

4

The housebuilding industry

Overview

Private housebuilders build almost 90 per cent of new homes in the UK. Sales of new homes account for 10 per cent of all housing market transactions and attract a price premium over second hand dwellings of the same type.

The industry is characterised by:

- low levels of responsiveness to demand;
- a cautious approach to investment in brownfield development; and
- low levels of innovation.

These behaviours are particularly influenced by two types of risk:

- market risk from house price volatility – a 1 per cent shift in house prices can increase or reduce profits by up to 8 per cent; and
- site-specific risk associated with land acquisition, gaining planning permission and construction.

The industry responds to risk by attempting to minimise long-term or fixed commitments:

- many functions are outsourced;
- financing is typically raised through retained profits rather than debt or equity; and
- options are used for a significant proportion of land acquisition.

Successful land acquisition is crucial to housebuilders and requires a good knowledge of local housing markets and local planning requirements. This leads to a geographically fragmented industry with many strong regional players and national firms which are formed around a set of regional operations. It may also explain why mainstream construction firms tend not to diversify into housebuilding.

INTRODUCTION

4.1 The previous Chapters provided an essentially macro level analysis of the impact of housing supply on economic well-being and concluded that the UK economy would be better off with an increased supply of housing. Chapter 2 explored the evidence on the lack of responsiveness of housing supply to changes in price. The rest of this report considers the reasons why housing output has been lower than might have been desirable and why responsiveness of supply is so weak. Explanations relate in part to the behaviours and activities of the housebuilding industry and the possibility that market failures constrain housing output. These are explored in detail in this chapter and Chapters 5 and 6. Government policy also has a considerable influence on housing supply; effects which are examined in Chapters 7 to 10.

4.2 Almost 90 per cent of new homes built in the UK are constructed by private housebuilders. The remainder are built by Registered Social Landlords (RSLs), local authorities and other public bodies. There are currently around 18,000 housebuilders registered by the National House Building Council (NHBC), but only a small proportion of these will undertake the full range of housebuilding activities from acquiring land to selling constructed homes. Just under 200 firms produce more than 50 homes per year in the UK.¹ The largest of these are indicated in Table 4.1.

Table 4.1: Top 10 UK housebuilders, 2002

| | Completions |
|-----------------|-------------|
| Wimpey | 13,480 |
| Persimmon | 12,352 |
| Barratt | 12,250 |
| Taylor Woodrow | 6,238 |
| Bellway | 6,044 |
| Wilson Bowden | 4,164 |
| Wilson Connolly | 4,002 |
| Berkeley | 3,955 |
| Redrow | 3,908 |
| Westbury | 3,812 |

Source: Private Housebuilding Annual 2003

4.3 The number of new houses built each year is equivalent to around 1 per cent of the total housing stock, while sales of new homes account for around 10 per cent of all housing market transactions. The price for new homes is constrained by the existence of the market for second hand homes, as most consumers see new homes and second hand homes as largely substitutable. This limits the discretion housebuilders have to determine prices, although new homes typically attract a price premium when compared to second hand dwellings of the same type. Table 4.2 illustrates the wide range of these price differentials, with new houses earning a price premium of 46 per cent in the East Midlands and 17 per cent in London. These differentials for new homes reflect a number of factors, such as the lower cost of maintenance, lower energy consumption, the age and nature of the existing stock and the higher value of fixtures and fittings. They may also reflect the price premia associated with location. Differences in the desirability of the locations where new homes are being built may be more important than issues of design or quality.²

¹ Wellings, F, *Private Housebuilding Annual. London: The Builder Group reports* (2003).

² For this reason price premia are found to be greatest in regions where areas of low housing demand present the greatest problem for planners.

Table 4.2: Mix-adjusted prices of old and new dwellings, 2001

| | New dwellings | Other dwellings | Price premium for new dwellings (per cent) |
|-----------------------------|---------------|-----------------|--|
| North East | £95,291 | £65,818 | 45 |
| North West (ex. Merseyside) | £108,583 | £82,988 | 31 |
| Merseyside | £99,838 | £76,795 | 30 |
| Yorkshire & Humberside | £102,342 | £74,361 | 38 |
| East Midlands | £122,392 | £83,742 | 46 |
| West Midlands | £131,771 | £95,245 | 38 |
| East | £164,987 | £124,941 | 32 |
| London | £217,782 | £186,706 | 17 |
| South East | £202,288 | £157,026 | 29 |
| South West | £147,380 | £115,304 | 28 |
| Wales | £106,911 | £77,551 | 38 |
| Scotland | £97,552 | £72,278 | 35 |
| Northern Ireland | £96,274 | £80,229 | 20 |

Source: ODPM

4.4 The importance of location in determining prices implies that this is not an industry in which firms' key route to winning market share is through developing a "killer product", by improving build quality or customer service. The most important objective for a housebuilder is to obtain land where people want to live. Except in niche markets, concerns over design and innovation in the building process may be of less importance.

Influence of consumer demand

4.5 Consumers' demand for housing reflects a complex basket of features or attributes associated with a particular house, including space, both internal and external, nearby amenities such as green land or good schools and other specific features and characteristics of the house. Statistical analysis of the price and characteristics of a large number of houses gives an indication of the value that consumers place on each of these main attributes of a house. This technique is known as hedonic pricing.

4.6 Cheshire and Sheppard³ identify the value consumers place on features such as floor space, number of bedrooms, whether the property has central heating or a garage, whether it is detached or a flat, the quality of the local school, the type of street the property sits on and the amount of open space in the vicinity. Evidence suggests that those features of a house which result in the biggest increases in value over time are external space, accessibility to open land and the absence of industrial land. Internal features of the house such as central heating and bathrooms are less important. In particular, upper income groups tend to have a higher propensity to demand lower density development along the urban periphery. This demand is difficult to fulfil given current planning policy.

4.7 More recent work by Cheshire and Sheppard provides a particularly stark example of the importance of location for home value⁴. A study of the Reading area in Berkshire analysed how house prices were affected by being in the catchment areas of popular primary and secondary schools. The research estimates showed:

³ Cheshire, P. and Sheppard, S., 'Estimating the Demand for Housing, Land and Neighbourhood Characteristics' *Oxford Bulletin of Economics and Statistics*, 60, pp 357-382 (1998).

⁴ Cheshire, P. and Sheppard, S., 'Capitalised in the Housing Market or How we Pay for Free Schools: The Impact of Supply Constraints and Uncertainty', available at: <http://www.lse.ac.uk/collections/geographyAndEnvironment/whosWho/profiles/cheshire/Default.htm>

- the value of a house in the best possible secondary school catchment area would be £23,750 (18 per cent) higher than that for an otherwise identical house in the worst possible secondary school catchment area;
- the value of a house in the best possible primary school catchment area would be £42,550 (33 per cent) higher than that for an otherwise identical house in the worst possible primary school catchment area.

4.8 The rest of this chapter considers two factors that in part explain many of the industry's behaviours:

- the role of risk; and
- the importance of land acquisition.

THE IMPACT OF RISK ON HOUSEBUILDERS

4.9 Risk is a feature of all entrepreneurial activity and does not necessarily constitute a market failure that requires Government intervention. However, understanding the housebuilding industry requires an understanding of how this industry is particularly influenced by risk⁵. In addition, it is important to identify market outcomes which are a response to risk, in order to distinguish them from outcomes which result from market failures. Two types of risk are particularly important to housebuilders:

- market risk associated with the volatility of house prices. For a 1 per cent increase in house prices, gross development profit on some sites can increase by almost 8 per cent⁶; and
- site-specific risk concerned with land acquisition, gaining planning permission and construction. Lead times in housing development are relatively long and these site-specific risks can exacerbate market risk.

TYPES OF RISK

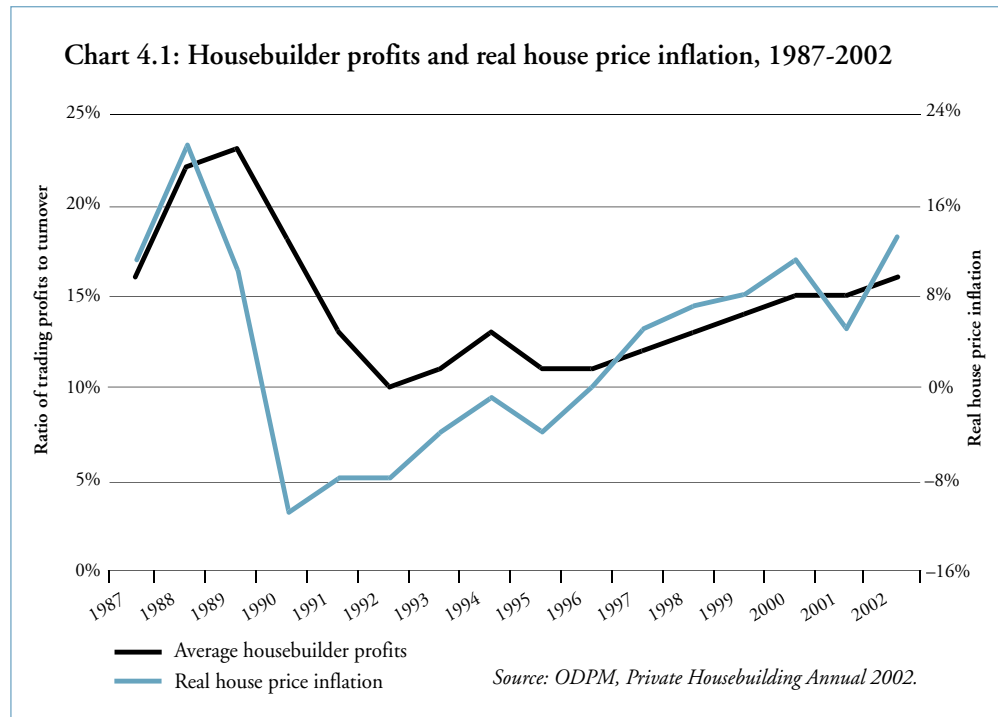
Market Risk 4.10 While housebuilders are not primarily speculators on future house price movements⁷, their profits are heavily dependent upon them, as indicated in Chart 4.1. The impact of this risk on housebuilders is evidenced by the sensitivity of their stock prices to expectations about interest rates changes, a major driver of house prices through their impact on consumer demand and the cost of mortgage finance⁸.

⁵ This point was also made in several consultation responses, for example, Muellbauer, J. (2003) 'Housing, credit and the euro: the policy response', *Economic Outlook*, July, pp. 5-15.

⁶ According to FPD Savills' data for a greenfield site, the gross margin was 13.04 per cent of gross development value. This implies that a 1 per cent increase in development value generates a 7.7 per cent increase in the contribution to the housebuilders' profits and fixed operating costs.

⁷ An examination of the land banks of eight of the largest builders for which data were available suggests that major firms' land holdings over time are a stable function of the number of houses they intend to build, and do not respond significantly to changes in house prices – that is, major firms do not appear to vary land holdings significantly according to the state of the housing market. A possible exception is Berkeley group, for which a wide variation in the relationship between land holdings and build rates is observed for the years 1994-2001.

⁸ On 23 October 2003, the *Financial Times* reported that "housebuilders, which have outperformed the market by 25 per cent since January, were the key midcap sector to be sold off amid fears of monetary tightening". The report followed the release of Bank of England Monetary Policy Committee minutes widely interpreted as suggesting a future rise in interest rates was closer than expected.



4.11 The impact of market risk can explain a number of features of the housebuilding sector. Housebuilders tend to structure their business activities in order to minimise fixed commitments, as these create the risk of greatly reduced profits or bankruptcy in the event of a market downturn. In particular, market risk:

- means that housebuilders, who have past experience of housing market booms and busts, may not believe market signals and will not therefore respond to increasing prices by increasing output. As discussed in Chapter 2, housebuilders may perceive house price increases as unsustainable and likely to fall. The volatility of the housing market increases the value of waiting before expanding output⁹. Housebuilders may also have been slow to adjust to a more stable macroeconomic environment;
- encourages the use of sub-contracting, which may have implications for operational efficiency and the availability of skills;
- may lead to a reluctance among some housebuilders to undertake significant investment in plant and alternative construction techniques;
- can reduce housebuilders' willingness to undertake significant brownfield developments, particularly at high densities, given the length of time that capital may be tied up;
- may explain in part housebuilders' choice of financing through retained profit rather than debt or equity; and
- helps explain housebuilders' use of options in land acquisition.

⁹ This suggests an understanding of "real options" is important to understanding housebuilder behaviour: a point made in a consultation response from John Muellbauer and analysed in 'Irreversible Investment, Real Options and Competition: Evidence from Real Estate Development', Laarni, B., Mayer, C. and C. Tsurriel Somerville., *Working paper 01-02*, (Center for Urban Economics and Real Estate, Sauder School of Business, University of British Columbia, 2002).

4.12 Construction statistics report a large number of insolvencies for construction companies in the early 1990s, a period of significant down turn in the housing market. In 1992 and 1993 the numbers of insolvencies ran at 3,830 and 3,189 respectively. This compares to 1,509 and 1,840 for 2001 and 2002, the latest years for which data are available. It is notable, however, that no major housebuilder went bankrupt in the early 1990s (although some were taken over by rivals), which may reflect their skill at mitigating risk¹⁰.

Specific risk 4.13 Housebuilders' behaviour is also shaped by the specific risks they face in relation to the regions in which they operate and the sites upon which they are building. The lead times in undertaking housing development are relatively long and can be uncertain, increasing the costs of development:

- delays can occur in obtaining implementable planning permission. Possible reasons for this are explored later in the report but include significant objections to development or the length of time needed to negotiate various detailed aspects of the proposal such as Section 106 agreements. The amount of time taken only creates additional risk when it is uncertain and variable;
- archaeological finds, the discovery of unexpected contamination on brownfield sites and problems with site assembly, can also add to risk; and
- external infrastructure delays such as the construction of access roads can also create uncertainty.

All other things being equal, when the costs of development are increased, less development may take place than would be the case if these risks did not exist.

4.14 The impact of specific risk can also explain a number of features of the housebuilding sector and may reinforce behaviours associated with market risk. In particular, site-specific risk:

- encourages the use of sub-contracting;
- reduces housebuilders' willingness to undertake brownfield development;
- helps explain housebuilders' use of options in land acquisition.

HOUSEBUILDERS' RESPONSES TO RISK

The role of sub-contracting

4.15 The term "builder" is to an extent a misnomer for most housing developers. Housebuilders undertake a co-ordination role, working flexibly, buying in inputs as required and managing the process. Sub-contracting is widely used and not only in physical construction: housebuilders often pay outside agents or consultants to assist with land acquisition, development and design, development control, valuation and market research and the final sale.

¹⁰ Housebuilders' risk management strategies limit the exposure of their bottom line profits to the economic cycle. This in turn implies that their share prices may not be overly sensitive to the economic cycle, something which is borne out in the fact that, on the beta measure of non-diversifiable risk, housebuilders' shares are only averagely risky. The London Business School Risk Management Service estimated a beta of 0.96 for the housebuilding sector in September 2003. This is very close to the average beta of 1 for all stocks.

4.16 Subcontracting is equally common in other forms of construction, such as the construction of offices, where market risk is also important¹¹. Market risk is also a feature of housing markets in some other countries where we see similar outcomes and the adoption of flexible working practices wherever labour laws allow¹². Site-specific risks, which are discussed further below, can also contribute to the advantages of sub-contracting. Where delays occur which prevent the developer getting on-site, the use of sub-contractors means that the developer has fewer direct employees standing around idle, until the sub-contracted workers are required. The implications of sub-contracting for investment in skills are considered in Chapter 6.

Brownfield development

4.17 Developers do not undertake sufficient brownfield development from the point of view of social costs and benefits. This is not caused by risk, but it may be exacerbated by it. Building on brownfield land has clear external benefits; it aids in regeneration of cities in particular, and reduces the need to use additional greenfield land, reducing the environmental impact of development. These positive externalities are not signalled to housebuilders or landowners, as their profits from brownfield developments will not reflect them. This suggests that there is a possible market failure in the provision of brownfield land for development. The fundamental problem may be due to the low value of brownfield land which results from the high costs of developing it, coupled with high existing use values which militate against redevelopment.

4.18 These high development costs arise because brownfield land may be contaminated, require demolition of existing buildings prior to re-development or require a considerable amount of mitigation (preparation for development such as infrastructure provision). These costs will reduce the land's value. Some brownfield land may even have a negative value, so a subsidy would be required to make the land commercially developable. The existence of positive externalities associated with brownfield development can justify such a subsidy to solve the market failure.

4.19 Housebuilders' aversion to brownfield development may be increased by both market and site specific risk. A consequence of market risk is that housebuilders may avoid undertaking those developments which require tying-up large amounts of capital for longer periods, before a return is seen. Inner-city brownfield developments can provide a good example, because:

- development of such sites may require significant up-front investment in site preparation (e.g. decontamination);
- developing at high densities requires large sums to be tied up for a significant period of time, in contrast to developments of detached homes for example, as flats cannot be built and sold one at a time; and
- full payment will only be collected once the development is complete.

¹¹ Investment Property Databank provide data on office capital values in the UK between 1981-1996. The standard deviation of the annual rate of change in these values (a key measure of market risk) is 12.3%, which is just in excess of the standard deviation of the annual rate of change in house prices over the same period, 11.7%.

¹² Ball, M., 'Markets and the Structure of the Housebuilding Industry: An International Perspective'; *Urban Studies*, Vol. 40, No. 5-6, (2003).

4.20 These features imply that flats developed on brownfield sites may carry additional risks. This was summarised by the Greater London Authority in its response to the Review: “Development in London is complex given the dependence on brownfield sites and the significant lead in time and the uncertainty of infrastructure funding. Development involves significant risks for developers, which do not generally apply on greenfield sites. Residential development in London is to a large extent limited to a small number of specialist firms who are familiar with the constraints”. This has implications for competition between housebuilders, an issue which is considered in Chapter 5.

Financing housebuilding

4.21 Market risk also influences the way in which housebuilders finance themselves. The ability and willingness of even the major housebuilders to tap the capital markets has been limited:

- the shares of the major housebuilders are poorly rated¹³;
- housebuilders have shown an unwillingness and or inability to take on significant fixed rate debt to finance their activities; and
- most of the major housebuilders’ capital requirements in recent times have been met through retained profit¹⁴.

4.22 The low rating of housebuilders’ shares is not unique to the UK. US housebuilders also experience relatively low ratings. The maturity of the industry in both countries, and the limited prospects for rapid and sustained future earnings growth may in part explain this. Major US housebuilders have, however, experienced greater success at raising capital from debt markets¹⁵ possibly as a result of their greater scale, greater opportunities for geographical diversification and a more developed debt capital market. (Five US housebuilders have revenues over US\$5 billion, around £3 billion, while George Wimpey Plc, the largest housebuilder in the UK in 2002, had revenues of just over £2 billion.)

4.23 There is no obvious sign of an overall failure of the capital market in the sense that investors and lenders are failing to make a correct assessment of the risks and returns involved in housebuilding, leading to an artificial restriction in the supply of capital. Indeed a number of housebuilders of different sizes specifically stated that they had no problems in accessing finance¹⁶.

4.24 However, the cost of capital available to housebuilders from the markets will reflect the riskiness of investing in them, and in their individual developments. For example, Stanhope, while stating that there is an “ample supply of potential finance available for housing development,” suggested that the numerous risks involved in housing development could lead to capital being priced at a level which made certain developments unviable. Stanhope’s response to the Review indicated that funders require certainty, in particular:

¹³ On 12 November 2003 average price earnings ratios of the five largest listed builders in volume terms ranged between 5.6 and 7.7, compared to 17.7 for the FTSE350 as a whole.

¹⁴ Credit Lyonnais Securities Private Housebuilding Annual 2002.

¹⁵ Bank One Capital Markets Homebuilding Handbook 2003 edition reports US\$2 billion of homebuilding debt raised by 6 homebuilders in 2002.

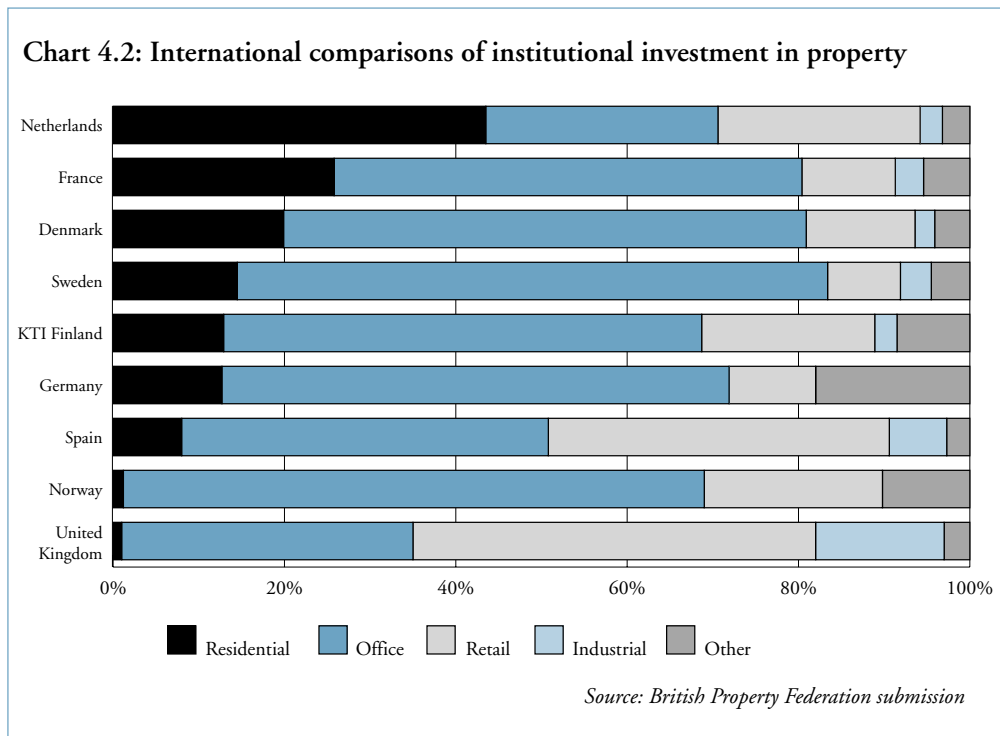
¹⁶ See, for example the submissions to the Barker Review consultation of Beechwood Homes, Bovis Homes Group, Emerson Group, Gallagher Estates and Lovell.

- planning consent needs to be in place and sufficiently flexible to respond to market needs;
- land assembly having been complete; and that
- risks relating to decontamination, uncertainty on delivery and quality are borne by the developer.

4.25 To the extent that these risks are greater for high-density, brownfield development, Stanhope’s response indicates how risk can exacerbate the market failure of insufficient brownfield development discussed above. This explains the role for Government in addressing the nature of the risks and returns faced by investors when undertaking socially desirable brownfield developments.

Institutional investment

4.26 Chart 4.2 shows that institutional investors play a much greater direct role in financing housebuilding in other European countries than in the UK. Given the importance of risk management to property development, the absence of direct involvement of financial institutions in the residential property sector, indicated in the chart below, is noteworthy. It is possible that involvement by institutional investors could support more responsive UK housing output through less risk-averse capital allocation. Certainly the output of commercial property in the UK, where involvement of institutional investors is a feature, is more responsive to demand than housebuilding.



4.27 The absence of direct involvement of financial institutions in the UK in residential property development reflects many factors, including:

- the British cultural preference for owner-occupation (institutions are more likely to be interested in investing in properties long-term, typically for rental, rather than sale);
- the relatively small scale of many housing developments compared to commercial projects which makes them unattractive to large institutions; and
- the tax regime: the possible wider benefits of increased institutional investment in the private rental sector and the impact of the tax regime upon it are discussed further, in Chapter 7.

Options

4.28 Housebuilders will determine the amount they can afford to pay for land by reference to the price they expect ultimately to achieve for the development. This amount is referred to as the residual value. In some cases, the purchase price of the main input, the land, may have been fixed years in advance of the first sales. Changes in output prices may, therefore, feed straight through to the housebuilders' bottom line, if the residual value has been calculated on the basis of assumptions about house prices which turn out to be incorrect. This level of risk derives from the fact that, at the stage the land is acquired, neither the ultimate occupiers of the property, nor the sale price, have been identified. This is what distinguishes private housebuilders from contractors who build to order, for example on behalf of an RSL, or developers of commercial properties. The greater the site risk and, therefore, the delay between land purchase and the development being completed, the greater the housebuilders' exposure to market risk.

4.29 Option contracts, under which the sale price of land is only agreed between the landowner and developer once planning consent has been obtained, may reduce this risk. The use of options is discussed in detail in Chapter 5, in the context of developers' landbanks. However, their use in the UK is more limited than in the US, where US housebuilders also seek to benefit from a just-in-time land management model, with around 50 per cent of their land sites controlled through the use of land options. Options are more suitable for greenfield sites, which, in part owing to a far greater land supply, are more easily available in the US. Options also allow UK developers to mitigate site-specific risks, by allowing costs, including those relating to Section 106 agreements, to be passed on to land owners by adjustments in the agreed sale price of the land.

Further strategies to mitigate risk

Off-plan sales 4.30 Another way to minimise risk is to make sales before units are constructed, so the buyer and sale price are known in advance. According to one US industry analyst "many [US] companies build almost entirely to order on a pre-sold basis. Only a small part of inventories are spec[ulative] homes¹⁷". To a lesser extent, UK housebuilders are also able to benefit from such off-plan sales. Some UK housebuilders report making up to 70 per cent of their sales off-plan, but only when the market is good. By contrast, a representative of Dutch housebuilders suggested to the Review that in the Netherlands housebuilders will sell fewer houses off-plan when times are good. If the market is buoyant, there is less need to ensure that a buyer exists before the home is constructed, unless there is a perceived risk of market collapse.

¹⁷ Bank One Capital Markets Inc. *Homebuilding Handbook* (2003).

Controlling output 4.31 An additional way to avoid market and site-specific risk is for housebuilders to split large sites with competitors, which allows for diversification and reduces their exposure to a single development. Alternatively firms take a cautious wait-and-see approach when developing large sites, so that output is “trickled” onto the market over extended time periods. So risk is also a major factor in explaining firms’ landbanking behaviour, discussed in depth in Chapter 5.

LAND ACQUISITION

The importance of land acquisition 4.32 The first step in becoming a housebuilder is to acquire a supply of land. Profitable land acquisition requires a significant degree of local knowledge. Understanding the local housing market is important in order to estimate the final development value as accurately as possible to derive the residual value of land. It may also be important to have a good understanding of local planning regimes (for example, knowing which locations and types of development are most likely to receive planning permission and what Section 106 obligations are likely to be imposed). Relationships with local land owners and suppliers of other inputs, such as sub-contracted labour, can also help.

4.33 The result is a highly localised and fragmented industry¹⁸. While larger national players do exist, they tend to operate through a number of local operating units. For example, the largest UK developer in 2002, George Wimpey Plc, reports 23 separate regional UK operations for its George Wimpey UK subsidiary and reports a further six regional operations under its Laing Homes Ltd brand. Persimmon, the second largest UK developer by unit sales, reports 25 regional operations under the Persimmon Homes brand.

4.34 Yet in local areas, it is often smaller local firms that succeed in becoming the biggest single developer, rather than the local operations of the national players. Table 4.3 identifies British counties or London Boroughs where a single producer was responsible for more than 50 per cent of planning applications for new houses in 2002¹⁹. In eight of these sixteen cases the developer in question was not one of the ten largest national players.

¹⁸ A further contributing factor is the relatively low level of “sunk costs” in the industry, discussed in the next chapter.

¹⁹ Data relate to planning applications, rather than unit completions. However, EMAP sought to adjust their data for the practice of “twin tracking” where the same developer will put in multiple applications on the same site.

Table 4.3: Counties and London boroughs where few developers are operating, 2002

| Area | Parent company | 2002 Units | Share of 2002 applications (per cent) |
|----------------------|--------------------------------|---------------|---|
| Channel Islands | A C Mauger & Son Ltd | 37 | 100 |
| City of London | United House Construction Ltd | 27 | 100 |
| Hounslow | Berkeley | 230 | 89 |
| Kingston upon Thames | Berkeley | 428 | 87 |
| Dumfries & Galloway | Robison & Davidson Limited | 168 | 82 |
| Harrow | Willmott Dixon | 110 | 81 |
| Richmond upon Thames | Berkeley | 224 | 77 |
| Sutton | Bellway | 175 | 76 |
| Camden | Mansell | 850 | 73 |
| Merton | Cranbourne Developments | 169 | 73 |
| Haringey | Berkeley | 483 | 72 |
| Islington | Sir Robert McAlpine & Sons Ltd | 850 | 69 |
| Hackney | Durkan Pudelek | 89 | 64 |
| Lewisham | Rydon | 419 | 59 |
| Hillingdon | Barratt | 24 | 52 |
| Lancashire | Jarvis Construction | 4350 | 51 |

Source: EMAP Glenigan

4.35 This regional fragmentation is not unique to UK housebuilding. Regional fragmentation is seen in housing industries in other countries. In the US major housebuilders display varying degrees of involvement in different localities. For example, MDC can claim to be number one in Colorado, while KB Homes leads in California. Meanwhile, George Wimpey Plc, which has limited interests in the US, divides its operations there into 12 regional units.

4.36 A high degree of regional fragmentation may limit opportunities to exploit economies of scale²⁰. Many product and process innovations may only become profitable once a certain scale of production is achieved. The desire for a more innovative and efficient industry may be at odds with the desire for an industry which closely tailors its product to local market conditions and the requirements of local planners. For example, data considered in Chapter 6 indicates that the production of housing may be more labour efficient in the Netherlands than in the UK. Participants in the Dutch housebuilding industry indicated to the Review that Dutch consumers and planners may on the whole be comfortable with a highly standardised housing product. By contrast, some housebuilders in the UK have indicated that in some areas large housebuilders' "standard units" may not be acceptable to local planners. This may allow smaller niche players to thrive at the expense of larger national firms and indicates tension between requiring significant local flexibility and productive efficiency.

²⁰ For a scholarly discussion of the fragmentation of housebuilding industries, see, Buzelli, M., 'Firm size structure in North American housebuilding: persistent deconcentration, 1945-98', *Environment and Planning*, 33, pp 533-550 (2001). Without drawing firm conclusions about the reasons for the fragmentation of housebuilding in North America, Buzelli cites speculation that "advantages of economies of scale" may be inherently limited by the nature of the production technology, the volatility of the market, and the ease of entry and exit into the industry.

Commercial development 4.37 The need for detailed local knowledge is less important in the construction of commercial property, where large developers dominate and compete across the UK and internationally. For example, a list of the largest private commercial contractors in the UK²¹ includes foreign names, such as VINCI Plc (France), Bilfinger Berger (Germany) and Skanska (Sweden). Possible reasons for this include:

- the larger scale of commercial developments means that existing knowledge of the local area may be of secondary importance to the level of productive efficiency;
- the future tenants of commercial property may be considering locations nationally or internationally, hence a knowledge of the local market confers less advantage; and
- the more relaxed planning regime may play an important role. With local authorities often keen to attract commercial development, developers may be less constrained by the need to have a good understanding of local planning and development control.

4.38 London Residential Research summarised this latter point in their consultation response: “office development in central London and Docklands is highly elastic in responding to demand and rising rents. ...The planning regime for office development in London is in effect deregulated. By this we mean that there are strong policies to promote office development in central London, particularly in the City of London and Tower Hamlets. This essentially “laissez-faire” approach is based around a strong strategic policy emphasis to provide sufficient new office stock to maintain and enhance London’s “World City” role. Planning gain requirements for large-scale offices in the City and Docklands are minimal. Indeed, policies to promote office development have been so successful, that office rents have gone down in both nominal and in ‘inflation adjusted’ terms since the mid 1980s...”

²¹ *Top 50 league table: New Orders Won*, Contract Journal www.contractjournal.com, (2003).

Box: 4.1 The vertical integration of housebuilders

This chapter has described a development process in which a single firm is responsible for every step from land acquisition through to the sale and marketing of homes. However, in some parts of the world, notably the US, it is commonly the case that land will be purchased, progressed through planning control and have the required infrastructure put in place by one company (the land developer), and then packaged up into smaller lots and sold as “oven-ready land” to other firms (builders) whose role is to design, construct and sell the homes, and compete with each other for customers in doing so.

These two stages of the development process require different skills. It might follow, therefore, that it would be economically efficient for different firms to specialise in each of these stages. Why does this division of labour occur only infrequently in the UK?

There are three possible explanations:

- with a limited supply of very large sites, the opportunity for firms to specialise purely in the master planning of new communities, as they do in the US, is itself limited;
- where the supply of housing land is more restricted, developers who are fortunate enough to obtain land, will seek to maximise profits by controlling the rate at which the site gets built out. The rationale for this is discussed in Chapter 5 and can give the land developer an incentive to remain responsible for building the homes; and
- where the granting of planning permission is closely tied to the design of the homes to be developed (as is often is the case in the UK), the firm seeking to gain planning permission on land (the land developer) will need to have control over the design and construction of the homes.

No comprehensive empirical international study exists of the prevalence of vertical integration in different countries. However, vertical integration is not unique to the UK and is also observed in those areas of the US where land supply is restricted²².

ALTERNATIVE HOUSEBUILDERS

4.39 The previous section indicated some differences between firms involved in residential and commercial development in the UK. There is relatively little crossover in the UK between the firms in these sectors, although owing to subcontracting there is crossover between the firms and individuals actually engaged in the physical construction. But why should this be so? After all, major urban regeneration requires a set of skills more commonly found among commercial developers, than the traditional housebuilders. This is particularly true where large urban sites call for mixed-use development, combining both commercial and residential construction. Some commercial developers have indicated to the Review that they would play a greater role in housing development if further steps were taken to facilitate the land assembly and supply process in urban areas.

²² Ball, M., ‘Markets and the Structure of the Housebuilding Industry; An International Comparison’, *Urban Studies Vol. 40*, pp 5-6, (2003).

4.40 That the role of commercial developers to date has been limited can, in part, be traced to several differences between housebuilders and commercial developers, relating to their approach to risk and land acquisition:

- in contrast to housebuilders, commercial developers are often not required to bear the risks of land ownership or the risk that buyers for the completed development will not be found at the expected price. They will often be contracted to undertake the project for a guaranteed buyer, who will own the land and bear the risk that the completed properties cannot be sold or rented at the expected price²³;
- where they do not own the land, commercial developers may not be required to tackle the challenges involved in land assembly;
- commercial developers are likely to be interested in large scale projects. Limited land availability will limit the opportunities for such projects; and
- housebuilding for owner occupation, unlike commercial letting, does not provide secure income streams which can be securitised through bond issues to finance development. With uncertain market demand, alternative finance routes may be necessary (such as retained profits), which may not be readily available to commercial developers.

Essentially these are many of the features that have led to traditional housebuilders evolving in the way that they have. Enabling alternative developers to compete with traditional housebuilders may require different selling strategies and a different approach to land and land ownership.

²³ However, some commercial developers will own the land and, therefore, bear the risk that tenants for their retail or office developments cannot be found at the expected price.

5

Competition in housebuilding

Overview

Land is the critical factor in explaining competitive pressures in the housebuilding industry.

Land is in scarce supply. Housebuilders work to ensure that they have adequate land supply looking a number of years ahead:

- option agreements allow housebuilders to reserve land before it acquires planning permission at relatively low cost; and
- housebuilders also hold land with planning permission (their core landbanks).

There is some concern that options and landbanking allow housebuilders to erect barriers to entry into the market. However, the Review has found little evidence for this, at any rate across the country as a whole:

- new entrants into the market would be able to buy options from other players; and
- once time taken to acquire planning permission and to build houses is taken into account, the size of core landbanks does not seem unreasonable.

However, once land acquisition is complete, competitive pressures in the industry reduce:

- housebuilders have little incentive to compete for consumers. Indeed, only 54 per cent of people who bought a new home said that they would want to buy a new home from the same builder again;
- in some localities, a single housebuilder may have significant market power; and
- many housebuilders “trickle-out” houses especially from large individual developments – controlling rates of production to protect themselves against price volatility, and to ensure that they do not adversely influence prices in the local housing market.

There may also be a more fundamental interaction between land supply, a persistent long run shortage of houses and the behaviour of the industry:

- a shortage of housing protects housebuilders from desirable competitive pressures;
- pressure to innovate and improve productive efficiency is reduced; and
- housebuilders are primarily rewarded for obtaining valuable land, rather than responding to consumer needs.

Limited land supply and low output appears to suit many players: local authorities, homeowners and in some ways the industry. However, it does not suit those who cannot afford a home.

The Review will continue to consider reforms to the way land is assembled and made available in order to increase competitive pressure.

INTRODUCTION

Criticisms of the housebuilding industry

5.1 The housebuilding industry is frequently criticised:

- Not only has the volume of output not responded to meet demand but the nature of housing being produced does not meet the needs of consumers and society as a whole. In particular there is insufficient brownfield and high-density development.
- Production techniques are inefficient¹ and there is a reluctance to innovate and adopt modern methods of construction. Data suggests that housebuilding in the UK is significantly more labour-intensive than in other countries. It has been suggested that the cause is UK housebuilders' lack of innovation. In turn, this also restricts builders' ability to ramp up production when the market so demands.
- The industry holds stocks of land (landbanks) for development which it does not bring forward quickly enough when prices rise, to deliver increased housing numbers. The stock of outstanding planning permissions for housing is in excess of the flow of housing starts in any one year. Further, all major UK builders report that they own or control several years' worth of land with planning permission. UK housebuilders also own land without planning permission, or control it through option contracts. The question arises as to whether industry landbanking and optioning behaviour, rather than planning control, is the main reason for the unresponsiveness of UK housing output.
- Housebuilders respond poorly to the needs of individual consumers resulting in a large number of complaints.

5.2 Chapter 4 touched upon the role of risk in explaining some of these behaviours. This chapter presents the Review's analysis of these criticisms, in particular investigating the reasons behind the industry's landbanking behaviour and the effectiveness of competitive pressure in the industry. Incentives to innovate are considered further in Chapter 6.

5.3 In theory, the existence of landbanks might be expected to increase rather than decrease supply responsiveness. Housebuilders should be able to use their stocks of land to increase production when prices rise. However, the existence of landbanks has also been interpreted as a sign that developers are failing to make the most of the land that is available to them. This issue can be considered in two parts:

- Do developers lack incentives to promote the land they own or control through the planning system?
- Once that land achieves consent, do developers have sufficient incentives to build on it?

5.4 In answering these two questions the Review has focused on two kinds of land owned by developers:

- first, land that the developers own which has at least outline planning consent (and may also include land with detailed planning consent and land upon which they are building). This is referred to as the developers' (core) landbank; and

¹ see for example Cohen, N., 'Lipton plans building shake-up', *Financial Times*, (August 26, 2003).

- second, land that does not have planning consent either owned outright, or more typically controlled through options (which give them the right to purchase the land when it achieves planning consent). Developers often refer to this as their strategic or forward land.

5.5 Having considered developers’ incentives to promote and build on land, this chapter goes on to consider issues relating to the nature of competition. Competition for land is important: without it developers will lack incentives towards efficiency and land owners may not achieve prices for their land that are sufficient to encourage them to sell it for housing development.

DEVELOPERS’ INCENTIVES TO PROMOTE LAND

5.6 As discussed in Chapter 4, housebuilders often control land through option contracts. Optioned land forms part of a housebuilder’s landbank². Options are private contracts under which one party acquires and pays for the right, but not the obligation, to purchase an asset from another party. Options are used to facilitate transactions involving a wide variety of financial and physical assets, including land. They are a relatively cheap mechanism for controlling relatively large amounts of land and determining when it is promoted through the planning system. So, could options operate as a barrier to entry and prevent land coming forward for development, where the option holder does not wish to promote a particular site at one point in time but a second developer would be willing to do so?

The role of options

5.7 Option holdings vary greatly between the major housebuilders, with some holding very few options, while others hold land equivalent to over 20 years’ output and greatly in excess of their holdings of permissioned land. Housebuilders are not the only firms to own or control unpermissioned land. Legal & General owns or controls some 6,500 unpermissioned acres, for example³. This is equivalent to 79,000 housing units at minimum expected densities, or 13 years’ output for a typical major housebuilder⁴. Optioned land may not have been designated for any development, in which case the housebuilder may be hoping to promote the land for inclusion in the local authority development plan. Alternatively the land may have been earmarked for development by the local authority, but permission may not yet have been granted.

5.8 Options serve a number of functions:

- Land owners may have neither the financial resources, expertise nor will to guide land through planning and development control. The costs of progressing land can be considerable: FPD Savills estimate £50,000-£100,000 for a small site of 50 units while a large developer cited costs of £700,000 for one 120 unit site. Optioning allows developers to take on the risk and responsibility for progressing land in the knowledge that they will be able to acquire a developable site⁵.

² The term landbank is often used to refer to a housebuilder’s entire landholdings. Housebuilders tend to distinguish between their core landbanks, i.e. sites with planning permission (which may be owned or optioned) and strategic land holdings which do not have planning permission and which are more likely to be optioned.

³ Legal & General submission to the Barker Review consultation (2003).

⁴ For example, Bellway, the fifth largest UK housebuilder.

⁵ The price paid for land that has been optioned may be agreed in absolute terms or may be expressed as a percentage of “open market value” (a contractually defined term). Options may state that open market values are to be determined by a professionally qualified expert (such as a member of RICS). The price paid for the land in the option will, in part, reflect the costs the option buyer expects to face in promoting the land through planning and development control.

- Options can allow for any unexpected costs imposed by the planning and development control authority (e.g. through Section 106) to be passed on to the original landowner, rather than be borne by the developer. Mitigating these risks will incentivise developers to undertake development.
- Options and contracts place obligations on the purchaser to promote land through planning and development control⁶. Without such obligations, there would be little incentive for landowners to enter into option contracts.
- Options also play an important role in mitigating the risks faced by developers. There is less scope in the UK to use options to mitigate risk as options tend to be used on greenfield land. The increased emphasis on brownfield development in England following PPG3⁷ has reduced further the use of options in the UK⁸.
- Conditional contracts tend to be used on brownfield sites under which the developer is obliged to purchase that land, rather than simply having the right to do so. Where the land is in use, the occupants will want greater certainty as to when they will need to relocate and how much cash they will receive for a site in advance. They may not wish to enter into an option contract which leaves the answers to these questions in the hands of the developer and the housing market.

5.9 Table 5.1 summarises the publicly available information on major firms' strategic land holdings. These holdings of unpermissioned land are unlikely to generate the implied years of output as only a proportion of the land will ever actually gain planning permission and the timing of permission will also be subject to uncertainty:

- For any number of options held the housebuilder will assume that a proportion will fail to gain planning permission, despite their best efforts.
- Options (and conditional contracts) also allow housebuilders not to buy if the conditions imposed by the planning and development control authority are deemed onerous.

So, a housebuilder will only expect to build on a proportion of the land held under option. There is possibly an incentive to develop land previously held under option as this land tends to generate higher margins for developers than "oven-ready"⁹ land. This might imply housebuilders are able to negotiate a better price for land by going down the option route.

⁶ Such an obligation may be expressed as a requirement to use "all reasonable endeavours to obtain Satisfactory Planning Permission as soon as reasonably practicable". The option may go on to state that the purchaser must appeal if the planning application is rejected.

⁷ Planning Policy Guidance 3 or PPG3 sets out national policy and guidance for housing and the release of land for housing. PPG3 is considered further in Chapters 8 and 9 and in Annex A.

⁸ One small developer estimated that 20 per cent of land came via options with 80 per cent via outright sale, or conditional contract. A major developer indicated that options were increasingly less valuable as a source of land supply because of the impact of PPG3. Prior to PPG3 they had options equivalent to four to five years output. However, since March 2000, around a quarter of the options had delivered land for housing, a further quarter had been abandoned, while the remainder had been delayed and were not seen as a potential source of housing land in the near future. The reason for abandoning options was that PPG3 prevented the land from being progressed through the planning system.

⁹ Oven-ready land refers to land that is purchased outright, typically with outline planning permission already granted.

Table 5.1: Strategic land holdings of listed housebuilders

| Firm | 2002 Output | Strategic land (estimated potential homes) ¹⁰ | Years of strategic land |
|-----------------|-------------|--|-------------------------|
| Wimpey | 13,480 | 225,668 | 16.7 |
| Persimmon | 12,352 | 242,915 | 19.7 |
| Barratt | 12,250 | 0 | 0.0 |
| Taylor Woodrow | 6,238 | 57,000 | 9.1 |
| Bellway | 6,044 | 0 | 0.0 |
| Wilson Bowden | 4,164 | 140,891 | 33.8 |
| Wilson Connolly | 4,002 | 25,500 | 6.4 |
| Berkeley | 3,955 | 0 | 0.0 |
| Redrow | 3,908 | 17,000 | 4.4 |
| Westbury | 3,812 | 23,000 | 6.0 |

Source: *Private Housebuilding Annual 2003*

Options as a barrier to entry

5.10 Options could present a barrier to competition between firms for land if firms tie up large areas of land under option which they are not actively promoting, thus preventing other firms from acquiring this land and developing it. The point in time at which land is promoted will be determined by a number of factors:

- Housebuilders may hold off promoting land until some infrastructure (e.g. a road or railway) is constructed which is expected to increase the value of the final development.
- Alternatively, the housebuilder may simply feel that there is little chance of a successful planning application at a particular point in time and so will wait.
- Estimates of housing demand and the outlook for future house price movements may indicate that the time is simply not right for further development.
- Capital constraints within firms may mean that housebuilders wish to phase a development given the stage of production on other sites within their portfolio.

5.11 Housebuilders' perceptions of the desirability of promoting land at a particular point in time may differ, as may their ability to develop, as determined by capital constraints. However, as set out above, option agreements require land to be actively promoted. In addition options are tradeable, so if land is worth more to developer A than developer B, then developer A can acquire the option from B. Thus options do not necessarily exclude potentially more efficient developers, because more efficient developers are able to pay the less efficient ones to give up their options. Box 5.1 describes an example of this occurring in practice.

¹⁰ Private Housebuilding Annual provides data for several housebuilders measured in acres. These data have been translated into potential housing units by assuming PPG3 minimum densities of 30 units per hectare. The data includes land stated to be optioned, under conditional contract, "strategic", without planning permission or expecting imminent planning permission. The strategic land data, therefore, excludes the following land: Bellway's 12,500 plots where "permission is expected shortly" and Barratt's 9,000 plots which are "secured and being processed". A "plot" is equivalent to one home.

Box 5.1: Trading options

A specific example of trading options was cited to the Review. Developer A had acquired an option on a site for £1.1 million. Developer A, however, had a relatively poor design proposal for the property and the planning application was set to be rejected by the local authority. With time running out on the option (it was limited for a period of one year), developer A sought to make some gain from the option and was approached by two bidders.

Firm B was a volume builder with significant economies of scale, lower build costs and hence a higher residual for the site than developer A. Firm C was a niche builder with a superior design capability and hence a greater chance of getting the site through planning control than B.

The site was worth more to both firm B and firm C than £1.1 million. Firm B was prepared to pay £1.5 million and Firm C £1.3 million. Firm B was able to offer more because of the lower development costs associated with economies of scale.

Firm A only stood to make any gain from the option, if planning permission was granted within the 12 month time frame. For this reason, Firm A decided to sell the option to firm C because firm A perceived C to have a greater chance of getting planning permission within the 12 month time frame than firm B.

Interestingly, this example also illustrates the tension between firms achieving economies of scale and the constraints imposed by planning and development control. Achieving greater economies of scale generally requires offering a standardised product. Local communities' preferences for housing development, which is very specifically tailored to local conditions, can lead to higher production costs and reduce builders' ability to profit from economies of scale. The implications of this are discussed further in Chapter 6.

5.12 Options may also state that the option holder must not submit an application to the local planning authority on any other property. This clause may be inserted because sellers of options require reassurance that the purchaser has a genuine incentive to progress *their* land through planning and development control¹¹. The consequence of this is that it is difficult for a single developer to tie up large tracts of land in any particular region through the use of options. It is also worth noting that options are time-limited, providing for rights which expire at some point after signing the contract, usually between one and ten years, allowing other housebuilders the opportunity to deal directly with the land owner.

DEVELOPERS' CORE LAND BANKS

5.13 So optioning does not prevent land from being promoted through the planning system and may even encourage it. A related issue is the existence of land which has planning permission but upon which developers are failing to build. A response to the Review from London Residential Research (LRR) summarised an example of this problem as follows:

¹¹ The relevant authorities are likely to permission only a limited number of sites in a given time period in a given area. Therefore any land owner would be right to be wary of selling to any developer that was already progressing a number of rival sites through the planning system. The land owner would be correct to surmise that the developer would have only a limited incentive to promote that land owner's piece of land.

“...when we look at the hard statistics, it appears that it is not the planning system which is preventing higher levels of new private sector building, at least not in central and inner London... If we analyse the data for each year, we can see that there has been an actual decrease in starts in real terms, from 6,000 units at end 1996 to only 5,200 at end 2002. Simultaneously, the number of new private sector homes with planning permissions and applications at each year end has been on the increase. This figure has grown from around 17,000 at end 1996, to around 28,000 at end 2002. Consequently, starts as a proportion of the potential planning pipeline have actually decreased from around 35 per cent in 1996 to 19 per cent at end 2002.”

5.14 LRR suggest reasons for this relate to both planning and industry constraints. The industry may be generally constrained by a lack of technical regeneration skills, other constraints may be specific to central London, and less relevant to the UK as a whole. However, the fact remains that throughout the UK, housebuilders own permissioned land upon which they are not building, or are not building as fast as physical construction capacity might allow.

Scale of landbanks 5.15 A useful way to consider the extent of a firm’s landbank is to compare the number of potential units in the landbank with the number of homes the housebuilder completes in a given year. This gives a measure of how long the landbank should last in years if building remains at current rates¹². On this measure, the average landbank for the major stock-market listed developers¹³ is just over 3.5 years, ranging from under 2.8 to 6.8 years.

5.16 Landbanking is not unique to the UK housebuilding industry. For example major US housebuilders also own land. The chart below indicates how “owned lots” compares to “unit closings” for the largest US housebuilders. Chart 5.1 shows that US landbanks, at 2-3 years, are somewhat smaller than the UK average. It is interesting to note that industry analysts in the US give less prominence to firms’ land holdings than those in the UK. This reflects the relative ease of land acquisition in the US. By contrast, developers in Hong Kong, where the Government strictly controls land supply, are reported to have landbanks several times longer than those in the UK¹⁴.

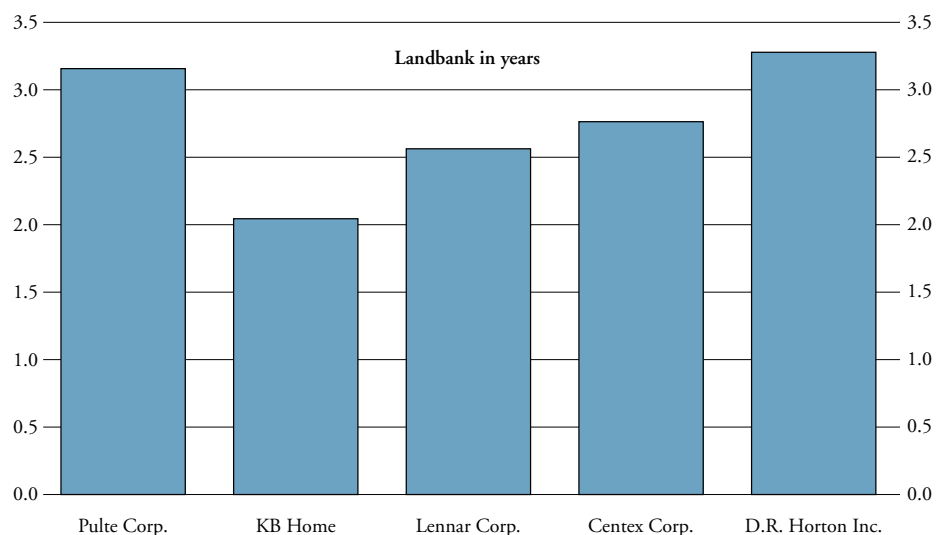
¹² For a growing housebuilder, this measure will tend to overstate the life of the landbank.

¹³ This analysis uses data taken from the Credit Lyonnais Securities *Private Housebuilding Annual*, (2002).

¹⁴ quoted developers state their core landbank. These are: Barratt, Bellway, Berkeley, Bovis, Countryside, Crest Nicholson, McCarthy & Stone, Persimmon, Redrow, Taylor Woodrow, Westbury, Wilson Bowden, Wilson Connolly, Wimpey. For only eight of these (Barratt, Bovis, Countryside, McCarthy & Stone, Persimmon, Taylor Woodrow, Westbury, Wilson Bowden) does the data specifically state that the land is both owned by the firm and has planning permission of some kind.

¹⁴ See Lai, N. and Wang, K., ‘Land Supply Restrictions, Developer Strategies and Housing Policies: The Case in Hong Kong’, *International Real Estate Review*, Vol. 2 No. 1, pp 143-159 (1999).

Chart 5.1: Estimated landbanks of the 5 largest US developers



Sources: Centex data on closings and lots owned from 2003 annual report. Closings data on other house builders from Professional Builder, Reed Business Information. Data on lots owned for other house builders quoted in article by Bill Lurz, HousingZone, citing data in paper “The Impending Consolidation of the Homebuilding Industry”, Paul F. DeCain, Andersen Corporate Finance LLC.

5.17 There are a number of reasons why housebuilders hold land with planning permission:

- There are operational reasons – equivalent to a firm holding stocks – which necessitate that firms hold a future supply of land. While most firms might wish to operate on a ‘just in time’ basis and minimise their stock holdings this is not always possible in this industry given the time and uncertainty involved in the development process.
- There is a potential speculative motive. Housebuilders may buy and store land when it is cheap in order to build and sell houses when the market improves.
- Large sites in particular tend to get built out over extended time periods. In part this is due to construction constraints but may also be because developers have some local market power and may not wish to flood the market.

Land as future houses

5.18 Operational reasons may explain much of the core landbank. The most obvious of these is that even once the developer gets on site, time is required to undertake construction (especially for more complex, high-density developments on brownfield sites) and sell the units. This could account for over a year of a landbank.

5.19 Yet developers are generally in a position to get on site on only a proportion of their core landbank. One reason is that much of the land has only outline rather than implementable planning consent. The length of time taken to obtain implementable planning permission will be a key factor determining how long land is banked. Chapter 9 indicates that the time taken to obtain implementable permission has increased in recent years and this may in part explain why landbanks appear to have increased. Other reasons why developers may experience delays in getting on to a site include unexpected delays in the completion of external infrastructure. Further delays may also occur during construction due to environmental issues or unexpected archaeological finds.

5.20 Like any business, developers want to be able to plan ahead. They need to be able to secure the services of contractors and not leave them standing idle, or find them unavailable when they need them. They do not want to hold an unnecessarily large inventory of materials. Having a variety of developable sites allows builders to reduce the impact of this site-specific risk, by increasing the chances that at least one site is developable at any one time¹⁵.

5.21 The fact that developers need to hold land for operational reasons means that lenders and equity investors are keen to see developers hold such forward supplies. These supplies represent a secure stream of future profits. Industry analysts may express concern where a firm's landbank is "thin"¹⁶. Equally lenders will be keen to know there is a source of future cash flows from which outstanding obligations can be repaid. However, investors will be wary of firms with excessive landbanks: land with planning permission is an expensive commodity and there is a cost to financing the landbank (described in Box 5.2). This cost is, however, reduced when land prices are expected to rise. Conversely it increases when land prices are expected to fall.

5.22 A number of major housebuilders provided the Review with detailed information on their landbanks, indicating their forward supply of land with planning permission. This data indicated that:

- typically around one third to a half of the landbank will have only outline planning consent;
- a further 15-30 per cent of land will have detailed consent and be under construction. Some of these units under construction may have been pre-sold;
- the amount of land with detailed planning consent (but not yet under development) was typically around 25-40 per cent of their landbank. This equates to between 11 and 16 months for a landbank of average length 3.5 years; and
- in some cases around 10 per cent of the land held with detailed consent was not under construction due to appeals, water authority objections, delays to off-site infrastructure and relocating wildlife populations.

¹⁵ Some RSLs report that they landbank for reasons relating to site-specific risk including planning constraints, and the need to plan ahead. Housing Corporation grant is tied to their ability to deliver units in any given year. Uncertainties around sites can interfere with this delivery, meaning grant is lost. By holding small quantities of land RSLs can work to ensure sites are ready for delivery, when grant becomes available.

¹⁶ For example, the Credit Lyonnais Securities *Private Housebuilding Annual 2002*, states about Barratt (core landbank of 3 years): "We expect returns to fall from hereon, as the relatively thin landbank provides no protection from margin erosion". Meanwhile, the same publication notes of Crest Nicholson (6-year land bank): "a high quality landbank that ensures profits should at least be maintained at current levels for the next six years." Analysts told the Review that they based their expectations of what level of landbank was required on what housebuilders had told them about the requirements of running a development business. There was no suggestion that city analysts had excessive expectations about the amount of core land developers should hold. Several parties indicated however that developers would have some incentive to exaggerate their land holdings where these fell short of what was really required from an operational perspective.

5.23 Some housebuilders do not have sufficient land currently available to meet their planned future output volumes. For example, Wilson Connolly's annual report for 2002 indicated that they had 95 per cent of the land required to meet their planned production over the next two years. These housebuilders will be seeking to purchase "oven-ready" land in order to fill the gap.

Box 5.2: The cost of holding permissioned land

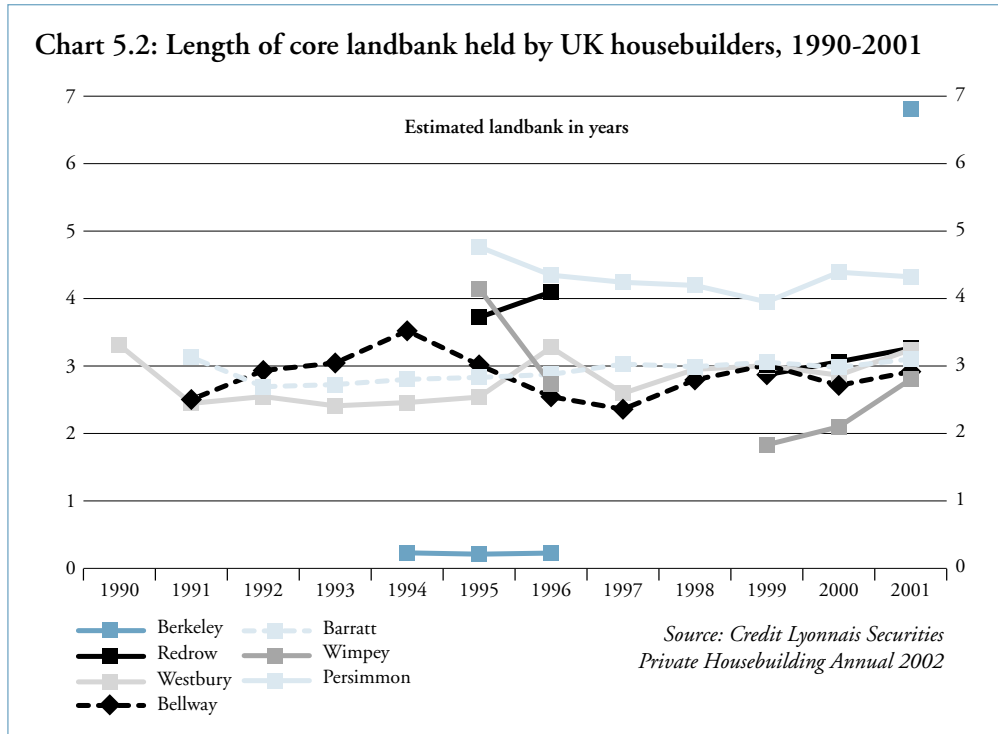
When a housebuilder chooses to own land and not develop it, it will bear a financial cost. The developer forgoes the income it could earn by selling the land and putting the proceeds in the bank. This financial cost can be estimated as follows: the average value per hectare of residential housing development land in South East England is £2.7 million. At a (conservative) financing rate of 5 per cent, the cost of holding this land is £135,000 per year. The cost of holding the land and failing to develop it is at least this amount.

By not developing land, the housebuilder must not only bear the cost of holding that land, it also delays receiving the profits it could make by developing it. This delay also has a financial cost, which can be estimated as follows: land costs are typically 33 per cent of total revenues for a greenfield development. This implies revenues of £9m for land cost of £2.7m. A profit rate of 13.2 per cent implies a positive cash flow of £1m from the development. Investing this profit in a UK gilt would yield £32,000 per year. This sum is forgone by delaying the development of the land.

Speculative motives

5.24 Housebuilders might be expected to vary their land holdings significantly in response to market conditions, and their expectations of future market conditions. However, such speculative motives do not appear to play a significant role for most major housebuilders, as far as their holdings of permissioned land are concerned. These land holdings are a relatively stable function of the number of houses they are intending to build, as indicated in Chart 5.2, though the value of landbanks may vary more significantly than this. It is also possible that housebuilders' acquisitions of unpermissioned land are more responsive to market conditions: the data suggest these holdings can be far more volatile¹⁷.

¹⁷ For example the Credit Lyonnais Securities *Private Housebuilding Annual 2002* reports that Wimpey increased its "long-term land" by 50 per cent between 2000 and 2001, Westbury increased its holdings of unpermissioned land by 25 per cent and Persimmon increased "long-term" land holdings by 158 per cent. Direct comparisons are complicated by Wimpey's acquisition during this period of McAlpine and Persimmon's acquisition of Beazer.



Controlling production rates

5.25 Operational requirements and speculation may explain a good proportion of housebuilders' landbanks. Several industry analysts and housebuilders also indicated that a proportion of their landbank was accounted for by large sites which get built out over a number of years. For example a site that could accommodate 2,000 homes might be expected to produce and sell 100-200 homes per year.

5.26 It is sometimes possible for housebuilders to increase this rate if they stimulate consumer demand by offering potential purchasers more variety. This could be done by:

- using different subsidiaries to build homes in different styles;
- building out different parts of the large site simultaneously; and
- selling parts of the site off to competitors.

5.27 However, despite these techniques, developers expect large sites to be built out over a number of years (in the example above, using these techniques might reduce the time taken to build out the site to seven years). Only some of the explanation lies in constraints such as the time required to prepare the site, phasing of required infrastructure and constraints on the resources (e.g. labour) available to construct the units. Another factor is housebuilders' choice to develop the sites at a rate they are comfortable with. In the case of one major housebuilder, 15 per cent of their landbank was accounted for by land with outline planning permission where construction would be phased over a five-year period.

5.28 In essence there are two reasons why housebuilders will restrict the rate they build out big sites:

- risk and volatility of the housing market; and
- absorption rates.

Risk and volatility 5.29 By controlling the rate at which they place their output on the market, housebuilders may be able to reduce the impact of housing market volatility. The prices achieved in ongoing sales provide feedback about the correct level of prices for that development and, potentially, allow the housebuilder to increase output when demand is strong or hold back build when sales are weaker. Placing all the output on the market would not allow this feedback, and would therefore expose the housebuilder to major losses if prices declined at that time.

Absorption rates 5.30 This observation is supported by academic research¹⁸. This suggests that the incentives for such “wait and see” behaviour are exacerbated where developers have market power. Indeed, the very operation of the market for land could in theory provide an incentive for developers to establish market power in local areas, described in Box 5.3. Where an individual developer is building a high proportion of units for sale in a locality, they will be aware that producing too many in one go may reduce prices (or rather, that they will only be able to sell their homes if they offer them at lower prices). Housebuilders sometimes refer to the number of units that can be sold at current prices in each period as the absorption rate. This provides a further profit maximising reason to control production rates. Box 5.4 discusses evidence on this from Hong Kong.

Box 5.3: Bidding markets and market power

The operation of the market for land could provide an incentive for developers to establish market power in local areas. If a large site comes up for sale it may be worth more to a single buyer than if it were sold to a number of competing housebuilders, because competing housebuilders would not be able to charge “monopoly prices” for their output. The expectation of competition would lead developers to be more cautious in their bids for sites.

Even if the absence of competing developers only allowed the developer to achieve prices 1 per cent higher, this could increase gross profits by up to 8 per cent, for the reasons explored in Chapter 4. In turn this implies the developer could afford to bid up to 8 per cent more for the land. If a landowner therefore wants to maximise the value of their site, they may have an incentive to sell to a single bidder, rather than splitting the site and selling to several developers¹⁹. This logic suggests that the land market encourages landowners to limit competition in the market for houses, and that landowners benefit from this. Meanwhile, selling to a single developer may also have advantages for land supply – because developers may be willing to pay more where they do not face competition, land owners may have a greater incentive to sell land for housing because of the higher prices they can achieve. Selling to a single developer may also reduce costs and lead to economies of scale, again permitting that single developer to increase their bid.

However, these advantages to a firm of owning a large site are frequently outweighed by housebuilders’ desire to avoid the risk of being over-exposed to a single large development. For these reasons, housebuilders often choose to split sites, selling off parts to competitors, rather than exploit the advantages of economies of scale and market power which might result from retaining sole ownership.

¹⁸ Bulan, Laarni, Mayer and Tsuriel Somerville, ‘Irreversible Investment, Real Options and Competition: Evidence from Real Estate Development’, *Working paper 01-02*, (Center for Urban Economics and Real Estate, 2002)

¹⁹ For an example of such behaviour, see Klemperer, P.; ‘What Really Matters in Auction Design’, *Journal of Economic Perspectives*, 16(1), pp 169-189 (2002). This cites a specific example of how auctions of a scarce input (radio spectrum) can lead to the creation of a monopoly in a downstream output market (mobile telephony).

5.31 Given that land is a scarce resource which society values, should action be taken to ensure sites are built out as quickly as possible? Measures that reduce normal profits from development run the risk of deterring investment. By reducing developers' potential profit they may also reduce the residual price that developers can afford to pay for land, reducing the owners' willingness to sell that land for housing development. This may have a greater impact on difficult-to-develop brownfield sites with relatively high alternative use values.

Box 5.4: Controlling production rates: evidence from Hong Kong

A stark example of how housebuilders' profit maximising incentives might conflict with the social objectives of greater housing supply is provided by some academic research from Hong Kong²⁰. In Hong Kong, all land is owned by the Government. The supply is limited, strictly regulated and easily measured. It has been suggested that the key to increasing housing supply is to increase the amount of land supplied by the government.

However, the research finds only a weak statistical relationship between the amount of land made available by the Government and the number of houses supplied by the major developers. Instead the volatile Hong Kong housing market means "the quantity of private housing units supplied in each year is not only limited but fluctuates wildly depending on market conditions and sentiment". The researchers conclude:

"We... find evidence that developers will examine economic conditions in making their housing supply decisions... in order to increase the housing supply, it might be necessary to create an environment in which the best course of action for developers is to develop the land, rather than to hold it. To do this, one must first understand the benefits and costs of holding a land inventory. We propose that the option theory developed in the finance field can be used to address this issue."

The variability of housing output in Hong Kong is in strong contrast to the stable output levels in the UK. However, one lesson for the UK may still be that policies to increase land supply need to be accompanied by policies to ensure that this land gets developed at a pace that benefits society.

THE NATURE OF COMPETITION

5.32 Optioning and landbanking present two possible constraints on competitive pressure. A lack of competition in any industry can reduce supply, responsiveness of supply and incentives towards efficiency. Lack of competitive pressure will reduce the prices offered to land owners, reducing their incentive to sell land for housing. It will also reduce housebuilders' incentives to develop quality products in an efficient manner. In general, competition can be weak for many reasons, but two issues are important.

- Barriers to entry will result in reduced competitive pressure, leading to inefficiency and neglect of consumer needs. Entry barriers may be innocent (not deliberately erected by incumbent firms) or strategic (designed by incumbent firms to make entry more difficult).
- Market power will enable firms to push up prices. It seems credible that some housebuilders may exercise market power in certain localities for the limited duration of a development. The tendency to drip feed may result as discussed above. However, as long as there is sufficient competition for land, incentives towards efficiency should remain.

²⁰ Lai, N. and Wang, K., 'Land Supply Restrictions, Developer Strategies and Housing Policies: The Case in Hong Kong,' *International Real Estate Review*, Vol. 2 No. 1, pp 143–159 (1999).

Barriers to entry

5.33 If there are significant barriers which mean only a very limited number of housebuilders might develop a site, competition for land will be restricted and incentives towards efficiency dulled.

5.34 Potential barriers to firms competing for land in certain areas include:

- the need for developers to understand the development and planning control framework in an area;
- the need for the developer to have a good relationship and reputation with local authorities, suppliers of land and suppliers of labour (contractors) in the locality;
- the need to have particular technical expertise and knowledge of development approaches tailored to particular areas; and
- the existence of developer landbanks and options.

5.35 However, there are several reasons for thinking that in general, if not in all parts of the UK, housebuilding is in fact a relatively easy industry to enter.

Sunk costs 5.36 The difficulty of entering an industry is frequently associated with the sunk costs of entry²¹. Sunk costs are those costs that cannot be recovered if the firm later decides to leave the industry. Sunk costs are typically high in industries where firms have to make large, up-front investments in highly specialised technology or machinery, research and development, training, or advertising in order to enter the market.

5.37 In general, housebuilding should not be one of these industries. Sunk costs in housebuilding are relatively low²². The first step in establishing as a housebuilder is to acquire land (or options on land). This is also the largest up-front cost faced by a housing developer. It is not however a sunk cost. If the housebuilder later decides to withdraw, land (or options) can be sold to another developer and much of the investment recovered.

Fragmented market structure 5.38 The fragmented market structure, many firms of varying size and geographical spread, suggests that there are not overwhelming barriers to entering the housebuilding industry in the UK as a whole. Firms do enter the market. While many of these new entrants may be relatively small, some are larger and comparable in size to the local or regional subsidiaries of the big UK players with which they compete. The set of new entrants listed in the 2002 Credit Lyonnais Securities Private Housebuilding Annual is presented in Table 5.2. Table 5.3 shows that small firms are able to grow.

²¹ Competition Commission, *Market Investigation References: Competition Commission Guidelines*, (2003).

²² The low level of sunk costs in housebuilding is emphasised by data from FPD Savills which indicate that by far the majority of developers' costs are specific to the amount of output they produce – most costs are development specific. Some 85 per cent of a developments' revenues goes to cover land acquisition, construction, finance and other costs specific to the development. Only 15-25 per cent of revenues go to cover upfront sunk-costs in plant, technology, R&D, training and the developers' profit. This can be compared with an industry such as telecoms where massive up-front investments are required to build a network and enter the industry and relatively little of the costs may be specific to the actual amount of output, i.e. the number of calls carried, in any one period.

Evidence of entry **Table 5.2: New entrants into housebuilding**

| Firm | Year of entry | 2001 output |
|------------------------|---------------|-------------|
| Tulloch Homes | 2000 | 370 |
| Gladedale Homes | 1999 | 344 |
| Hopkins Homes | 1998 | 184 |
| Michael Shanly Homes | 1998 | 100 |
| Scotia Homes | 1998 | 116 |
| Country & Metropolitan | 1997 | 46 |
| Mactaggart & Mickel | 1997 | 154 |
| Ballymore Properties | 1996 | 250 |
| Cavanna Homes | 1996 | 105 |
| Willmott Dixon Housing | 1996 | 760 |
| Jennings Homes | 1995 | 147 |
| Galliard Homes | 1993 | 427 |
| Stewart Milne | 1993 | 919 |

Source: Credit Lyonnais Securities Private Housebuilding Annual, 2002

Table 5.3: Growing housebuilders

| | 1991 units | 2001 units |
|---------------|------------|------------|
| Bett Brothers | 172 | 660 |
| Henry Boot | 160 | 713 |
| Galliford Try | 141 | 899 |
| Haslam Homes | 149 | 719 |
| Kier Group | 0 | 733 |
| Linden | 0 | 794 |
| Morris Homes | 140 | 845 |
| Miller Homes | 622 | 2,030 |

Source: Credit Lyonnais Securities Private Housebuilding Annual, 2002

5.39 Firms from outside the UK housebuilding sector can also enter. For example, the developer Stanhope is involved in a project which includes 4,500 homes in Stratford. Centex, a large US housebuilder, operates two subsidiaries in the UK and Heijmans, a Dutch firm, owns Leadbitter Construction, a large housing developer in Oxfordshire. The Review has not found any conclusive evidence to determine whether the UK housebuilding market is less penetrable to foreign firms than those of other countries, although the US presents a possible exception²³.

5.40 However, data on potential output at a very local level presents a more mixed picture of how much competition is taking place for land (as well as providing information about areas where competition in the market is particularly limited). The data in Table 5.4 examines local areas in which a single firm accounted for over 50 per cent of planning permissions granted in 1997 and re-examines the picture in 2002. In a highly competitive market, with a large number of potential developers, it might be expected that the largest developer in any area would change over time, depending on which developer had won the competition for key sites. This is indeed the case in the majority of these examples. There appear to be only three areas in which a high share of planning permissions is maintained.

²³ A review of the operations of major US housebuilders indicated little evidence of international activity. Two exceptions are US-based KB Home which constructed 3,878 units in France in 2002 and Pulte which is engaged in residential land development in Mexico, Puerto Rico and Argentina. Discussions with Dutch housebuilders indicated limited involvement in that market by foreign firms. By contrast the large US market appears relatively open with UK-based George Wimpey Plc's Morrison Homes subsidiary completing 3,197 units there in FY2002. Barratt, the UK's third largest homebuilder also has operations in California.

Table 5.4: Localities of high housebuilder concentration²⁴

| Area | Largest developer in 1997 | Units in 1997 | Share in 1997 (per cent) | Largest developer in 2002 | Units in 2002 | Share in 2002 (per cent) |
|----------------------|-----------------------------|---------------|--------------------------|---------------------------|---------------|--------------------------|
| Barking & Dagenham | McGinley Developments | 23 | 100 | Bellway | 145 | 34 |
| Haringey | Keeney Construction Ltd | 7 | 100 | Berkeley | 483 | 72 |
| Harrow | Gleeson | 4 | 100 | Willmott Dixon | 110 | 81 |
| Newham | Wimpey | 76 | 100 | Wilson Connolly | 250 | 32 |
| Isle Of Wight | Mr A Thurman | 11 | 100 | Barratt | 100 | 43 |
| Shetland Isles | James Halcrow Builders | 28 | 100 | Unknown | N/A | N/A |
| Kingston-on-Thames | Persimmon | 31 | 91 | Berkeley | 428 | 87 |
| Richmond-upon-Thames | Berkeley | 84 | 76 | Berkeley | 224 | 77 |
| Dumfries & Galloway | Robison & Davidson Ltd | 36 | 75 | Robison & Davidson Ltd | 168 | 82 |
| Havering | Crest Nicholson | 28 | 74 | Dove Jeffrey Developments | 19 | 42 |
| Barnet | Wimpey | 255 | 68 | Bellway | 301 | 36 |
| Camden | Redcon Building Contractors | 14 | 67 | Mansell | 850 | 73 |
| Lambeth | Durkan Pudelek | 28 | 67 | Berkeley | 275 | 42 |
| Gwynedd | Watkin Jones & Sons Ltd | 106 | 64 | R L Davies & Sons Ltd | 73 | 22 |
| Gloucestershire | Morgan Sindall | 98 | 60 | Bellway | 294 | 13 |
| Greenwich | Fairview | 652 | 56 | Barratt | 1019 | 27 |
| Hackney | Berkeley | 24 | 55 | Durkan Pudelek | 89 | 64 |
| Sutton | Wimpey | 64 | 52 | Bellway | 175 | 76 |
| Merton | Wimpey | 75 | 51 | Cranbourne Developments | 169 | 73 |
| Ealing | Rydon Group | 26 | 51 | Kier Partnership Homes | 164 | 46 |
| Kensington & Chelsea | Curzon Interiors | 10 | 50 | Unknown | N/A | N/A |
| Hillingdon | Barratt | 122 | 50 | Barratt | 24 | 52 |

Source: EMAP Glenigan

5.41 Where housebuilders do maintain high market shares, such as Berkeley in Richmond-upon-Thames, it could point to limited competition for sites because some developers have a strong local advantage. On the other hand, it could indicate that developers have acquired particularly large sites, which are built out over a period of at least five years between 1997 and 2002.

5.42 There is some evidence that, while in general barriers to entry are low, there are some areas of the country which are attractive to a limited number of developers. One of these is Inner London, an example cited by both the GLA and London Residential Research in their responses to the Review. In Inner London the sunk costs of running a successful development business may be higher for several reasons:

- With exceptionally high housing demand, local authorities can afford to impose high levels of development control and affordable housing requirements. Few developers may have the expertise and experience required to meet these requirements.

²⁴ EMAP Glenigan collect data on residential planning permissions granted by each local authority in Great Britain. EMAP supplied data indicating for each area, how many planning permissions were granted for residential units to each of the largest developers in that area as well as the total number of planning permissions granted for residential units in that area. This allows the share of permissions granted to each of the largest developer in each area to be calculated. Where developers have been acquired by other developers, they have been identified by the current parent company. For example, Laing Homes is designated as Wimpey.

- The cost of land for housing is exceptionally high. Major new sites will typically have been used for some other (commercial) purpose previously, again requiring large upfront (sunk) investment to make them suitable for housing.
- The working capital requirements for high-density development on expensive land are very high. Development expertise must be combined with the capital market reputation required to obtain this finance.

5.43 Nevertheless, while there may be little evidence of barriers to entry this does not imply that there is a strong competitive dynamic throughout the housebuilding industry.

COMPETITIVE PRESSURE

5.44 Chapter 3 set out the evidence for an undersupply of housing. This shortage of housing has implications for the degree of competitive pressure on housebuilders.

- Fewer permissioned sites mean there will be fewer competing housebuilders in any one area.
- However there may be a more fundamental interaction between the situation of housing shortage and the performance of the housebuilding industry.

5.45 A shortage of housing implies an upward real house price trend on average. As discussed above, these increasing house prices should largely feed through to higher land prices to the benefit of landowners. However, in practice, housebuilders themselves will also benefit. Residual values should play a very important role in ensuring allocative efficiency:

- developers will derive different residual values for the land, depending upon the value of the scheme they are proposing, their costs and their expected rate of return; and
- when bidding for land (and assuming there is effective competition) the developer with the highest value scheme (one which responds both to demand and price signals in the market) and lowest costs (assumed to be the result of efficient production techniques) should be able to pay most for the land.

Competition for land should also ensure that developers earn no more than normal profits. A developer which calculated its residual value on the basis of high or super-normal profits would find itself outbid by a developer willing to accept lower profits.

5.46 However, in practice, neither sellers nor buyers of land can ever be certain as to the future price of houses. Chapters 1 and 4 have already indicated the volatility of house prices and the extent of market risk. So while there may be competition for land, there is scope for a gap to emerge between the residual value paid by the housebuilder and the actual final value of the development. If house prices rise more than expected, housebuilders will capture the gain, though of course they will also make losses if house prices decline. As a result housebuilders' profits vary significantly with the level of house prices, as discussed in Chapter 4. This is why it is often stated that housebuilders make their money from land: the price they pay for the land can be less than the true value of that land implied at the time completed housing is sold.

5.47 This has significant implications for housebuilders' financial incentives, and the pressure they face to be more efficient, innovative and responsive to consumers:

- It implies that housebuilders may be rewarded far more for obtaining valuable, scarce housing land than for building a higher quality product in ever more efficient ways. By contrast, if land prices were highly stable, the only way for housebuilders to improve profitability would be by improving efficiency and the quality of their output.
- They are protected from desirable competitive pressures by a regulatory system that may contribute to a shortage of housing. Housebuilders may compete to persuade local authorities to grant their land planning permission at the expense of a rival developer's land, but this form of competition does not necessarily serve the interests of new homebuyers.
- When house prices are rising competitive pressures on housebuilders are low. The industry's behaviour in controlling production rates exacerbates this problem, further reducing output below that which might be considered socially optimal.

5.48 Housebuilders are arguably in a relatively comfortable position with respect to regulation and the low output levels that result. This cosiness between the industry and regulatory regime emphasises the important role of land. The Review will continue to consider the role of land in housebuilding, and in particular whether reforms to the way land is assembled and made available for housing developments could increase desirable competitive pressures.

Consumers

5.49 Weaker competitive pressures might not result in higher prices, but the quality of the product may suffer:

- Housebuilders will not be able to influence the overall level of house prices, and will have to settle for prices largely determined by the going rate for second hand homes. This is evidenced by the fact that the prices of new dwellings have maintained a fairly stable relationship to the prices of old dwellings over the past decade, being generally 15-20 per cent higher. But an environment in which there is a persistent shortage of houses means that housebuilders do not always need to compete for consumers once land is acquired. This can lead to housebuilders being less innovative and responsive to consumer needs than might otherwise be the case.
- The second hand housing stock may also present a constraint on quality. Where the quality of second hand property is poor, the incentive for builders to develop top quality new homes may be limited. This outcome is reinforced when, as shown by price premia, consumers are primarily willing to pay for location and space, with build quality being of secondary importance²⁵.

²⁵ To assess the "value added" by build quality rather than location or size of property requires comparison of properties of the same size in the same location but of different build quality. The Review has not encountered a rigorous, empirical study of this nature. Conclusions can only be drawn from the "anecdotal" evidence of developers who note that new build properties which are designed to appear identical to neighbouring historical properties retail for around 10-20 per cent more than the neighbouring properties, despite their modern construction and design features. In most industries, e.g. car manufacture, consumer prices vary far more depending on the age of the good, its quality and design features.

5.50 Consumers looking to buy a home will not be looking at all homes in the UK. They will only be looking at certain types of property in certain areas²⁶. It is possible that some consumers are only looking at new homes, or at least do not regard an old home as a perfect substitute for a new one²⁷. Hence, the possibility arises that individual developers of certain types of home in certain areas do have market power over their limited set of potential customers while the development is undertaken. This degree of market power, if only in local areas and for limited periods of time²⁸, seems credible, even if developers cannot influence the general level of house prices across the UK as a whole, or across regions of the UK.

Consumer detriment 5.51 The problem of housing shortage may further exacerbate an additional problem in this industry, namely the relatively weak position of consumers. Owner-occupier buyers are relatively “small”. They are making an infrequent, one-off purchase and the threat to take their future business elsewhere is not one a housebuilder might be particularly worried about. New house buyers may also have relatively poor information, particularly when buying off plan. The relatively fragmented nature of the housebuilding industry and the absence of strong brands and direct competition between firms for customers may mean customers have relatively poor information about the relative quality of different builders. This outcome is reflected in the results of the National Consumer Satisfaction Survey of 10,000 respondents produced by the Housing Forum in 2001. According to this survey, only 54 per cent of people would want another newly built home or one from the same housebuilder.

²⁶ See: Watkins, C. ‘*The Definition and Identification of Housing Submarkets*’, (Aberdeen Papers in Land Economy, 1998).

²⁷ New house prices differ significantly from second hand home prices, even when adjusting for type of home and the region. Further, the correlation of movements between old and new house prices, adjusted for type of home and region is far from perfect (58% using ODPM data from 1983 to 2001). While not conclusive, if second hand home prices were a perfect constraint on new home prices, a perfect correlation might be expected. This last point is relevant when considering the impact of policies which limit the absolute quantity of new homes to be built in order to sustain demand for the old homes. The primary consequence may simply be to reduce consumer choice, or to deter individuals from moving to a locality in the first place.

²⁸ That is, the time over which the units within a single development site are sold off.

6

Skills and innovation

Overview

Housebuilders and their subcontractors are experiencing skill shortages:

- over 80 per cent of firms find it difficult to find bricklayers, plasterers and carpenters; and
- wages for skilled craftsmen are increasing faster than in the economy as a whole.

Although there has been an increase in the number of people starting construction related courses at college:

- throughput from colleges into the industry remains low;
- our housebuilding industry has fewer apprentices than other European countries - for example, in Germany there are four times as many trainees per carpenter than in the UK; and
- there are few starter jobs in the industry.

The supply of skills can be limited by market failures. In the housebuilding industry such market failures may result from: uncertainty and risk; the prevalence of sub-contracting; cultural attitudes and the institutional structure of training.

Without changes in labour productivity, even modest growth in output could lead to a requirement for around 70,000 further employees in the housebuilding industry. A more substantial expansion of output would increase this still further, possibly up to 280,000 people.

One way of reducing this skills gap would be for the industry to innovate and move to more capital-intensive methods of production:

- English housebuilders are around 50 per cent more labour intensive than those in Denmark, and 25 per cent more than those in Scotland;
- labour intensity in England has been remarkably constant over the last 25 years; and
- alternative manufacturing techniques – such as off site manufacture, and greater use of steel and timber frames would all lead to greater levels of capital intensity.

Reasons for the historic lack of innovation may include risk aversion, uncertainty caused by planning delays and the attitudes of consumers, lenders and warranty providers.

INTRODUCTION

6.1 Chapter 5 examined the extent of competition within the housebuilding industry, both for customers and for land. This chapter looks at skills and innovation, which are equally important factors in determining the industry's ability to increase housing supply.

SKILLS SHORTAGES

What is a skills shortage?

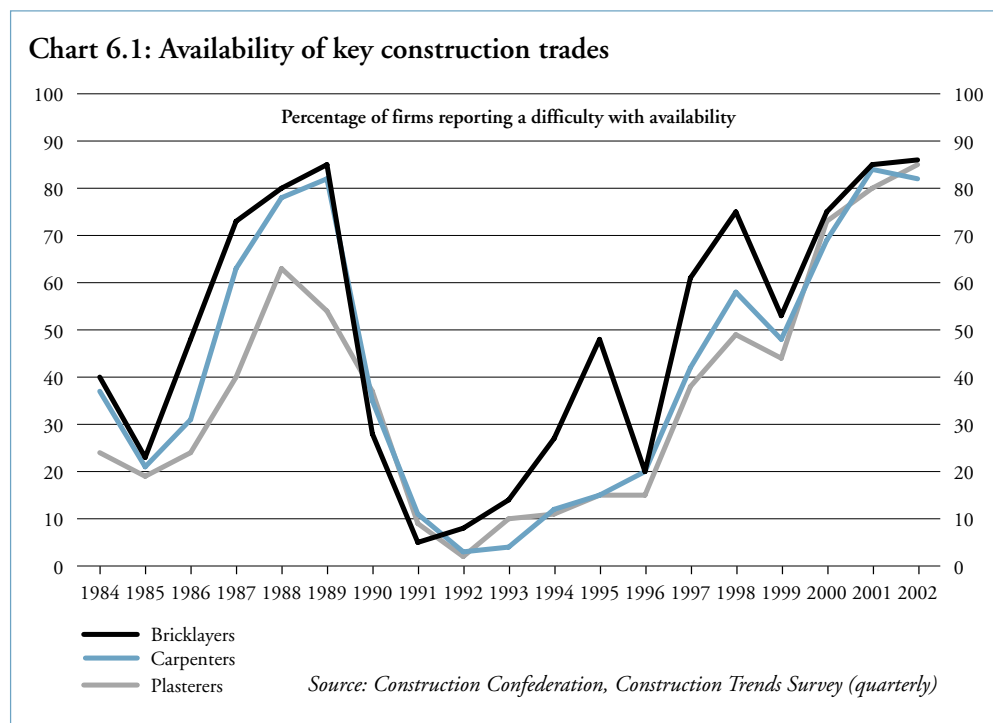
6.2 Skills shortages imply an absence of people with the required skills in the workforce. Skills shortages may be transitional, as the economy responds to changing labour demands, or more deeply rooted if market or government failures prevent the development of necessary skills.

6.3 There are three main sources of evidence on skills shortages in the housebuilding and construction sector:

- employer surveys of problems in recruiting skilled staff;
- evidence of wage increases and overtime payments; and
- forecasts of changes to the demand and supply of skilled labour.

Companies report recruitment difficulties

6.4 In 2001 housebuilders reported¹ their major concern to be skills shortages among site managers, supervisors and designers and technical staff. The shortages that were perceived as having the biggest impact on sub-contractors' activity were found in the specialised trades of bricklayers, plumbers, roofers and foundation specialists. Chart 6.1 below shows that reported levels of skills shortages are now similar to levels found in the late 1980s. Other employer recruitment surveys² paint a similar picture.

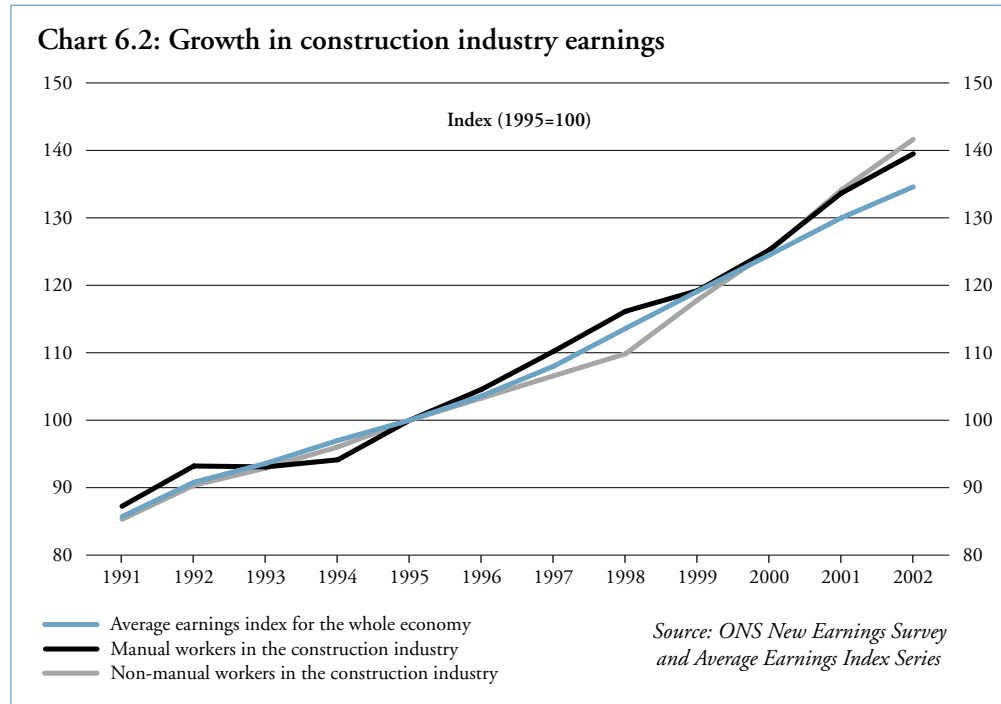


¹ House Builders Federation, *Employment Survey*, (2001).

² For example by the Federation of Master Builders (Q1, 2003), the Construction Industry Training Board (Autumn 2002), Civil Engineering Contractors Association (Q4 2002) and House Builders Federation (2001).

Wages increasing faster than the rest of the economy

6.5 Evidence on wage inflation and hours worked is potentially a more quantitative measure of the extent of skills shortages. Over the past decade, wages in the construction industry have increased broadly in line with earnings elsewhere in the economy, though – as Chart 6.2 below shows – they have increased more rapidly since 1996³.



6.6 The scale of wage increases varies according to trade and location. One housebuilder⁴ reported increases of 12–36 per cent in the weekly gross earnings it paid for skilled labour between 2001 and 2002. Reported wage increases across the country as a whole are lower than this. Table 6.1 below illustrates some of these variations according to trade.

Table 6.1: Wage increases for selected trades

| | Bricklayers ¹ | Carpenters and joiners ¹ workers ¹ | Craftsmen: mates to building trade |
|---|--------------------------|--|------------------------------------|
| Average gross weekly earnings (£) | | | |
| 2001 | £357.70 | £369.40 | £299.90 |
| 2002 | £381.30 | £383.90 | £339.80 |
| Percentage increase | 6.60 | 3.93 | 13.30 |
| Average hourly earnings excluding effect of overtime pay and hours (pence) | | | |
| 2001 | 807 | 811 | 662 |
| 2002 | 887 | 855 | 715 |
| Percentage increase | 9.91 | 5.43 | 8.01 |

¹ Full time workers, on adult rates, whose pay was not affected by absence

Source: Department of Trade and Industry Construction Statistics Annual, 2003

³ Between 1996 and 2002, average earnings for manual and non-manual workers in the construction industry rose by 33.4 and 37.1 per cent respectively. This compares with average earnings growth of 29.9 per cent in the economy as a whole.

⁴ Wilson Bowden submission to the Barker Review consultation (2003).

Further skills shortages forecast 6.7 The Construction Industry Training Board (CITB) forecasting model compares projections of the demand for skilled labour with the likely supply of labour, taking into account the projected levels of employment growth and exit from the construction industry (for example due to retirement). In 2002, the CITB employment model projected three scenarios for the construction industry’s future training requirements, as shown in Table 6.2. To put this table into context approximately 50,000 first year trainees started construction courses in the academic year 2002/3.

Table 6.2: Future requirements for trained workers: alternative scenarios

| | Growth rate of output | | |
|--|----------------------------|---------------------------|-----------------------------|
| | Low growth 1.6 per cent | Base case 2.6 per cent | High growth 3.6 per cent |
| Total employment in 2006 | 1,460,000 | 1,515,000 | 1,585,000 |
| Average annual trained requirement (2002–2006) | 66,000 | 76,000 | 90,000 |
| Cumulative trained requirement (2002–2006) | 333,000 | 380,000 | 450,000 |

Source: Construction Industry Training Board Skills Foresight Report, 2002

IS THERE A MARKET FAILURE?

6.8 The evidence presented above suggests that skills shortages currently exist within the housebuilding industry. If new housebuilding increases substantially, then the demand for skilled labour will increase, which would exacerbate these skills shortages.

Market failures in skills acquisition

6.9 It is well established that market failures can exist in skills acquisition:

- employers may under-invest in training for their employees because of externalities between firms. Firms worry that once trained, the employee will leave the firm before the investment has been recouped (“the poaching problem”). This problem is likely to be most acute for small firms who only have a small internal labour market;
- employees may fail to invest in their own training and skills because of information shortfalls, for example an inability to judge the quality of training or appreciate the benefits. Credit market imperfections may restrict their ability to fund training by borrowing against higher expected future earnings; and
- there may be social benefits to training and skills acquisition, in addition to any private benefits, for example through better health and safety outcomes, lower unemployment and greater social inclusion, which individuals and organisations do not recognise or capture.

6.10 In some industries, these market failures can interact with one another and with shortfalls in product and other markets to produce a low skill equilibrium. In a low skill equilibrium, production techniques are adapted to match the relatively unskilled workforce, boosting demand for low rather than high skilled workers and further weakening the incentives for workers to train. Employers and employees are all acting in a rational manner, but the resulting outcome is lower productivity across the sector as a whole.

Specific issues in house building 6.11 A number of issues specific to the housebuilding sector contribute to skills and labour shortages:

- uncertainty and risk;
- the prevalence of sub-contracting and labour-only sub-contracting;
- cultural resistance to employment or training in the sector; and
- the institutional structure of training.

Uncertainty and risk

6.12 Skills acquisition and training is an investment in human capital. Uncertainty about future demand can act as a deterrent to this form of investment. The early 1990s recession may have reduced the stock of human capital available to the housebuilding industry, as skilled craftsmen retired or left the industry. Consequently, the average age of workers in the construction industry has risen over the past decade, giving rise to concerns about the impact on the labour force when current employees retire.

Sub-contracting

6.13 In England and Wales, 180,000 people were employed in the housebuilding sector in 2001: 60,000 of these were directly employed by housebuilders and the remainder were sub-contractors⁵. Sub-contracting is widely used in the UK housebuilding industry and is more prevalent than in other construction activities and other sectors of the economy.

6.14 The widespread use of sub-contracting has a variety of causes:

- sub-contracting is a way of reducing housebuilders' exposure to market risk. Meeting two thirds of labour requirements through relatively short-term contractual arrangements enables housebuilders to expand and contract their wage bill in response to market conditions;
- employees and employers perceive advantages in self-employed status in terms of reduced tax and social overheads. The Inland Revenue has sought, however, to reduce the scope for tax avoidance and bogus self-employment through the Construction Industry Scheme; and
- sub-contracting encourages specialisation – for example in scaffolding – and facilitates the exploitation of economies of scale.

Does sub-contracting restrict skills formation?

6.15 It has been argued that the prevalence of sub-contracting is a major barrier to skills acquisition in this sector: “[Widespread sub-contracting] is an industrial structure that is well designed to manage uncertainty about future housing demands and the peripatetic location of sites with planning permission. However this short-term flexibility appears to be at the expense of the long-term sustainability of the industry's skills base”⁶.

⁵ House Builders Federation, *Employment Survey*, (2001).

⁶ Lobban, P., ‘Rectifying the Shortage of Skills in the Housebuilding Sector’ (Presentation) *Building more houses* (2003).

6.16 Sub-contractors, in particular labour-only sub-contractors, are typically small companies with an owner-manager and a few labourers. This makes them particularly vulnerable to the poaching problems associated with staff training. It is in part to overcome this poaching problem that the construction industry operates a levy through the CITB, one of only two remaining Industrial Training Boards in the UK.

6.17 There has been an increase of around 18,000 people taking up construction-related Further Education courses between 1997–98 and 2002–03, but this does not necessarily imply higher numbers of skilled workers for the housebuilding industry. Only around 62 per cent⁷ leaving construction training go on to employment within the sector. The figures include those taking courses for their own personal use and drop-out rates are also high at around 60 per cent. Moreover, the number of apprentices per 100 workers in the housebuilding industry is lower than for construction generally. As Table 6.3 shows, the proportion of apprentices among direct employees in housebuilding is broadly similar to that in construction, but the proportion is much lower among sub-contractors.

Table 6.3: Apprenticeships per 100 workers⁸

| | All Construction | Housebuilding |
|------------------|------------------|---------------|
| Direct employees | 5.3 | 5.9 |
| All workers | 4.3 | 3.0 |

Source: Construction Industry Training Board, 2003

Fewer apprentices compared with European economies

6.18 Comparisons of housebuilding industries in the UK, Germany and the Netherlands show a much lower proportion of trainees to employees in the UK, as illustrated in Table 6.4. Compared with these two economies, UK skills profiles are also more narrowly based – with a very clear and simple divide between different trades⁹.

Table 6.4: International comparisons of trainee carpenters and bricklayers

| | UK 1995 | Germany 1996 | Netherlands 1997 |
|------------------------------|------------|-----------------|---------------------|
| Carpenters | | | |
| Number employed | 193,146 | 92,758 | 67,040 |
| Number of trainees | 8,994 | 15,841 | 7,806 |
| Trainees per 100 carpenters | 4.7 | 17.1 | 11.6 |
| Bricklayers | | | |
| Number employed | 87,713 | 306,142 | 20,422 |
| Number of trainees | 5,004 | 42,476 | 1,767 |
| Trainees per 100 bricklayers | 5.7 | 13.9 | 8.6 |

Source: Clarke & Wall, 2000

⁷ Construction Industry Training Board, *Skills Foresight Report*, (2002).

⁸ Construction Industry Training Board, cited in Lobban, P. 'Rectifying the Shortage of Skills in the Housebuilding Sector' (Presentation) *Building more houses*, (2003).

⁹ Clarke, L. and Wall, C. 'Craft versus Industry: The Division of Labour in European Housing Construction', *Construction Management and Economics* 18, pp 689–698 (2000).

6.19 Explanations for the low levels of apprentices can be found in the nature of the industry and the degree of sub-contracting that occurs. Small sub-contractors are unlikely to be able to take on apprentices because:

- despite Government and CITB subsidy there is still a significant cost associated with taking on an apprentice. It may be hard for the firm to capture the returns to this training as many apprentices will want to become self-employed, given the associated tax advantages;
- the CITB levy is, in part, designed to overcome poaching and the free-rider problem associated with training, but there is still a perception that poaching occurs. As the CITB levy does not cover all the costs of training, there remains a disincentive for firms to take on apprentices;
- firms will be reluctant to take on fixed costs when work load is uncertain; and
- the scope of work undertaken by many of these small firms may not cover all the competencies required of the apprentice framework.

6.20 Sub-contracting aids movement and for many of these trades and skills housebuilders face competition from other sectors of the construction industry, including repair and maintenance work. Housebuilders report labour movement between the housebuilding and other sectors, for example localised labour shortages around large-scale civil engineering projects, such as the Channel Tunnel Rail Link or the Bull Ring in Birmingham. One housebuilder put it as follows: “large-scale construction projects tend to attract skilled construction workers. This does have an impact on what labour is available to the housebuilding industry. A good example of this is the development of Heathrow Terminal Five, where high value fixed-term contracts have sucked in skilled workers”¹⁰.

6.21 Widespread sub-contracting might prevent the adoption of more sophisticated housebuilding techniques. Clarke and Wall have argued that “[the] fragmentation in the division of labour in the UK case goes together with a simpler work process and is associated with low levels of component prefabrication and mechanization”¹¹. According to this view, expertise in managing the production process of building a house is dispersed among contractors rather than held by housebuilders, whose expertise and focus is in cost control and contract management. Firms are neither in a position to introduce substantial process improvements nor to ensure that they have sufficiently well trained workers to implement such changes. The emphasis placed on flexibility and interchangeability of workers between projects and employers also militates against developing new building techniques specific to individual housebuilders. Thus, it is argued, sub-contracting contributes to a low skill and low productivity equilibrium.

¹⁰ Wilson Bowden submission to the the Barker Review consultation (2003).

¹¹ Clarke, L. and Wall, C. ‘Craft versus Industry: The Division of Labour in European Housing Construction’, *Construction Management and Economics* 18, pp 689–698 (2000).

Benefits from sub-contracting 6.22 However as noted in Chapter 4, a number of important benefits also arise from sub-contracting¹², which is also a feature of housebuilding in other countries. In particular, sub-contracting – and the use of labour, rather than capital-intensive production methods – aids the flexibility of the housebuilding industry in coping with uncertain demand. When house prices and demand for new houses fall, companies can respond by issuing fewer contracts, rather than laying off workers. Sub-contracting also facilitates entry into the housebuilding markets, by reducing the sunk costs of entry and reducing the minimum efficient scale for a new entrant.

Cultural attitudes

6.23 Cultural factors may reduce the supply of labour to the housebuilding sector, for example from under-represented demographic groups and graduates. Housebuilding is very much a white and male profession with very low levels of ethnic minority and female participation. Individuals or firms may have engrained attitudes to formal training that prevent the acquisition of new skills.

Training based on immediate industry needs

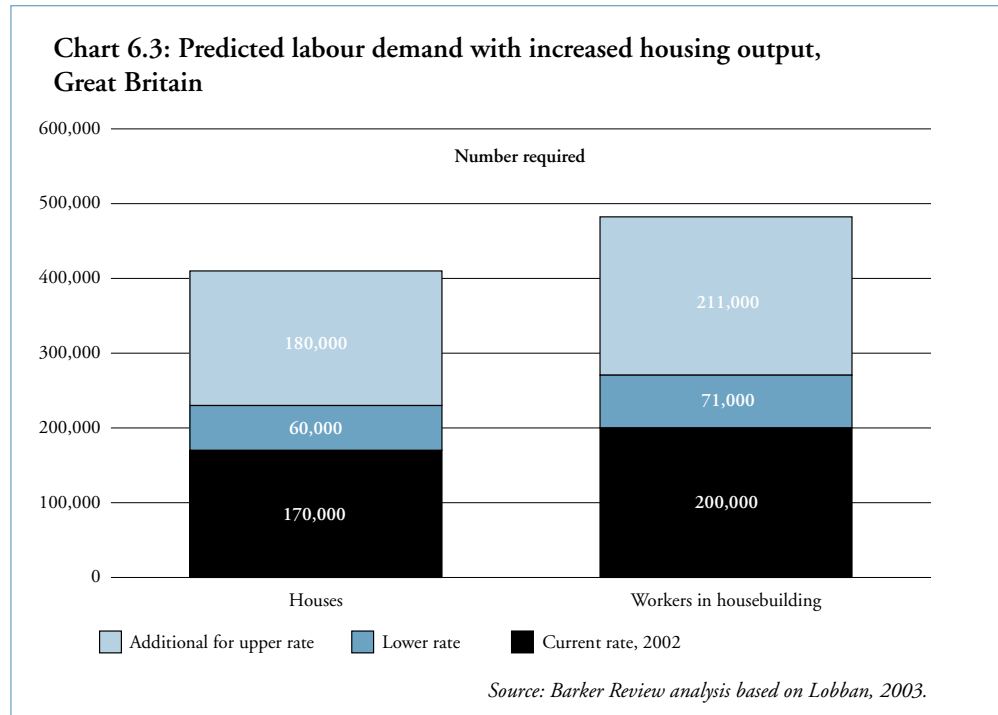
6.24 The institutional framework for training in the UK and its emphasis on the immediate needs of employers has been compared unfavourably to other economies. For example, Clarke and Herrmann have argued that “building the system of education and training on the immediate needs of employers or current practices in industry makes . . . for serious difficulties in changing the process given that this is built around existing skill sets. Not only are skill divisions and even outmoded practices constantly perpetuated and reproduced, but there is no clear means to enhance skill potential and plan for skill needs at industry level. This is in sharp contrast to continental countries such as Germany, where vocational education is itself critical to promoting innovation and change in the process through imparting skills planned at industry level that are not just transferable but often in advance of practice”¹³.

ALTERNATIVE WAYS OF INCREASING HOUSING SUPPLY

More land would highlight skills issues further 6.25 There is some evidence that shortages of skilled labour are beginning to bite in particular areas of the country and in particular trades. However, other factors, in particular the availability of land for development, may be a more pressing constraint and are discussed in Chapter 8. Looking ahead, if the level of housebuilding were to increase, skills shortages are likely to become a more significant constraint on the capacity of the housing industry.

¹² See for example, Ball, M. ‘Markets and the Structure of the Housebuilding Industry: An International Perspective’ *Urban Studies*, Vol. 40, No. 5–6, pp 897–916 (2003).

¹³ Clarke, L. and Herrmann, G. ‘The Institutionalisation of the Skill Division in Britain and Germany’ to be published in Warhurst, C., Keep, E. and Grugulis, I. (eds), *The Skills that Matter*, (Palgrave 2004).



6.26 Assuming labour productivity remains unchanged, an increase in housing completions of 1 per cent would imply an equivalent increase in the demand for skilled labour. Using this simple approach, CITB estimated that a further 65,000 jobs would be needed in the housebuilding sector to increase housing completions by 55,000 houses¹⁴. Any increase would be against the background of competing demands for skilled construction employees from the public and private sector and from the refurbishment market. Chart 6.3 replicates the CITB analysis for an additional 60,000 houses (lower rate). This would require an additional 71,000 jobs. An additional 240,000 houses would imply an extra 282,000 jobs (211,000 plus 71,000)¹⁵.

6.27 Housebuilders could address this increased demand for labour by:

- increasing the number of apprenticeships and recruiting new entrants to the housebuilding and construction industry;
- recruiting skilled workers from other parts of the construction industry or from other countries. The work permit system allows employers to recruit workers from overseas to fill skilled jobs, where they cannot find a domestic candidate. Several large construction firms are making extensive use of the work permit system and firms will also benefit from a widened pool of labour following EU enlargement May 2004; and
- making more efficient use of labour and other factors of production through technology and innovation.

¹⁴ Lobban, P. 'Rectifying the Shortage of Skills in the Housebuilding Sector' (Presentation) *Building more houses* (2003).

¹⁵ This approach is likely to overestimate the employment implications of increased housing completions. The assumption of constant labour productivity is particularly unlikely to apply to non-manual employment (e.g. design) within housebuilders.

INNOVATION AND TECHNOLOGY

6.28 A shortage of skilled labour may serve as a driver for increased innovation, enabling firms to substitute capital or other factors of production for labour and to use all factors of production more efficiently. Innovation can bring further benefits, such as improved quality and reduced build times. The record of innovation of the housebuilding industry has been weak¹⁶.

UK house building is more labour-intensive than in other EU countries

6.29 Recent academic research by Clarke and Herrmann¹⁷ comparing a small number of typical social housing projects in detail, suggests that housebuilding in England & Wales – and to a lesser extent Scotland – is labour-intensive compared with other European countries. The results presented in Table 6.5 reflect both differences in technology used in the UK – predominantly brick and block – and also greater levels of mechanisation for common activities, such as groundworks. Considerably more workers were present on average each day on the English project compared with the other three comparators, which resulted in a faster rate of build in spite of the relatively low labour productivity (measured either in terms of hours per square metre or hours per dwelling).

Table 6.5: International comparison of labour intensity

| | Description of project | Hours/m ² labour input | Index of | Hours per dwelling | m ² per day |
|-----------------|-----------------------------------|-----------------------------------|----------|--------------------|------------------------|
| England | 131 units brick & block, low-rise | 19.3 | 149.6 | 1,355 | 28.4 |
| Scotland | 56 units – timber frame | 15.5 | 120.2 | 1,255 | 15.5 |
| Germany | 60 units – sand limestone | 13.9 | 107.8 | 1,170 | 20.8 |
| Denmark | 68 units – pre cast concrete | 12.9 | 100.0 | 1,114 | 20.8 |

Source: Clarke & Herrmann, 2003

6.30 This research is in line with earlier findings on the relative productivity of UK and continental European social housebuilding and construction projects. For example, Clarke and Wall¹⁸ found that over twice as much labour was required for the structural trades (bricklayers, concretors and carpenters) to produce one square metre in the UK as in the Netherlands. A comparison of labour productivity between UK and French construction projects by Winch and Carr found that UK productivity performance is poorer compared with France, and can be explained by elaborate divisions of labour, lack of investment in plant, and less effective work organisation in the UK¹⁹.

¹⁶ See for example, Ball, M. 'Chasing a Snail: Innovation and Housebuilding Firms' Strategies', *Housing Studies* (1999) Vol 14 (1), pp 9–22 and Barlow, J. 'From Craft Production to Mass Customisation. Innovation Requirements of the UK Housebuilding Industry', *Housing Studies*, Vol. 14 (1), pp 23–42 (1999).

¹⁷ Clarke, L. and Herrmann G. (2003) 'Cost versus Production (2): Labour deployment and productivity in social housing construction in England, Scotland, Denmark and Germany' (2003) accepted for publication in *Construction Management and Economics*, (2004).

¹⁸ Clarke L. and Wall, C. 'Craft versus Industry: the division of labour in European housing construction', *Construction Management and Economics* 18, pp 689–698 (2000).

¹⁹ Winch, G. and Carr, G. 'Benchmarking on-site productivity in France and the UK: a CALIBRE approach', *Construction Management and Economics* 19, pp 577–590 (2001).

Little change over 25 years **6.31** By comparing their findings with a previous study by Lemassany and Clapp²⁰ published 25 years earlier, Clarke and Herrmann also find that labour intensity has not diminished substantially over that time. This is shown in Table 6.6.

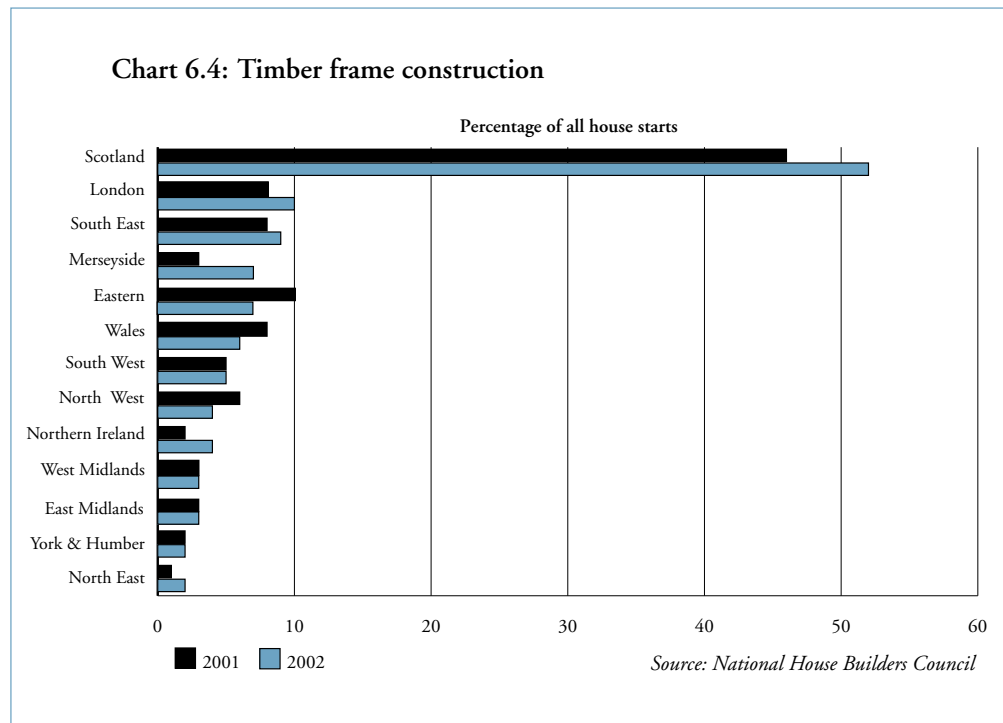
Table 6.6: Labour input per housing unit over time

| | Lemassany/Clapp (1978) | Clarke/Herrmann (2003) | Percentage change |
|------------------|------------------------|------------------------|-------------------|
| Skilled (days) | 130 | 118 | -9.20 |
| Unskilled (days) | 60 | 58 | -3.50 |
| Total (days) | 190 | 176 | -7.40 |

Source: Clarke & Herrmann 2003

Alternative production techniques **6.32** A number of alternative housebuilding techniques are used in the UK and other developed economies. In essence, these techniques either involve the use of steel, timber or concrete structural frames in place of traditional brick and block, or greater use of offsite manufacturing facilities.

Steel and timber frame **6.33** Timber framed houses have been common in Scotland for a number of years and account for around 60 percent of new house build. Their use has been more limited in England and Wales, though as Chart 6.4 shows, there has been some increase in their use outside Scotland in the last year. There are a number of factors behind the greater use of timber frame in Scotland.



²⁰ Lemassany, J. and Clapp, M.A. Resource inputs to construction: the labour requirements of housebuilding *BRE current paper* 76/78 (1978)

6.34 The harsher climate increases the benefits of more rapid construction; skills levels in Scotland are higher than in England & Wales; and the history of successful application of this technique means that there is little customer resistance.

6.35 The National House Building Corporation (NHBC) estimates that steel frame construction currently accounts for approximately 2,000 units per year and this is expected to increase: for example Redrow has established a joint venture with Corus to produce lightweight steel frames at Swadlincote. A desire to make better use of skilled labour, and control labour costs are factors driving this trend: Redrow argues that “this system of build reduces build times and removes certain key trades, particularly bricklayers, from the critical path of development”²¹.

6.36 A number of housebuilders and other commentators have provided their own estimates of the relative costs of timber and steel frame construction. These estimates tend to show that costs are currently lower for brick and block construction. Based on a survey of 616 schemes constructed in England and Wales over the past three years, the Building Cost Information Service estimates that timber framed dwellings cost on average 8.9 percent more to build than traditional schemes²². However, if supply increases, these cost advantages of traditional methods are likely to diminish as skills shortages drive higher labour costs.

Off site manufacture 6.37 A second form of innovation is to make greater use of off site production and assembly techniques. Pre-assembly may be applied at various levels of production – for example a row of kitchen units may be assembled off site or a larger housing unit may be constructed off site. Off site manufacturing (OSM) techniques are already in use by some housebuilders: Redrow state that “off site manufacture is also now being increasingly used to reduce the dependence on carpenters and roofers in particular, and the introduction of plastic pipes has reduced the need for plumbing skills”²³. Housebuilders are beginning to use standard components across a number of developments. However, there is clearly scope for much greater use of off site assembly.

6.38 More radical approaches to off site production involve pre-fabricating entire rooms or apartments off site. This approach has been taken forward in a small number of housing developments, such as the example shown in Box 6.1, particularly in the social housing arena owing to Government funding being tied specifically to OSM techniques.

²¹ Redrow submission to the Barker Review consultation (2003).

²² Building Cost Information Service (BCIS) analysis carried out for the Barker Review. BCIS is a wholly owned subsidiary of the Royal Institution of Chartered Surveyors.

²³ Redrow submission to the Barker Review consultation (2003).

Box 6.1: An example of pre-fabrication – Murray Grove, Hackney²⁴

Murray Grove comprises a five-storey apartment block containing 16 one-bedroom, two module apartments and 14 two-bedroom, three module apartments. These were built for the Peabody Trust to rent out to key workers in London.

Construction took 44 weeks from site possession to handover, compared to 62 weeks for traditional build. This included a delay of 12 weeks, principally because of problems performing the external steel and cladding works by traditional methods. With experience, these delays could be avoided in the future. In total the modules took ten days to assemble, five off site and five on site.

On completion of the project in November 1999, the final development cost was £2,891,000, with each unit costing £77,800 on average. This was slightly greater than the cost of a similar building being constructed using traditional methods. The cost was greater as it was a pioneering project: future construction of these models would be cheaper. In addition, the faster construction time allowed earlier collection of rents. This additional rental income corresponded to the approximate price of an additional unit.

Overall the tenants were very happy with the design and construction. Noise from adjacent apartments was considered minimal, although external noise from cars and people was greater. Ventilation was found to be difficult, unless the balcony doors were kept open. Electric heating was effective and cheap, but it was found that the flats cooled down quickly. All but one tenant said they would buy something similar.

The construction had a lower impact on the local environment than traditional developments, as it was quieter, cleaner and all construction materials were delivered at one time. The building won a series of awards including the Royal Fine Art Commission's Building of the Year.

Yorkon, the company that manufactured the modules, states that prefabrication offers "the freedom to create a purpose designed environment using cellular or open plan layouts or a combination of the two". They have also used prefabrication techniques to construct offices, shops, leisure facilities, schools and hospital buildings.

Benefits and costs of modern methods 6.39 By adapting their processes and building methods, there is potential to make more efficient use of resources, for example by removing particular trades from the critical path of construction. Housebuilders appear to be a considerable way behind other sectors in paying close attention to process reengineering and other techniques long established in the rest of the economy. In addition to the direct benefits of innovation, there is also potential to reduce labour intensity through substitution away from labour.

6.40 The Commission for Architecture and the Built Environment (CABE) has argued that customers may be unwilling to pay a premium for higher specification associated with modern methods, as "it is very difficult for a precision factory-based model to compete with a low skilled labour, high defect, on site model on the basis of comparative cost." However, a number of factors are likely to reduce these cost differentials over time, including economies of scale both at the site²⁵ and the company level and, if current trends continue, the increased costs of skilled labour.

²⁴ Bågenholm, C., Yates, A. and McAllister, I. 'Pre-fabricated housing in the UK. A case study: Murray Grove, Hackney' *BRE Centre for Sustainable Construction*, Issues Paper 16/01 Part 1 (2001).

²⁵ See for example, the First Base submission to the Barker Review consultation (2003): "For the full benefits of these techniques to be achieved, larger sites are required. Our current belief is that the minimum economic size is 150 units and ideally it should be 200 units"

Scope for much greater use of modern methods 6.41 First Base, a potential entrant to the market, believes that off site production and other commercial techniques could be applied much more widely. They have argued that “there is the potential to use commercial construction techniques for medium to high density urban housing schemes to enable a more efficient delivery of economically priced housing. [In] many other countries (notably the US and Germany) there is significant crossover of technique, with the same developers often involved in the construction of both residential and commercial space, using the same techniques at the same time on the same site. These construction techniques are proven and do not require any significant new investment and development costs²⁶”. The techniques highlighted by First Base include off site construction of building elements, simplified installation of mechanical and electrical services and standardisation of non-architectural components, where functionality and reliability are more important than design.

Barriers to innovation 6.42 Why then are modern methods and alternative production techniques not used much more widely? A number of factors appear to be relevant:

- the risk averse nature of the housebuilding industry militates against making the investments inherent in adopting more capital-intensive approaches. The housebuilding industry is only just beginning to develop the capability and the skill set to apply modern manufacturing techniques;
- the nature of the UK planning system may operate against the introduction of alternative production techniques by increasing delays and uncertainty²⁷. The lead time for the use of OSM is much longer and requires much more certainty. It is therefore difficult to adapt OSM to last minute changes that planning officials or committees may propose. In other cases, planning committees are reluctant to embrace OSM as they have a perception that this method produces identical, poor quality homes with a short life span; and
- for an innovative technique to become established, customers, mortgage lenders and warranty providers²⁸ will need to be persuaded that it will produce durable and safe buildings.

²⁶ First Base submission to the Barker Review consultation (2003).

²⁷ See for example Housing Forum submission to the Barker Review consultation (2003).

²⁸ The Council of Mortgage Lenders requires all new homes to have a warranty to be mortgageable. The NHBC – the leading warranty provider – requires a minimum 60 year expected lifespan.