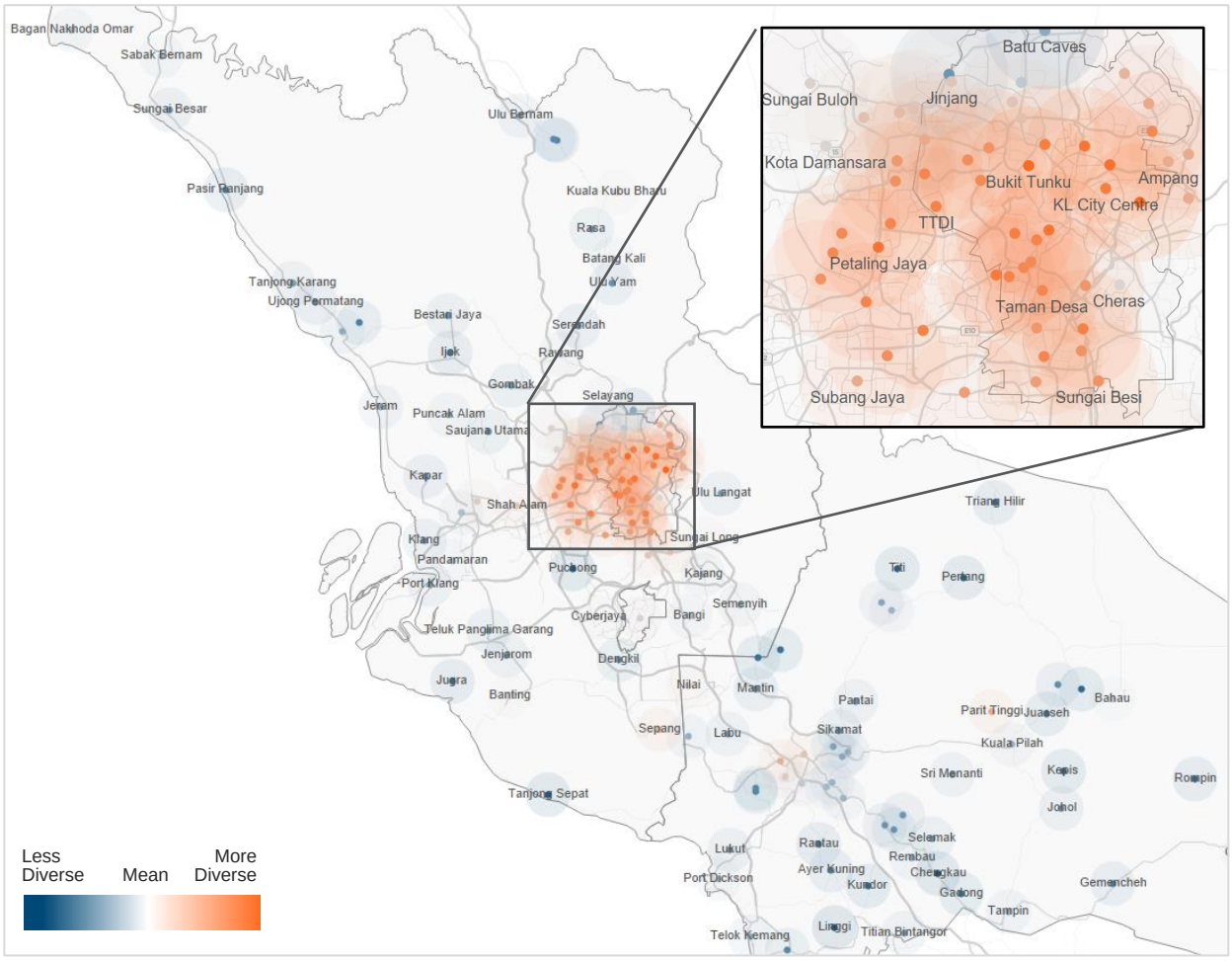
Presently, neighbourhood vibrancy is measured primarily by real estate valuation (prices). There exist several other measures based on human mobilities or satellite imagery. The weakness of these measures is that they do not provide a means to quantify diversity of places or its corresponding ubiquity of neighbourhoods.

[136]Jacobs (2016); this is urbanism planned at the neighbourhood levels with distinct mechanisms to 'hear the voices' of the residents.
[137] Jayadev, Lahoti, and Reddy (2015)·Currid-Halkett (2017)
[138] Sen (1985), Sen (1999)
[139] Boushey and Hersh (2012)·OECD (2019)
[140] Sen (1985)

Policy Recommendation 1

We recommend that Local Councils use the GKL Amenity Space[141], alongside the MOR as a means to quantify place differentiation as well as a monitor tool to track development trajectories of neighbourhoods over time (refer to Figure 2.10).

Figure 4.1: Geographical Distribution of Place Differentiation, by neighbourhood



Source: KRI calculations based on Google (n.d.a)

Problem 2

There is a misalignment between 'economic development' and 'social dynamics' in some neighbourhoods. The nature of agglomeration economies catalyses development and economic growth in major cities, but several of the less urbanized neighbourhoods are 'stuck' in a vicious cycle of non-investment which perpetuates their existing state of non-development (refer to Figure 2.10).

In turn, this exerts geographical constraints that raise the cost (not only monetary) for households living in less diverse neighbourhoods, to have access to opportunities that better neighbourhoods have.

[141] A more detailed overview of the methodology can be viewed via our Working Paper: "What makes your neighbourhood 'better'? Socio-economic variabilities of Greater Kuala Lumpur neighbourhoods". The GKL Amenity Space was constructed following a series of papers focused on the principle of relatedness. Hidalgo et al. (2007), Hidalgo et al. (2018), Hidalgo, Castañer, and Sevtsuk (2020)

What is known from the data

There are mixed views arising from different literature on the matter – That the agglomeration of places and its resultant place differentiation has been claimed to be driven by the optimization of logistical costs[142], industrial clusters wanting to benefit from knowledge spillovers[143], the theory of competitive advantages[144], location externalities[145] or urban externalities[146].

There are multiple factors that contribute to the current predicament. Policies are developmental/ aspirational by nature with the primary goals of promoting economic growth, creating value-added industries and eradicating poverty, as opposed to 'functional' at the neighbourhood levels. For example, the economic corridors were designed to promote region-specific economic growth and the MSC was to become the nation's knowledge hub. However, these policies focused merely on attracting investment without developing the attendant infrastructure to catalyse social interactions.

Massive investments were made in terms of delivering the physical infrastructures e.g. highways and public transport required to attract investors and businesses. However, scant investment was made in factors that creates 'vibrancy and soul' of these cities. The lack of social amenities and 'soft' infrastructure deters the magnitude of social interactions which in turn constraints the benefits of agglomeration of places. MSC did not turn out to be knowledge hub that Malaysia envisioned during the inception; partly due to lack of social amenities such as housing, shopping malls, healthcare facilities that would draw the migration of people into the city and thus business to invest and create employment opportunities.

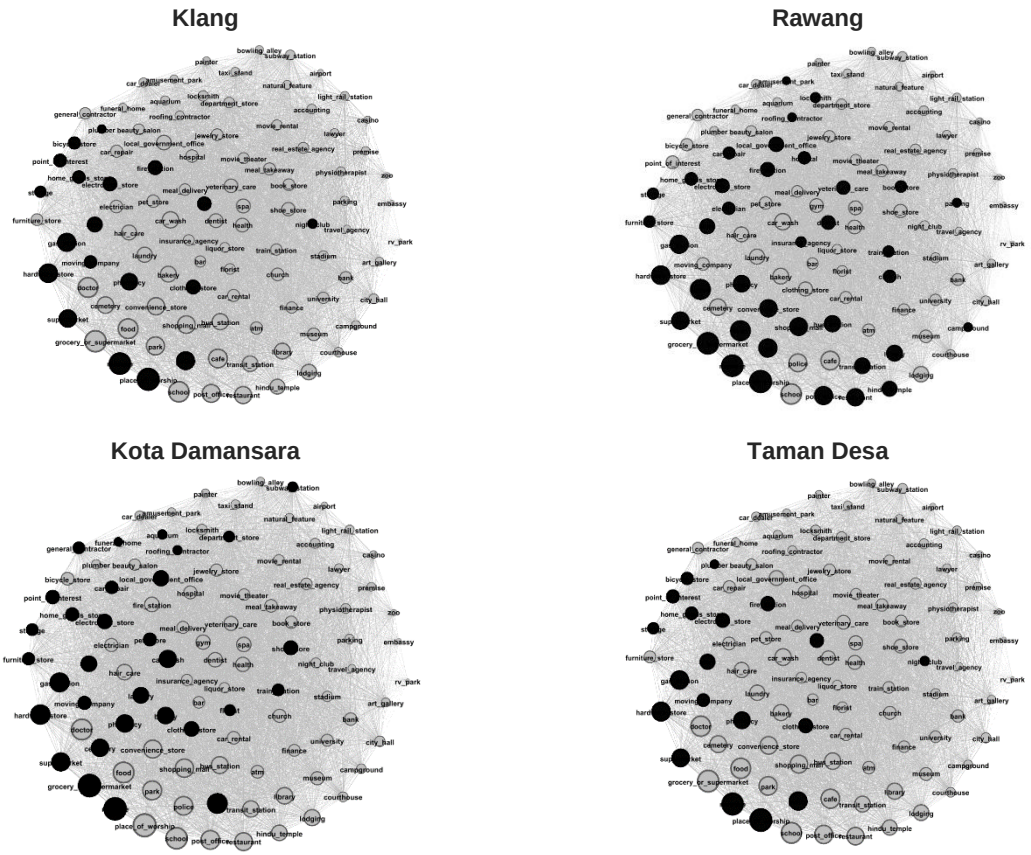
Policy Recommendation 2

We recommend the use of the GKL Amenity Space as a data-driven decision filter to help local councils, developers and residents association path out prospective development trajectories of neighbourhoods based on shared attributes and similarities(refer to Figure 2.13).

We further recommend the inclusion of "new urbanism apparatus" as a balancing mechanism to ensure residents have a say on what places they desire for their neighbourhoods.

[142] Fujita, Krugman, and Venables (1999)
[143] B. Audretsch (1998)
[144] Porter (1996)
[145] Alfred (1890),Arrow (1971),Romer (1986)
[146] Jacobs (1992)

Figure 4.2: Place concentration, by neighbourhood



Source: KRI calculations based on Google (n.d.a)

Chapter 2 Policy Conclusion

According to Abraham Maslow[147], there exist a hierarchy of needs that humans first satisfy (basic needs) before they seek to fulfil needs that are of a more aspirational nature (such as self-actualization). Naturally, local councils are charged with the primary responsibility to ensure that each neighbourhood is equipped with places and infrastructure that serve the basic needs of its inhabitants – police and fire stations, schools, places to acquire groceries, clinics and post offices among other things.

However, as countries develop, the ethos of development shifts from providing for these basic needs towards creating an enabling environment to expand the freedoms and functionings that allow people to live the lives that they value. Even though we live in a digitalized world where there is an abundance of place related data, local economic development has not yet benefited from a synthesis of data-driven frameworks and collaborative planning.

Data-driven frameworks that explores the benefits of place differentiation have already been developed and deployed. It would be relatively straightforward to adopt these analytical engines as decision filters to help with planning. However, that is merely the first step. Technical solutions must be complemented with social solutions so that the developments in our neighbourhoods, are not the result of algorithmic bias, but reflect the needs and wants of the people living in them.

[147] Maslow (1943)

Part II: Major Findings and Policy Recommendations for Chapter 03

Executive Summary

Houses are more than just shelter above one's head[148]. It is the anchoring point from which individuals and households access jobs, goods and services, as well as interact with one another as part of communities.

However, inhabitants of GKL may find it increasingly difficult to acquire houses that they need and want. Their desired houses are either priced beyond what they can afford, or when it is more affordable, it is either too small, or too far from the CBD. By running hedonic price regressions, we infer the willingness to pay to acquire or to avoid a list of housing attributes.

We find evidence of several problems in the provision of shelter in GKL city. Namely, low-cost housing (LCH) offering sub-par living conditions, while houses transacted in (or close to) the 'affordable range' do not offer housing characteristics that go beyond the National Housing Standard (NHS) of 2019.

To promote better housing outcomes that are more affordable, we propose:

- The development of a 'Good Quality Housing Standard'[149] through a proposed new NHS to identify the gaps of the NHS 2019 to households' needs and demand (based on household lifecycles).
- Restructuring the LCH or affordable housing quota, and potentially redevelopment of LCH.

Key Facts

Relevance:

A good house enables its inhabitants to capitalize on a wide array of positive factors that exist by virtue of being in the city such as jobs, education, health, security, and many other opportunities.

Problem 1

The NHS 2019 outlines a minimum requirement of 800 sq. ft for a 3-bedroom unit house (Table 4.1). However, it is observed that most transactions considered affordable using the 3x median multiple tended to be lower than the standards described in NHS 2019.

Table 4.1: The minimum floor space area for residential buildings

No of rooms	1 room	2 rooms	3 rooms
Floor space area	≥ 55.74sqm (600 sq. ft)	≥ 65.03sqm (700 sq. ft)	≥ 74. 32sqm (800 sq. ft)

Source: CIDB (2019)

[148] Suraya Ismail et al. (2019)
[149] These policies were recommended back in 2019 in *Rethinking Housing* by Suraya Ismail et al. (2019)

What is known from the data:

Non-landed housing is a housing typology that is typically not constructed in the more rural areas of the city. Most non-landed housing are concentrated close to the central business district to capitalize on proximity. Transactions in the sub-sale residential market reveals certain modes (central tendency) that emerge from the demand for housing characteristics as represented by willingness-to-pay (WTP) in the Hedonic Price Model (HPM) framework:

Table 4.2: Non-landed housing archetypes, interquartile range, GKL sub-sale transactions, 2015 – 2019

	Rooms	Lot Size (sq. ft)	Price
Serviced Apartments	1	488 – 817	RM350k – 630k
Serviced Apartments	3	813 – 1,044	375k – 610k
Flat	2	549 – 667	80k – 150k
Flat	3	624 – 728	83k – 160k
Apartment	3	753 – 915	160k – 300k
Condominium	3	982 – 1,335	360k – 605k

Source: Brickz (n.d.) and KRI calculations

However, when transactions are clustered according to distance, it is observed that non-landed houses that were priced at around RM300k, close to the threshold of 3x median multiple in 2019, tended be a 3-room apartment or condominium that have a lot size of around 800 to 900 sq. ft.

Non-landed sub-sale transactions were concentrated at the RM100k to RM300k price range, located 3 – 9km away from the KL City Centre. The median size of these houses was centred around 650 – 820 sq. ft. (Table 4.3 and Table 4.3)

Table 4.3: Number of non-landed sub-sale GKL transactions, by price range and distance to KLCC, 2015 – 2019

	< RM100k	RM100k – 200k	RM200k – 300k	RM300k – 400k	RM400k – 500k	RM500k – 600k	RM600k – 700k	RM700k – 800k	RM800k – 900k	RM900k – 1m	≥ 1m
< 3km	125	644	686	878	1,117	1,082	888	502	432	293	3,220
3 – 6km	1,129	7,002	4,851	5,026	3,979	2,544	2,055	1,126	798	449	3,059
6 – 9km	2,283	6,613	5,739	5,214	3,432	1,880	1,474	688	490	358	970
9 – 12km	1,230	2,974	2,880	2,506	1,457	569	317	155	67	38	68
12 – 15km	2,023	4,095	2,338	1,272	502	158	106	52	32	1	10
15 – 18km	1,840	2,904	1,785	1,328	357	112	46	16	8	2	14
18 – 21km	1,999	1,911	1,055	184	29	10	6	3	6		3
21 – 24km	1,023	1,238	427	69	2	1		3			
24 – 27km	452	319	22	1	1						
27 – 30km											
30 – 33km	191	17	7	9			1				
30 – 39km	221	71	26								
33 – 36km	509	299	71	34	1						
≥ 39km	730	314	96	27	12	4	1		1		1

Source: Brickz (n.d.) and KRI calculations

Table 4.4: Median built-up size (sq. ft) of non-landed sub-sale GKL transactions, by price range and distance to KLCC, 2015 – 2019

	< RM100k	RM100k – 200k	RM200k – 300k	RM300k – 400k	RM400k – 500k	RM500k – 600k	RM600k – 700k	RM700k – 800k	RM800k – 900k	RM900k – 1m	≥ 1m
< 3km	592	614	799	871	980	1,001	1,078	1,109	1,167	1,302	1,679
3 – 6km	624	650	818	926	1,040	1,141	1,206	1,302	1,389	1,523	2,013
6 – 9km	650	657	829	927	1,012	1,145	1,235	1,389	1,410	1,513	1,930
9 – 12km	657	700	848	893	1,012	1,181	1,292	1,442	1,537	1,505	1,776
12 – 15km	650	740	850	949	1,061	1,132	1,394	1,518	1,642		3,035
15 – 18km	661	743	813	920	1,127	1,340	1,337	1,362	1,356		2,266
18 – 21km	678	753	863	1,023	1,851	947	1,091		1,158		
21 – 24km	667	721	753	904	1,264						
24 – 27km	850	896	1,358								
27 – 30km											
30 – 33km	657	764	2,034	2,196							
30 – 39km	667	958	995								
33 – 36km	632	818	1,012	1,018							
≥ 39km	710	829	910	1,006	1,044						

Source: Brickz (n.d.) and KRI calculations

What remains unknown

While there exist standards for the provision of good, adequate and/or quality housing that regulates the construction of new homes, there is information asymmetry in terms of how a home-dweller values such a standard. While our HPM analysis answers part of this question, we were unable to generate estimates of the WTP for households of different typologies and at different phases of their lifecycle.

Policy Recommendation 1

We recommend following previous research[150] the need to develop a 'Good Quality Housing Standard' (GQHS) based on a National Housing Survey[151]. The GQHS can become input to NHS to identify qualitative gaps in existing standards that represents what households and individuals desire to have based on their household typologies and lifecycle.

Problem 2

Certain typologies of LCH, whose genesis goes as far back as the First Malaysia Plan (1964 – 1970)[152], presently offers sub-par living conditions.

Historical Context

Beginning from 1964, LCH in Malaysia was primarily built as multi-story flats to economise the use of land in major cities[153].

[150] These policies were recommended back in 2019 in the KRI's Rethinking Housing report. Suraya Ismail et al. (2019)
[151] Or a meta-analysis of satisfaction studies conducted in Malaysia in the context of cities.
[152] Prime Minister's Office of Malaysia (1966)
[153] Ibid

LCH in Malaysia is defined based on the property's selling price. Before June 1998, properties sold for RM25,000 and below are classified as low-cost, and catered for families with a monthly household income of less than RM750. The classification was amended in June 1998 due to rising land, infrastructure, and development costs[154]. Hence, beginning in June 1998 till present, properties sold for RM42,000 and below are classified as low-cost, and caters for families with a monthly household income of less than RM1,500.

Table 4.5: LCH price structure and target groups

	Category	Property Price/Unit	Monthly Income Target Group
Before June 1998	**Low-Cost**	RM25,000 and below	RM750 and below
	Medium Low-Cost	RM25,001 – RM80,000	RM751 – RM1,500
	Medium Cost	RM60,001 – RM100,000	RM1,501 – RM2,500
	High-Cost	Above RM100,000	Above RM2,500
From June 1998 – 29 August 2000	**Low-Cost**	RM42,000 & below*	RM1,500 and below
	Medium Low-Cost	RM42,001 – RM60,000	RM1,501 – RM2,500
	Medium Cost	RM60,001 – RM150,000	RM2,501 – RM3,000
	High-Cost	Above RM150,000	Above RM3,000
From 30 August 2000	**Low-Cost**	RM42,000 & below*	RM1,500 and below
	Medium Low-Cost	RM48,000 – RM70,000	RM1,501 – RM2,600
	Medium Cost	RM70,001 – RM150,000	RM2,501 – RM3,000
	High-Cost	Above RM150,000	Above RM3,000

Note: Depending on land worth and location
Source: JPN KPKT (2018a)

The provision of LCH has always been a priority for the Malaysian government, as part of Malaysia's social development plans. Malaysia's approach to the provision of LCH is recorded in its 5-year Malaysia Plans (Rancangan Malaysia). In fact, housing is a core issue that surfaces in all plans from the *First Malaysia Plan (1964 – 1970)* to the *Twelfth Malaysia Plan (2021 – 2025)*.

However, beginning in the *Eleventh Malaysia Plan (2016 – 2020)* and *Twelfth Malaysia Plan (2021 – 2025)*, the government focused on housing needs for targeted groups in urban and rural areas as well as to make financing more accessible. This was mainly driven via various programs such as the Program Bantuan Rumah (PBR) for the poor, and programs for low- and middle-income households such as the RMR1M, PPR, PRIMA, and PPA1M, as well as programs for second-generation FELDA and FELCRA settlers. There were many financing schemes aimed at making financing more accessible to different target groups such as the My First Home Scheme, Youth Housing Scheme, RTO and MyHome for low- and middle-income households as well as prospective young individuals.

[154] Sulaiman, Baldry, and Ruddock (2005)

What is known from the data:

In the past, the provision of LCH (among various other policies) was put in place to curb the formation of squatters, whilst accommodate the influx of Malaysians 'migrating' from the more rural states into GKL. Local councils imposed a 30%[155] quota for the construction of private-LCH on developers. Table 4.6 and Table 4.7 below describe the characteristics of LCHs in the sub-sale residential market.

Table 4.6: Characteristics of privately managed LCH, sub-sale transactions, 2015 – 2019

				Percentile		
		mean	s.e.	25%	50%	75%
Dependent Variable	Price (RM)	135,420	85,336	80,650	120,000	168,000
Structural Attributes	Lot Size (sq. ft)	693	143	635	657	740
	Rooms	2.8	0.4	3	3	3
Neighbourhood Attributes	Distance to hospital (km)	3.256	2.949	1.123	2.264	4.386
	Distance to university (km)	5.400	5.202	1.963	3.503	7.112
Locational Attributes	Distance to KL City Centre (km)	11.528	7.267	5.827	9.860	15.614
	Distance to train station (km)	2.757	2.584	0.895	1.940	3.829

Source: Brickz (n.d.) and KRI calculations

Table 4.7: Characteristics of government managed LCH, sub-sale transactions, 2015 – 2019

			Percentile			
		mean	s.e.	25%	50%	75%
Dependent Variable	Price (RM)	143,352	55,886	100,000	140,000	185,000
Structural Attributes	Lot Size (sq. ft)	650	91	592	651	750
	Rooms	2.5	0.6	2	3	3
Neighbourhood Attributes	Distance to hospital (km)	1.495	0.921	0.767	1.250	2.227
	Distance to university (km)	2.198	1.582	1.695	2.108	2.247
Locational Attributes	Distance to KL City Centre (km)	12.246	4.813	8.780	14.478	15.504
	Distance to train station (km)	2.065	1.153	1.541	2.144	2.412

Source: Brickz (n.d.) and KRI calculations

We constructed a regression model based on Hedonic Pricing to quantify the willingness to pay to locate further away from social housing. We refer to this effect as "Not in my Backyard" (NIMBY).

In our regression model, we found the presence of a NIMBY effect for privately managed low-cost homes, but not for government-managed homes. There were also different statistical regularities in relation to NIMBY that were conditioned by housing typology – landed vs. non-landed properties.

[155] Percentages vary from locality to locality, depending on housing needs.

Policy Recommendation 2

We recommend restructuring the LCH/Affordable Housing quota that is imposed on new developments. This recommendation is premised on the need for a clearer demarcation of social housing and private markets[156]. These quotas differ from state to state by threshold, housing size and target prices.

Table 4.8: Status quo of social and market sector housing provisions

Government	Private sector
Government builds and manages social housing (PPR, Perumahan Awam, etc.)	Required to build a certain percentage of LCH/Affordable Homes as part of 'affordable housing' agenda.

Source: KRI illustration

A NIMBY analysis based on the hedonic price model reveals that LCHs built by the private sector may turn into urban slums, owing to the lack of consistent maintenance and rectification works within the building complex. However, buildings occupied with the economically vulnerable or residents who are urban poor would normally face these challenges.

Unlike residents who live under social housing (e.g., PPR), the management responsibility of those who reside in LCH is their own. It must be borne in mind that shelter for the poor (even if built by the private sector) should have a similar management strategy to social housing. Inevitably funds must be set aside for the upkeep of the buildings in good workable order. On the other hand, if the costs of alleviating buildings from becoming slums proves to be highly exorbitant, the redevelopment of LCH complexes is a feasible policy option. Building redevelopment is often executed when the rectification and social costs of dilapidated buildings far outweighs the benefits of maintenance.

Currently there is a 'perception' that LCH is the 'affordable housing' quota. This is not the case for LCH. LCH is housing for the poor, and not for making housing generally affordable. The affordability problem for the poor is first and foremost an issue of poverty- and not of housing. In order to address this problem, solutions must therefore involve policies for the alleviation of poverty. On the other hand, the negative externalities of housing deprivation dictate homelessness and the inability to lead a life of value. Therefore, state support in the form of direct housing subsidies, general income support and other social programmes are normally required.

To spur a more vibrant market, private developers building homes within the affordable price range of the local population (i.e 3x the median income), should be exempted from the quota of LCH. The status quo could be replaced with private developers contributing the corresponding gross development value (GDV) of the 30%[157] LCH requirement to the state/federal government for a more centralised and targeted management of social housing.

[156] Suraya Ismail et al. (2019)
[157] Or the equivalent threshold imposed by the state or local council.

There are some states (Melaka, Selangor and Perak) that have provided some guidance on the house price ranges for the private sector to build, but this initiative falls under price regulations for making housing generally affordable and not serving the LCH sector or the social sector.

Chapter 3 Policy Conclusion

The NIMBY effect will be felt at the neighbourhood level if LCHs; both privately developed or managed by the government, are not adequately maintained. Even if a neighbourhood is perceived to be more diverse, the presence of slum-like conditions in LCHs will create the loss of value for the entire neighbourhood. This phenomenon will limit the feasibility of locating social housing estates in more diverse and vibrant neighbourhoods. On the other hand, good-quality and well-maintained social housing will not produce loss of value even if placed in thriving neighbourhoods. This will in turn create better and more inclusive agglomeration economies for the poor, the 'not-so-poor', and the rich.

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