



MAKING HOUSING AFFORDABLE



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"You cannot write with the view to impact or to response. That way you distort the latter and corrode the integrity of the writing itself.

You cannot anticipate the context of the motives of readers in unconstrained futures. So all you can do is write what you should, whatever that means.

A very different sort of obligation."

Tony Judt (as cited in Homans, 2015)

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ABBREVIATIONS

8990	8990 Holdings, Inc	GDP	gross domestic product
ACe	estimated actual cost	HKD	Hong Kong Dollar
ACo	outturn actual cost	HPI	House Price Index
APRA	Australian Prudential Regulation Authority	IBS	Industrialised Building System
B40	Bottom 40% households income group	ICS	interest capitalisation schemes
BIM	Building Information Modelling	ICT	Information and Communication
BNM	Bank Negara Malaysia	ЪŒ	Technology
bps	basis point	IMF	Fund
C21	Construction 21 Report	JCT	Joint Contracts Tribunal
CAGR	compound annual growth rate	JPBD	Federal Town and Country Planning Department
CIDB	Construction Industry Development Board	JPN	National Housing Department
CIMP	Construction Industry Master Plan	k	thousand
CoE	Centre of Excellence	KRI	Khazanah Research Institute
DoS	Department of Statistics	LHS	left-hand side
EPF	Employees Provident Fund	LTV	loan-to-value
EPU	Economic Planning Unit	m	million
FELCRA	Federal Land Consolidation and Rehabilitation Authority	M&E	Mechanical and Engineering
		MoF	Ministry of Finance
FELDA	Federal Land Development Authority	MRA	Mutual Recognition
FTA	Free Trade Agreement		ngrunnu

ABBREVIATIONS

MyHOME	Skim Perumahan Mampu Milik Swasta (Private	RHS	right-hand side	
	Affordable Ownership Housing Scheme)	RIBA	Royal Institute of British Architects	
NAPIC	National Property	RM	Malaysian Ringgit	
PAM	Persatuan Arkitek	RMR1M	Rumah Mesra Rakyat 1 Malaysia	
	Malaysia (Malaysian Institute of Architects)	RPGT	Real Property Gains Tax	
PBR	Program Bantuan Rumah	RTC	Rural Transformation Centre	
PHP	Philippine Peso	RUMAWIP	Rumah Wilayah	
pp.	percentage point		Persekutuan	
PPA1M	Perumahan Penjawat	SEF	Services Export Fund	
	(1Malaysia Civil Servants Housing)	SME	Small and medium enterprises	
PPP	Program Penyelenggaraan Perumahan	SOHO	Small Office Home Office	
PPR	Program Perumahan	SPNB	Syarikat Perumahan Negara Berhad	
	Какуат	SSD	special stamp duty	
PR	permanent resident	TP	target price	
PR1MA	Perumahan Rakyat 1 Malaysia	TP1M	Tabung Perumahan	
PWD	Persons with disabilities	I IIZ		
R&D	research and development			
REHDA	Real Estate and Housing Developers' Association Malaysia	UTC	Urban Transformation Centre	

EXECUTIVE SUMMARY

This report examines the issue of housing affordability in Malaysia, viewing it within the context of housing as an economic sector rather than simply as a social welfare concern. Housing interventions have focused primarily on demand, and in doing so, subsidizes a non-responsive supply sector. We examine housing affordability with the view of ensuring that supply is able to meet effective demand, thus improving the affordability of housing in general.

The provision of affordable homes remains a major problem facing policymakers around the world, with Malaysia being no exception. Malaysian policy initiatives which focus on ensuring affordable housing have typically involved the transfer of physical or financial resources to low-income households who cannot house themselves adequately. The scarcity of such resources then forces government housing agencies to focus on a small and limited housing agenda and stymies efforts to understand or manage the housing sector as a whole.

Gaps are beginning to appear in the system, exemplified by the growing concern of middle-income households who are neither eligible for social housing nor are able to afford private sector-supplied houses. The challenge is particularly prevalent in urban areas: while Malaysian home ownership as a whole stood at 72.5% in 2010 (the year of the latest Population and Housing Census), urban home ownership was 69.1%. In Kuala Lumpur, it was 53.5%.

Demographic factors will make the problem more acute: our population is growing at around 2% per year and will reach 38.6 million by 2040; urbanisation is increasing; and households are getting smaller – in 1970 there were 182 households for every 1,000 people, by 2020 there will be 250 households for every 1,000.

Housing affordability is a function of both house prices and income. At the national level, median house prices were 4.4 times median annual household income in 2014. According to global standards, this signifies a 'seriously unaffordable' housing market. An 'affordable' market should have a 'median multiple' (median house prices as a multiple of median annual household income) of 3.0x.

However, house prices are also heavily dependent on location, and so some states in Malaysia have more affordable housing markets than others. Melaka for instance is 'affordable', with a median multiple of 3.0x whereas Kuala Lumpur (5.4x) and Pulau Pinang (5.2x) are both 'severely unaffordable'.

The 3.0x median multiple signals that the market provides a distribution of housing and house prices that are subject to minimal distortions – housing supply is responsive and able to meet effective demand. Unaffordable housing markets are ones in which supply either falls far below demand, or is too inelastic to changes in demand. It is a measure of how affordable the housing market as a whole is performing. It is not a measure of what any particular household can afford as that would depend on that particular household's circumstances.

Interventions in the housing market have largely been on the demand side, by making housing financing cheaper or providing subsidies for home-buyers. The supply side interventions have been by direct provision of low-cost houses or subsidising housing costs. These measures are unsustainable as they can drive price increases, result in more household debt, and also incur opportunity costs on government finances that potentially could be used more productively.

Housing supply is driven by land costs and use, planning policy, and construction costs. High housing prices are often blamed on land costs, but the causality actually runs in the opposite direction; rising house prices result in rising land prices as the price a developer is willing to pay for new land rises as the market price for housing increases. As for construction costs, in Malaysia these have been falling with no attendant drop in house prices.

The answer to making housing more affordable then, lies in improving the elasticity of housing supply or, in other words, in making the supply of housing more responsive to the needs of all sections of population. In this report, we examined the national business and procurement systems for housing through five case studies of Malaysian property developers. The findings were then compared to a case study in the Philippines housing sector – 8990 Holdings, Inc. – which is a mass housing market developer that has managed to supply affordable homes by marrying cost and time-saving building technology with highly integrated procurement and business systems.

The national procurement route for housing – traditional general contracting (TGC) – is fragmented, and this contributes towards a similarly fragmented national business system for the sector. Supply is relatively inelastic as productivity has been hampered and there are few incentives for investments in R&D. We have been unable to

properly implement integrated building systems (IBS) technology for instance because we lack a highly-integrated construction business system that allows designers and contractors to collaborate and implement the technology on site.

We therefore recommend institutionalising reforms and restructuring for the national procurement system in order to improve delivery of housing supply in terms of time, costs and quality of construction projects. These interlinked reforms and measures include:

- 1. Developing a designated procurement route for affordable housing intended to consolidate firms along the value chain. Primarily, this involves moving away from TGC towards a design-and-build or turnkey governance structure and forming framework agreements with materials suppliers.
- 2. Developing measures to reduce pressures leading to rapid house-price escalation. In order to buffer housing units supplied through the designated procurement method, a five-year moratorium should be applied to such units. The five-year period for the moratorium is deemed optimal for new housing supply to come into the market.
- 3. Developing measures to plan for a steady supply of housing at affordable prices. The creation of an integrated database for housing – as recommended in the 11th Malaysia Plan – would provide information needed for efficient planning of housing supply according to effective demand and socio-economic requirements.

Available evidence suggests that the provision of social housing for the majority of the population will exert unnecessary financial pressures on government spending. While the problem in Malaysia may not be as acute at the present moment, as Malaysia becomes more urbanized, the demand for affordable housing will only increase. Trends in Malaysia indicate that both the bottom 40% and middle 40% of income earners are likely to require social housing if the relevant interventions are not made urgently. We have to reform the supply-side for housing and strengthen market efficiency in the sector.

INTRODUCTION

The provision of adequate housing is critical for the growth and well-being of society. The issue of housing is a multifaceted one, for it encompasses not only shelter, but also security, privacy, investment, and personal identity.

For households, housing serves as both a major motivation for savings and a significant influence on consumption. In addition, the locational aspect of housing directly influences labour mobility and therefore human capital, economic growth, and productivity.

In the wider economy, housing is an integral part of the construction industry, with residential construction comprising 27% of total construction output as at 2014¹. Although construction in turn comprised only 4.3% of total GDP in the same year, the sector returns an output multiplier of 1.9 times for the economy. This means that every additional RM1

of output in the construction sector leads to an RM1.90 increase in total output for the economy, with residential construction alone having a multiplier of 2.0 times². The housing sector is thus a key economic sector, and must be perceived and managed as an integral part of overall economic management.

Unfortunately, this perception of housing as a key economic driver has yet to take root. Housing is too often seen by governments as a welfare issue, requiring the transfer of physical or financial resources to low-income households who are unable to house themselves adequately. Such resources, however, are rarely adequate. As a result, government housing agencies limit their activities to direct housing provision for a small minority of potential beneficiaries, ignoring the interests of most of the population. By focusing on a small and limited housing agenda, these agencies fail to either understand or manage the housing sector as a whole.

¹ DoS (2015a), KRI calculations

² DoS (2014a), KRI calculations

This can be seen from the growing concern among middle-income households regarding their capacity to purchase homes. This group is often ineligible for public low-cost housing programmes, but are unable to afford housing supplied by private real housing developers.

Therefore, it is important to move towards a broader agenda of guiding and managing the housing sector as a whole. The sector must also be viewed as one that is important and productive, where policies have serious repercussions for overall economic performance and not, as is commonly viewed (especially for low-cost housing) as a sector which is a drain on productive resources. Our case study in the Philippines (8990 Holdings, Inc.) demonstrates the point that building houses for low-income households can be profitable.

This report considers the problem of supplying affordable houses to the general public from the perspectives of both institutions (the national business system) and firms (industry value chain analysis and the economics of governance). This is based on the premise that improvements are needed at the level of construction projects and firms in order to increase the affordability of houses at the national level.

Until now, policies have focused on controlling house prices once the consumer receives the house at the end of the production process. This report adopts a different approach as evidence shows that it is far more efficient to enhance capacity on the supply side in order to develop a sustainable and responsive housing sector that caters for all sections of the population.

This is the first in a series of reports undertaken to examine the various dimensions of the housing industry. Future studies will focus on matters relating to land and it's attendant regulations, the financing of housing and how housing must be understood as a critical component of city-making.

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THE STATE OF HOUSING

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SECTION 1 THE STATE OF HOUSING

"Consumers seek adequate housing that does not take up an undue portion of household income. They seek good location and amenities, secure tenure, access to housing finance and a degree of mobility and choice. This is the purpose of housing in society."³

The United Nations Declaration of Human Rights explicitly includes housing as an inalienable human right:

"Everyone has the standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services ..."⁴

Accordingly, the challenge of providing affordable homes for all households has captured the focus of policymakers from around the world, with Malaysia being no exception. Ranging from initiatives such as 'Projek Perumahan Rakyat' (PPR) (People's Housing Projects) to the Malaysia My First Home Scheme, Malaysian housing policy has focused on either the direct provision of low-cost housing, or subsidising the cost of housing for home-buyers, particularly those buying homes for the first time.

The effectiveness of these policies however, needs to be based on the specific conditions of the Malaysian housing market, primarily housing affordability and the factors driving it.

This section provides an overview of the Malaysian housing market. Thereafter, it introduces standards for housing affordability and assesses the Malaysian housing market according to these measures.

³ Mayo (1991)

⁴ United Nations (1948), Universal Declaration of Human Rights, Article 25

CHAPTER 1 THE MALAYSIAN HOUSING MARKET

Overview of the Malaysian Property Market

Home ownership and informality

According to the latest available official figures, Malaysia has a home ownership rate of 72.5%⁵. This is a relatively high number considering that home ownership rates in developed countries – apart from Singapore – were below 70% in the same year (Table 1).

Table 1: Home ownership rates for selected countries, 2010

	Percentage of home ownership
Malaysia	72.5
Australia	68.1
Singapore	87.2
UK	67.4
US	66.5

Source: Each countries' Statistical Office (2011)

However, Malaysia's home ownership rates, which are published by the Malaysian Department of Statistics (DoS), also include ownership of informal houses. For instance, houses built by families at buffer zones of rivers are illegal, but are still considered as owned homes in the Population and Housing Census.

Formal housing stock is defined as housing which has been built with development orders from local authorities being issued. Conversely, informal housing stock are houses built without development orders and/or houses built by the community, and may include 'kampung' houses⁶.

There is a significant amount of housing stock that falls within the housing unit count in the 2010 Population and Housing Census that is not included in the estimates for housing stock published by the National Property and Information Centre (NAPIC), which only takes into account formal housing. In 2010, the former exceeded the latter by 2.9 million (Table 2).

Typically, informal houses are located in rural areas. While 72.5% of households owned the homes they live in as at 2010, the figure is much lower in urban areas (Table 3).

⁵ Figure from the 2010 Population and Housing Census (Malaysia Department of Statistics, 2011). Home ownership here is defined as households who own the home they currently occupy. 2010 is the latest Census year.

⁶ There are instances when houses that have been built without development orders are sold and bought, and the transaction is captured by the local authorities. In such cases, these houses will enter into NAPIC's calculations for housing stock.

Table 2: Comparison between DoS's housing units and NAPIC's existing housing stock, 2010

Department	t of Statistic	s	National Property Information Centre		
		Type of living quarters	Units	Existing housing stock	Units
		Detached	2,416,210	Detached	399,817
		Semi-detached	528,408	Semi-detached	282,402
		Terrace/link	2,570,317	Terrace	1,767,519
		Townhouse	32,682	Townhouse	24,554
		Cluster	63,345	Cluster	26,299
		Flat	744,187	Flat & low cost flat	817,422
	Housing	Apartment and condominium	716,729	Apartment and	
	units	Room	16,142	condominium (including	
		Shophouse/office	132,262	Service Apartment and	
		Longhouse (Sabah &		SOHO)	495,007
		Sarawak)	84,133	Low cost house	574,963
Built or		Others	18,398	Total	4,387,983
		Improvised/temporary hut	12,358		
for living		Total	7,335,171	Source: NAPIC (2014d), DoS (2012), KRI
	Collective	Higher learning institution	3,650	calculations	
		Temporary quarters for			
		workers	3,029		
		Others	2,179		
		Charitable/social welfare			
		institution	778		
	quarters	Hotel, lodging house, rest			
	quartero	house	627		
		Medical institution	585		
		Prison, detention centre	168		
		Religious home	81		
		Total	11,097		
Not intende	ed for living	In a permanent building	96		
but used a	as such on	Others	546		
Censu	is Day	Total	642		
GRAND TO	TAL		7,346,910		

Table 3: Percentage of home ownership in Malaysia, 2010

Percentage of home ownership				Percentage of home ownership				
	Total	Urban	Rural		Total	Urban	Rural	
Malaysia	72.5%	69.1%	81.2%	P. Pinang	77.5%	76.8%	83.5%	
Johor	72.2%	69.6%	78.5%	Sabah	68.1%	65.3%	71.7%	
Kedah	81.8%	77.2%	89.9%	Sarawak	79.4%	75.9%	83.2%	
Kelantan	80.5%	72.3%	86.4%	Selangor	67.9%	66.9%	78.2%	
Melaka	72.9%	72.0%	78.5%	Terengganu	78.5%	75.5%	82.8%	
N. Sembilan	71.7%	68.2%	77.8%	K. Lumpur	53.5%	53.5%		
Pahang	72.0%	65.8%	78.6%	Labuan	57.0%	54.4%	73.5%	
Perak	75.7%	73.4%	80.8%	Putrajaya	9.9%	9.9%		
Perlis	78.1%	72.8%	83.5%					

Source: DoS (2013)

As the formal sector grows in each state along with urbanisation, it is important to ensure that the percentage of households owning a home does not decrease.

The residential market dominates property transactions

The residential sector has always dominated the Malaysian property market (see Figure 1, Figure 2, and Figure 3). In 2013 and 2014, the number of residential transactions represented about 64% of the total transactions. These transactions represented approximately RM67.8 billion, RM72.1 billion, and RM82.1 billion worth of transactions in 2012, 2013, and 2014 respectively.

The average value of residential properties also rose from RM248,514 in 2012 to RM292,661 in 2013, and increased to RM331,888 in 2014.

Figure 3 demonstrates that the growth rate for values transacted has outstripped the growth rate of transacted units, which in turn indicates that the houses have been transacted at higher prices year-onyear, on average.

Figure 1: Number of property transactions by type of properties (units), 2002-2014



Source: NAPIC (various years), KRI calculations



Figure 2: Value of property transactions by type of properties (RM billion), 2002-2014

Source: NAPIC (various years), KRI calculations

Figure 3: Number and value of residential transactions, 2002-2014



Source: NAPIC (various years), KRI calculations

House prices have accelerated

Figure 4: Malaysia's house price index, 2000-2014



Source: NAPIC (2014b), KRI calculations.

According to NAPIC's house price index (HPI)⁷, the Malaysian all-house price has grown steadily since 2000, and accelerated between 2009 and 2014 (Figure 4). While the all-house price grew at a CAGR of 5.6% between 2000 and 2014, between 2009 and 2014, it grew at a CAGR of 10.1% (2000-2009: 3.1%).

Given the heterogeneity of housing markets and with location being a key driver of housing prices, it is best analysed according to different submarkets, segmented into different types and localities. For instance, a terrace house in Sabah was three times more expensive in 2014 compared to 2000, while in Selangor, it has grown twice as expensive (Figure 5).

⁷ The HPI is a weighted index, with weights reflecting quality, age and floor size, and is estimated by hedonic regression. For more details, please refer to Technical Notes to the 2015 HPI (NAPIC).

		2014 house price as a multiple of 2000 house price									
Area	All House	Terrace	Semi-Detached	Detached	High-Rise						
MALAYSIA	2.14 x	2.09 x	2.14 x	2.27 x	2.31 x						
Sabah	2.99 x	3.08 x	3.05 x	2.83 x	2.62 x						
K. Lumpur	2.58 x	2.73 x	2.58 x	2.72 x	2.20 x						
Terengganu	2.58 x	2.63 x	2.64 x	2.43 x							
Pahang	2.53 x	2.44 x	2.63 x	3.04 x							
P. Pinang	2.44 x	2.69 x	1.65 x	1.77 x	2.62 x						
Perlis	2.44 x	2.45 x	2.43 x								
Kelantan	2.23 x	2.22 x	2.18 x	2.30 x							
Perak	2.23 x	2.19 x	2.22 x	2.53 x							
Sarawak	2.14 x	2.06 x	2.15 x	2.31 x							
Selangor	2.06 x	2.08 x	2.18 x	2.06 x	1.66 x						
Kedah	2.03 x	1.97 x	2.16 x	2.08 x							
N. Sembilan	1.97 x	1.98 x	2.14 x	1.88 x	1.08 x						
Melaka	1.80 x	1.91 x	1.65 x	1.08 x	1.24 x						
Johor	1.61 x	1.56 x	1.87 x	1.63 x	1.78 x						

Figure 5: Breakdown of house prices by state, 2014

	CAGR 2000-2014									
Area	All House	Terrace	Semi-Detached	Detached	High-Rise					
MALAYSIA	5.6%	5.4%	5.6%	6.0%	6.2%					
Sabah	8.1%	8.4%	8.3%	7.7%	7.1%					
K. Lumpur	7.0%	7.4%	7.0%	7.4%	5.8%					
Terengganu	7.0%	7.1%	7.2%	6.5%						
Pahang	6.9%	6.6%	7.2%	8.3%						
P. Pinang	6.6%	7.3%	3.7%	4.2%	7.1%					
Perlis	6.6%	6.6%	6.5%							
Kelantan	5.9%	5.8%	5.7%	6.1%						
Perak	5.9%	5.8%	5.9%	6.8%						
Sarawak	5.6%	5.3%	5.6%	6.2%						
Selangor	5.3%	5.4%	5.7%	5.3%	3.7%					
Kedah	5.2%	4.9%	5.6%	5.4%						
N. Sembilan	4.9%	5.0%	5.6%	4.6%	0.5%					
Melaka	4.3%	4.7%	3.6%	0.6%	1.6%					
Johor	3.4%	3.2%	4.6%	3.6%	4.2%					

Source: NAPIC (2014b), KRI calculations

Min Max

CHAPTER 2 HOW AFFORDABLE IS THE MALAYSIAN HOUSING MARKET?

Household Incomes have Grown in Tandem with House Prices

With regards to affordability, over the past 13 years, household incomes have generally moved in tandem with house prices (Figure 6).

Figure 6: Growth in household incomes and house prices, 1997-2014

(a) annual average



Year	1997	1999	2002	2004	2007	2009	2012	2014
Mean Income	13.6%	-2.6%	6.8%	3.9%	4.3%	4.5%	7.5%	10.8%
Median Income	11.9%	-0.6%	6.3%	3.9%	4.9%	5.5%	8.5%	12.4%
House Price	7.2%	-5.9%	3.2%	4.4%	3.2%	3.1%	9.4%	11.2%

(b) CAGR terms



Year	1997	1999	2002	2004	2007	2009	2012	2014
Mean Income	12.7%	-2.6%	6.6%	3.8%	4.2%	4.4%	7.2%	10.3%
Median Income	11.2%	-0.6%	6.1%	3.8%	4.8%	5.4%	8.1%	11.7%
House Price	7.0%	-6.1%	3.1%	4.3%	3.1%	3.1%	9.0%	10.6%

Source: DoS (2015b), NAPIC (2014b), KRI calculations

Given these conditions, the question remains as to whether or not Malaysian households find housing unaffordable. Further answers lie within the distribution of household incomes and distribution of houses offered in the market, otherwise known as the 'median multiple' and 'down-market penetration' respectively (see Box 1).

Box 1: Indicators for housing affordability

In this report, we use two measures to assess housing affordability in Malaysia, based on available data:

- 1. Median multiple: Also known as the house-price-to-income ratio, this is defined as the ratio of median prices for the housing market to the median gross annual household income.
- 2. Down-market penetration: the ratio of the lowest-priced, unsubsidized, formal housing unit produced by the private sector in significant quantities (no less than 2% of annual housing production) to median annual household income.

The 'Median Multiple'

The price-to-income ratio, more commonly known as the 'median-multiple' was developed in 1988 by the United Nations Centre for Human Settlement (UNCHS) and the World Bank under the Housing Indicators Program. It was later used in the UN-HABITAT Housing Indicators Programme, which focused on monitoring the provision and quality of dwellings.

The median multiple is based on the assumption that as housing prices become higher relative to incomes, a smaller proportion of households can afford to buy houses, other factors holding constant. More importantly, deviations of this indicator from global norms can signal serious distortions in the housing market. When its value is excessively high, these distortions may indicate that the housing sector is restricted in its ability to supply sufficient housing to meet effective demand. In these instances, it has been found that housing quality and space are depressed below levels typically found in countries with well-functioning and responsive markets. Conversely, abnormally low values signals insecurity of tenure, and can lead to a reduced willingness of the population to invest in housing, and thereafter a lower than necessary quality of housing⁸.

⁸ Angel, Mayo and Stephens (1993), Angel (2000)

Subsequent empirical research by the UNCHS and the World Bank utilising international data and adapted in the Annual Demographia International Housing Surveys⁹ found that the 'global norm' for affordability was three times, meaning that if the median price for the whole of a housing market was three times the median gross annual household income, this signals a well-functioning housing market¹⁰ (Table 4).

Table 4: Demographia housing affordability categories

Rating	Median Multiple
Severely unaffordable	5.1 and over
Seriously unaffordable	4.1 - 5.0
Moderately unaffordable	3.1 - 4.0
Affordable	3.0 and under

However, the global norm for housing affordability as measured by the median multiple does not mean that all households in all markets are limited to spending only three times their current annual household income on housing, particularly as incomes change according to life cycles. It is not at all a measure of personal housing affordability, and by no means implies that all households are restricted to spending only three times their gross household income on housing.

Rather, the three times median multiple signals that the market provides a distribution of housing and house prices that are subject to minimal distortions if any, and where supply is able to meet effective demand.

Down-market penetration

The assessment of median multiples highlights the interlinkages between house prices, household incomes and housing supply. The down-market penetration ratio on the other hand, is an indicator of housing affordability from the perspective of supply. The ratio focuses on the affordability of the lowest-priced new house provided by the private sector, without subsidies.

This indicator is rooted in the 'filtering' model of housing consumption, in which low-income households are generally restricted to informal housing or 'filtered-

⁹ These surveys are conducted by Demographia, a real estate consultancy firm in collaboration with research centres such as New York University's Urban Expansion Program and provides one of the largest collection of housing affordability data by international market.

¹⁰ Angel, Mayo and Stephens (1993), Angel (2000), Demographia (2015)

down' older formal-sector housing. The ratio captures the fact that in some housing markets, the private sector generally supplies housing for high-income groups, but not to low-income consumers while in others the converse is the case. In general, the down-market penetration ratio is compared with the median multiple to indicate the extent to which the market supplies to below-median income households.

While no global standards exist for acceptable ranges of down-market penetration, the global median value in 1990 as stated by the UNCHS Global Survey of Housing Indicators was 3.4¹¹.

In general, taken together, a median-multiple within the 'affordable' range along with a down-market penetration ratio at or below the global median indicates a well-functioning housing market.

What would the median multiple indicator look like for Malaysia?

In order to test whether a median multiple of three times would signal housing affordability for the Malaysian market, we performed a simulation as illustrated by Figure 7 and Figure 8. The simulations were made based on a median household income of RM4,585 and the following assumptions:

- 1. The range for house prices is in accordance with NAPIC's house price distribution.
- 2. Total number of units transacted is 2,000.
- 3. All the house price brackets (based on price range) are filled by housing units.

- 4. The mode house price (price with highest number of units) lies on the same bar as the median value.
- 5. The lower quartile (Q1) and the upper quartile (Q3) are assumed to be in the middle of the price range.
- 6. The cumulative frequency for the price range where the median is located gives the exact value of 1,000 units.

The household income data are sourced from the 2014 Household Income Survey¹² while the house price data are sourced from NAPIC.

¹¹ Angel (2000)

¹² DoS (2015b)



Figure 7: Percentage distribution of households for each income category in Malaysia (%), 2014

Source: DoS (2015b), KRI calculations

Figure 8: Distribution of house prices, when the median multiple is three times (units)



Source: DoS (2015b), NAPIC (2015), KRI calculations

According to the simulation, when the median multiple is three times, the mode for the distribution of house prices falls below the median (Figure 8), which mimics the distribution of household incomes (Figure 7).

Comparatively, simulations of median multiples of four, five and eight times result in a distribution that is either bordering on (four times) or skewed to the right (five and eight times), signalling that in general the distribution of house prices exceed affordability as indicated by the distribution of household income.

On the other hand, when a median multiple of two times is simulated, the distribution of house prices is skewed too far to the left, potentially indicating a depressed housing market (Figure 9).

The results of the simulation exercise indicate that housing affordability in Malaysia does indeed follow global norms, ie a median multiple of three times signals an affordable housing market.

Figure 9: Simulations for median multiples of two, three, four, five and eight times (units)



Source: DoS (2015b), NAPIC (2015), KRI calculations

The Malaysian median multiple: signal of an unaffordable market?

The three times median multiple was also cited by the Housing Buyers' Association¹³ as well as in the 11th Malaysia Plan¹⁴ as an appropriate threshold for the affordability of the nation's housing market.

Figure 10 illustrates the median price for the Malaysian housing market as measured by NAPIC's all-house price calculations relative to median gross annual household income.

Figure 10: Housing affordability relative to median household income (RM), 2002-2014

242,000 Annual median income 175,000 Median 149,000 55,020 house price 35,000 43,512 34,092 15,001 30,624 26,532 24,588 000,000 2007 2002 2004 2009 2012 2014 b. Median multiple affordability Median 4.41 4.40 4.37 4.33 multiple affordability 4.07 4.02

2009

2012

2014

a. Income and house price

2002 Source: DoS (2015b), NAPIC (2015), KRI calculations

2004

2007

¹³ Chang (2013)

In general the median price for the Malaysian housing market exceeds the three times median annual household income threshold for affordability. In 2014, it stood at 4.4 times, and has consistently exceeded 4.0 times from 2002 to 2014. Affordability however, is dynamic, and depends on both the distribution of household incomes and housing units supplied and transacted in the market for each year.

The median-multiple figures presented here are different from those presented in our State of Households Report¹⁵. This is because while the former utilised official median house price data newly obtained from NAPIC, the latter used medianmultiples sourced from Cagamas¹⁶.

Housing markets in six states are analysed

More importantly, as mentioned, although DoS' household income statistics measure both informal and formal income, there is a significant amount of housing units that are not accounted for in NAPIC's calculations for housing stock. This means that the median all-house price calculated by NAPIC does not comprise the entire number of housing units.

To adjust for this potential shortfall, we have assumed that house prices in states where 60% or more of housing stock is accounted for by NAPIC are representative of the overall housing market (Table 5).

Given this cut-off, our analysis of median-multiple affordability of each state's housing market focused on Kuala Lumpur, Pulau Pinang, Johor, Selangor, Negeri Sembilan, and Melaka, with the other states being deemed as having insufficient house price data for the assessment.

¹⁵ pp. 22, KRI (2014)

¹⁶ Housing the Nation: Policies, Issues and Prospects. Cagamas (2013)

Table 5: Comparison of housing affordability based on annual household median income and median all-house price across states in Malaysia, 2014

Area	Monthly median income	Annual median income	Market Median-3 Price	Median All-House Price	Median Multiple Affordability	Affordability	Acco liv quart NAPI	ounted ving ters by C, 2010
Terengganu	3,777	45,324	135,972	250,000	5.5		22%	
K. Lumpur	7,620	91,440	274,320	490,000	5.4	5.1 & Over	88%	
P. Pinang	4,702	56,424	169,272	295,000	5.2	unaffordable	74%	
Sabah	3,745	44,940	134,820	230,000	5.1		24%	
Pahang	3,389	40,668	122,004	200,000	4.9		58%	
Kelantan	2,716	32,592	97,776	157,740	4.8	4.1 to 5.0 Seriously unaffordable	16%	
MALAYSIA	4,585	55,020	165,060	242,000	4.4		60%	
Perak	3,451	41,412	124,236	180,000	4.3		57%	
Perlis	3,500	42,000	126,000	181,000	4.3		34%	
Johor	5,197	62,364	187,092	260,000	4.2		73%	
Selangor	6,214	74,568	223,704	300,000	4.0		81%	
N. Sembilan	4,128	49,536	148,608	188,888	3.8	3.1 to 4.0	74%	
Sarawak	3,778	45,336	136,008	164,667	3.6	Moderately unaffordable	32%	
Kedah	3,451	41,412	124,236	140,000	3.4		50%	
Melaka	5,029	60,348	181,044	180,000	3.0	3.0 & Under Affordable	64%	

Source: DoS (2015b), NAPIC (2015), KRI calculations

'Severely unaffordable' markets

Within the list of state housing markets being assessed, Kuala Lumpur and Pulau Pinang stand out as 'severely unaffordable' markets, with median multiples of 5.4 and 5.2 respectively.

One of the reasons behind this extent of unaffordability would be the unresponsiveness of housing supply to effective demand. Of the new properties launched in Kuala Lumpur in 2014 (Figure 11a), there were no properties launched below the RM250.000-RM1 m price bracket, with the bulk of newly launched properties situated in the RM500,000-RM1 m bracket.

Given that the three times median multiple price in Kuala Lumpur in 2014 would have been RM274,320, the absence of houses launched below RM250,000 would have skewed the distribution of house prices in the city to the right significantly.

The housing market in Pulau Pinang has a lower median multiple compared to Kuala Lumpur (Figure 11b) with some houses being supplied in the RM50,000-RM100,000 bracket. However, given that the state's median household income is much lower than Kuala Lumpur's, the lack of houses launched below the three times median multiple price combined with a high number of high-end launches contributes towards the severely unaffordable state of its housing market.

A 'seriously unaffordable' market

The case of Johor (Figure 12) illustrates an example of a housing market that is slightly more responsive than that of Kuala Lumpur's and Pulau Pinang's, albeit still relatively imbalanced, with the bulk of residential properties launched still exceeding the three times median multiple price.

'Moderately unaffordable' and 'affordable' markets

Finally, the examples of Selangor, Negeri Sembilan and Melaka (Figure 13a - c) further illustrate the important role played by the distribution of housing supplied in ensuring affordability. The new housing units launched in these markets are within a more dispersed range of price brackets with a significant number of new launches located at or below three times median multiple.








Figure 13: Number of residential properties launched, by transacted price and house type – `moderately unaffordable' and `affordable' markets

Type of house





(c) MELAKA



Down-market penetration in Malaysia

Another measure of affordability is down-market penetration. An overview of Malaysia's residential market reveals that in aggregate, new launches within the lowest-price range has dropped from 36.4% out of total launches in 2004 to only 19.7% in 2014 (Figure 14 and Figure 15).

Since publicly-available house price data for Malaysia is only in the form of price ranges, the data depicted in Figure 14 is used to estimate the range of downmarket penetration for the Malaysian housing market.

In 2014, the down-market penetration for the lowest-priced dwelling unit ranged from 0.9 to 1.8 times, quite significantly below the 3.4 global value previously estimated. Relatively low down-market penetration ratios also held in the six state housing markets analysed in the previous section, even for the 'severely unaffordable' markets of Kuala Lumpur and Pulau Pinang (Table 6).

Table 6: Range of down-market penetration ratios for selected states, 2014

Area	Down-market penetration range
Kuala Lumpur	2.7 - 3.2
Pulau Pinang	0.9 - 1.8
Johor	< 0.8
Selangor	0.7 - 1.3
Negeri Sembilan	< 1.0
Melaka	< 0.8

Source: KRI calculations

An important caveat when assessing down-market penetration ratios for Malaysia is that while the house price data supplied by NAPIC only includes prices for houses supplied by the private sector, NAPIC cannot certify whether these houses were built without the benefit of subsidies, including land-swap arrangements with the government. Hence, the down-market penetration ratio estimated from this data may be an underestimation of actual values.

Nonetheless, the available data signal that nationally and within these markets, privately supplied housing does reach some below-median households, although without more disaggregated and detailed data, it is unclear whether the allocation of such housing is adequate.

For the last five years, 60,000 houses have been launched on average.



Figure 14: Number of launched residential units by price range, 2004-2014¹⁷





Source: NAPIC (various years), KRI calculations

k = thousand

- m = million
- 1. The type of properties included are: Single storey terrace, 2-3 storey terrace, Single storey semi-detached, Detached, Town-house, Cluster, Low-cost flat, Low-cost house, Flat, and Condominium.
- 2. NAPIC uses different house price ranges from 2004 to 2007, 2008 to 2012 and 2013 to 2014, therefore the charts are divided according to the respective range.

¹⁷ NAPIC data for new launches according to price range is only available from 2004 onwards.

Housing Market Affordability in Malaysia

While it would seem from the assessment of median multiples and down-market penetration ratios that the problem of unaffordable housing markets is restricted to selected states in Malaysia, there are warning signs that housing affordability – particularly for lower income households – will worsen if left unchecked. These signs include the dramatic reduction in housing supplied at prices below the three times median multiple, especially in states with relatively high population densities. The effect of this shortfall on the distribution of house prices is exacerbated by a surge in the supply of houses at the higher end, exceeding RM500,000.

The following chapters will elaborate on factors which drive the demand, supply and price of housing in Malaysia, and subsequently the interventions that affect these parameters.

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SECTION 2 HOUSING DEMAND, SUPPLY, AND INTERVENTIONS

Housing affordability is a function of price and income. While the latter drives demand, the former depends on the interaction of both demand and supply. This section highlights the theoretical underpinnings of housing demand, supply, and prices, applying them to Malaysia.

Interventions to improve housing affordability have primarily focused on the demand side, either by the direct provision of low-cost houses, subsidising housing costs, or by making housing financing cheaper. These measures are unsustainable as they can contribute towards price increases and also incur opportunity costs on government finances that could potentially be used more productively. Conversely, when prices are deemed to escalate too rapidly, government measures are introduced to temper property speculation.

We argue that interventions aimed at strengthening affordability for housing should also focus on the supply-side, primarily by making supply more elastic, hence more responsive to demand.

CHAPTER 3 HOUSING DEMAND, SUPPLY, AND PRICES

Demand and Supply Factors

Many factors affect the demand for and supply of housing. For demand, these include:

- demographic factors, which include growth in population and the number of households, as well as demographic profiles – young families for example demand different types of housing than single person households
- the levels and distribution of income
- the availability and cost of financing
- government policy, which includes taxation and property rights
- personal preferences

The factors that affect supply include:

- land costs
- government policy, which includes land use and planning policy
- the availability and cost of financing
- construction costs: eg the costs of materials, machinery and equipment, and labour

Changes in the factors affecting demand can shift the demand curve. As we will see in the rest of this section, in Malaysia, the factors that affect demand – in particular demographics – are shifting the demand curve to the right (from D to D_1 – see Figure 16).

On the other hand, housing supply is not elastic in the short term (S_s) . In fact, because of our unresponsive housing sector, the supply curve is almost vertical (S_m) in the immediate term. This means that when demand shifts to the right, prices rise rapidly and highly. If we had a more elastic supply curve (S_1) (ie one that is flatter), prices would not rise as high.



Figure 16: Relatively inelastic housing supply meeting relatively elastic demand

Quantity demanded and supplied (units)

Source: Harvey (1992)

Interventions so far seem to accept this vertical supply curve, and therefore most are aimed at enabling consumers to afford houses as they become increasingly more expensive. These include policies that are designed to allow consumers to borrow more, or that in effect subsidise the costs of houses¹⁸. We will elaborate on these later in the section.

¹⁸ Examples include the Malaysia My First Home Scheme, intended to enable young adults earning RM5,000 per month or less to get 100% financing from banks to purchase their first home. The Malaysian government has also introduced the Private Affordable Ownership Housing Scheme (MyHome) programme, which provides a subsidy of up to RM30,000 per low-cost house for qualified first-time home-buyers. The subsidy is paid directly to the developer.

CHAPTER 4 HOUSING FACTORS IN MALAYSIA

Demand

Demographics

Malaysia's population has been growing, with forecasts that it will continue to grow (Figure 17).

Figure 17: Malaysian population size ('000), 1970-2040



Source: DoS (2015c) F denotes projected figures

The size of households is getting smaller (Figure 18). In 1970 there was an average of 5.5 people per household or, to put it another way, there were about 182 households for every 1,000 people. By 2020 the forecast is that the average will be 4 people, or 250 households for every 1,000 people. The number of households is therefore increasing at a faster rate than the growth of the population. This unalterable demographic fact is what is one of the drivers for housing demand.





Source: DoS (various years), KRI calculations F denotes forecasts

Demographic profile

The demand for housing is also driven by households' demographic profile. In the maps below we see the different population densities of different age groups in the Greater Kuala Lumpur area (Figure 19).

Across age-groups, the working-age adult population (24-39 year-olds, Figure 19c) is the highest compared to the others. When the age groups are considered separately, the overall pattern of population density resembles a doughnut, particularly for workingage adults and children (0-14 year-olds, Figure 19b). The 'hole' of the doughnut is the city of Petaling Jaya, where population densities are relatively lower compared to the 'ring' which contains the Kuala Lumpur city centre and suburban mukims such as Damansara and Ampang (where the concentration of children, which implies young families, is the highest).

Figure 19: Population density according to mukims in Greater Kuala Lumpur, 2010



a. Total population density



b. Population density of 0-14 year-olds

c. Population density of 24-39 year-olds (workers)



Buloh Telur Sungai Tinggi Peretak Paşir Panjang Kerling Rasa Tanjong Karang / Ulu Tinggi Semantan Batang Kali Ulu Yam Bentong Perak Ujong Bestari jaya (Batang Berjunta Serendah Sabai ngan (Kuala Rawang Setapak Api liok Pelangai Batu Úlu Kelar ÿ Jeram Ulu Langat Sungai Buloh 21 Bukit Raja Bandar KI Kenaboi Teriang Hilir Kapar ar P Damansara 2 Ulu Semenyih Bandar Klang Vo Cheras Gelami Lemi Petaling Pertang Klang DENSITY Kajang eradong / Hulu Teriang Semenyih (POPULATION PER Tellok Panglima Garang WPPutra KM²) Jugra Serting Ulu 0-20,000 Beranang Z Lenggeng Ulu Jempol 20,001-60,000 Hulu Kela Bandar Dengkil 60,001-100,000 Tanjong Dua Belas Juassel Langkap Setul \mathcal{T} Parit Tinggi Shu Muar 100,001-200,000 Pantai Kelanang Seremban 200,001-400,000 Terachi _an } ______ Labu Bandar Serembar Rasah - Ranta 400,001-650,000 Marib Ampang Tinggi an Ampangan J. Pilah Pedas Spir Sri Menanti Sepang . lit

d. Population density of over 60 year-olds

Source: DoS (2011d)

Urbanisation

For statistical purposes, the government defines an urban area as essentially a place with more than 10,000 people¹⁹. More specifically it is an area that:

- a) is gazetted as an urban area and with its adjoining built up areas having a population of 10,000 or more
- b) is a built-up area contiguous to a gazetted urban area where 60% or

100 100 90.8 91.4 86.5 82.3 69.7 71.9 66.5 64.6 59.1 53.8 54.0 51.4 50.5 42.4 Pahang Perlis Perak (elantan Sabah Kedah Johor -abuan Melaka [>]ulau Pinang Putrajaya Terengganu Vegeri Sembilan Sarawak Selangor Kuala Lumpu

Figure 20: Urbanisation level by state (%), 2010

Source: DoS (2011d)

more of the population aged 15 and above are involved in activities that are non-agricultural, or

c) is a "special development area" ie an area of development that can be identified and is separated from any area falling under a) or b) above, with a population of 10,000 or more and where 60% or more of the population aged 15 and above are involved in activities that are non-agricultural. As urbanisation increases, the demand for formal housing will also increase. The problems we now see in Kuala Lumpur and Penang could soon extend to the other states.

Income

Affordability is also about income. If household incomes are high, then even quarter-of-a-million ringgit houses are affordable, as is the case in Kuala Lumpur²⁰.

Indeed, the more one can afford to spend the lower the proportion of one's spending is on housing (Figure 21).





Household Expenditure Categories in RM

Source: DoS (2011e)

²⁰ For 2014, the house price which meets the three times median multiple threshold in Kuala Lumpur is RM273,320. See pages 23 and 24.

Raising household incomes is a subject by itself and goes beyond affordable housing. It is, or ought to be, the core of our economic policy²¹.

Financing

Very few can buy a house with cash. For the vast majority, buying a house requires credit and so the availability and cost of credit are important factors in the demand for housing.

Government policy and interventions can affect the availability and cost of credit. Having credit however does not make a house cheaper, even if government policy and interventions can make the monthly instalment payments lower²². If credit is more available and less costly, then this would tend to shift the demand curve to the right (from D_0 to D_1 in Figure 16). More people would be able to buy a house at any particular price. Given the inelastic supply of housing, this would paradoxically make housing even more expensive!

While measures to make credit more available and less costly may seem to make housing affordable, our position is that affordable housing means lowering the price of housing and not increasing the debt burden of households.

Bank Negara Malaysia (BNM) recognised this burden and in 2013 introduced micro-prudential measures to curb household housing debt (Box 2).

Box 2: BNM measures to reduce the burden of households' housing debt

In 2013, BNM introduced micro-prudential measures to alleviate risks from household housing debt. "Multi-generational housing loans" which had a 45 year repayment period and interest capitalisation schemes (ICS)²³ where interest costs are capitalized (for instance, built into the sale price) instead of being paid by the borrower as they are incurred were found to have inflated property prices by as much as 30%.

BNM therefore banned those housing loans (the maximum repayment period is now 35 years) and prohibited banks from lending to developers that offered ICS.

In our next report on affordable housing we will look in detail at how financing can be made more affordable and more available.

²¹ See KRI (2014)

²² Cagamas for instance, channels funds at lower cost to financial institutions to sustain relatively low mortgage rates. Another example is the ability of qualified Employees Provident Fund (EPF) account holders to withdraw from their Account 2 in order to pay for monthly housing loan instalments.

²³ One of the most popular types of ICS in Malaysia was the Developer Interest Bearing Scheme (DIBS) where during the construction period, the developer (instead of the buyer) pays for any interest occurred on the mortgage loan until construction is completed.

Taxation

Arguably, the exemption from the Real Property Gains Tax (RPGT) which was in effect between 2007 and 2010 contributed towards the acceleration in house prices by encouraging the speculative demand for housing. Hence, beginning in 2010, the government introduced cooling measures to curb speculative activities. We elaborate on these measures later in the report.

Personal preferences

As is the case for most goods, the demand for housing is also an expression of personal preferences. Some people may prefer, and would pay more for, landed properties, while others would be willing to sacrifice land for more amenities.

Supply

Land costs, land use, and planning policy

These are related. The World Bank in 1989²⁴ stated that Malaysia's high standards for land use and infrastructure (eg the road width requirements and the large set-asides for public areas) contribute to the high cost of land for housing.

The time taken to get relevant approvals also contributes to the overall costs of building houses. A development planning application can take up to six months before it is approved and construction can commence²⁵.

We will see later how land and housing prices escalate due to our unresponsive housing sector.

Construction costs

Given that these have been falling, it is expected that housing prices would fall accordingly. The contrary seems to be the case (Figure 22a - d).

²⁴ World Bank (1989)

²⁵ According to the Real Estate Housing Developers Association (REHDA) on average, planning permission applications in Malaysia can take between 33 and 84 days to be approved, with the former applying if a Local Plan is available. This timeline is also dependent upon whether or not the various planning permissions – for land conversion, planning and building design, engineering and technical – are applied concurrently or individually.



Figure 22: House prices and construction costs according to states, 2008-2014

Source: CIDB (2015a), NAPIC (2014b), KRI calculations HP = house price $% \left({{\rm{AP}}} \right) = {\rm{AP}} \left({{\rm{AP}}} \right) = {\rm{$

Housing Interventions

As mentioned, interventions in the housing market have mostly focused on improving affordability by leveraging on demand, either by allowing consumers to borrow more, or subsiding the costs of houses. On the supply-side, the Federal and State governments have mainly focused on the direct provision of affordable homes, either through public agencies or through partnerships with private developers.

Examples of these interventions are summarised in Table 7.

Table 7: Housing demand and supply interventions in Malaysia

Policies	Notes
Demand side	
Malaysia My First Home Scheme	Intended to enable young adults earning RM5,000 per month or less to obtain 100% financing from banks to purchase their first home.
Private Affordable Ownership Housing Scheme (MyHome)	Provides a subsidy of up to RM30,000 per low-cost house for qualified first-time home-buyers.
Supply side	
Affordable Housing Schemes	See below.

Affordable housing schemes range from low-cost homes priced below RM100,000 to the RM400,000 houses sold under the PR1MA scheme (Figure 23). Four of these public affordable housing programs not only provide assistance to the bottom-40% of households, but the middle-40% as well; housing affordability is not only a lower-income challenge.

For details of the housing schemes, see also Appendix 2.

Figure 23: Public affordable housing schemes in Malaysia



Source: Various government agencies, KRI calculations k = thousand

Houses priced below RM50,000 have been excluded.

These types of policies are not sustainable in the long run. Allowing consumers to borrow more does not reduce the cost of housing, but instead increases household debt, and a government subsidy to developers is a needless drain on government finances.

Affordable housing is not a welfare issue. It is a structural issue caused by an unresponsive housing sector. As we will discuss in more detail in the following chapters, it is possible for us to have a productive and profitable housing sector that provides affordable housing without requiring government subsidies.

National Housing Survey

The 11th Malaysia Plan outlines a target of 653,000 units of affordable housing to be built during the Plan period (2016-2020), or an average of 130,000 houses built a year. Given that an average of 60,000 houses were launched in the housing market overall over the last five years, it is unclear whether this target has been based on an analysis of demand for affordable housing, and whether there is sufficient capacity for supply.

Given the need to coordinate supply and demand factors in the housing market, the 11th Malaysia Plan therefore refers to establishing "an integrated database on housing ... to ensure housing supply matches the needs according to the location, price and target group"²⁶.

We support this. There is currently limited data available to allow each State to adequately plan for the housing needs of the population and to allow house buyers to make informed purchasing decisions. These limitations include data on existing formal and informal housing stock, as well as detailed data on demand factors, particularly at the mukim level.

We propose a National Housing Survey, collected at the mukim level, to provide input for the integrated housing database, covering:

- Demand factors: demographic patterns and assessment of household incomes.
- Supply factors: assessment of land suitability with current land use, existing and incoming housing stock.

²⁶ Economic Planning Unit (EPU) (2015)

CHAPTER 5 HOUSE PRICES AND SPECULATORS

Housing Stock

For many goods, if demand increases for that good then the producers of that good will make more of them to meet the increased demand. Take cars for example, if there is an increase in demand, car manufacturers produce more cars to meet that demand. Car prices therefore do not go up much as there are enough new cars being built to satisfy the extra demand.

It is different in the housing market. First, in Malaysia it takes a long time for new houses to be built. Second, there is a large stock of existing houses. As of 2010 there were about 4.4 m houses in the formal sector²⁷. Every year, 100,000 new houses are built and 200,000 houses out of the existing stock are sold.

Since far more existing houses are being sold than new houses, it is the price of existing houses that determines the price that new houses are being sold at. If demand increases, there are not enough new houses and a limited supply of existing houses to satisfy the new demand. House prices therefore go up. So even if the actual cost of the new houses is far lower than the market price, they will be sold at that higher market price (Figure 24).





Source: Adapted from Harvey and Jowsey (2004)

Land Costs and Speculators

The price a developer is willing to pay for new land will go up as the market price for new housing increases.

Suppose a developer wants to buy a site to erect a house. If old houses in the vicinity are being sold at RM150,000 and it costs him (including his normal profit) RM100,000 to build the house, then he will be willing to bid up to RM50,000 for the land. If prices of existing houses continue to rise due to increased demand, then this will lead to higher land prices and a vicious cycle of ever increasing prices.

Short term speculative behaviour exacerbates the situation. By this we mean purchasers who buy houses and sell them soon thereafter, instead of after five to ten years. If supply is inelastic (as it is in Malaysia) every time a speculator buys a house and re-sells it at a higher price, that new higher price becomes the benchmark price for all similar houses. Prices rise faster than they otherwise would without this speculative behaviour.

For those interested in the economic theory behind the effects of speculation, we present in Appendix 3 a stylised model of how rational actions by agents in the housing market may still lead to inefficiencies in equilibrium price outcomes and, consequently, to a possible asset bubble.

Curbing Speculation

Malaysia, like many other countries, has put in place measures to curb speculation.

RPGT

In the Federal Budget 2014, RPGT was significantly increased (Table 8) and the threshold for foreign buyers of property was raised to RM1 m.

Disposal period	RPGT rates (percentage)		
	Companies	Individual (citizen/PR)	Individual (non-citizen)
For disposals within 3 years	30	30	30
For disposals in the 4 th year	20	20	30
For disposals in the 5 th year	15	15	30
For disposals in the 6th and subsequent years	5	0	5

Table 8: Revised RPGT rates

Source: Ministry of Finance (MoF) (2013) RPGT = Real Property Gains Tax PR = permanent residents

Moratoriums

We also have moratoriums on the sale of certain properties. For instance, PR1MA homes are subject to a ten-year moratorium, during which the property cannot be sold and bought without the prior approval of PR1MA. They have the effect of slowing down the escalation of PR1MA house prices as home owners cannot immediately 'flip' their property.

The drawbacks however are that they also prevent homeowners from accessing their equity in their house should they need do to so and that they also impede mobility as they can prevent people from moving to an area more suited to their needs (eg somewhere closer to work, to schools, etc). A well designed moratorium should therefore be as short as possible and allow for exceptions in true cases of need.

As we will see more of later, we would recommend that new housing built under the national business and procurement system we are proposing also be subject to a moratorium of five years. This is sufficient time for new developments to be built under this system so that there is a steady stream of new affordable housing. The moratorium acts as a buffer period to allow for the subsequent batches of affordable homes to be supplied at prices that make speculative behaviour redundant.

Box 3: Measures to curb house price speculation – examples from other countries

Following a temporary slump in the wake of the 2008 Global Financial Crisis, property prices in certain countries began to rebound, leading to overvaluations in some markets. Among the 50 countries surveyed in the International Monetary Fund's (IMF) Global Housing Watch, real house prices in 17 of these countries (including Malaysia) are now around 25 % higher than they were before the crisis, while real estate markets in 33 countries, including the United Kingdom – which experienced sharper drops than the former group – are recovering²⁸. *The Economist* reported in August 2014 that house prices in the UK are overvalued by around 24%, despite its market not yet having fully recovered to pre-2008 levels. As a result, Australia, Hong Kong, Singapore, and the UK - along with Malaysia) – who were among the above-mentioned group of 17 countries – have implemented measures to cool their housing markets in the past year.

Australia: The Reserve Bank of Australia warned in September that the country's housing market was becoming "unbalanced", as record low interest rates and strong competition among lenders prompted a surge in lending to investors, who make up 40% of the value of home loans. Meanwhile, the Australian Prudential Regulation Authority (APRA) warned banks that it would be strengthening scrutiny of lending practices and force banks to hold more capital if they engage in "risky lending". Promising a review of banks' lending practices in the first quarter of 2015, APRA cautioned that growth above 10% in loans issued to property investors would "attract concern and possible action". It also recommended that lenders should incorporate buffers of at least 2 pp. above loan product rates and a floor lending rate of at least 7% when assessing borrowers' ability to service loans.

Hong Kong: Between 2010 and 2013, the Hong Kong government introduced the following cooling measures:

- The Special Stamp Duty (SSD), which was introduced in November 2010 to curb excessive property speculation and short-term trading activities in the residential sector.
- A 5pp. increase in the SSD rate, an extension of the restriction period for reselling residential properties from two to three years, in addition to a 15% Buyers' Stamp Duty for corporate and non-local purchasers were introduced in October 2012.

While the measures above contributed to overall sales volume falling by 23% during the last 2 months of 2012, prices remained resilient and actually rose by around 2% in January 2013.

In February 2013, the government introduced more demand-side measures:

- Increasing the stamp duty from HKD100 to 1.5% of the transaction amount for properties valued at HKD2.0 m or less, as well as raising the highest rate of stamp duty from 4.25% to 8.50% for properties valued at HKD21.7 m or more.
- Mortgage financing measures: Banks are required to assume a mortgage rate increase of 300 bps, up from 200 bps when stress-testing the ability of applicants to repay loans.
- The maximum loan-to-value (LTV) ratio of mortgage loans for stand-alone car parking spaces is now set at 40% for a maximum tenure of 15 years.

The Hong Kong Mortgage Corporation announced that only mortgage loans on properties with a value of HKD4 m or less will be eligible for the maximum mortgage insurance cover of 90% LTV. Properties with a value of HKD4.5 m or more will only be eligible for the maximum insurance coverage of 80% of LTV, with the cap remaining unchanged at HKD6 m.

In the seventh-round of measures announced in February 2015, the Hong Kong Monetary Authority imposed the following:

- A higher down payment for properties under HKD7 m in a new round of mortgage-tightening measures.
- A cap of 60% on the LTV ratio for residential properties under HKD7 m (down from 60%-70%).

Singapore: In January 2013, Singapore increased the stamp duty for house purchases by between five and seven pp. In addition, permanent residents will have to pay the additional tax when purchasing their first homes, whereas Singaporeans are subject to the levy with their second purchase.

The government also tightened the LTV limits for buyers seeking a second mortgage as well as increased the cash down-payment requirements for second loans from 10% to 25%. In addition, Singapore also imposed the following supply-side requirements:

- The size of executive condominiums, which are built by private developers and come with income limits and other restrictions, is capped at 1,720 square feet.
- In September 2012, the number of homes that can be developed in suburban projects was capped in order to curb the increasing trend towards "shoebox apartments".

United Kingdom: In July 2014, the Bank of England announced:

- Limiting mortgage amounts up to 4.5 times the borrower's salary.
- The imposition of a 'stress test' to ensure that loan applicants would be able to meet commitments if interest rates rose by up to 3%.

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SECTION 3 THE STATE OF HOUSE-BUILDING IN MALAYSIA

In Section 2, we stated that there is a need to improve housing affordability by making supply more responsive to demand, by either reducing the time period required to build houses or ensuring a steady supply of affordable homes. This section builds on that position, and analyses possible measures to make housing supply more elastic.

Our analysis of house-building focuses on the agents responsible for producing housing – firms and related public agencies – and places them within the context of the national business system. A concept rooted in institutional economics, the national business system is defined as a set of interlocking structures and institutions in different spheres of economic and social life that combine to create a nationally distinct pattern of organizing economic activity²⁹.

The national business system in turn operates against the backdrop of the national procurement system for housing, which – as will be explained – erects institutional barriers which impede efficiency.

A structural analysis of the Malaysian national business system for construction highlights the issues of fragmentation between firms and the choices these firms make as a result of such a structure.

This analysis was augmented by case studies of five Malaysian housing developers and comparing them with one firm from the Philippines. The case study highlighted the following symptoms of fragmentation:

- A combination of low skills-levels and production technology.
- Low investments in production technology aimed at improving construction costs and reducing construction times.
- Little improvement of design inputs to enhance buildability³⁰ on-site.

(Appendices 3 and 4 provide a more detailed explanation of the concepts and methodology employed).

Given these barriers to improving the cost- and time-efficiency needed to create a more responsive housing supply, supply-side interventions are therefore required.

²⁹ Whitley (1999)

³⁰ A pre-construction exercise that looks at a design from the perspective of those that will manufacture, install components, and carry out the construction works.

CHAPTER 6 NATIONAL PROCUREMENT SYSTEM FOR HOUSING

The National Procurement Route for Housing in Malaysia

The main actors in the national business system for housing construction are the housing developers, architects and designers, and contractors who operate within the context of the national procurement system.

Traditional general contracting: the national procurement route for housing

In Malaysia, the main procurement route used for property construction is traditional general contracting $(TGC - see Box 4)^{31}$, where there is a clear demarcation between the actors undertaking the design of the project, and those undertaking the construction. Although other alternatives $exist^{32}$, the main reason given by practitioners for retaining TGC – otherwise known as 'design-bid-build' – is familiarity bred by long-term use by consultants and key advisors to construction projects³³.

TGC is also mandatory for publicsector clients because the system fulfils the key requirements of transparency and accountability required for public projects³⁴. Another reason cited is that most clients are not "repeat" or "experienced" clients, and therefore do not possess the necessary knowledge nor expertise to evaluate the choices made available to them when making decisions about the construction project³⁵.

Box 4: Fragmentation and the social organisation of construction projects – the case of traditional general contracting

Historically, the separation of roles between the client, the architect and the contractor – otherwise known as fragmentation – has been a phenomenon of social organisation for construction sectors in countries that were under British colonial rule, including Malaysia. This social organisation is expressed within the particular procurement route for construction projects in Malaysia, known as traditional general contracting.

The British system is governed predominantly by professional regulation. Since the 19th century, the construction business system in the United Kingdom (UK) has

34 Abdul Rashid (2002)

³¹ 2004 – 2010 figures show that more than 90% of construction works awarded in Malaysia used the TGC route. There is no evidence of the country using mediated-procurement methods (CIDB 2006)

³² Examples of alternative routes adopted since the 1950s in the UK include design-and-build, management contracting, construction management and partnering. See Hashim (1996), Abdul Rashid (2002) and CIDB (2006, 2010a).

³³ Hashim (1996) and Abdul Rashid (2002)

³⁵ Ibid.

been based on the separation of design and construction, with the former being undertaken by architects and engineers bound by strong professional loyalties. The professional bodies are responsible for setting entry qualifications, accrediting educational courses and for determining the scope of the works carried out by their members. An architect not only leads the design team (for buildings) but also acts as the client's representative in managing the works³⁶.

On the other hand, contractors have traditionally been appointed through a competitive tender based on fully detailed drawings accompanied by a "bill of quantities" prepared by a quantity surveyor. The contractor acts as a "general" contractor, appointing and co-ordinating the specialist subcontractors and taking overall responsibility for delivery and for the quality of the final output. Under this system, there is strict separation of responsibilities, with the architect taking overall responsibility for the design and being required to approve any variations (proposed by either the client or the contractor)³⁷.

Fragmentation between design and construction reduces efficiency and raises the costs of production. One result of fragmentation of the construction process has been the low level of investment in research and development (R&D) within firms in the construction industry in several countries³⁸. Fragmentation between design and construction, and within the production process dominated by the main contractors and trades contractors, reduces clients' effective power over the process, and therefore their ability to manage the process effectively.

Some clients, in their attempt to achieve greater control of the construction processes, have internalised the "project management" function within their own organisation to overcome the problems of fragmentation of the production process and thus ensure the overall success of the construction project³⁹.

³⁶ Courtney et al. (2005) and Hackett et. al.(2007)

³⁷ Courtney et al. (2005), Hackett et. al. (2007), Murdoch and Hughes (2008)

³⁸ Dulaimi et al. (2002)

³⁹ Gruneberg and Ive (2000)

The problems that have emerged from the structural fragmentation of the construction process in countries that follow the professional system have been highlighted in several reports and studies:

- The Egan Report in the UK⁴⁰ recognised that fragmentation of the industry has inhibited improvement of performance and investments in R&D.
- The Construct for Excellence Report on Hong Kong⁴¹ highlighted that limited cooperation and fragmentation had impeded proper consideration of issues such as buildability, safety, and life-cycle costs.
- The Singapore Construction Task Force, in its Construction 21 (C21) Report⁴² and the Construction Industry Master Plan (CIMP), Malaysia⁴³ described a similar picture of a fragmented industry suffering from inadequate levels of investments in R&D and low levels of innovation.

How are Houses Supplied? The National Construction Business System and TGC at Work

A typical construction project for a building will be initiated by the owner of the land, ie the client. Thereafter the following processes take place:

1. The design phase:

The client engages an architect to design the physical appearance and dimensions of the proposed building. During this phase the architect will work with a group of other consultants, namely the civil engineer, the mechanical engineer, the geotechnical engineer and the quantity surveyor. These consultants belong to separate business entities but they are integral to the design process, and all have their own tasks to perform in order for the proposed building design to move forward to the construction phase⁴⁴.

2. The construction phase:

The period during which the building will be constructed by the contractor.

This method of production in construction follows the Royal Institute of British Architects (RIBA) Plan of Work, and typifies sequential interdependence of work⁴⁵.

⁴⁰ Egan (1998)

⁴¹ Industry Review Committee (2001)

⁴² C21 Report (1999)

⁴³ CIDB (2007b)

⁴⁴ Gruneberg and Ive (2000)

⁴⁵ A concept adopted from the sociology of organisation structure, sequential interdependence occurs when one unit in the overall process produces an output necessary for the performance of the next unit, such as in an assembly line production system. See Thompson (1967)

The national business system can also be illustrated in the form of a production value chain for housing (Figure 25).The four main components in the value chain are defined as follows:

- 1. Definition: articulating the overall concept by specifying form, function, and performance in a complete definition of the built product, in this case houses.
- 2. Description: working through the details of that definition to provide a complete description of the houses.

- 3. Structure: implementing that description on site to achieve the overall structure of the houses.
- 4. Installation and finishes: completing that structure ready for use through installations and finishes of equipment and surfaces.

Components (1) and (2) are embedded in the "Design" phase, while (3) and (4) form part of the "Construct" phase of the project.



Figure 25: The industry value chain

Source: Adapted from Campagnac et al. (1997)

Contracts that support TGC

Within the TGC, two contracts play a role and act as interface between the two main phases of the construction project. The first transaction - denoted A in Figure 25 occurs when the client initiates the project and explains to the architect the needs and financial limits to be taken into account. This transaction is governed by the professional system in Malaysia. The architect, together with the other members of the design team, prepare alternative proposals for the client during the definition phase. In this phase the contracts that bind the architect (and the other consultants) to the client are the "Letter of Awards" and "Terms of Engagement"⁴⁶.

Two underlying principles appear to underpin these contracts:

- 1. They contain the detailed conditions between two parties. In this process, standard conditions are convenient to use because appointments can be made with the professional consultants simply by referring to the contracts. Therefore, it is not necessary to draft a specific appointment agreement. Furthermore, there is a mutual understanding by both parties that these contracts can be amended and thus offer a useful starting point for negotiations about the duties for the particular project.
- 2. The contract specifies the list of activities that will be executed and the percentage fees that are apportioned to these services⁴⁷.

46 Abdullah (2001)

⁴⁷ Abdullah (2001), Murdoch and Hughes (2008)

Once the client accepts the design proposal made by the design team, the proposal will go through a series of improvements during the description stage. Thereafter, the second contract is prepared to effect Transaction B in Figure 25, which is used to select the contractor from the market.

Currently, the most common selection process is open tendering based on price. This is because the building plans, drawings and technical specifications of the design (prepared during the 'design' phase by the architect and designers) will have been sufficiently detailed to provide the information necessary for contractors to submit the tender. During this exercise, the quantity surveyor will be the "control actor" for the client in terms of providing advice on the tendered prices⁴⁸. After the contractor has been selected, a contract will be formed by the client and the contractor.

The contract that supports this transaction is the Persatuan Arkitek Malaysia (PAM) Standard Form of Building Contract 1998, which is based on the JCT Forms of Contract used in the UK⁴⁹. The contractor then builds the structure and does the installation and finishes of the facility. Finally, the finished constructed facility will be delivered to the client⁵⁰.

⁴⁸ Abdullah (2001), Khian Seng (2007), Langdon (2008)

⁴⁹ This was the case even when the PAM Form of Contract 1969 was used in Malaysia, and this contract was based on the RIBA Form 1963. Since then all major revisions of the PAM contract forms have been based on the revisions made in the UK by RIBA or JCT. Therefore the developments and court cases in the UK create precedence in construction cases that are heard in Malaysian courts (Abdullah, 2001; Khian Seng, 2007).

⁵⁰ Abdul Rashid (2002)

The Project Environment and the National Business System

The Malaysian construction industry is characterised by the one-off nature of construction projects, because most projects construction have definite project durations and the project organisation is of a temporary multiorganisation structure. Construction demand is a series of one-off projects, each with its own unique design, tendered competitively on price, and with its own temporary project coalition, ie groups of firms which contract temporarily to complete these one-off projects. Set against the naturally volatile nature of the construction industry (Figure 26), contractors tend to focus on the acquisition of new contracts rather than focusing on efficiently delivering projects currently in hand.

Figure 26: Construction sector growth and Malaysian economic trend, 1988-2014



Source: DoS (various years), IMF (2015), KRI calculations. GDP is at constant price.

Recovering from the downturn in the aftermath of the 1997 Asian Financial Crisis, the Malaysian construction sector – which contributes approximately 4-5% of GDP⁵¹ – has continued to grow steadily, driven, among others, by consistent demand for infrastructure projects in addition to housing.

⁵¹ Construction GDP has been rebased by using the GDP deflator data taken from IMF, World Economic Outlook Database, April 2014.

CHAPTER 7 CASE STUDIES

Six case studies were conducted in order to examine the mechanisms adopted by firms to implement good order and workable arrangements in their construction projects. Five case studies were of firms from Selangor, Johor Bahru and Pulau Pinang in Malaysia⁵², and one case study was of a firm from the Philippines.

Malaysia Case Studies

Six criteria were devised to identify eligible participants for the case studies in Malaysia. These criteria suggest that the companies selected have had experience and are successful in building houses and therefore can provide the "highest resolution" in terms of giving their perspectives on the subject matter being investigated. (Refer to Appendix 4 for a detailed description of the case study methodology used for the study)

The criteria were:

- 1. Housing development companies that are listed in Bursa Malaysia.
- 2. Housing development companies that have received acknowledgement for the good quality and/or design of houses through being granted the country's prestigious awards.

- 3. Housing development companies that were among the top 20 largest firms on Bursa Malaysia in terms of market capitalisation during the year of analysis.
- 4. Housing development companies that have a good reputation in the country for delivering houses on time and that are perceived to offer value for money.
- 5. Housing development companies that have been in business for more than 15 years.
- 6. Housing development companies that have undertaken at least five housing projects within the past 15 years.

A group of experienced developers were selected to provide insights as to how their organisations performed within the institutional framework as well as instituting economic governance⁵³ in the multi-organisation created for the selected projects⁵⁴.

⁵² Deemed moderately unaffordable, seriously unaffordable and severely unaffordable markets respectively, as at 2014.

⁵³ See Appendix 4 for an explanation of economic governance.

⁵⁴ Bryman (1996) and Chan et al. (2001)

The selection of the construction projects was also based on predetermined criteria to provide consistency in the types of development under analysis in order to produce the high resolution needed in describing the patterns and themes observed. These criteria were:

- 1. The type of development, ie housing.
- 2. The procurement route, ie TGC with PAM 98 Standard Agreement and Conditions of Building Contract.

- 3. Projects must have been completed within the past five years.
- 4. Developments must be large-scale, ie more than 80 units for each project.

Company profiles

All data were collected on a confidential basis both within and between cases. For this reason, information which might reveal the identity of the cases is not used.

	Business at time of incorporation	Type of development and houses
HD A	Different sector	Stratified and landed, more development on one-off sites.
HD B	Civil works and building contractor	Stratified and landed, part of town-ship development, as well as one-off sites.
HD C	Civil works and building contractor	Stratified and landed, part of town-ship development, as well as one-off sites.
HD D	Property developer	Stratified and landed, part of town-ship development, as well as one-off sites.
HD E	Property developer	Stratified and landed, more development on one-off sites.

Table 9: Brief profiles of companies in the Malaysian case studies

Source: Ismail (2012) HD: Housing development companies

Sales

The projects undertaken by the housing development companies have all achieved 100% sales during the first year of launch to the public. All of the housing developers interviewed have won awards for building good quality homes.

The sales patterns of the housing products from the housing developers to the final consumers for all five case studies is similar. For example, the developers will launch their products in the first month, and when there is a 70% take-up rate from the market, they will start construction on site. Due to the fact that they are recognized for delivering high quality products, they normally and frequently will achieve 70%-80% percent sales within three months of the product/ housing launch. One particular developer enjoyed 100% total sales within two weeks of their launch.
Organization Structure

Two of the companies have internal architecture and planning departments. All five have internal project management departments.

In terms of contractors:

- Three have subsidiary contractor companies.
- One has an internal construction department.
- One is a property developer with neither a subsidiary contractor company nor a construction department.

Findings

The five case studies demonstrated the following basic characteristics of the national housing business system, within the context of TGC:

- Project delivery is a sequential process (Figure 27).
- The design of the project is largely completed before work commenced on site.

- If the design had been fully developed at the time of going to tender, the developers would know their financial commitment when they accept the contractor's tender.
- The project cost can be estimated, planned and monitored by the quantity surveyor from the inception stage through to completion of the project.
- The responsibility for managing the project is divided between the developers' consultants and the contractor, which leaves little scope for involvement of either of the parties in each other's activities.
- Three out of the five firms in the case studies executed Transaction A and B by in-house nominations, whereby Transaction B was given to the subsidiary. In one case study Transaction A was executed with an in-house nomination, and Transaction B used 2-stage selective tendering. The last case study consolidated Transaction A and B in one firm.



Figure 27: The industry value chain – application to the five case studies in Malaysia

The case studies revealed the following governance structure (Figure 28):

- Methods of financing: all five developers in the case studies used private funding to build their houses.
- Methods of contracting: all five developers used TGC⁵⁵, where there is a clear separation between design and construction. This means that the design by the design team (led by the architect) had to be fully developed and detailed before construction work started on site. The design team is external to the developer's entity and the coordination between the design and construction firm is managed by the developer's internal project management team.
- Methods of selection: three of the five developers in the case studies use their own subsidiary construction firms to build the houses, and therefore no jobs are awarded based on competitive developer tendering. One has internalised the construction function as a department under the company. There is no instance of investing in new methods of construction, or use of an industrialised building system (IBS). Another developer contracts a construction firm with which it has had a working relationship for the past ten years.

⁵⁵ This is in line with the percentage of contracts let out in the TGC route, averaging from 95 to 98% (CIDB, 2014).

- Methods of payment: for all five developers, the cost of building the houses was based on a fixed price contract, not on incentive contracts (where there would be incentives to innovate to reduce the construction costs during the course of the project), nor are the costs fee-based (an open-book system whereby the construction firm will disclose its costs of production and the contract sum is based on a percentage fee of the actual production costs).
- Methods of service: for all five developers, all of the common assets in stratified development were surrendered to the management corporation, and are not retained or maintained by the developer.

Overall, the five case studies show that the consolidation of the main players in the temporary project coalition (developer, architect, quantity surveyor, contractors, etc.) led to better working arrangements between the parties involved. For example, adaptations in pricings due to variation orders can be made in a sequential way without the need to consult or revise inter-firm agreements. The changes in the materials used or quantity adjustments to materials (as a result of design changes) are also made internally whenever the need arises.

However, the efficiency of the temporary project coalition in terms of management did not transcend inefficiencies due to the technical production discontinuity of the project. The actors of the project behaved as one entity in terms of producing "workable order" as an organisational construct (decision-making and adaptation) but not in terms of technical continuity (a production construct).

The consolidation also did not lead to any improvements in productivity nor did it create any incentives to invest in R&D of construction technology to reduce construction costs. The design did not take into account ease of assembly on site, nor were any new techniques of construction developed between the design and construction team.

Therefore, consolidation – with no improvements in either the speed of delivery or productivity – appears to be a missed opportunity in terms of product innovation and the ability to reduce construction costs.



Figure 28: The functional form and the selected governance structure of the five case reports

Source: Adapted from Ismail (2012)

1. The dark green coloured boxes represent the governance structure that was used in the five case studies.

8990 Holdings, Inc.

The case study from the Philippines, 8990 Holdings, was selected based on similar criteria to those used for the selection of the Malaysian case studies. This case study was also selected due to its product innovation and the associated reduction of production costs that has been passed to home buyers, and has made their houses more affordable to the general public.

Company profile

Figure 29: The DECA Home Residences developed by 8990 Holdings



Located in Mintal. Davao City, Philippines. Two bedroom houses start at PHP715,000 (approximately RM57,200 at market exchange rate).

Source: With permission from 8990 Holdings, Inc.

8990 Holdings, Inc. ("the Company") is widely recognised as the most successful company in the Philippines in the area of providing affordable housing to low- to middle-income earners. It has received several awards such as Q Asia Magazine's best housing developer for the years 2012 and 2013⁵⁶. The Company reported a gross income of 3,389.1 million pesos or USD76.3 million for the year 2013. The gross income margin for the Company in 2013 had increased to 63.3% compared to the figure for 2012 which was 62.2%. This increase was attributed to the acquisition of land banks and to its efficient project budgeting process.

⁵⁶ 8990 Holdings, Inc. (2014)

Focus on mass housing market

The Company launched its mass housing project under the DECA Homes brand in 1991. These projects were developed in high growth areas across Visayas, Mindanao and Luzon. More than half of its home-buyers had a monthly gross (individual) income of more than PHP25,000 (RM2,000) while 18% of home-buyers had incomes of PHP8,000-15,000 (RM640-1,200) (Table 10).

Table 10: Monthly gross income breakdown of the Company's home-buyers

Percentage (%)	Monthly Gross Income
53	Above PHP25,000 (RM2,000)
29	PHP16,000-25,000 (RM1,300- 2000)
18	PHP8,000-15,000 (RM640- 1,200)

The Company also offers a financing scheme for consumers who do not have enough accumulated savings for a downpayment, but do have enough recurring income for monthly amortisation.

Construction materials, methods and technology

Rather than using traditional building methods, the Company adopts a pre-cast construction process which accelerates the completion of its housing projects. Through continually investing, upgrading and utilising the technology (see Box 5), the Company is capable of constructing townhouses and single attached units within eight to ten days, taking an additional five days to construct singlestorey houses with lofts.

Box 5: DECA Homes Pre-cast Technology

The pre-cast is manufactured in a controlled casting environment. This makes it easier to control the mix, placement, and curing, which facilitates quality control. The panels created from the pre-cast moulds can withstand approximately four times as much pressure per square inch than traditional cinder block structures.

The technology has also contributed towards reducing the construction cost, particularly labour costs, as the construction phase is shorter than the average time required to construct housing using traditional building methods.

The quality of the Company's project was tested during the earthquake in October 2013 which affected Cebu and Bohol. Independent structural engineers commissioned to inspect the units in the projects that were affected stated that there was only minor superficial damage and that the units remained structurally stable and fit for occupancy.



Figure 30: Examples of the Company's housing units

Source: With permission from 8990 Holdings, Inc.

Integrated procurement and business systems

Framework agreement with key material suppliers

The raw materials used for the Company's housing development projects are sourced from domestic suppliers, and the Company maintains relationships with 200 of them. They are selected according to a set of criteria which include the quality and prices of raw materials supplied, reliability of supply, delivery time as well as the financial and industrial strength of the supplier.

The Company's strategy is to use bulk supply contracts which allow it to negotiate for lower prices due to the high volume of transactions. Because the Company – instead of its contractors – handles the purchases of materials directly, only the cost of labour and profit in the bill of estimates is negotiated with the contractor. This gives the Company more control over the cost of materials.

The Company will order and purchase materials earlier than the date of commencement of work on site. These purchases are done in cash. This is in contrast to other Filipino developers who usually work through an association to negotiate with the suppliers for better pricing deals for future projects. However, there is no guarantee as to when the projects will commence, which leads to an unstable cash flow for the suppliers. Furthermore, the association uses a 30-day credit loan, which restricts the suppliers' cash flow. In the case of 8890 however, the payment in advance enables a healthy cash flow for the supplier without facing pressure to produce the materials immediately. This gives an advantage to the Company, as the suppliers are more willing to provide the materials at a cheaper price owing to the commitment it has made. Hence, the Company is able to reduce its material costs, which increases its profit margin as the materials are cheaper than the market and discounted association price.

The Company is also able to gain more control over the cost of materials through advance payment as it can lockin the relevant prices. This works well especially in the case of price-sensitive materials such as steel. Finally, advance payment allows the company to receive the items only when they need them so it does not have to incur high storage costs on site.

Integrated production system

Similar to other developers, the Company outsources the site development and construction work. However, rather than going through the usual tendering process, the company uses a system of inhouse nomination whereby it has a list of pre-qualified and accredited independent contractors at its disposal.

Formal arrangements with the contractors ensure that they work exclusively for the company. The long-term relationships and the training provided by the company to the contractors. This, the Company claims, has generated a high level of trust between both parties and create a successful working arrangement which, in turn, increases the efficacy of the development projects.

Since the Company operates with the same group of contractors, communication is easier as both sides are familiar with each other's working cultures. Frequent coordination meetings are held with the contractors to ensure that the constructed facilities meet the technical design specifications. During the early days of the Company's establishment, more emphasis was placed on training the selected contractors to meet the high design and construction standards of the company.

As the relationship of the Company and its contractors developed over the years, the good working conditions have enabled all parties to contribute to the continuous improvement of the design and construction of the houses. The Company states that using contractors who are experienced with the DECA Homes Pre-cast Technology (see Box 5) has enabled greater efficiency and higher precision of construction on site. Thus the company is able to shift its focus from explaining and instructing to the design and construction detailings.

Maintenance

The final phase of the process is maintenance. This is important in enabling residents to continue enjoying their residential units after they have been purchased from the developers. The normal procedure is that after the housing units have been built by the developers, the amenities are given to the home owners' association or the local government to be maintained and preserved.

However, the company adopts a different strategy whereby some of the amenities are not turned over and are therefore retained under their management. These are usually the larger and more complex facilities such as its lakes and waterpark amenities. This is because the company has more resources to ensure the maintenance of these special amenities.

This leads to a lower risk of the amenities being neglected and deteriorating, as the company itself controls the maintenance. Furthermore, the company is able to earn extra income as it can charge the public for using the special amenities (although residents of their housing projects are able to use them for free).

Skills

With the continuous investment in training for in-house contractors, the Company is able to shift its focus from explaining and instructing the contractors to refining the construction technology and processes. In this way, it ensures that the technology created can be executed on site.

Business philosophy

The Company believes in building houses that would create the physical environment and space to nurture families and communities. This can be seen from their commitment to building spacious homes and relatively low-density developments even in mass housing schemes (see Figure 29 and Figure 30).

Summary findings

In terms of the housing production value chain, the case study highlighted the following characteristics demonstrated by 8990 Holdings (Figure 31):

- The project design is done by the internal development team and product innovation is encouraged.
- The developer invests in the training of the site operatives in the external construction firm to ensure that the technology created by its internal design team can be executed on site. Any problems of execution on site will be filtered back into the design process for further refinements on behalf of the design team.
- Product development is continuously encouraged and is designed into the building specifications which can be readily applied on-site as a result of the extensive training given to the site operatives.
- The responsibility for managing the project resides entirely in the developer's entity.
- Transaction A is internalised while transaction B is executed by in-house nomination (see Figure 31).
- The developer created a financing scheme that accommodates consumers who have insufficient funds for the initial down payment on the house.



Figure 31: The industry value chain: case study in the Philippines

CHAPTER 8 THE NEW WAY – A NEW INSTITUTIONAL STRUCTURE FOR A NEW METHOD OF PRODUCTION

"Being in the housing business is not all about business. It's also about changing lives" JJ Atencio, President and CEO of 8990 Holdings in an interview with Khazanah Research Institute

What are Our Limitations in Producing Affordable Homes based on Current Institutional Context?

Table 11: Comparison between 8990 Holdings and Malaysian property developers

	8990 Holdings, Inc.	Malaysian property developers
Framework agreement with key materials suppliers	8990 Holdings has an agreement with the material supply-sector, and therefore negotiated the contractor's services as a cost-plus item in the bills of quantities.	Property developers give this role to the construction company, and this is covered in the existing construction contracts (fluctuation clauses are normally eliminated).
Integration of design and construction	8990 Holdings has an integrated design and construct group that permits improvements to the production processes from design to installation on site.	Improvements in design and buildability on site are done in different firms and there are limited opportunities to improve since design changes are executed through variation orders, which makes innovation non-existent.
		Which party would want to bear the costs of faulty design or installation?
Investment in production technology and innovation	8990 invests financially in their own product and process innovations. Product innovation (eg IBS) is done internally and is tailored to the specificities of the construction site. For example, if the site is in a dense city-area with limited access, they bring the moulding process on site.	Property developers in Malaysia rely on their construction firms to innovate, without investing financially. Contractors will depend on external IBS or proprietary systems for product innovations, therefore it is an out-sourced facility. The design team might not be familiar with the design and installation of such technology.
	Process innovation is needed in situating product innovation. For example, in IBS technology, the Mechanical and Engineering (M&E) design input must be given before moulding is done. 8990 will have internal discussion with both the design and construction teams in one conducive environment.	Training is generally not provided by the contractors, design team, or IBS manufacturer on how the components are connected with other parts of the building. Hence construction workers will not be able to assemble the design on site.
Skills training	8990 provides training for all construction workers/operatives so that the product innovation designed by the design team is able to be executed on site. The construction workers are also encouraged to give feedback on problems with executing the design on site.	Training of construction workers are not done due to the transient nature of the work force.
Management and maintenance of amenities	8990 maintains the shared services (amenities) within their facilities management unit. The general public will need to pay for the services but the unit owners within the complex can use the facilities for free. This to ensure that the facilities are well-kept and is in good workable order at all time.	The public amenities are managed and maintained by the Management Committee.

These conclusions (Table 11) suggest that the consolidation of the supply chain follows best practices as exemplified by 8990, whereby firms themselves invest in adopting new technologies as well as in training site operatives to execute the newly introduced technology.

We propose that the relevant government agencies work with a select group of committed and experienced companies who will have a framework agreement with the material supply section in order to improve the overall efficacy of the delivery of housing units.

The economics of governance is an effort to implement the study of good order and workable arrangements (see Appendix 5). Therefore the alliances of firms will need to be anchored within a new designated national procurement system. This entails a move away from using the TGC procurement route towards a design-and-build or turnkey governance structure. The new structure is designed to change attitudes and alter the way in which members of the professions and contractors interact with one another, with a view to creating a fully motivated and cooperative building team and removing the duplication of effort between designers, quantity surveyors and contractors, which is prevalent under the TGC governance structure.

The nature of the integrated approach should promote the creation of designer– contractor–supplier clusters. Figure 32 shows the difference between the existing and the new proposed governance structure.

The suggested structure has the characteristics listed below:

• The integrated approach will provide a single-point responsibility for the contractor, designer, and developer in the event of building failure, thereby safeguarding home purchasers' and the government's interest.

- It will provide a comprehensive package comprising site-seeking and purchase, obtaining planning permission and building regulations approval, financing facilities, and other associated development components, with the support of the government.
- It may use a proprietary building system or modular building form which reduces design time and the time required for the approval of the building components within a partnering agreement with the materials supply sector.
- These building components (such as IBS) are often readily available so that manufacturing time is minimal and construction time may be correspondingly reduced because manufacture of components and work on site can proceed concurrently. In most countries that have the enabling institutional arrangements, the cost savings range between 10%-30%⁵⁷.

- The government will develop mandatory standard building specifications/plans in order to facilitate the adoption of IBS and other off-the-shelf proprietary systems for the construction of affordable homes.
- The integrated nature of design, construct and assembly on site will produce product innovation since faulty designs will be filtered back to the design team and the manufacturer of the building components. Collaboration at the design stages is critical especially for the design of structural building systems and mechanical and electrical services⁵⁸.
- Constant communication between all parties will encourage process and product innovations as well as a reduction of the construction period, enabling early occupation of the houses and a reduction in overall financing costs for the builders.

58 Abdul Rashid (2009)

⁵⁷ Chan (2011), Haron et al (2005), Haron et al (2009)

- The contractor's knowledge and experience of the cost implications and buildability of design variables may be utilised to good effect because he or she contributes to the design.
- The use of both fixed-price and incentive contracts will provide financial incentives which encourage contractors and suppliers (proprietary systems, IBS, modular systems) to undertake design detailing economical to construct.
- It is also designed to redefine risks and re-establish awareness of real costs among all members of the design and

construction team and to eliminate practices that absorb unnecessary effort and time and obstruct progress towards completion of the project.

• Competition between proposals based on competitive tendering should ensure economical tenders and alternative design concepts. It is suggested that an open-book system is adopted, whereby the construction firm will disclose its costs of production after the tender has been awarded, and the percentage margin would then be agreed mutually with the developer. Figure 32: The functional form and the selected governance structure of the five case reports and the suggested new governance structure



1. The dark green coloured boxes represent the governance structure that was used in the five case reports.

2. The blue dotted lines and coloured boxes represent the suggested new governance structure.

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SECTION 4 POLICY RECOMMENDATIONS

In this report, we consider the problem of supplying affordable houses to the general public from the perspectives of both an institutional arrangement (national business system) and the firms (industry value chain analysis and the economics of governance). This is based on the premise that improvements are needed at the level of construction projects and firms in order to increase the affordability of houses at the national level.

The recommendation for institutionalising reforms and restructuring the procurement system is important since it will improve the overall efficacy of the firms that are involved in the production process in terms of time, costs and quality at the construction project level. This will lead to cost efficiencies for the housebuilding industry.

If the restructuring of the procurement system is not made to reflect the new production value-chain, then firms will not have the opportunities to innovate or invest in technological advancements. This is the primary recommendation of this report: the creation of a conducive institutional and governance structure for firms to anchor their new production methods.

As demonstrated by 8990 Holdings, *a* willingness to participate in the wider concerns of building liveable cities and communities will ensure that these cost efficiencies will be passed to housing consumers. But more importantly, these measures have proven to be a sustainable business model and financially viable for the company and its allied industries in the long-term. The policy recommendations and the actions needed are interlinked supply-side interventions to the housing market:

• Develop measures to improve the efficacy of the construction industry's delivery system to supply housing at affordable prices.

The new production methods embedded within the new production system are intended to make housing supply more responsive to the purchasing power of populations at specific locations.

- Develop measures to reduce pressures leading to rapid house price escalation. It is recommended that the housing units built under the proposed new scheme be subject to a limited-period moratorium, sufficiently long enough for the next batch of housing stock to be supplied into the market at affordable prices as well.
- Develop measures to plan for a steady supply of housing at affordable prices. In order to match this steady supply to demand efficiently, detailed information leading to efficient planning is required. This is turn entails a national data repository on the conditions of demand and supply of housing at specific locations.

It is encouraging to note that some of these policy measures have been outlined as recommendations in the recently-released 11th Malaysia Plan (Refer to Appendix 7).

CHAPTER 9: KEY FINDINGS AND POLICY RECOMMENDATIONS

Develop Measures to Improve the Efficacy of the Construction Industry's Delivery System to Supply Housing at Affordable Prices

Box 6: Key Findings from Section 3

The existing national business system for construction is one which is highly fragmented, underpinned by a rigid procurement system that provides little incentive for innovation, which in turn reduces efficiencies and keeps costs high.

Property developers rely on construction firms to innovate without themselves investing financially in R&D and innovative production methods. Contractors on the other hand depend solely on external IBS or proprietary systems. Lack of training for construction workers will mean that the design will not be able to be assembled on site.

The policy recommendation is to develop a designated procurement route to consolidate the resources of the firms involved in delivering affordable houses.

The 11th Malaysian plan has in its Strategy D2 (see Appendix 7), a focus on driving productivity by increasing technology adoption, modernisation of construction methods and on reducing dependency on low-skilled labour.

It also encourages the adoption of the IBS by the industry through revision of the public procurement policy and Uniform Building By-Laws; as well as wanting to improve on existing regulations to ease construction-related business processes. The below policy recommendation and steps will attain the desired objectives of Strategy D2. 1. A new designated procurement delivery system that allows for the consolidation of the resources of firms within the supply chain. This entails a move from using the TGC procurement route towards a designand-build or turnkey governance structure and forming framework agreements with the material supply section.

2. Extending the consolidation of the supply chain in the design-and-build approach into a clustering approach with key material supply firms under a framework agreement would enable a strong resilient housing supply cluster to be built.



Figure 33: The functional form and the suggested new governance structure

The blue coloured boxes represent the suggested new governance structure.

- 1. This new procurement structure will create institutional arrangements with designers, contractors and material suppliers to encourage improvements in their factor productivities and efficacious management of building materials.
- 2. The cost-savings accrued as a result of lower construction costs based on construction innovation will be translated into higher floor areas for the newly constructed homes.
- 3. The creation of this new cluster of firms will improve the prices of new incoming stock of houses (making them more affordable to the general public) as a result of:
 - the lower costs of construction resulting from the use of proprietary building systems and the integration of design, construct and assembly processes.

- the support of government in siteseeking and purchase, obtaining planning permission and building regulations approval, financing facilities and other associated development components.
- the support of government for the development of mandatory standard building specifications for the newly constructed homes.
- 4. Rent-seeking activities will be discouraged through the introduction of a moratorium of five years for house buyers as well as the provision of data on new incoming stock of houses (refer to the policies discussed below).

Develop Measures to Reduce Pressures Leading to Rapid House Price Escalation

Box 7: Key Findings from Section 2

Land is a derived demand and the rapid escalation of house prices will induce bidding for land prices to their maximum potential returns away from other types of competing uses. From 2000 to 2014, the Malaysian house price index showed a compound annual growth rate of 5.6% as well as an overall increase of 131.5% in house prices.

Short-term speculative behaviour will only serve to increase house prices and therefore the derived demand for land in an artificial way, but the impact is permanent. As can be seen from the house price theory and the dominance of existing stocks from incoming flows, the existing stock of houses will determine the prices of new stock. Ceteris paribus, when no other cost items are increasing, the high economic rent of proposed new stock will be used to bid higher prices for land. This creates a vicious cycle of escalating land and house prices.

The policy recommendation is to impose a moratorium of five years on selling houses that are built through the new designated procurement route:

- 1. The supply of new stock of houses produced through the newly-designed procurement route needs to be insulated from short-term speculative behaviour in order for the initiative to be successful.
- 2. For houses built through the new designated procurement route, a moratorium is needed to create a buffer period for new stock to come in at affordable prices as well. If the new stock is affordable and costs are lower than the speculative prices, this will evidently diminish the gains from speculative activities. A moratorium has the objective of curbing the rapid price escalation of houses. Therefore, if there is an urgent sale before the period of five years, then the unit can still be sold but based on nominal values.

Develop Measures to Plan for a Steady Supply of Housing at Affordable Prices

Box 8: Key findings from Section 2 and 3

It is difficult to plan for a steady supply of stock that will effectively reduce the inflationary pressures of an inelastic supply when effective demand can neither be estimated at the state nor the mukim level.

Effective demand for housing is dynamic in nature since it reflects the demographics and future prospects of the local population at each specific site. There is also an internal dynamism at the level of the individual family in terms of the types of housing demanded according to family composition and the progressive changes in families' income in the long term.

While the objective of the National Housing Policy⁵⁹ is to provide adequate, comfortable, good-quality and affordable houses to improve the well-being of the people, it does not provide the data and evidence on this housing need or on the effective demand that would be necessary to implement the policy in a coherent and sustainable manner.

The policy recommendation is to undertake a National Housing Survey.

The 11th Malaysia Plan⁶⁰ has highlighted the mismatch in demand and supply for affordable housing. The document highlighted the escalating House Prices in Major Cities (following the World Bank Affordability Index which is three times the annual household income) and cited the lack of integrated planning and implementation as one of the reasons for this problem.In Strategy B2: Strengthening planning and implementation for better management of public housing, the document recommends the establishment of an integrated database for all relevant stakeholders (to ensure housing supply matches demand according to locality, price and target groups). The policy option of creating a National Housing Survey as detailed below will have the desired outcome of Strategy B2.

1. A National Housing Survey will provide guidance to Federal and State governments and local authorities, enabling them to plan for a steady supply of housing at affordable prices through housing programmes at the mukim level, which are based on effective demand and land suitability.

⁵⁹ National Housing Department (2011)

⁶⁰ Focus area B: Providing adequate and quality affordable housing in Chapter 4: Improving wellbeing for all (EPU 2015)

- 2. If made public, information collected in the National Housing Survey will also provide the general public with the requisite knowledge to make better house-buying decisions. As housing consumes a significant proportion of their household incomes, the general public needs to be able to plan for the purchase and to choose between different types of houses at different prices, which in turn will lead to better financial planning on their part as well.
- 3. The proposed National Housing Survey should include:
 - demand-side analysis: covering the distinct demographic patterns

between States at the mukim level (for example, whether mukims consist predominantly of young dependents and families, working populations or retirees) and incomes.

• supply-side analysis: a land suitability assessment including the current land-use patterns and zones.

The demand- and supply-side survey and analysis performed for each state could be repeated every five years to reflect the dynamic and organic nature of housing programmes.



Figure 34: Planning and implementation of a National Housing Survey

As shown in Figure 34, the National Housing Survey will provide input to each State to enable it to plan for adequate and suitable housing stock to meet the different needs of the general population at strategic locations. The state and local councils would be required to monitor the quality and quantity of these new housing stocks and provide more information (input) for the next National Housing Survey.

4. Currently, there is data available to undertake a supply-side housing land and suitability model. However, the demand-side data is limited, hence the need to undertake a National Housing Survey. Both sets of demand and supply conditions could then be analysed to determine the need and policy appropriate at each state and district level. The National Housing Survey will enable the development of various models with greater resolution and accuracy. This will provide information on the different solutions needed for each state. Among the possible outputs are:

- population forecasts
- housing demand range
- migration patterns
- household size by housing type
- social housing against social economic variables
- land suitability for different housing types
- 5. The National Housing Survey would be best undertaken by both the Federal Town and Country Planning Department (JPBD) and the National Housing Department (JPN).

CONCLUDING REMARKS

In most developed countries, issues of affordability for the economically disadvantaged are dealt with through social housing schemes. Social housing is seen as a necessary means of ensuring a decent home for all. However, in certain countries, this means housing very few households directly, while at the other extreme, the scale of provision can be as high as one in three households. The trends in Malaysia suggest that both the bottom 40% and the middle 40% of household income earners are likely to end up in some form of social housing if the relevant interventions are not made urgently.

The available evidence suggests that unless immediate action is taken, the provision of social housing for the vast majority of the population will put unnecessary financial pressures on government spending. It makes more economic sense to ensure that the purchase of a home is financially viable to the general public than it does to rely on existing models for the provision of social housing.

APPENDIX 1 FORMULA OF GROWTH RATE CALCULATION

The calculation of average and compound annual growth rate (CAGR) follows DoS's method of calculation in the Household Income and Basic Amenities Survey publications.

Average annual growth rate

Calculation of the average annual growth rate based on the geometric function as follows:

$$r = \left(\frac{Y_t}{Y_o}\right)^{\frac{1}{t}} - 1$$

Where;

- *r* average annual growth rate
- Y mean household income
- t period

Compound annual growth rate

Calculation of compound annual growth rate based on the exponential function as follows:

$$CAGR = \frac{In\left(\frac{Y_{t}}{Y_{o}}\right)}{t}$$

CAGR	compound annual growth rate
Y_{t}	household monthly income of current year
Ý	household monthly income of previous year
t	period

APPENDIX 2 AFFORDABLE HOUSING SCHEMES

Perumahan Rakyat 1Malaysia (PR1MA) was launched in 2011 to provide affordable homes for middle-income households in key urban centres. Perbadanan PR1MA Malaysia was established under the PR1MA Act 2012 to plan, develop, construct and maintain high-quality housing for the PR1MA programme. Perbadanan PR1MA works with private sector developers to build PR1MA homes.
Perumahan Penjawat Awam 1Malaysia (PPA1M) is a government-led initiave to help civil servants, especially low and middle income earners, to affordably own a comfortable house. Perbadanan Putrajaya acts as the coordinator and developer of PPA1M for the Putrajaya region, PPA1M's first project since it was launched in 2013.
Penang Affordable Housing Scheme (RMM) is a Penang State Government initiative to provide quality housing at affordable prices for Penang residents. Through public-private partnerships in construction, the State Government aims to provide a range of affordable homes in various strategic locations across Penang. RMM provides a range of low, low-medium and affordable housing units under the scheme.
Syarikat Perumahan Negara Berhad (SPNB), a wholly owned subsidiary of the Ministry Of Finance Incorporated (MoF Inc.), is responsible in implementing the Rumah Mampu Milik (RMM) Programme, which aims to ensure those in low income groups are able to affordably own comfortable homes. SPNB offers and has successfully completed several low cost, low medium cost and medium cost housing projects through the RMM programme.

Description
The Ministry of Federal Territories launched its affordable housing initiative, Rumah Wilayah Persekutuan (RUMAWIP) in April 2013 with the objective of providing housing to the residents of the Federal Territories. The construction of the affordable housing units is done through public-private partnerships with private sector construction firms.
Sarawak's Housing Development Corporation (HDC) leads the RMM scheme in Sarawak with the aim to develop low and medium cost housing units for sale to low income earners in the state. Between 1973 and 2014, HDC has completed 31,237 units of Affordable Housing (Low Cost) throughout Sarawak.
The Selangor State Government introduced its affordable housing policy, Rumah Selangorku, in January 2014 to ensure Selangor residents are able to own a decent, comfortable and secure home to live in. Led by Lembaga Perumahan dan Hartanah Selangor (LPHS), low, low-medium, medium and affordable housing units/projects in Selangor are rebranded as 'Rumah Selangorku'. Houses under the scheme are built by private sector firms.
Under the Urban Wellbeing, Housing and Local Government Ministry, MyHOME was launched in April 2014 to help low income households own a house at an affordable price. Under the scheme, qualified private sector developers will receive an upfront subsidy of RM30,000 per affordable home sold.
The Johor State Government launched the Johor Housing Policy (DPR Johor) in April 2012 to ensure property developers build and offer affordable housing options within property development projects in Johor. Under the housing policy, developers need to build affordable houses amounting up to 40% of the entire development project.

APPENDIX 3 SPECULATION, HERDING AND MARKET INEFFICIENCY

We present a stylised model describing how perfectly rational actions by agents in the housing market may still lead to inefficiencies in equilibrium price outcomes and, consequently, to a possible asset bubble. An influential paper by Bernanke and Gertler (1999) states that an asset bubble exists whenever the market price of the given asset, St, differs from its fundamental value, Qt, defined as the present value of the dividends (or returns) the asset is expected to generate. Furthermore, they formally describe asset bubble persistence, where they assume that if a bubble exists at date t, it persists with probability p and grows as follows:

$$S_{t+1} - Q_{t+1} = (a/p) (S_t - Q_t) R^q_{t+1}$$

with p < a < 1. *a* is a time friction factor and is included to make the more realistic assumption that events in time *t* do not translate one for one to events in time *t*+1. However, note that because a/p > 1, the bubble will grow until it bursts.

The concept of a bubble is not unfamiliar in the housing market literature. For instance, research by Haughwout et al. (2011) find that speculative behaviour driven by highly leveraged loans was "much more important in the housing boom and bust during the 2000s than previously thought." Put another way, speculative behaviour contributed significantly to the United States housing bubble of the 2000s that ultimately led to the global financial crisis of 2008 and 2009. The question that arises is how does speculation occur and how does speculation persist. These questions are important in relation to affordable housing for two reasons. First, as mentioned above, speculation may lead to bubbles and bubbles are tricky to navigate and they force authorities to make difficult decisions based on highly incomplete information, which may have severe negative consequences. For a more detailed discussion, see Bernanke (2002), Assenmacher-Wesche and Gerlach (2008), Bernanke and Gertler (2001), Bordo and Jeanne (2002), Kohn (2006), among others. Second, if we want affordable housing to live up to its name, then any instance where market prices for affordable housing deviate from the true value of affordable homes is undesirable and hence, must be curbed.

The first question is in the realm of monetary policy which is best discussed elsewhere. The second, however, is within the scope of this report. We use a simple herding behaviour model, first developed by Banerjee (1992), to show how even the actions of one single speculator in the housing market may lead to a Bayesian Nash equilibrium where every house is sold for more than its market value - for entirely rational reasons, as opposed to the "animal spirits" of Akerlof and Shiller (2009) - thereby potentially defeating the purpose of affordable housing. In fact, herding behaviour has been shown to meaningfully impact housing prices. Research by Baddeley (2005) argues that the housing market is more effectively modelled when bubbles, herding and frenzies are introduced into the analysis. This is corroborated with evidence from Hott (2009) who finds that herding is able to explain price bubbles in Switzerland, the Netherlands, the United Kingdom and Japan much better than the fundamental price.

The Herding Model

The model setup is as follows. A housing sellers' population of size N is trying to decide the price at which to sell their houses. We can index these prices as p ϵ [0,1] with 0 representing the market value for the house. The distribution is uniform. Note that each point in the range [0,1] is just an index for a price. There is a unique p^* such that u(p) = 0for all $p \neq p^*$ and $u(p^*) > 0$. No one has perfect information and, consequently, no one knows p^* for sure. Essentially, p^* is the highest price that a seller can sell her house at in the market given all possible constraints in the economy⁶¹. Each seller in the population receives a signal telling her that the true p^* is p~ with probability α . However, the signal need not be true, and the probability that the signal is false is $1 - \beta$. Therefore, each seller may or may not receive a signal and conditional on receiving a signal, that signal may or may not be true.

With this setup, the next step is participating in the housing market itself. Clearly, an assumption here is that there is always more than sufficient demand for houses; otherwise, a lack of demand would mean that housing prices could not increase through speculation. So, of the N sellers, one person, chosen at random, takes her decision first on the price at which she will sell her house. The next person goes next but is allowed to observe the choice made by the previous person although she does not know for certain whether the person before her actually got a signal, since each seller only receives a signal with probability α . After everybody has made her choice, payoffs are realised, and the game ends. The structure of the game and the assumption of Bayesian rationality (updating of priors at every stage) are

⁶¹ Note that p^* will be larger than 0 (the market value) because sellers know there are speculators in the market who may be willing to pay more than market value for homes in the belief that they can flip it for an even higher price in the future. Also note that p^* need not be 1.

common knowledge. Therefore, each person's strategy is a decision rule that tells us, for each possible history, what that person will choose.

If everyone acts rationally, we can identify a Bayesian Nash equilibrium in these strategies. The nature of the equilibrium play, however, depends on three critical tie-breaking assumptions which are:

Assumption A – Whenever a decisionmaker has no signal and everyone else has chosen p = 0, she always chooses p = 0.

Assumption B – When decision-makers are indifferent between following their own signal and following someone else's choice, they always follow their own signal.

Assumption C – When a decision-maker is indifferent between following more than one of the previous decision-makers, she chooses to follow the one who has the highest value of p. Assumption A basically states that the "default" sales price is the value of the house; if there is no updating of information from others, and a decision-maker has no signal, then she has to sell at the house value. Assumption B states that everyone's signal is of the same quality as the others and choosing their own signal is just a tie-breaking choice. Assumption C states that given when the decision-maker values all other signals equally, she will make a tie-breaking choice to pick the sales price that is of the highest index.

With the model setup and assumptions as described, Banerjee's key result is a proof that shows that once one option has been chosen by two people, the next person should always follow that option unless her signal matches one of the options that has already been chosen; in that case, she should follow her own signal. A full description and proof of the equilibrium are given in the paper. Figure I is an illustration of what each decisionmaker would do depending on whether there was a signal or not and given the history of choices made, and thus the Bayesian Nash equilibrium of the game.



Figure I The k^{th} decision maker's choice problem (k > 2)

Banerjee states that the equilibrium decision rule in the model is "... characterized by extensive herding: agents abandon their own signals and follow others even when they are not really sure that the other person is right." For instance, if the first person chooses p > 0 and the second person follows her, the third person will always follow the first two according to Banerjee's proof. All subsequent decision-makers will also choose the same option. Another instance of herding is where the first and second person, and the third and fourth person choose different options. After $n \in N$ options have been chosen, if the next decision-maker does not have a signal, she will choose the option with the highest value of p that has already been chosen. Following this, all subsequent decision-makers will choose that value of p unless one of their own signals matches one of the options already chosen, which can happen only if the optimal p^* has already been chosen which, as we know, is given by probability β . Thus, there will be herding at an incorrect option unless the first decision-maker to have a signal made the correct choice, or someone coming after her, but before the first subsequent decision-maker without a signal, made the correct choice.

In fact, we can calculate the probability that no one in the population chooses the right option. This probability is given by $[1 - \alpha(1 - \beta)]^{-1}(1 - \alpha)(1 - \beta)$. Thus, the probability that no one chooses the optimal option is decreasing in β and in α . Intuitively, if the probability that the signal is optimal is decreasing and if the probability that a decision-maker gets a signal is decreasing, then the probability that no one in the population chooses the optimal option will decrease as, firstly, their probability of getting it right is lower and, secondly, the probability of getting the opportunity to get it right is also lower.

Tying this back to the price of affordable housing, we can then easily see how the final p chosen in the setup will not be at p = 0 as long as $\alpha > 0$. As long as one individual gets a signal that they should sell at p > 0, herding will occur and is likely to be at suboptimal levels⁶². Therefore, all it takes is for one individual to convey the wrong signal and we can get a market that is highly speculative and may lead to a bubble. The bursting of a housing bubble can have dire consequences. A 2003 World Economic Outlook report estimates that while equity price crashes were associated with a 4% decrease in gross domestic product (GDP), housing price crashes were associated with an 8% decrease in GDP. The report also lists five reasons why housing busts are more severe than equity busts: housing price busts have more substantial wealth effects on consumption, are associated with stronger and faster adverse effects on the banking system, are more likely to have been preceded by a boom so that there are larger imbalances to be unwound, are more likely to be associated with generalised asset price bear markets or even busts, and are associated with tighter monetary policy. Thus, rather than risk the possibility of a burst housing bubble, it may be prudent to prevent possible bubbles in the first place and thus curb speculation on affordable prices that arises from herding which will, in turn, contribute to ensuring that affordable houses are, indeed, affordable.

⁶² Note that this does not imply that there is an optimal price at which to speculate. Rather, this says that *if* you were to speculate, there would be an optimal price at which to do it.

APPENDIX 4 METHODOLOGY FOR CASE STUDIES

Multiple Case Studies

The research took a process approach that regards human conduct as a process of "becoming" and aims to "capture" this reality in context⁶³. Social processes are deeply embedded in the contexts that produce and are produced by them⁶⁴. Consequently, it is important to examine the contexts concerned (at the organisation and project coalition levels) and how firms interact with each other within the traditional general contracting governance structure.

The method advocated here is a multiple case survey, the essence of which is the articulation of new insights and pattern recognition across cases. Therefore there must be a sufficient number of case studies to allow for meaningful frequency counts across the cases and to enable the study to attain some measure of "replication logic"65. The unit of analysis is the production units of the project, which are defined here as those responsible for architectural design, for project management and for actual construction. The basic fieldwork approach is the case study, and the objective is a metaanalysis of existing cases and the lines of enquiry follow "replication logic" in their formulation.

The essence of a case study is that it tries to illuminate a decision or set of decisions, including: why they were taken, how they were implemented, and with what results ⁶⁶.

It is often useful to get an idea of how the mechanisms within the units of analysis (say within a situation) are affected by the causes, and produce the effects. It is necessary to have an indicator of whether the individuals or organisations are thought of as a backdrop against which the variables act, or as actors who take account of the variable and produce the effect⁶⁷.

Theoretical Sampling and Data Saturation

Theoretical sampling is concerned with theory construction and the concern is to check and refine the researcher's emerging categories of the phenomenon⁶⁸. Strauss and Corbin⁶⁹ suggest that sampling should be directed by the logic and types of coding procedures used in analysing and interpreting data. The method of analysis used in this situation is described as open coding, and sampling is open to those people, places or situations that would provide the greatest opportunity for discovery.

The following criteria were devised to correctly identify eligible participants for the case studies in Malaysia. These criteria suggest that these companies have had experience and are successful in building houses and therefore can provide the "highest resolution" in terms of giving their perspectives on the subject matter being investigated:

⁶³ Pettigrew (1997)

⁶⁴ Giddens (1984)

⁶⁵ Yin (2003), Miles and Huberman (1994)

⁶⁶ Schramm (1971)

⁶⁷ Stinchcombe (2005)

⁶⁸ Urquhart and Fernandez (2006)

⁶⁹ Strauss and Corbin (1998)

- 1. Housing development companies that are listed in Bursa Malaysia.
- 2. Housing development companies that have received acknowledgement for the good quality and/or design of houses through being granted the country's prestigious awards.
- 3. Housing development companies that were among the top 20 largest firms on Bursa Malaysia in terms of market capatalisation during the year of analysis.
- 4. Housing development companies that have a good reputation in the country for delivering houses on time and that are perceived to offer value for money.
- 5. Housing development companies that have been in business for more than 15 years.
- 6. Housing development companies that have undertaken at least five housing projects within the past 15 years.

The selection of the construction projects was also based on predetermined criteria to provide consistency in the types of development under analysis in order to produce the high resolution needed in describing the patterns and themes observed. The criteria are as follows:

- 1. Type of development, which is housing property.
- 2. Procurement route is traditional general contracting with PAM 98 Standard Agreement and Conditions of Building Contract.
- 3. Projects must have been completed within the past 5 years.

4. Developments must be large-scale; more than 80 units for each project.

In this sense, the housing developers are preselected according to a set of criteria that typifies a group of expert clients and therefore there exists only one category on the axial coding. This gives consistency to the axial "line" and enables the research to focus the analysis of the nodal codings or label phenomena that that will emerge from the data. It was also considered important that the projects selected (a subset of the "axial coding") are also deemed to comprise one category in order to provide a "constant" axial code to the phenomena under scrutiny.

The case study from the Philippines complied with the above set of criteria in the host country with the exception of item (2) for contract documentation.

Data Collection

The case survey methodology must be applied consistently to all cases selected for the study and requires the standardised collection of some key data. It was therefore decided to use a more structured research instrument than is normal with case studies. The instrument formed the basis of interviews with key informants in the cases studied. The aim was to interview the professionals responsible for the design and construction process, and for the management of the total process. Each set of interviews, together with supporting documentation, was written up as a case study and returned to each of the informants concerned for validation. Their comments were incorporated in a second version of the case study, which formed the basis for the data analysis. A feedback session was held at the end of the analysis. The purpose of this feedback session was to enable the researcher to present and discuss key findings of the research with the informants.

Analysis of Data

A case study protocol is aimed to collect data from each case study and to guide the researcher in writing the case study report for each project⁷⁰. The protocol developed for the case studies in Malaysia had the following elements:

- 1. An overview of the case study project.
- 2. Field procedures.
- 3. Case study questions.
- 4. A guide to writing the report of each case study project.

This is the recommended way of writing up a case study project; bearing in mind that Yin⁷¹ suggested that there is no uniformly accepted outline and that it is rare that each case study will be reported as part of a thesis in its entirety. The most important element is that a case study protocol will assist the investigator with the collection of relevant data, in the appropriate format, and will reduce the possibility that a return visit to a case study site will be needed. At the same time, the existence of such an outline should not imply rigid adherence to a predesigned protocol. One needs to be

Data Interpretation

The main aim of interpretation is to discover the perceptions and experiences of the participants so that the researcher can identify themes. These themes are then grouped into categories that relate to the phenomenon under investigation. Data are transcribed from interviews and coded using an "open coding" technique⁷². The open coding technique is a process of discovering the properties and dimensions of the concepts contained in each of the interviews. It allows the researcher to expose the thoughts, ideas and meanings contained within the text of the interviews. In the open coding process, data is broken down into discrete parts, closely examined and compared to detect similarities or differences. This allows the researcher to identify concepts or label phenomena.

The coded interviews are then set aside with each concept or phenomenon (nodal coding) clearly identified and labelled. This process is repeated with the information gathered from each additional interview from the same case study to add to the facts or to confirm the existing nodal coding. Different participants in the project were asked to give evidence about the phenomena that they observed. This data was then

aware that case study plans can change as a result of the initial data collection and that this flexibility is to be encouraged and can be beneficial to a case study strategy.

⁷⁰ Yin (2003)

⁷¹ Ibid.

⁷² Strauss and Corbin (1998)
compared with the evidence from documents and records of the project. This multi-method data accumulation is also known as triangulation, which approaches the observed phenomenon in question from different methodological standpoints. Each case study is written in this manner and a cross-comparison of nodal coding within the different case studies is done. At the end of this process, the researcher can draw cross-case conclusions and review the new coded data or "patterns" and compare them with the existing theory and literature.

Internal and External Validity

A good research design is judged by the way it approaches the two issues of comparison and control. Leedy and Ormrod⁷³ posed two basic questions that demonstrate the validity (accuracy, meaningfulness and credibility) of a research project:

- 1. Does the study have sufficient controls to ensure conclusions drawn are truly warranted by the data?
- 2. Can the observations in the research situation be used to make generalisations about the world beyond the specific situation?

Question (1) concerns the internal validity of a research project and whether its design and data allow the researcher to draw accurate conclusions from the study. In this report, internal validity is addressed by triangulation of the collected evidence. Data is collected from multiple sources to support the theory and this approach is especially common in qualitative research⁷⁴. In this study, the researcher conducted in-depth interviews, made informal observations and collected evidence from the project records and minutes of meetings. The researcher could then look for common themes that appear in the data collected by these three methods.

Question (2) addresses the external validity of the research, by asking to what extent the conclusions of this particular study can be generalised to other contexts. The concepts of internal and external validity originated in discussions of experimental design⁷⁵. However, qualitative researchers have begun to question their relevance qualitative designs⁷⁶. This is to difference because there is a clear between "experimental science" and the naturalistic study of human phenomena. In the former, specificity is a key issue. Natural sciences research is aimed at "generalizable findings" and therefore may have general implications for theory. However, with studies of human behaviour, generalisation from one group of people to another, or from one institution to another, is often suspect. This is because there are too many elements that are specific to a particular group or institution. Lincoln, Guba and Cresswell⁷⁷ have even suggested that words such as credibility, verification, dependability, conformability and transferability be used instead of the term validity.

⁷³ Leedy and Ormrod (2005)

⁷⁴ Leedy and Ormrod (2005) and Yin (2003)

⁷⁵ Campbell and Stanley (1963)

⁷⁶ Creswell (1998), Guba and Lincoln (1988), Woldcott (1994)

⁷⁷ Guba and Lincoln (1985) and Cresswell (1998)

Carson et al.⁷⁸ suggest that credibility, dependability and conformability can be achieved by the following:

- 1. Careful use, interpretation and examination of appropriate literature;
- 2. Careful justification of the qualitative research methodologies employed;
- 3. Careful structuring of data analysis to ensure full and descriptive evaluation and assessment, particularly in relation to data of key significance.

Each of these strategies must be considered and certain criteria have been proposed for use in evaluating credibility, dependability and conformability of qualitative findings. The present study used the following strategies and techniques:

1. Researching in the field, that is in the natural setting of the phenomena, for example, a respondent's own surroundings.

- 2. Using purposive or theoretical sampling rather than statistically random sampling.
- 3. Depth and intimacy of interviewing; one-to-one conversations and discussions.
- 4. Maintaining journals and creating memos to record what was done and thought throughout the research study.
- 5. Triangulation of data from several sources, such as different interviewees, different sites, and with different methods of collection and analysis, for example using observations, interview data and site records/meetings.
- 6. Checks by members of the group, that is, asking respondents to comment on drafts facts and to give their interpretation of those facts.
- 7. Holding meetings to present the findings of the research study to the original respondents and inviting respondents to comment and provide feedback and discuss the findings.

⁷⁸ Carson et al. (2001)

APPENDIX 5 INSTITUTIONAL ECONOMICS AND THE ECONOMICS OF GOVERNANCE

Economics of governance

The economics of governance is an effort to implement the study of good order and workable arrangements, whereby it includes both spontaneous order in the market and intentional order in firms⁷⁹. Spontaneous order in the market has been a venerated tradition in economics, and the interplay of supply and demand, ie the price mechanism, has been the defining factor in allocating scarce resources for their chosen uses⁸⁰.

Intentional order, on the other hand, is "conscious, deliberate, purposeful" resource allocation, undertaken by the management of a firm⁸¹, but within the general institutional arrangements (in this case the national business system) in which the firms operate. Workable arrangements mean "feasible modes of organisation", with the hypothetical ideals between the two extreme ends of the spectrum of markets (spontaneous) and firms (intentional)⁸². The object of study is to work out the efficiency logic for managing transactions by alternative modes of governance – principally spot markets, various long-term contracts (hybrids), and hierarchies (firms)⁸³.

In contrast to the orthodox approach of choices (prices and output, supply and demand), the economics of governance is an approach embedded in contract construction whereby it is observed as a "mutuality of advantage from voluntary exchange"⁸⁴. In this sense, the economics of governance is principally an exercise in bilateral private ordering, insofar as the immediate parties to an exchange are actively involved in the provision of good order and workable arrangements. However, the need for private ordering varies with the institutional arrangements as provided by the state; therefore the institutional arrangements need to be explored as well.

⁷⁹ Williamson (2005)

⁸⁰ Smith (1776) and Hayek (1945)

⁸¹ Barnard (1938)

⁸² Dixit (1996)

⁸³ Williamson (1985, 1992, 2005)

⁸⁴ Buchanan (2001)

New institutional economics

The area of new institutional economics with regard to analyses of the nature of institutions and the consequences of institutions for economic performance developed rapidly has over the past three decades into two broad approaches: North's interplay of firms within institutional arrangements and Williamson's transaction costs economics⁸⁵.

North⁸⁶ tries to explain the reasons for incremental institutional change over the years by looking at the nature of institutions involved in economic growth as well as their interaction with agents' behaviour. For example, North⁸⁷ has addressed the question of "collective action", that is, why certain firms would want to cooperate and come together in order to procure jobs, and whether this collective action transcends Axelrod's⁸⁸ behavioural assumptions⁸⁹.

North⁹⁰ claimed that the deliberate effort of human beings to control their environment is the key reason why economic performances can be improved. The neo-classical approach - that competition would eliminate inefficiencies in the market and the invisible hand would fulfil the role of a "central planning unit" for coordination was a false premise. However, North qualifies that there is nothing to suggest or imply that institutions are efficient, because there is a gap between the competence of an agent in deciphering the problems surrounding the issues and the difficulty in selecting the most preferred alternatives⁹¹. Heiner⁹² also postulated that activities will be subject to more regularised conditions if the gap is wider.

⁸⁵ Menard (2004)

North (1981, 1990, 2004)

⁸⁷ North (2004)

⁸⁸ Axelrod (1984)

Axelrod claimed that if cooperation is a repeated game, human beings will devise cooperative solutions to problems without the intervention of the coercive state. Evolution of Cooperation, 1984. 90 North (2004)

North cited Heiner (1983) on the "c-d"/" competence-difficulty" gap, a gap between the agent's competence and the difficulty of the decision problem.

⁹² Heiner (1983)

North⁹³ defines institutions as any constraint humans form of devise to shape human interactions. These constraints would include formal constraints such as rules, statutes and regulations and informal constraints such as culture, conventions and codes of behaviour. Furthermore, North⁹⁴ defined organisations as a structure of human interactions that operate within the institutional arrangements. Therefore, the terms organisations and institutions were used interchangeably in North's work.

North⁹⁵ provided a useful metaphor for institutional arrangements and institutions/organisations by comparing them to the rules of a game in a competitive team sport. These rules define how the game should be played and the players' skills, strategy and coordination then determine whether they will win the game or not. The "players" in this metaphor is a direct reference to organisations. Therefore institutional arrangements are the "reality" of the political-economic system⁹⁶. The other direction in which new institutional economics has made significant progress is with the microanalytical approach⁹⁷. Following Coase, who extended his analysis of the nature of the firm98 to all modes of organisation with the concept of institutional structures of production⁹⁹, Williamson¹⁰⁰ has elaborated tools for exploring the mechanisms of governance. Based on this work, a significant amount of research and empirical testing has been performed and theories have been put forward about the different structures of governance that can support and secure transactions¹⁰¹.

Williamson¹⁰² considers that transaction costs economics can:

- 1. explain the workings of the emergence of the firm and its limits
- 2. show that many non-standard contracting forms of organisation are efficient relative to other forms of contractual arrangements
- 3. explain the internal organisation of the firm in terms of its governance structure.

⁹³ North (2004)

⁹⁴ North (2004)

⁹⁵ North (1990)

⁹⁶ The "reality" of a political-economic system is a construct derived from the "beliefs" of society that are both a positive model of the way the system works and a normative model of how it should work. The belief system may be broadly held within the society reflecting a consensus of beliefs or widely disparate beliefs, reflecting fundamental divisions in perceptions regarding the politicaleconomic system (North, 2004).

⁹⁷ Menard (2004)

⁹⁸ Coase (1937)

⁹⁹ Coase (1991)

¹⁰⁰ Williamson (1996)

¹⁰¹ Menard, (2004) and Aoki et al. (1990)

¹⁰² Williamson (1971)

Williamson¹⁰³ contends, (following Coase) that transaction costs economics can explain the emergence, the existence and the evolution of organisations by showing that they result from a constant search for ways of economising on transaction costs on the part of individuals.

A transaction following Williamson's definition is:

...the microanalytic unit analysis in transaction cost economics. A transaction occurs when a good or service is transferred across a technological separable interface. Transactions are mediated by governance structure"

Williamson, 1975: 1, 1996: 379.

A technologically separable interface in the construction industry would refer to a service contracted from the design team and the construction team, where both teams' activities from a production process's point of view are perceived technologically separated. being as Although some aspects of the work might overlap, each team has its own professional institutions, and the teams are separated from each other by the existence of discrete firms, or by the different technology and nature of the work¹⁰⁴.

¹⁰³ Williamson (1975)

¹⁰⁴ Ive et al. (2003)

APPENDIX 6

DETAILS OF PROCUREMENT ROUTES ACCORDING TO FUNCTIONAL FORM

a) Methods of funding

Who will finance the project? Project financing can come from a public body client, private client or a mixture of both public and private funding.

b) Methods of contracting

What forms of contract would the design and construction of the facility be using?

The contract form normally follows the types of procurement routes that are currently available in the country. For the purposes of the present report, the methods of contracting are classified into three main categories: "separated", "integrated" and "mediated"¹⁰⁵.

c) *Methods of selection* How would the developer choose the contractors for the job?

The methods available for choosing contractors range from competitive tendering or negotiated contracts, continuity contracts and serial contracts, to in-house nomination. The selection of contractors by limited competitive tender should offer the assurance of achieving the lowest price for the project, providing that all design work has been completed and translated into the tendering documents. The designer's drawings should be sufficiently detailed for a bill of quantities to be prepared and incorporated in the tender.

This is rarely the case, however, and therefore a two-stage tendering process may be adopted. The tender documentation in the first stage will only provide sketches and a bill of approximate quantities. Contractors are invited to submit tenders on this basis, after which the successful tenderer is normally notified of the client's intention to engage him under a contract if certain conditions are met. The final tender figure agreed will be based upon total re-measurement of the project once working drawings are available.

In negotiated contracts, a contractor can be appointed early in the design stage based on his past credentials (skills and knowledge) to provide advice on buildability, value engineering and construction methods. Subsequently, the contractor will agree on a contract price for the project before commencing work on site.

105 Winch (2002), Masterman (2002)

The price can be established on the basis of bills of quantities or rates charged for a comparable project done elsewhere.

In continuity contracts, contractors bidding for a project on the basis of single-stage tendering are advised that the successful tenderer, subject to satisfactory performance, will be awarded a similar project to follow on from the completion of the first. The price for this subsequent project will be negotiated using the tendered rates included in the bills of quantities for the original project as a basis. In serial contracts, a number of projects, often referred to as a programme, are awarded to a single contractor following the receipt of competitive tenders based on a master bill of quantities. Although forming part of the same programme, each project is administered by means of a separate contract with the contract sum for each being calculated using rates priced in the master bill and the quantities appropriate to each project.

d) *Methods of payment* How would the developer pay the contractor?

There are three main approaches payment, namely, fixed-price to contracts, incentive contracts and fee-based contracts. In fixed-price contracts, the price is fixed for the supply of an agreed amount of work. The payment can be either a true lump sum where the contract price is fixed, or it can be subject to aftermeasurement if the precise quantity of work to be done is not known in advance. Fixed-price contracts are used in situations where a large amount of information is available, and thus the contract is relatively complete at the time of agreement. Such contracts frequently contain provisions for minor adjustments to the price to take account of inflation or variations in the quantity of work done, through the use of bills of quantities.

In fee-based contracts, goods and services are provided at an agreed rate as a function of an agreed parameter. Fee-based contracts are used where it is possible to identify broadly the types of resources required, but not the amount required. Such contracts are typically used in situations of high uncertainty, such as in the early stages of design, and in maintenance on a schedule of rates. Indeed, they are the predominant way of procuring architectural and engineering design services. In construction, there are two ways of letting fee-based contracts. The first is a cost-reimbursable contract, where the parameter is the costs incurred by the supplier itself on the basis of an agreed rate (frequently time-based) for the provision of the required resources (typically skilled people). The second is where the parameter is the price of the contract let for the execution of the works on site.

Incentive contracts combine features of both fee-based and lump-sum contracts. There is a wide variety of such contracts, but what unites them is the attempt to provide positive incentives within the contract to motivate performance through gainsharing between parties. Incentive contracts usually consist of a target price (TP) for the facility consisting of an estimated actual cost (ACe) for inputs required to construct the facility, plus a percentage fee to cover supplier's overheads and profit. If outturn actual cost (ACo) is greater than the estimated ACe, then the contractor pays (ie is not reimbursed for) an agreed share of the excess; if ACo is less than ACe, then the contractor is paid an agreed share of the saving. These relationships need not be linear, and can be capped to limit the risk to one of the parties relative to the other.

e) Methods of service of the shared services (in stratified properties) after completion Does the developer provide service after completion of the project in terms of the running of the facility? Certain projects undertake long-term operations for the shared services items (badminton courts or the like) for stratified properties. Currently, the public amenities are managed by the Management Committee of the building complex.

APPENDIX 7

$11^{\rm TH}$ MALAYSIA PLAN MEASURES RELATED TO AFFORDABLE HOUSING

CHAPTER 3: ENCHANCING INCLUSIVENESS TOWARDS AN EQUITABLE SOCIETY

Focus area A: Uplifting B40 households towards a middle-class society Strategy A2: Addressing the increasing cost of living

- Provision of affordable housing.
- Provide special interest rate loans with a 10-year moratorium on sale of property.
- Continuing the affordable housing scheme by Perbadanan PRIMA Malaysia and Syarikat Perumahan Negara Berhad.
- Provide housing rental assistance to eligible households.
- Encourage state governments to set an adequate quota for affordable housing.
- To refurbished the existing low-cost flats and houses as part of holistic campaign.
- Continue to provide housing with basic amenities through construction of integrated settlements under PBR especially to Orang Asli in Peninsular Malaysia and those living in Sabah and Sarawak.
- Continue PPR for poor households in urban area.

Focus area C: Transforming rural areas to uplift wellbeing of rural communities Strategy C3: Improving rural-urban linkages

- Integrate transportation system to provide better connectivity.
- Provide more cost-effective routed for buses to increase mobility.
- Strengthen the role of UTCs, RTCs and mini RTCs as conduits of ruralurban linkages by leveraging ICT.

CHAPTER 4: IMPROVING WELLBEING FOR ALL

Focus area B: Providing adequate and quality affordable housing to poor, lowand middle-income households Strategy B1: Increasing access to affordable housing for targeted groups

• **Continuing Program Bantuan Rumah** (PBR) for the poor. It aims to provide comfortable home in the rural areas, particularly for hardcore poor households headed by elderly, single parent and disables, and households with larger dependents, including Orang Asli in Peninsular Malaysia and poor households in rural and remote areas in Sabah and Sarawak. As of March 2015, 15,322 houses were built and another 41,346 houses were repaired.

- Continuing the RMR1M, Program Perumahan Rakyat (PPR), PRIMA and PPA1M for the low and middle income households.
- As of March 2015:
 - a. 23 PPR projects with 12,025 houses were built and 63 projects with 27,087 were under various stages of development.
 - b. 32,948 houses were built under the Rumah Mesra Rakyat 1Malaysia (RMR1M), implemented by SPNB.
 - c. PR1MA approved 119,333 homes for development nationwide, 18,400 are under construction. Rent-to-own financing schemes introduced in 2014 to assist PR1Ma house buyers.
 - d. 13,539 units of PPA1M are being constructed.
 - e. 9,309 of Rumah Wilayah Persekutuan (RUMAWIP) units were under construction.
- Continue programmes for secondgeneration FELDA and FELCRA settlers.

- Revive abandoned private housing projects by providing assistance to developers.
- Ensure an environmentally sustainable housing
 - a. Provide adequate landscape spaces for recreational activities and social interaction.
 - b. Two guidelines on public recreation development in housing projects were formulated: 1. Open Space and Recreation Guidelines
 2. Physical Planning Guidelines for Senior Citizens.
 - c. Green Neighbourhood Planning was formulated in 2013 to promote green lifestyle and green housing development schemes.
- Promoting House Ownership through enhance financing schemes which are My First Home Scheme, Youth Housing Scheme and MyHome.
- Build transit homes for youth and young married couples in urban areas (including those under the 1Malaysia Youth City programme).
- Encourage private sector to develop public housing through public-private partnerships.

Strategy B2: Strengthening planning and implementation for better management of public housing

- Establish an integrated database for all relevant stakeholders (to ensure housing supply matches demand according to locality, price and target groups).
- Establish a land bank for development of affordable housing particularly in urban areas.
- Leverage on collaboration between National Housing Department with State Islamic Religious Councils to unlock potential waqf and baitulmal land.

Strategy B3: Encouraging environmentfriendly facilities for enhanced liveability

- Encourage affordable housing to adopt sustainable practices.
- Provide liveable and environmentfriendly facilities and infrastructure for the rakyat, including PWD and senior citizens.
- Review public housing rental rates to ensure sufficient funds are available to cover the cost of management and regular standard maintenance of public housing.
- Promote community involvement to highlight collaborative responsibility in maintaining housing communities.
- Improve the quality and condition of the low and medium cost homes through MyBeautiful Malaysia.
 - a. Program Penyenggaraan Perumahan (PPP)
 - b. Tabung Perumahan 1Malaysia (TP1M)
 - c. Maintenance of Government quarters

Strategy Paper: Issues and challenges

- Mismatch in Demand and Supply for Affordable Housing.
- Escalating House Prices in Major Cities (uses the World Bank Affordability Index which is three times the annual household income).
- Lack of integrated planning and implementation.
- Poor maintenance of public housing.
- Insufficient amenities.

CHAPTER 8: RE-ENGINEERING ECONOMIC GROWTH FOR GREATER PROSPERITY

Focus area D: Transforming construction Strategy D1: Enhancing knowledge content

• Increasing quality of human capital, accelerating capacity and building of SMEs and Bumiputera contractors.

- Foster greater collaboration between Construction Industry Development Board (CIDB), the respective professional boards and training institutions to develop industryrelevant training modules.
- Introduce a structured skilled trade apprenticeship program for specific courses (such as safety supervisors, crane operators and rotary drill operators).
- Enhance SME capabilities (particularly Bumiputera contractors) with support of key partners.
- Establishment of productivity CoE for sharing of best practices.
- Undertake regular manpower planning to reduce mismatch between labour demand and supply.
- Increase proportion of skilled foreign labour by streamlining entry requirements and introducing new levy system.

Strategy D2: Driving productivity

- Focus on increasing technology adoption.
- Focus on modernisation of construction methods.
- Focus on reducing dependency on low-skilled labour.
- Target increase of labour productivity by 1.6 times (from RM39,116 per worker in 2015 to RM61,939 per worker by 2020).
- Expedite the adoption of IBS by the industry through revision of the public procurement policy and Uniform Building By-Laws.
- Improve existing regulations to ease construction-related business processes.
- Providing a common platform to use BIM on a pay-per-use basis.

Strategy D4: Increasing the internationalisation of construction firms

- Focus on building capability and scale of firms by encouraging high-performing SMEs to forge partnerships with larger corporations or form multidisciplinary consortia when bidding for international projects.
- Review the public procurement policy to facilitate the formation of such consortia.
- Encourage firms to leverage FTAs and MRAs.
- Provide feedback to the Government on challenges faced when venturing abroad to enable issues to be addressed at government-to-government level.
- SEF will assist construction firms to secure opportunities abroad. (SEF covers activities such as tendering, negotiating, conducting feasibility studies for international projects and export promotion activities).

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