

## CHAPTER FIVE

### THE SUPPLY OF HOUSING

Housing is a small but nonetheless a very important sector of the national economy. That importance, typically measured directly in terms of aggregate production (output), or in levels of investment, employment or consumer expenditures. In most developed countries, the residential construction's share as a percentage of gross fixed capital investment is varied from 4 to 8 per cent, and in investment terms from 3 to 6 per cent of gross domestic product.<sup>1</sup> But these figures understate the importance of the housing sector. The value of services derived from housing totals as much as 15 to 20 per cent of domestic expenditures by consumers, and an even larger component of national household wealth.<sup>2</sup>

Therefore, on the demand side, housing is most characteristically a "necessity"; it can be assumed quite reasonably that each family or other type of social household wishes to have a separate housing unit. While on the supply side, housing's most significant characteristic is its heavy capital cost. To purchase a house for a family, often

requires resources equal in value to substantially more than the family's total annual income. Thus, it is the most expensive single commodity which the ordinary family ever uses and, if the family owns its dwelling, the house usually represents by far the most important asset which the family can accumulate.<sup>3</sup> Based on this, it will be very interesting to examine why housing has this important supply characteristic.

On top of that, housing supply is important to the economy for two reasons:<sup>4</sup>

- a) It tends to be used as a "regulatory tool" by national governments, and
- b) It generates an extensive number of "multiplier effects."

Housing supply is used as a regulatory tool due to its sensitivity to the business or economic cycles. Apart from that, the property market cycle also contributes to this situation. The authorities use either the fiscal or monetary tools to influence the business cycles. Usually they use, tax (capital gains tax, income tax, corporate tax and wealth tax) and interest rate on the housing loans to influence the housing market and thus the whole economy.

The multiplier effects arise due to various external requirements of the housebuilding industry. Before housing is in place, it requires, in most urban areas, the provision of substantial capital goods and social services such as roads, schools, sewer and water facilities and other public utilities. Basically most of the public utilities are provided by local governments or by the developer or builder on behalf of the local government. After the completion of the houses, it requires a substantial production of consumer durable goods, such as household furnishing and equipment, before it can be occupied. In addition, in the long-run it creates a huge multiplier effect.

In general, under this chapter, the author will examine the definitions of housing supply. In addition the housebuilding process will be analysed which includes various stages of housebuilding process. Later, the nature of the housebuilding industry will be examined by the author. These include the developers behaviour, short-run and long-run building nature and the types of developers. Finally, the author will examine the determinants of housing supply such as cost of credit, demand structure, land and other factors which influence the housing supply either directly or indirectly.

## 5.1 The Definition of Housing Supply

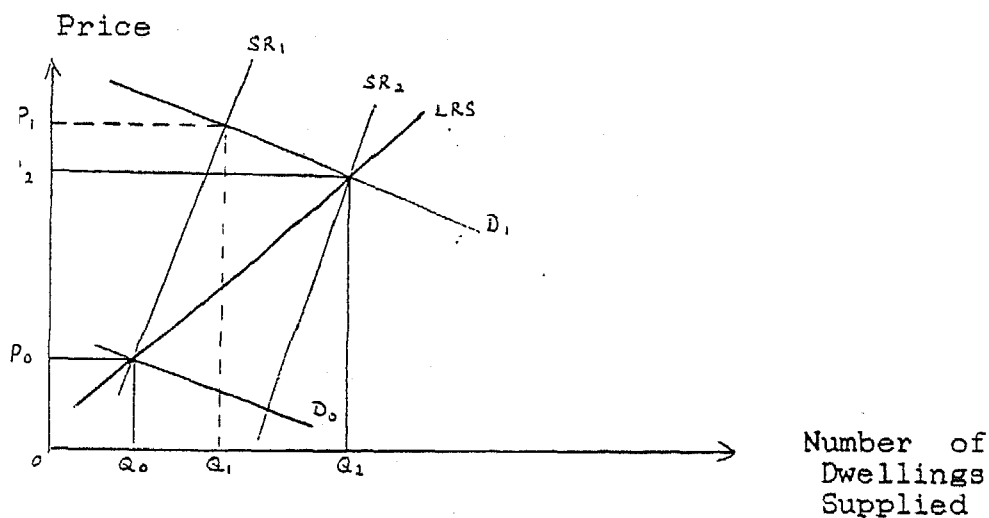
Housing supply refers to the provision of dwellings by the society for the society through the price system or market mechanism. In a given period of time, the supply in the house-purchase market is the flow of dwellings which are put up for sale during that period.<sup>5</sup> The housing supply can be divided onto the short-run and long-run basis. In the short-run, the housing supply comes from new dwellings and conversions, from houses vacated by owner-occupiers moving to another owner-occupied dwelling, from household dissolution or emigration, from houses vacated by moves to other tenures and by transfers of dwellings from the rented sector.<sup>6</sup> In the long-run the housing supply comes from the construction of new dwellings.

Basically, the housing supply in the short-run emerges from the changes in the flow of second-hand dwellings put up for sale. This is because, in the short-run it is not possible to construct a new house. Usually, in the Klang Valley, it will take around 2 to 3 years to construct a house by the developers, while in the long-run the supply of houses will increase mainly through new construction and second-hand houses. Therefore, the supply curve of

houses in the long-run is more elastic compared to the short-run supply curve. This can explain why the house prices are more volatile in the short-run compared to the long-run. (refer to Figure 5.0).

FIGURE 5.0

THE SHORT AND LONG RUN SUPPLY CURVES IN THE HOUSE-PURCHASE MARKET



Based on Figure 5.0, SR1 and SR2 denotes the supply curve in the periods 1 and 2. This curve is slightly elastic, implying that supply can be increased to a small extent in the short-run. When the demand increases from  $D_0$  to  $D_1$  the supply can only increase from  $Q_0$  to  $Q_1$ . As a result, the excess demand for dwellings pushes up the house prices from  $P_0$  to  $P_1$ . Therefore, new house owners in the short

run tend to gain more profit by selling their houses. This scenario is very serious in the Klang Valley where people buy new dwellings mainly for speculation or property gain purposes. However, in the long-run, the supply of new houses will increase from SR1 to SR2 or LRS which increases the supply from  $Q_0$  to  $Q_2$  which is greater than the increase from  $Q_0$  to  $Q_1$ . Thus the house price increase from  $P_0$  to  $P_2$  is lower than the increase from  $P_0$  to  $P_1$ .

Therefore, the elasticity of the supply curve for dwellings will determine the price of new houses and capital gains as well. This can explain, why in the Klang Valley the appreciation value of new dwellings is very high in certain primary locations. Apart from that, the higher effective demand also contributes to these changes.

In Britain, in 1971, new building accounted for 21 per cent of the total houses purchased, houses sold by households buying another for 46 per cent, household dissolution for 16 per cent, transfers for other tenures for 5 per cent, and transfers from private renting for 7 per cent.<sup>7</sup>

Based on these figures, the housing supply is therefore dominated by turnover in the existing stock.

design of the house, the structure, sanitary, drainage, roads and land works. This is necessary for practically all building work. In the case of individual developers (own house), this is not very important. But, for large developers this is very important because the construction process might change the land structure and worsen the basic facilities such as road systems, drainage and sewerage.

Basically these activities involve various manpower units such as landowners, valuation surveyors, lawyers, financiers, town and country planners, architects or civil engineers, quantity surveyors and building service engineers. These people, are usually involved in site identification, finance source identification, approvals of planning and outline, site acquisition, design and cost planning advice. Later the developer has to apply to the Ministry of Housing and Local Government for a permit to advertise his project. It should be noted here that, the pre-construction phase takes a longer time than the actual construction phase. It takes an average of 3 to 4 years for a land conversion alone to be approved by the relevant authorities.<sup>9</sup>

The construction work will start immediately after the approval of the plans by the authorities.

## 5.2 The Housebuilding Process

The housebuilding process consists of three main sectors: One responsible for planning, design and related work; another comprising firms engaged in the production of building materials; and a third concerned with the actual building, or assembly process.<sup>8</sup> Thus the supply of housing which, it should be noted, is by no means the sole output of this industry which involves a combination of the complex set of activities carried out both within and between these sectors. Normally, the private and public sector will undertake the housebuilding activity.

The public sector comprises of the Federal and State Governments and the City Hall of Kuala Lumpur. While the private sector includes the private house developers, co-operative developers and individual or group developers. (See Figure 5.1) For public developers, the social and profit motive is equally important. On the other hand, for the private developers, the profit motive is more important than social obligations. Therefore, the government imposes certain conditions so that the private developers would help the government reduce social imbalances in certain aspects.



FIGURE 5.1

HOUSING DEVELOPMENT IN MALAYSIA: WHO BUILDS THE HOUSES?

FEDERAL GOVERNMENT

- |                                                                                                                                  |                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| A) The Federal Public Works Dept. (and in the case of Military accommodation the P.W. D is assisted by the Ministry of Defence). | - Federal institutional quarters (all categories except the requirements of statutory bodies) |
| B) Other Federal Govt. Agencies:                                                                                                 |                                                                                               |
| 1. Federal Land Devt. Authority (FELDA)                                                                                          | - Accommodation for Staff and settlers                                                        |
| 2. Federal Land Consolidation                                                                                                    | - - do -                                                                                      |
| 3. Council of Trust for the Indigenous People (Mara)                                                                             | - Public low-cost housing Canceled after 1975)                                                |
| 4. Urban Development Authority (UDA)                                                                                             | - Public housing                                                                              |
| 5. The various Regional Development Authorities (e.g. Jengka Development Corporation and the Pahang Tenggara Development Corp)   | - Staff accommodation and public housing                                                      |
| 6. Department of Orang Asli Affairs                                                                                              | - Staff accommodation and Housing for aborigines                                              |
| 7. Govt. Officers Housing Company Ltd. (SPPK)                                                                                    | - For Government Officers (all grades)                                                        |
| 8. The various Statutory Bodies                                                                                                  | - For employees                                                                               |

STATE GOVERNMENT

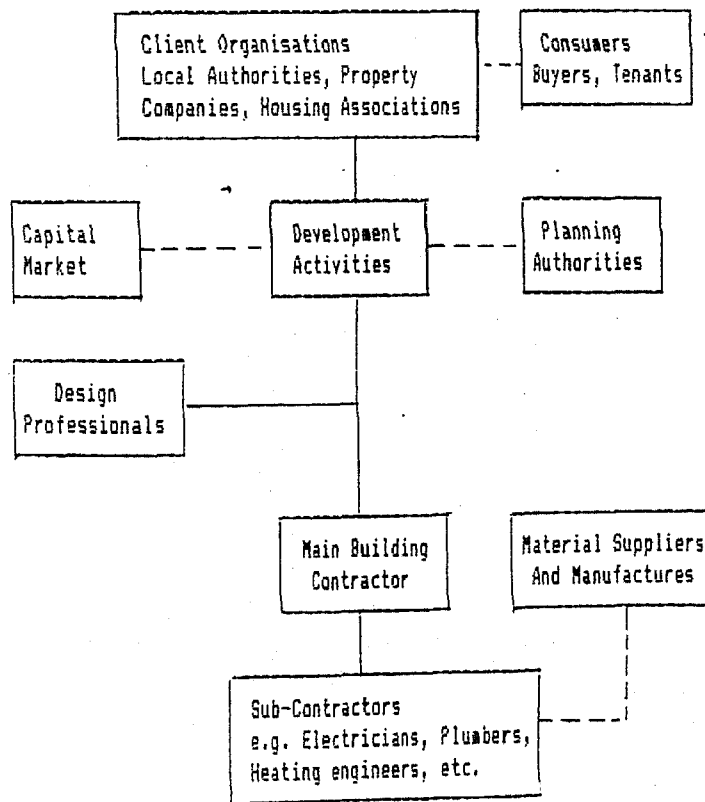
- |                                                                  |                                                                                                                               |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| C) State Secretariat                                             | - Public low-cost Housing (including those built from Federal loans granted by the Ministry of Housing & Village Development) |
| D) State Econ Devt Corp (SEDC) and the State Housing Commissions | - Public low-cost Housing as well as housing for the middle group                                                             |
| E) State Land Dev. Corporation                                   | - Public low cost housing for land scheme participants (including youth land schemes)                                         |
| F) Co-operative Societies                                        | - For co-op members only                                                                                                      |
| G) Private Developers                                            | - For the general public                                                                                                      |
| H) Individuals and groups                                        | - For private and rental purposes.                                                                                            |

Source: Tan Boon Kean, The Role of The Construction Sector In National Development Malaysia, Ph. D. Thesis, Institute of Advanced Studies, University of Malaya, Kuala Lumpur 1993 Chart 3. p. 137.

The housebuilding process is depicted in Figure 5.2. It indicates nine main components of the housebuilding process. It starts with client organisations, consumers, developmental activities which includes capital market and planning authorities, design professionals, main building contractors, material suppliers and manufacturers and finally the sub-contractors.

FIGURE 5.2

THE DEVELOPMENT PROCESS



Source: Ray Robinson, *Housing Economics and Public Policy*, The Macmillan Press, Ltd, London, 1979, p. 61.

Firstly, the developer needs to obtain credit to cover the costs of the project and the receipt of planning consent from the relevant planning authorities. This is undertaken under "development activities". Credit facilities are necessary because the long gestation period in this industry means that there is a considerable lapse of time between the start of work and the eventual sale of the product. In the Klang Valley, it will take anything between 2 to 3 years to build a house by the developers. Therefore, during this period bridging finance is usually necessary to cover the costs incurred. Apart from that, the price and availability of credit will determine the supply behaviour just as it does in determining the demand for housing.

The second preliminary task involves land conversion approval. If the particular land is classified as agricultural land, then the developer has to convert it in order to build dwellings. On the other hand, if that particular land is classified as housing or development land, then the developer does not need to do any conversions. Apart from that, the developer has to apply for a licence from the Ministry of Housing and Local Government. This is followed by planning permission which includes the

design of the house, the structure, sanitary, drainage, roads and land works. This is necessary for practically all building work. In the case of individual developers (own house), this is not very important. But, for large developers this is very important because the construction process might change the land structure and worsen the basic facilities such as road systems, drainage and sewerage.

Basically these activities involve various manpower units such as landowners, valuation surveyors, lawyers, financiers, town and country planners, architects or civil engineers, quantity surveyors and building service engineers. These people, are usually involved in site identification, finance source identification, approvals of planning and outline, site acquisition, design and cost planning advice. Later the developer has to apply to the Ministry of Housing and Local Government for a permit to advertise his project. It should be noted here that, the pre-construction phase takes a longer time than the actual construction phase. It takes an average of 3 to 4 years for a land conversion alone to be approved by the relevant authorities.<sup>9</sup>

The construction work will start immediately after the approval of the plans by the authorities.

The developer will appoint the main building contractor to supervise the construction work. The main contractor, in turn, sub-contracts various parts of the work to specialist firms. The housebuilding process, it will include various manpower groups under various sub-contracts. The main contractor will need the services of architects or civil engineers, quantity surveyors, building services engineers, structural engineers, specialist contractors and other sub-contractors. Apart from that, the housebuilding process will require technical and clerical staff, salesmen, unskilled and semi-skilled workers, off-site support staff, material producers, component manufacturers, plant manufacturers, building inspectors and others.

Based on the 1974 Census of Production in U.K., subcontracts played a greater role in the housebuilding process. This lists twenty separate groupings including general builders (38,872 undertakings), plumbers (7,924), painters (14,273), carpenters (6,085), roofers (1966), plasterers (3,237), electrical contractors (6,318) and plant hirers (2,009).<sup>10</sup> In total, the census identifies nearly 28,000 subcontractors: this represents 30 per cent of undertakings which Balchin and Kieve (1977)

suggest account for about 40 per cent of the industry's gross output.<sup>11</sup> Thus, the subcontractors play a vital role in the housebuilding process in terms of minimising the construction cost.

There are various reasons that can be put forward to explain the growth of subcontractors:

- a) There is the uncertainty of workload that faces firms in an industry that is subjected to large fluctuations in the demand for new building. This induces firms to minimise fixed cost during the period of slack demand for new building when capacity is under-utilised. In addition, by employing subcontracted labour services on a job-to-job basis and thereby avoiding the problems of underemployed labour and or the redundancy and other severance payments which would be incurred with a permanent labour force in times of fluctuating demand.
- b) In addition, the building work is still labour intensive and craft based. Therefore, it is difficult to combine the work of the carpenter and the plumber, or the bricklayer and the electrician; nor is

there much opportunity for substituting capital for labour and thereby reaping economies of scale within particular trades. Table 5.1 indicates a clearer picture of these situations. The table shows the estimated number of man-days required per £1,000 contract for some of the main building trades.

TABLE 5.1  
BUILDING LABOUR INPUTS FOR SELECTED TRADES\*

Man-days per £1,000 contract at 1970 prices		
	House-building	Repair and Maintenance
Carpenters	7.7	15.0
Bricklayers	10.0	5.0
Painters	5.4	12.0
Electricians	1.6	7.0
Plumbers	2.6	6.0
Heating and Ventilating	0.3	4.0
General Labours	17.0	24.0

Note: \*Building Research Establishment estimated Coefficients.

Source: Ray Robinson, Housing Economics and Public Policy, MacMillan Press Ltd., London, 1979, p. 64.

This table indicates the amount of time period required for the different types of labour in the housebuilding process. It clearly shows that, most specialised services represent only a small proportion of the total workload and are very often restricted to a particular stage of the building timetable. Therefore, the developer will lose, if he employs all of them at the same time. By employing subcontractors, the developers can reduce the construction cost by only employing required labours to finish certain stages of the construction. Furthermore, bricklayers are required for different periods of time and at different stages to carpenters, painters for different periods and at different stages to plasterers, and so on. Therefore, it would be very difficult for a single firm that employes all the necessary specialists to arrange a workload that would ensure their full employment at all times.

In addition, labour costs also contribute to the subcontracting of the housebuilding process. In the Klang Valley, the labour cost for skilled and unskilled workers is very much different. For the unskilled worker the maximum cost per day for 8 hours is RM25 and RM23 for male and



female respectively.<sup>12</sup> For skilled workers, the maximum cost for 8 hours is between RM45 to RM50.<sup>13</sup> Therefore, by sub contracting the various construction processes, the housebuilder can reduce the labour cost. Thus, subcontracting plays an important role in the housebuilding process.

Apart from that, subcontractors provide a great variety of trades and skills which are required to produce a house. Furthermore, the housebuilding process involves large numbers of small-scale inputs such as welders, pipelayers, drainlayers, painters and others. This large numbers of small-scale inputs suggests that inefficiencies and indivisibilities in labour use are likely to be a characteristic problem in the industry. Therefore, large-scale site operators with large numbers of houses at various stages of completion can use specific labour inputs more systematically than smaller firms. On the other hand, the small firms overcome these problems by extensive short-term subcontracting.

Thus, the housebuilding process includes various phases with different labour, input and job requirements. It starts with the preliminary stage and later to the design, contract documentation and finally the actual construction on site.

Apart from that, the housebuilding process also involves various rules and regulations. From the initial stages to the final stages it involves various legislations in respect to the Federal Government, State Governments and municipal authorities. This is depicted in figure 5.3, which clearly shows that the housebuilding process involves very complex stages.

Usually large firms or developers tend to gain more in terms of lower cost and higher profits through the economies of scale which is achieved using the subcontract system. While, for the smaller firms or developers, they tend to incur higher production costs due to various inefficiencies in the construction process.

In terms of number of developers, there are a total of 593 and 132 developers existing in the Federal Territory (Kuala Lumpur) and Selangor respectively. This represents almost 40 per cent of the total developers of the country. Between 1969 - 1980, there were only 84 Bumiputra housing developers in the Federal Territory and 7 in Selangor. On the other hand, the Non-Bumiputra housing developers were 509 in Federal Territory and 125 in Selangor. (See Table 5.2) Therefore, the housebuilding industry in

FIGURE 5.3

LEGISLATION PERTAINING TO THE HOUSING AND PROPERTY

INDUSTRY

1. National Land Code
2. Strata Title Act 1985
2. Telecommunications Act 1950
3. Housing Developer's Act 1966
4. Housing Developer's (Control and Licensing) Rules 1970
5. Town and Country Planning Act 1976
6. City of Kuala Lumpur Planning Act 1973
7. Town Boards Enactment Cap 137
8. Uniform Building By-Laws (ungazetted)
9. Building By-Law 1958
10. Earthworks By-Laws 1975
11. Street, Drainage and Building Act 1974
12. Street, Drainage and Building By-Law 1974
13. Sewerage and Drainage Act and By-Laws 1957
14. Private Sewerage Plant Construction By-Laws 196
15. Certificate of Fitness for Occupation By-Laws 39
16. Municipal Ordinances
17. Local Government Act
18. Electricity Act 116, 1949 (Electricity (Amendment) Act A 217, 1973).
19. Water Enactment F. M. S. Chapter 146, 1935
21. Environment Quality Act 127, 1974
22. Civil Aviation Act 3, 1969
23. Real Property Gains Tax Act, 169, 1976.
24. Share Transfer (Land) Tax Act 310, 1984.
25. Land Acquisition Act Cap 138.
26. Contracts Act 136, 1950 and Contracts (Amendment) Act A 329, 1976.

RULES, REGULATIONS, GUIDELINES AND PROCEDURES

27. Street Lighting
28. Traffic
29. Landscaping
30. Car Parking
31. Development Charges
32. Change of Landuse
33. Change of Density
34. Hawker Sites

Source: Tan Boon Kean, The Role of The Construction Sector In National Development Malaysia: Ph. D. Thesis, Institute of Advanced Studies, University of Malaya, Kuala Lumpur, 1993, pp. 140-141.

the Klang Valley is heavily dominated by the Non-Bumiputra and particularly the Chinese developers.

TABLE 5.2  
HOUSING DEVELOPERS BY ETHNIC STATUS AND LOCATION,  
1969-80

	Bumiputra	Non-Bumiputra	Total
Wilayah Persekutuan	84	509	593
Selangor	7	125	132
Terengganu	17	20	37
Kelantan	5	8	13
Kedah	14	50	64
Perlis	3	7	10
Johor	23	188	211
Perak	24	207	231
Negeri Sembilan	7	51	58
Melaka	14	65	79
Pahang	3	67	70
Pulau Pinang	12	266	278
Total	213	1,563	1,776
% of total	12	88	100

Source: Tan Boon Kean, The Role of The Construction Sector In National Development Malaysia. Ph.D. Thesis, Institute of Advance Studies, University of Malaya, Kuala Lumpur, 1993, p. 228.

### 5.3 The Determinants Of Housing Supply

In the previous chapter, the author examined the various factors which determine the housing demand. In order to analyse the house purchase market

behaviour, it is important to study the supply side of the housebuilding industry. Therefore, now the author will examine the determinants of the housing supply. The supply of new dwellings in any given period of time depends on the level of starts and the rate of construction during a previous period.<sup>14</sup> Thus, the determinants of supply for new dwellings are factors which influence the level of starts and the rate of construction.

Naturally, the rate of housing construction is determined by the production or construction cost and expected profit or returns. Housing construction will increase if the expected profit increases provided that the increase in the construction cost is very small. On the other hand, housing construction will decrease if the increase in the construction cost is higher than the expected profit. Even if the construction cost increases to an extent that it reduces the expected profit to a great significance, the housing construction will drop. The rate of housing construction is determined by the construction cost and the construction cost is determined by various factors.

These includes, the cost of land, the cost of credit, the cost of building materials and the cost

of labour. Apart from that, housing supply is also determined by the price of houses, demographic factors (migration, population growth, household formation), government policies (Monetary and Fiscal Policy) and the overall economic and property market performance.

### 5.3.1 Price Of Houses

In economics, the profit is the difference between the selling price of a product and the production cost of that particular product. In the housing market the profit for developers is basically determined by these two elements. Besides, the price and housing supply show a direct relationship. Furthermore, price changes affect supply through the level of starts.<sup>15</sup> An increase in price with the assumption that cost remains constant, the profits will rise and this will encourage the housing developers to construct more houses. On the other hand, if the price of houses decline, this will discourage the developers to build new houses because of a reduction in profit. The above situation is very obvious in the Klang Valley.

The private house developers tend to construct more houses to cater the upper income groups.

housing demand. This is basically for profit motives. The higher income earners can afford to pay higher prices for dwellings compared to a low income earners. Therefore, the profit is higher for the former compared to the latter. As a result, the private house developers tends to build more expensive houses such as luxury apartments, condominiums, bungalows, semi-detached and detached houses and town houses.

On the other hand, due to lower profit for low-cost houses, flats and low-cost apartments, the developers are less interested in constructing such dwellings. As a result, the housing demand from low income earners eventhough very high, due to low profit margins the private developers are discouraged from constructing such dwellings and this finally leads to squatter problems and also higher rental returns.

Besides, if the price rise is less than the rise in costs, the level of profit falls. A reduction in the profit level will be a disincentive to the housing developers and the level of starts will fall. However, if the price rise is more than the rise in costs, the level of profits increases. As a result, the construction of dwellings will increase due to an increase in the profit margin. Therefore, the expected level of profit and construction cost of

dwellings will determine the supply of housing in a certain time period.

Higher prices need not necessarily lead to higher construction of dwellings. If the housing market has been in a depressed or slump state for some time, it may take some time for the housebuilding industry to respond to a revived demand and price increase. It takes time for the industry to be convinced that the price increase will continue in the future. This is mainly because, to build a house may take between 2 to 3 years. If the price increase lasts for a year and it is then expected to fall in the next two years, then the developer will end up with lower returns. For the buyers especially the speculators or investors, if the value of their residential property falls, this means a fall in the rate of return or profits.

Therefore, the level of starts does not rise immediately in response to the price increase. Moreover, during housebuilding depressions, many of the builders, especially the small builders, and construction workers would have gone into other businesses. It takes some time for the industry to gear itself to meet the new demand.<sup>16</sup> As a result, there is a lag between the price increase and the increase in supply.



The state of the property market will also determine the dwellings price and thus profits. The construction industry with its multiplicity of small firms, is characterised by considerable uncertainty. House builders generally react with considerable caution when the market is weak because of the long production period. Because of the lags involved in the construction process, the building industry is also dependent upon the availability and cost of credit.

It is therefore difficult for builders to plan their land purchases and house construction in the knowledge that there will be a continuous and sufficient supply of credit to enable their property to sell at prices which will guarantee them a profit. Only the larger building firms which are involved in many different sectors of the construction industry can deflect the threat of bankruptcy by moving into more profitable activities. A period of rising interest rates can be particularly difficult for construction firms, since this may result in higher mortgage rates or the rationing of building society lending which may reduce the demand for housing at a time when houses are approaching completion, such that builders may face falling prices and unsold houses, alongside higher interest changes on land and credit.

Conversely a period of boom is not necessarily beneficial to house construction. Increase in house and land prices occasioned by, say, plentiful mortgage funds, may lead to high profits but this may not generate additional construction activity. The profitability of other construction work is also important in determining the volume of residential construction. Because of the nature of the construction industry, housebuilding is particularly vulnerable to cyclical movements of the economy.

Generally, property market booms or upswings will push up dwellings' prices and also construction costs. The housing supply will increase if the rise in price is greater than the rise in construction cost. While the slump of the property market will reduce the dwellings prices and thus developers profits. As a result, the future supply of dwellings will drop drastically. Overall, the housing price, construction cost and market climate are the determinants of housing supply either in the short term or long term.

### 5.3.2 Availability Of Land

The supply of land is often represented in textbooks as perfectly inelastic. Certainly the amount of usable ground in any one place or region is effectively fixed, at least in the short-run. Land reclamation has produced major changes in the physical supply of urban space in many areas of the world, but the opportunity for reclamation presents itself in a pattern conditioned by natural endowment, which in itself is fixed also. Thus, in the long-run it is possible that the supply of land will increase due to reclamation processes. In addition, land, remains as the main input or component of the houses. Without land, it is not possible to construct a dwelling and satisfy human needs.

The availability of land plays a greater role in determining the construction cost of houses and finally the number of houses supplied. Higher land availability for building residential units will obviously increase the supply of dwellings if other factors are constant. Higher land supply to a certain extent depresses the value of the land. The lower land cost/price will reduce the construction cost for dwellings. This will finally increase the housing construction and supply because with lower land cost

the expected profit for house developers will increase.

However, if the availability of land is reduced, this will increase the value, cost and price of the land. Higher land price will increase the construction cost of dwellings which reduces the number of houses constructed and finally the housing supply. Since the Klang Valley region is growing rapidly in various sectors of the economy, the shortage of land is most acutely felt here. Moreover the residential sector has to compete for land with the non-residential sectors (such as, commercial, industrial and infrastructure).

Furthermore, the "red tape" problem further aggravates this situation. This is mainly felt by private developers, where they have to wait between 3 to 4 years for the authorities to approve land conversions. The delay in land conversion results in higher prices due to the cost of finance (in the form of bank interest) and rising prices of building inputs due to inflation. In addition, this will also reduce land availability to build houses. Finally, the housing supply only will increase slowly due to the "red tape" problems.

In the Klang Valley, housing occupies the largest part of land and yet it is felt that the supply of houses or land is insufficient or inadequate to a certain degree. The creation of more or better housing requires land, but such land is hard to find and harder to acquire especially in the urban areas. Its price is high, and the continuing increase in its price, in many of the world's urban areas, makes its present owners anxious to keep it as long as possible.

Since land is heterogeneous there are very great differences in site values. Land which is nearest to the city is usually very expensive compared to suburban areas. Apart from that, land cost is also determined by the land owners' behaviour. Land may be withheld from the market if landowners believe that the future price of land is going to rise more quickly than other prices. Builders holding land banks will similarly withhold sites from development, but other builders without land banks will be faced with higher costs of site acquisition due to competition within the industry to acquire land. Eventhough house prices may be consequently pushed up, builders at best may only realise normal profits and at worst incur losses (the whole price increase benefitting the landowner due to the inelasticity of supply of land).

Increased land prices thus provide little or no incentive for builders to expand output.

Land takes up a sizeable proportion of costs. In Petaling Jaya, land makes up about 26 per cent of the cost, that is about RM16,000 for a RM60,000 house.<sup>17</sup> The above figure clearly shows that, the price of land can determine the rate of housing supply. In addition, available land normally belongs to the state and such land is difficult and time - consuming in order to develop for housing. In the Klang Valley, there are allegations that large tracks of land fall easily into the hands of those who have done favours for influential persons.<sup>18</sup> Thus, they sell them to the highest bidder, jacking up the price of land for housing development. This, further **aggravates** the land problems for the housebuilding industry. Apart from that, landowners also have to pay a premium division, higher premiums for individual lots and land rent. This further create land shortage problems.

Then, there is the element of holding costs - the reason developers always give as to why houses are expensive. This is legitimate in that bureaucratic red tape does cause delays. It takes about three years to obtain approvals from 15 to 20 different government departments at federal, state and

local authority levels for land conversion, subdivision and planning before actual construction begins.<sup>19</sup>

For a low-cost house, land consists of 12.5 per cent of the building component.<sup>20</sup> This 12.5 per cent is equalent to RM3,100. Therefore, any increase in land price would obviously reduce the profit margin for the developers and thus reduce the supply of such housing. If the land is an ex-mining land, the housing developer has to spend a reasonable some on the earthworks. This will further increase the cost of land. Therefore, housing supply varies according to the cost of land.

### 5.3.3 The Cost Of Building Materials and Labour

Building materials refer to cement, steel, wood, aluminium and others. Labour can be classified into skilled workers, semi-skilled workers and unskilled workers. Carpenters, welders, painters, bricklayers, plumbers, electricians and others are known as skilled workers. General laboures are known as unskilled workers. In the housebuilding industry, the cost of building materials and labour to a great extent influences the housing construction or housing supply.

TABLE 5.3  
 PERCENTAGE DISTRIBUTION OF TOTAL COST IN  
 HOUSEBUILDING, MALAYSIA

Cost Component	Percentage of Total Cost
Land	5.0
Infrastructure including levies	14.0
On-Site Wages	20.8
Materials and Equipment	38.7
Management, overhead	3.2
Professional fee	6.0
Legal fee	3.3
Interests/financing	7.2
<b>Total</b>	<b>100.0</b>

Source: P.K. Agrawal, "The Impact Of Institutional Factors on Private-Sector Housing-Case Study of Malaysia", Housing Planning, Financing, Construction, ed. Oktay Ural, New York, Pergamon Press, 1979, Vol. 2, p. 1121.

Table 5.2 supports the earlier view, that building materials and labour constitute 50 per cent of the construction cost of a dwelling. On-site wages represent a 20.8 percentage of total cost. Material and equipment represent 38.7 percent of total cost. Based on this, it is believed that any changes in cost of labour or building materials will increase the production cost of a dwelling. This will finally



reduce the profit margin unless the developer marks up the selling price of a particular dwelling.

TABLE 5.4

COMPARISONS OF BASIC LABOUR COST IN  
1988, 1989 AND 1990  
(Ringgit Malaysia)

Type of Workers	Wage rate per day (8 - hour day)		
	1988	1989	1990
Skilled	42	42 - 50	60
Semi-Skilled	36	40 - 45	50
Unskilled	20	25 - 28	30

Source: Survey On Material and Labour Cost, Building Cost Information Centre, Kuala Lumpur, 1989.

Table 5.4 indicates the wage increase for skilled, semi-skilled and unskilled workers in the housebuilding industry from 1988 to 1990. The skilled worker's wage increased from RM42 in 1988 to RM60 in 1990. This increase is mainly due to the property market boom and strong economic growth in the Klang Valley. The huge demand for workers from the various sectors of the economy reduced the supply of construction workers. Skilled workers can choose to work where the wage rate is higher.

Furthermore, it is not easy to obtain skilled workers during property market booms especially in the Klang Valley.

Therefore, the developers have to pay more in order to get their services. Because of the shortage in construction workers, there has been a 20 to 25 per cent increase in labour costs. Skilled workers - for example, plasterers get paid about RM50 a day and they are in short of supply. One developer says he was even willing to pay RM65 but still found it hard to find plasterers.<sup>21</sup> Developers face similar problems for other types of skilled workers too, such as for concreators, bricklayers, barbenders, carpenters, tilers and plumbers.

For semi-skilled workers the wage rate went up from RM 36 per day in 1988 to RM50 in 1990. For unskilled workers the wage rate also showed an upward trend, where it increased from RM20 per day in 1988 to RM30 in 1990. This wage increase will obviously increase the production cost and thus reduce the profit margin for the developers unless they mark up the selling price so that it can offset the cost increase. Thus, the availability or the cost of labour can determine the supply of dwellings.

TABLE 5.5

PRICE INCREASES OF SOME BASIC BUILDING MATERIALS  
(In Ringgit Malaysia)

Item	1986-89	1990 (May) (RM)	Production Cost
Aggregates	14 - 16	22 - 26	10 - 11
Plywood	25 - 26*	35 - 36	10 - 15
Bricks	15 - 16 cents*	22 - 25 cents	10 - 11 cents

Note: \*indicates the selling price of per piece.

Source: Master Builders Association Malaysia, Master Builder, Kuala Lumpur, 1st and 2nd quarter of 1989 and 1990.

The price of plywood increased from RM25 to RM35 per piece between 1988 - 89 and 1990. The price of bricks also increased from 15 to 16 cents per piece in 1988/89 to 22 to 25 cents per piece in 1990 (May). Apart from that, the price of sand, paint, glass, PVC piping and electrical cables increased up to 30 per cent between 1988 and 1990. In addition the timber prices have doubled from RM200 to RM400 per tonne from 1988 to 1990. (See Table 5.5).

Apart from that, the price of steel increased up to 20 per cent between 1988 and 1990. Steel bar prices went up to between RM1,085 to RM1,229

per tonne during 1988 to 1990. The most prominent construction material increase is the 21 per cent hike in steel prices last year. From costings and calculations, quantity surveyors say that reinforcement steel constitutes about 5.4 per cent of the cost of a typical double-storey medium cost terrace. Hence, 21 per cent price increase of 1.13 per cent of the total cost of construction. In addition, The Building Cost Information Centre (BCIC), set up under the quantity surveyor section of the Institute of Surveyors Malaysia has studied the impact of the increase in construction costs due to material and labour content increase. Construction costs went up by about 10 per cent for a typical single storey house and about 12 per cent for a typical double-storey house from the fourth quarter of 1988 to the third quarter of 1989.<sup>22</sup>

This evidence clearly indicates that, the cost of labour and building materials influence the rate of housing construction or supply. Higher building cost can discourage developers from constructing new dwellings. Besides, higher building cost tends to reduce the profit margin for developers and vice-versa. Thus, the housebuilding industry is closely related to the cost of labour and building materials.

The government should take some initiative in controlling the construction cost of dwellings. This can be done either by controlling the cost of building materials or the cost of labours. As a short-term measure, the government should encourage the impact of building materials and labours to ease the present shortage. While, for the long-run solution, the government should encourage more firms to produce building materials locally at lower costs. On the labour side, more training facilities should be provided in order to ease the labour shortage problem and reduce excessive pressure on the wage rate for skilled workers. Training can be carried out by the MARA Institute of Technology (ITM), Industrial Training Institute, National Productivity Centre and also on-site training can be provided. Therefore, if building materials and labour costs are minimised, this will encouraged higher housing construction and finally increase the housing supply and vice-versa.

#### 5.3.4 The Cost Of Credit

Housebuilding depends very largely upon the ability of firms and potential house purchasers to raise their funds. Builders have to borrow to cover construction costs and can only repay the credit when

they have sold the houses. When interest rates are low and credit is easy, housebuilding proceeds at a steady to rapid rate. Demand is usually buoyant as mortgage interest rates are also low and mortgages are readily available. But increased interest rates often coupled with credit squeezes, raise builders' costs and reduce their ability to undertake development. Thus housebuilders are less willing to construct new homes when capital accumulation is relatively expensive.

The availability of credit on the supply side is important because many construction firms in the Klang Valley are small and have insufficient funds of their own. In a study of the relationship between the housing and mortgage markets in Britain, it has been suggested that the main constraint on the rate of housebuilding starts at the time (in 1971) was not the supply of serviced land or of labour, but the supply of finance.<sup>23</sup> In the United States of America (USA), most recent writers on the housing function have recognized that housing is sensitive to credit conditions and have singled out this variable as the major short-term determinant of residential construction. Guttentag (1961) found that, credit which home builders and home buyers receive is

essentially a residual. Meaning banks and financial intermediaries, including life insurance companies, also make loans for fixed investment and would rather service these business loans first.

Apart from that, the supply of credit to the consumer sector is almost completely elastic.<sup>24</sup> This is mainly because, the buyers of consumer durables in general follow the business cycle, demand for this type of credit will also be highest at the peak of a boom, adding to the squeeze on credit for residential construction. Therefore, the amount of credit available to home builders is clearly lower during boom times and higher during recessions.<sup>25</sup>

Finally, the availability or cost of credit determine the house supply. Lower interest rates on housing loans will reduce the construction cost and this will increase the expected profit margin. Thus, encouraging the developers to increase the supply of housing provided that the other factors are constant. On the other hand, higher cost of credit will reduce developers incentive to increase house supply.

### 5.3.5 The Profit Margin

The profit margin or expected returns on capital will obviously determine the housing supply. Higher returns on capital will encourage more developers to increase the housing supply and vice-versa. The expected profit margin is basically determined by cost of land, cost of credit, cost of building materials and labour and other miscellaneous expenses. On top of that, the property market boom will enable the housing developers to make extra profit by selling houses at higher prices. Table 5.6 shows the cost, selling price and returns on capital for condominiums, bungalows and two-storey terrace houses.

The above table shows that, the condominium developers make 101.44 per cent profit or returns on capital. This is any time better than the return on capital for bungalows and two-storey terrace houses which are 28.68 per cent and 42.93 per cent respectively. Therefore, more housing developers prefer to build condominiums in the Kuala Lumpur, Petaling Jaya, and Ampang areas compared to other types of dwellings. In addition, a condominium developer is not required to build low-



TABLE 5.6

## COMPARATIVE COSTS AND RETURN STUDY OF 3 HOUSING PROJECTS

Description	Condominium	Bungalow	Two-Storey Terrace
No. of Units	64	36	18
Land Area	304,920 sq.ft	304,920 sq.ft	304,920 sq.ft
Gross floor area per unit/type	1,500 sf. (3 bedroom)	2,7600 sf. (2 flr/5 rms)	2,200 sf. (2-4 rms)
Plot ratio/density (person per acre - 1 person per room)	0.31 - 1.00 (27.43 persons per acre)	0.32 - 1.00 (25.71 persons per acre)	0.83 - 1.00 (64.43 persons per acre)
Lot area per unit	12,000 sq.ft per block of 2 storey 8 units	5,000 sq.ft (70ft x 70ft)	1,540 sq.ft (22ft x 70ft. lots)
Total lot areas/land utilisation	48,000 sq.ft (15.7% utilisation)	180,000 sq.ft (59% utilisation)	181,720 sq.ft (59% utilisation)
Type of developa	4 block of 3 flr (6 units/blc, grd floor car park)	36 units 2-storey bungalows	118 units 2-storey houses
Site acquisition cost 7 acres (304,520 sf.) @ \$12.72 per sq ft present value (1983)	\$3,878,000 32.18%	\$3,878,000 39.61%	\$3,878,000 29.39%
Site developa cost	\$180,000 1.49%	\$180,000 1.84%	\$180,000 1.36%
Developa charges	\$89,000 0.57%	\$50,000 0.51%	\$90,000 0.68%
Building consta cost infra-structure cost	\$5,760,000 47.80%	\$4,800,000 49.02%	\$7,888,000 59.79%
Management Cost	\$108,000 0.90%	\$86,000 0.88%	\$157,000 1.19%
Cost of Finance	\$405,000 3.36%	\$292,000 2.98%	\$464,000 3.52%
Total Devt. Cost	\$12,050,000 100.00%	\$9,791,000 100.00%	\$13,193,000 100.00%
Cost Price per Unit	\$189,000	\$272,000	\$112,000
Marketable Price	\$380,000(a)	\$350,000(b)	\$160,000(c)
Net Profit/Unit	\$191,000	\$78,000	\$48,000
No. of Units	64	36	118
Total Profit	\$12,224,000	\$2,808,000	\$5,664,000
Return on Capital	101.44%	28.68%	42.93%

Note: (a) Based on prevailing market rate of about \$250/- per sq.ft built up area.  
 (b) Based on prevailing market rate of about \$130/- per sq.ft built up area.  
 (c) Based on prevailing market rate of about \$70/- per sq.ft built up area.

Source: Tan Boon Kean, The Role of The Construction Sector In National Development Malaysia. Ph.D thesis, Institute of Advanced Studies, University of Malaya, Kuala Lumpur, 1993, Table 33, p. 239.

cost houses like the medium and high-cost house developers. In this situation and with higher profits from condominium housing, it would obviously encourage more developers to undertake such projects.

On top of that, the profit margin for low-cost houses is very small that is only 13.4 per cent. (see Table 5.7) In the urban areas the profit margin is even lower. As a result private developers are not willing to build such houses in those particular areas. In Petaling Jaya, land costs between RM20 and RM30 per square foot. In Kuala Lumpur the price can be between RM50 and RM60. At that price no developer wants to build low-cost homes or even walk-up flats.

#### 5.4 Summary

Therefore, the profit margin or expected profit for various types of dwellings would certainly influence the supply of such dwellings in the Klang Valley. Dwellings with higher returns like condominiums are preferred by developers followed by bungalows and two-storey terrace houses. Conversely, low-cost houses which give the lowest returns (sometimes negative returns) are obviously less preferred by the housebuilders especially in the suburban areas.

Apart from that, housing supply is also determined by demographic factors. This includes population growth, migration, age structure, sex ratio, household formation and others. Higher

TABLE 5.7

COST OF BUILDING A LOW-COST UNIT

=====	
Construction	RM12,000
Infrastructure costs	4,000
	-----
	RM16,000
Architectural Fees at 6%	960
Bridging loan at 14% p.a	1,187 (for 1/2 years)
Land cost	3,000 (14" x 52" -
	\$4.10 per sq.ft
	depending on
	location)
Interest for land (2-3 years)	389
Misc (Quality Quit Rent, etc.)	500
	-----
	RM22,036
Selling Price:	RM25,000
Net margin:	RM 2,964 (13.4%)

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Source: Tan Boon Kean, The Role of the Construction Sector in National Development Malaysia. Ph.D thesis, Institute of Advanced Studies, University of Malaya, Kuala Lumpur, 1993. Table 34, p. 242.

population will create higher household formation which would finally increase the needs for new housing. Changes in income and employment will also

influence the housing supply. The expected income growth and employment will determine the purchasing power for houses and this is transformed into expected profit for house developers. In addition to that, income distribution, real estate taxes, consumer tastes and preferences will also influence the rate of housing starts.

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