

**The Structure and Organisation of Housing Production  
a background paper and literature review**

**Alastair Whyte Greig**

Urban Research Program  
Working Paper No. 28  
November 1991



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**THE STRUCTURE AND ORGANISATION OF HOUSING  
PRODUCTION:**

**a background paper and literature review**

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Urban Research Program  
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**Background Report prepared for the National Housing Strategy  
31 August 1991**



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*Series Editor:*  
*Rita C. Coles*

## TABLE OF CONTENTS

### INTRODUCTION

1. FOCUS OF THE STUDY
2. HOUSING COSTS AND THE STRUCTURE OF HOUSING PROVISION: EXISTING LITERATURE
3. THEORY AND METHOD
  - a) The Theoretical Context
  - b) The Housing Industry
4. AGENTS OF HOUSING PRODUCTION: THE LAND DEVELOPMENT INDUSTRY
  - a) The Structure of the Land Development Industry
  - b) Issues Affecting the Sector
5. AGENTS OF HOUSING PRODUCTION: THE BUILDING MATERIALS INDUSTRY
  - a) The Structure of the Building Materials Industry
  - b) Issues Affecting the Sector
6. AGENTS OF HOUSING PRODUCTION: THE BUILDING INDUSTRY
  - a) Introduction
  - b) The Structure of the House Building Industry
  - c) Issues Affecting the Sector
7. AGENTS OF HOUSING PRODUCTION: SUBCONTRACTORS
  - a) The Organisation of Subcontracting
  - b) Issues Affecting Subcontracting
8. CONCLUSION

### REFERENCES



"How very little, since things were made,  
Things have altered in the building trade"

Rudyard Kipling

"The structure of the housing industry has changed over the past decade. Changes in the number of building firms, the size of building operations, market shares and diversification represent some of the important developments in the home building industry."

Housing Industry Association 1990

## INTRODUCTION

In early 1983 the National Housing Strategy, established by the Department of Community Services and Health, commissioned Alanon Troy and Patrick Troy to undertake the research project 'Structure, Organisation and Skill Formation in the Australian Housing Industry Factors Affecting Production Costs'. This paper is a preliminary report on the aims and nature of the project. The paper

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## INTRODUCTION

In early-1991 the National Housing Strategy, established by the Department of Community Services and Health, commissioned Alastair Greig and Patrick Troy to undertake the research project "Structure, Organisation and Skill Formation in the Australian Housing Industry: Factors Affecting Production Costs". This paper provides a background on the focus and nature of the project. The paper will also review Australian and overseas literature relating to the subject. This will be done by providing:

- an outline of the aims and objectives of the project as established by the National Housing Strategy, and an outline of the relevance of the project to the issue of housing costs;
- a description of the methodology to be adopted and the theoretical framework informing the project;
- a description of the structure of housing provision and its agents;
- a discussion of Australian housing production activity and the changing market environment which agents confront; and
- a preliminary discussion of new technology and new managerial strategies, and their possible effect on efficiency, innovation and skill formation within the housing industry.

Throughout 1991 the researchers will be approaching a wide range of people in order to discuss the structure of housing provision, to examine problems facing the agents within the industry, and to understand how corporate strategies evolve to meet changing circumstances. Discussions will focus on issues of efficiency, innovation, skill formation and inter-firm linkages. It is hoped that this paper will help to clarify the issues, contribute to a better understanding of housing industry policy reform options and address the issues of accessibility, affordability and lower housing costs.

## Chapter One

### FOCUS OF THE STUDY

This study examines the structure of private housing provision. In particular, it explores the relationship between the structure and organisation of the housing industry and production costs, thereby contributing to the main policy focus of the National Housing Strategy, which has been designed to "ensure that future government housing policies provide opportunities for a better matching of housing demand and housing supply" (National Housing Strategy 1991a, 11). Within this framework, this project focuses upon the provision, or supply, of accessible and affordable housing.

'Houses' are described as 'low-density' forms of detached dwellings, and this segment of the industry is often described as the 'cottage construction' industry, consisting of a detached house surrounded by a parcel of land. In the literature 'houses' often shade into more 'medium-density' forms of housing such as townhouses, attached housing, villas and units. For instance, the Australian Bureau of Statistics divides private dwelling commencements into 'houses' and 'others'. It has been argued that the terminological ambiguity is created by variations in planning provisions, varying perceptions of dwelling types and differences between cities (see Travers Morgan 1991, 20-2).

However, methods of production for both low and medium density housing differ considerably from high-density, high-rise housing. The latter involves more sophisticated engineering and planning techniques and, technologically, more closely resembles methods applied in large non-residential construction projects. Due to this (and given that high-rise dwellings only account for a small proportion of 'other' private building and total public building) the project will exclude high-density residential construction from examination and will focus on low-to-medium density housing.

Data from the Australian Bureau of Statistics on the residential construction industry also distinguish between private and public building. In 1989-90 the private sector accounted for 126,400 dwelling commencements, compared to 11,400 starts in the public sector (Indicative Planning Council for the Housing Industry [referred to hereafter as IPC] 1990, 2). The study will focus upon



new-build housing in the private sphere, although attention will also be paid to private companies conducting work for state and public authorities.

The study will include the 'alterations and additions' component of the housing industry. This segment accounted for 43% of private investment in dwellings in 1989-90 (IPC 1990, 5) and represents an important related sphere of activity for many residential construction firms.

'Houses', which accounted for over three-quarters (96,400) of private dwelling commencements in 1989-90, will be the principal focus of examination. Various forms of medium density housing will also be taken into consideration. Data from the 1986 Census indicate that 78.7% of the population lived in separate houses, compared to 13.3% in 'other' medium density housing (ie. units), 2.3% in semi-detached houses, 1% in row or terrace houses, 2% in flats over three storeys and 1.2% in 'other' dwelling structures (National Housing Strategy 1991b, 37; for details of the 1981 Census, see Australian Society 1987, 31).

Despite initiatives for more condensed forms of living, detached dwellings on their own blocks of land will remain the dominant form of building in the foreseeable future. Bunker (1991, 2) has claimed that "evidence continues to support the strong and continuing preference of both Australians and migrants for that form of living", while Paris (1990a, 4) has argued that recent trends "have been towards lower population densities in most Australian cities rather than towards urban consolidation" (see also Braby 1989). Future activity within the residential construction industry will continue to concentrate upon the production of detached dwellings, alongside alternative patterns of land-use such as provisions for dual occupancy and initiatives such as the Greenstreet Program (see Cardew 1989; Bunker 1989; Kirwan 1991).

The purpose of the project is to examine the structure and organisation of housing provision. This concept of the 'structure of housing provision', adopted from Ball, Harloe and Martens' studies on housing and social change in Europe and the USA, describes "the nature of the social agents involved in the provision of a particular form of housing *and their interlinkages*. Producers, consumers and financiers in different guises all have their place within structures of provision" (Ball et al. 1988, 29 [My emphasis]; see also Ball 1986, 455-7).

Costs associated with new-build housing can be divided into three broad categories:

- the cost of land and land development;
- the costs associated with the construction of the dwelling, and;
- the cost of financing the house and land package.

With due acknowledgement of the interrelatedness of, and interlinkages between, the three categories, the principal focus of this project is the analysis of the costs associated with house construction. The project will define 'construction costs' broadly, taking into consideration a wide range of costs, ranging from the pre-planning and design initiation stage through to marketing and selling.

The project will use a theoretical and methodological framework adopted from recent advances in organisational studies and industrial sociology with a view to examining critically this sector of the structure of housing provision, rather than simply attempt to itemise the range of costs associated with the housing construction industry. This method emphasizes the interrelatedness of the various agents of housing provision within the structure and organisation of housing provision, and the effect these relations have upon a range of factors affecting housing costs. These factors include purchasing policy, planning and pre-planning of operations, skill formation and labour relations, efficiency, quality assurance, technological innovation, managerial and organisational strategies, marketing and pricing policy.

The relations which exist between various agents of production, and relative powers of bargaining between parties, help in turn to structure costs, foster or inhibit alternative practices and also influence the ability of agents to make decisions among a range of options. These relations ultimately affect consumption patterns. As Paris (1990b, 49) has argued: "Overall structures of provision both set limitations to which people can aspire and create patterns of opportunity within which individuals and families can exercise choice".

Thus, the targetted agents (or actors) which form the basis of this project include a range of different types of builders of low-to-medium density housing, including volume and small builders, project, speculative, and owner

builders, their material suppliers and their subcontractors and direct labour force. Collective organisations representing the interests of the diverse agents of housing provision will also be examined, and the objectives and concerns of these bodies will be taken into consideration.

In sum, the project contributes to the National Housing Strategy through setting two principal objectives. The first is to examine the relationship between the structure and organisation of the residential construction industry on the one hand and efficiency, quality, skill formation and innovation on the other hand. The second objective is to examine whether this relationship affects the supply of accessible, affordable, quality, low-to-medium priced housing.

## Chapter Two

### HOUSING COSTS AND THE STRUCTURE OF HOUSING PROVISION: EXISTING LITERATURE

Over the past two decades, a growing volume of research in the field of housing studies has been devoted to the cost of housing provision. Within the Australasian context, Thorns (1988, 71) has linked this concern to broader structural changes within the economy:

During the 1970s and 1980s the Australian and New Zealand economies have been passing through a period of restructuring. This has had important impacts upon the housing sector, leading to rises in house and land prices, in interest rates and therefore in the cost of house purchase. Under these conditions a new agenda of housing issues has appeared concerning the affordability of housing and the continued access of modest and lower income households to the dominant form of tenure, owner-occupation.

With respect to consumers, there has been growing concern in Australia over the increase in 'after-housing' poverty across a range of housing tenures (but principally in the private rental market) and the heightening problem of 'accessibility' and 'affordability' for people attempting to enter the ranks of home-ownership (Yates 1988a, 23; Bassanese et al. 1989; Wood & Bushe-Jones 1990; National Housing Strategy 1991c, 1991d). These problems have been fuelled by high interest rates, high house price inflation and an increase in the 'deposit gap' as real incomes fail to keep pace with the consumer-price index (CPI), let alone house price rises.

At the same time, on the supply side of the equation, there has been concern that activity in the Australian house building industry has become more volatile over the past fifteen years. The industry traditionally has experienced regular cycles in production output. As the Housing Industry Association (HIA 1990, 23) has pointed out: "An industry in which large scale borrowing has a significant role, in which the existing stock of dwellings is large relative to annual additions of demand, and in which deferral of demand is at least temporarily possible is inevitably subject to more than average instability".



However, a recent report by the Bureau of Industry Economics (BIE 1990a) entitled 'Instability in the Australian Residential Construction Industry' has argued that while the industry has always been subject to instability in levels (predictable four-year cycles), the fluctuations witnessed over the past decade have been more pronounced than normal. According to the report, this 'dynamic instability' has created a more unstable environment for agents of housing provision, especially builders. Dynamic instability hinders their ability to make accurate planning and investment decisions, results in a loss of profitability, reduces the average quality of construction and increases the costs of rectification. Furthermore, this dynamic instability is associated with higher rates of business failure and consequent monetary losses to suppliers, subcontractors and final consumers of the product.

This recent trend towards dynamic instability is not unique to Australia. Reviewing the restructuring of housing production in Europe and the USA over the past two decades, Ball et al. argue that: "In a variety of mixes between and within countries, there has been greater market volatility; an increased fragmentation of demand, locationally and by dwelling type; and rising real interest rates..." (Ball et al. 1988, 170). As a consequence, "builders have to undertake investment decisions in the face of sharp fluctuations in total demand and significant variations in geographic and sectoral market activity. When owner-occupation markets collapse, builders are forced into bankruptcy..." (Ball et al. 1988, 182).

However, this general tendency must be examined within particular national contexts, taking into account the specific economic, institutional and demographic patterns and structures unique to individual countries. Actors within different settings can respond in contrasting ways to apparently similar stimuli. For example, while Ball et al. (1988, 182) argue that recent building for owner-occupation has become more speculative in Europe, Australian evidence suggests that there has been a move towards more contract building (Australian Ratings Industry Profiles [ARIP] 1989).

An examination of the Australian literature on the issue of housing costs, after-housing poverty, accessibility and affordability reveals that most commentators have concentrated upon addressing problems associated with demand for housing. Analyses of housing demand have acted as useful responses to the oversimplistic and overgeneralised argument that Australians

over-consume housing, thus starving other vital sectors of the economy of scarce resources (for a discussion, see Kemeny 1983, Orchard 1984; Stretton 1987, Piggott 1989). Projections by the Indicative Planning Council for the Housing Industry indicate that demand for new dwellings will remain high over the short term and remain strong well into the twenty-first century (IPC 1989; see also National Housing Strategy 1991b, 62). Furthermore, other analysts have argued that the housing construction industry has many positive flow-on affects on other sectors of the economy through generating demand for materials, consumption goods and services (Stretton 1987; Wood, 1988, 1990).

A further emphasis which characterises the literature has been the focus upon state reform as a vehicle for reducing the cost of housing and/or expanding housing choices. This focus recognises that state intervention and state housing policies have strongly influenced patterns of demand and tenure, especially over the past forty-five years (see Pugh 1976; Kemeny 1981, 1983; Williams 1984).

The Australian housing literature indicates a number of areas where state policy has affected housing costs. For example, following the trend in other Western industrialised nations, there has been a shift in Australia over the past decade towards the deregulation of the mortgage market, as part of the more general process of financial deregulation. Following the recommendations of the Campbell and Martin Reports, which argued that the regulation of the mortgage market was an inequitable instrument for allocating mortgages between potential consumers, housing finance was deregulated under the Hawke Labor Government, and mortgage interest ceilings on new lending for housing were removed (Nippard 1985).

In terms of accessibility and affordability, it has been argued that while deregulation has improved the availability of housing finance, it also increased the cost of this finance (Wood 1990, 854-5). Furthermore, a number of commentators have pointed out that the innovative mortgage instruments which the Campbell and Martin Reports expected from the more competitive deregulatory environment have failed to materialise (especially from the private sector), or remain subsidiary to the conventional 'credit-foncier' mortgage, which 'front loads' repayments, often beyond the capacity of many potential borrowers (Yates 1988a, 1988b; Thorns 1988, Wood 1990;

Wood & Bushe-Jones 1990; National Housing Strategy 1991d; for a less pessimistic view, see HIA 1990, Ch. 8).

The influence of government policy upon housing costs has also been explored in depth from the perspective of subsidy systems. Since the Second World War, owner-occupation and state 'cost-renting' have been favoured by state subsidy systems (Kemeny 1981, 1983). Yet, as many commentators have observed, it is in the private rental market where after-housing poverty is most prevalent (see Carter 1985; Gruen 1988; Yates 1988a). This has led to calls for a more 'tenure-neutral' subsidy system as a means of reducing housing costs for many Australian households in greatest need.

Other commentators have pointed to the role of state and local regulations as a factor influencing the cost of house-building. Among these regulations are stringent approval systems, government charges and levies and local variations in the regulatory environment. Furthermore, approval systems become more complex as housing density increases (Roseth 1991). Land release procedures and the problem of the timely provision of infrastructure have also been noted as factors which raise unmet demand, foster land speculation and ultimately increase the cost of housing (see Master Builders' -Construction and Housing Association of Australia [MB-CHAA] 1989, 10-13; HIA 1990; Temby 1990).

These debates have highlighted a range of issues affecting housing affordability and have suggested a number of reforms to benefit or assist housing consumers. It is also evident that the focus of attention in these debates has centred upon the demand for housing. This attention to the demand side is related to the nature of governmental involvement in the Australian housing industry. As Campbell (1991) has pointed out: "What is interesting about housing is that assistance in the past has tended to be on the demand side (assisting home purchasers, owner occupiers and some lower income tenants by way of direct home ownership assistance or tax exemptions or spending on public housing construction), rather than directly assisting producers as has been the case for many other industries (tariffs, quotas, production bounties and so on at a cost to consumers)...". Consequently, the principal problem addressed by these "consumption-oriented" approaches to housing (Ball et al. 1988) is the question of realisation, and the distribution of sufficient funds for final consumers to meet housing demand.

However, much less attention has been devoted to the issue of housing supply in recent Australian literature despite the recognition of the importance of this issue. Indeed, Kirwan (1991, 18) has recently argued that the "real focus of our attention in the affordability debate should be on the supply of existing houses, and even more so on the scope for producing new houses, that are within the means of those who have no accumulated wealth". The current study attempts to redress this relative neglect through exploring the production of residential dwelling, in particular the structure and organisation of private housing provision.

There are a number of important exceptions to this trend in the literature. An earlier study by John Hutton, Building and Construction in Australia (1970), devoted a number of chapters to the structure and organisation of house building. However, that study, which dealt with issues such as subcontracting, innovation, material supply and labour, was published in 1970 and deals primarily with conditions in the mid-1960s. The economic environment has changed considerably since the publication of Hutton's study. The effects of economic restructuring, combined with claims that the residential construction has become more volatile, warrant a reconsideration of Hutton's description of the industry.

Surprisingly, despite the growth of the political economy framework during the 1970s and early-1980s, the structure and organisation of housing construction continued to receive scant attention. Much of this literature emphasized the issue of housing tenure and examined the implications of the 'great Australian dream' of home ownership for equity and power (see Kemeny 1980, 1983; Stretton 1986, 1987). Others emphasized land speculation and its implications for profits and costs (see Sandercock 1975, 1979; Daly 1986).

The Report of the Committee of Inquiry into Housing Costs (the Evers Report), released in July 1978, devoted chapters to the production of new housing and industry stability. It also held a 'key issues seminar' on the structure and stability of the housing industry in Sydney on 20 April 1978 (referred to hereafter as the Evers Report 1978, 3 Volumes). Later chapters in this paper will demonstrate that many of the issues and problems raised by the Evers Report remain significant in the early 1990s.



Throughout the 1980's the Indicative Planning Council for the Housing Industry has continued to provide regular forecast reports, bringing together a range of empirical data on supply trends within the industry (IPC various). More recently, the Bureau of Industry Economics (1990a) has released a discussion paper examining the effects of instability upon residential construction which concluded that 'dynamic instability' generates higher costs for housing consumers and affects the viability and profitability of suppliers of the product.

More recently, Travers Morgan Pty Ltd and Applied Economic Associates have prepared a report on behalf of the Commonwealth Department of Industry, Technology and Commerce (DITAC) and the New South Wales, Victorian and South Australian Housing administrations dealing with the costs of new housing developments (referred to hereafter as Travers Morgan 1991). This report dealt with the cost of land development as well as the cost of dwelling construction. It concentrated upon breaking down, or itemising, the various costs of production, comparing them between Sydney, Melbourne and Adelaide, then examined the potential for savings in each category.

The strength of the report lay in its rigorous and detailed quantification of the costs of land and housing construction. However, much less attention was devoted to the organisation and structure of the industry as a cost factor itself, and the effect of this structure upon less quantifiable areas, such as innovation, skill formation and managerial strategies in the face of growing volatility and structural change. The structure of the industry tended to be treated as a 'given', independent, variable, rather than an issue for detailed examination. For example, while the report acknowledged changes in the organisation of housing construction over the past decades (such as an increase in subcontracting, an increase in large builders' share of the market and a decline in speculative building) there was no discussion on the relationship between these changes and housing costs.

Currently, the Housing Industry Development Strategy (formerly within DITAC, now DHHSS) is examining a number of issues related to the structure of the housing industry, including skill formation and award restructuring, specialisation and off-site manufacturing, research and development, new materials, innovation, import replacement and internationalisation. This current project will complement this initiative in two principal ways. Firstly,

it will apply to the housing industry recent theoretical and methodological advances developed within the field of organisational studies and industrial sociology. The need for such a multidisciplinary approach to housing costs has been stressed by Lionel Needleman (1965, 14): "It is scarcely possible to examine...the scope for reducing the cost of dwellings in relation to incomes without becoming involved in building technology, economic and social history, statistical methods and sources, and the mathematics of finance as well as economics". Secondly, it will provide a holistic framework for examining the relationship between the structure of housing provision and a range of variables affecting housing costs, including skills formation, innovation and the introduction of new technologies and managerial operational strategies

## Chapter Three

### THEORY AND METHOD

#### The Theoretical Context

Over the past decade a central concern in both economic and social research has been the attempt to theorise the nature, sources and consequences of new production systems throughout the advanced industrial world. The fields of organisational studies and industrial sociology in particular have explored the significance of a range of features which characterise contemporary business practices. These include the adoption of micro-electronic-related innovations in the production process, the growing diversification of product markets, the changing nature of the labour market and the internal organisational restructuring of manufacturing companies. This in turn has generated interest in the examination of the evolving relationships between firms in chains of production, ranging from initial suppliers of products, components and labour through to the delivery of products to the final consumer.

These theoretical endeavours have now produced a growing volume of empirical studies examining the nature and consequences of business interlinkages throughout chains and complexes of production in a range of industries as diverse as food processing, automobiles, electronics, clothing and construction (for construction, see Gann 1989, forthcoming). These studies have demonstrated that structural and organisational changes are occurring in both 'traditional' and 'modern' industries.

Among the concepts used to describe these productive and organisational changes are 'post-fordism', 'diversified quality production', 'disorganised capitalism' and 'flexible specialisation' (see, for example, Piore & Sabel 1984, Lash & Urry 1987, Mathews 1989). While these concepts place different emphases on different factors, central to all of them is the observation that over the past two decades there has been a shift in production techniques in a range of industries. These concepts describe the tendency over the past decade for producers to move away from the standardised production of goods for a mass market using an intense in-house division of labour, dedicated machinery and economies of scale, towards the production of smaller runs of more customised products for a more diversified market, using more flexible machinery and a more flexible and more multi-skilled workforce.

Another feature of the literature has been the attempt to understand how productive organisations have adapted to the different economic conditions in the aftermath of the long boom which lasted from the early-1950s to the early-1970s. In a seminal work, Piore and Sabel (1984) argued that the advanced industrial societies were approaching a 'second industrial divide'. Others, such as Freeman and Perez (1988), have argued that this transformation of methods of production represents the emergence of a new dominant 'techno-economic paradigm'. The 'first industrial divide' at the turn of the century witnessed the ascendance of mass production over craft production. Mass production, epitomised by the innovative practices adopted by Henry Ford for assembling motor vehicles, was extended throughout industry and reached its ultimate expression in mass consumer industries during the long post-war boom.

However, Piore and Sabel argue that fordism began to exhibit signs of crisis by the early 1970s. The main reason was that fordism was too inflexible to adapt to changing market conditions. Among the inherent limitations of fordist regime of production were declining productivity growth, the divergence between the decline in productivity and wage growth, limited market expansion, the relocation of labour-intensive aspects of production to low-wage nations, structural overcapacity, poor quality control and growing bureaucratisation (see also Roobeek 1987). The more unstable economic environment demanded responses from industries which fordism was ill-equipped to provide. These responses included innovation, specialisation, quick response to changing markets and flexibility. Indeed, the concept of flexibility became one of the industrial 'buzzwords' of the 1980s.

The need for a more flexible and productive industry structure has become a prominent issue in Australian debates over economic restructuring. Individual companies, industry associations, unions and government-supported industry extension services all recognise the need for a climate conducive to flexibility and have encouraged innovative production techniques such as Total Quality Control, Just-in-Time production and Value-Added Management. These production techniques are at variance with long-standing 'fordist' production systems.



The growing recognition by governments, industry and labour over the past decade that Australia must become more internationally competitive is also a reflection of the demands for greater flexibility. This demand has been given added impetus over the past three years through the process of structural adjustment and award restructuring, stressing the importance of workplace change and organisational restructuring as core components of a more flexible, efficient and competitive production culture.

### **The Housing Industry**

The Australian housing industry is not exempt from this process of industrial restructuring. As Campbell (1991, 1) points out, the housing industry "is very large by comparison with many other industries (and therefore consumes a large volume of resources), has a volatile cycle and consequently can have a pervasive influence on the economy as a whole". Accordingly, Bell and Dean (1991, 15) have argued that the "consequences of the need to get on top of our current account problems will reach into all parts of the economy. The housing industry will be no more immune from this than any other sector". Thus, an analysis of the structure of housing provision has wider implications than that of improving housing accessibility and affordability. The industry also has an important role to perform in contributing to the more efficient use of the nation's resources.

At first sight it may appear that the features which characterise the housing industry shelter it from many of the changes discussed above. Relative to most other industries the housing industry has always assembled a very diversified product. Furthermore, the immobility of the product, the high transportation costs involved in handling bulky components and building materials, not only shelter the industry from much overseas competition, but also make markets local rather than national. For example, among volume builders, only one of Australia's top twenty companies (calculated by market share) operates in all states, while only five others operate in more than one state (ARIP 1989).

In addition, the complexity of the construction process, combined with the lack of continuity of orders, inhibits mass production, standardisation and the adoption of capital-intensive machinery and factory methods. The lack of standardisation also encourages the extensive use of 'flexible' labour rather than 'inflexible' dedicated machinery. These obstacles to the application of

mass production techniques help to explain why the industry has remained much more craft-oriented and 'skill-labour-intensive', relative to other industries (AIUS 1975). It also helps to explain why housing industry productivity has increased over time at a much slower pace than most other industries (see Needleman 1965; Short 1982).

Furthermore, the housing industry traditionally has been dominated by a large number of small firms. Scase and Goffee (1982, 53) have identified a number of features which must be present within an industry for small entrepreneurs to flourish:

In general, sectors characterised by skilled labour rather than capital-intensive production tend to be more favourable for business formation. Typically, a refined division of labour will not have developed nor will 'academic' meritocratic qualifications be regarded as necessary prerequisites for proprietors and executives. Instead, 'experience', often gained in other small firms, is seen as a more appropriate training. The commodities produced tend not to be standardised and are characteristically sold in markets which are subject to considerable fluctuation according to consumer preferences and fashion. For all these reasons, there is likely to be a tradition of small businesses and self-made proprietors which, in itself, creates an industrial subculture that serves to encourage the further formation and growth of small-scale enterprises.

Scase and Goffee used the general building industry as a critical case study of the dynamics of small-scale entrepreneurship. Indeed, they argued that general building "possesses par excellence those features which are most conducive to the formation, growth and persistence of small, independently-owned private businesses" (p. 54).

Given the nature of the structure of housing provision, it would appear that Piore and Sabel's 'second industrial divide' as well as the 'first industrial divide' largely passed the housing industry by, and that production techniques and markets have changed little over time. Indeed, the preponderance of the small firm, the importance of craft production and the extensive use of sub-contracting have helped maintain the 'traditional' stature of the industry.

Despite this, Ball et al.'s recent examination of housing production in Europe and the USA concluded that "the old adage that nothing ever changes in the house-building industry is clearly far from the truth" (1988, 196). According

to their report, a variety of technological, organisational, financial and market forces have begun to alter the structure of housing provision. These have consequently affected cost structures. While these forces have produced different outcomes in different countries, the study showed that the 'traditional' image of housing provision needs qualification, and that the industry structure and industry costs have been affected by many of the same variables which organisational theorists and industrial sociologists have highlighted over the past decade (see Ball et al. 1988, 170-3). In other words, underneath the appearance of 'traditionality', numerous forces operate which are modifying the structure and organisation of housing provision. Among the changes observed by Ball et al. (1988, 185) are:

- a tendency towards greater fragmentation and flexibility of the construction process;
- an increased role for construction and consumer credit;
- increased emphasis on product marketing;
- technological change geared to flexibility in production;
- growing roles for sub-contracting and on-site planning;
- competitive pressures leading to further market stratification; and
- a decline of the independent medium-sized producer.

While the structure of housing provision may appear to have retained its traditional form, relationships within the structure are being altered by these changes. It may be more accurate to argue that "the more things change, the more they stay the same" (Harman 1991, 40).

Ball et al's study lends support to the claim that the evolution of housing provision since the Second World War mirrors technological and organisational changes in other industry sectors in many respects. These changes in turn have encouraged the search for greater flexibility by businesses.

For example, Ball et al. (1988, 191) pointed out that attempts to adapt fordist, 'productionist' techniques to the housing industry during the long boom have largely given way to an emphasis on marketing, financial control and flexibility.

There are crucial differences between trends in technological change in house building in the 1950s and 1960s and modern day approaches. In that earlier period, building technology was seen overwhelmingly from a productionist perspective. On both sides of the Atlantic, the idea existed that housing production could eventually be reduced to 'Fordist' style mass production, virtually identical to that of motor cars. Industrialised systems could eventually create standardised low-cost housing that would satisfy officially laid-down basic housing standards. In trying to achieve lower building costs, the general goal was seen as one of creating conditions where site work was deskilled and total on- and off-site labour time minimised.

In contrast, modern housing production techniques must now conform to other key variables which circumscribe business decision-making and strategic options. These business criteria, argued Ball et al., are often at odds with fordist, productionist, principles. In particular, the contemporary housing environment places greater emphasis upon flexibility in organisation and production, flexibility in the labour process, more finely-tuned marketing arrangements and greater financial control over operations through minimising capital outlays in production, inventories and work-in-progress. House-building, despite the peculiar structure which has encouraged the retention of 'traditional' practices, has not been immune to the changes observed by commentators throughout other industry sectors.

One of the main conclusions drawn in the study by Ball et al. was that in the contemporary environment, much more than in the past, corporate survival in the provision of housing is dependent upon greater flexibility on the part of producers throughout the chain of production. Failure to adapt to the growing vagaries of the market will lead to higher rates of business insolvency, and consequently, higher costs for other firms, subcontractors and consumers within the structure of housing provision.

While Ball et al.'s study focussed on Europe and the USA, evidence from a variety of sources demonstrate that significant changes have also affected the operations of firms associated with the Australian housing industry. As Harman (1991, 34) notes, while housing has retained its "essential visual and functional qualities", the industry has been "developing innovative internal materials and construction methods".



The remainder of this paper will examine some of the forces behind these changes. Firstly, the most significant changes noted in the literature will be described. Secondly, the effect of these changes upon the agents of housing provision (including the land development industry, the building material sector, various submarkets within the residential construction industry and their subcontractors) will be examined.

Over the past twenty years, Australian building firms have adopted a number of flexible and innovative practices in both process and products (HIA 1990; Harman 1991). Building component suppliers have also innovated with a number of prefabricated products, and these changes have affected labour supply and skill formation further downstream in the residential construction industry. As Harman (1991, 34) notes in his discussion of changing construction methods in Australia, "over the last twenty years or so there have been a number of significant changes in the materials used in the construction of houses. This seems at odds with the very conservative image normally associated with the housing industry."

However, parallel with overseas experience, it is clear that productionist or fordist techniques have failed to dramatically alter housing construction methods. In 1974 the Burkitt Committee investigated modern housing techniques and concluded that, under certain conditions, industrialised construction techniques held promises of economies in dwelling construction. However, a year later, the Australian Institute of Urban Studies was rather more circumspect on the issue of industrialised housing, stating that the subject had "aroused a great deal of rather flimsily based optimism over the years" (AIUS 1975, p. 24). While there were "real possibilities for cost savings", the report envisaged "no dramatic breakthroughs".

One of the noted problems associated with fordist or industrialised housing related to the nature of the housing market. According to the AIUS report, the "notorious demand-fluctuations in housing make heavy capital investment rather risky, unless the manufacturer has been made aware by the trade that there is a large and long-continuing demand for his product" (p.25).

The recent Bureau of Industry Economics report focussed on this problem of instability and its effect on building costs. The report argued that modern firms in the Australian housing environment operate in a market characterised

by much higher levels of volatility than in the past and that "the degree of instability is increasing" (1990a, p. 6). Others have pointed out that these fluctuations have consequences for industry organisation which are passed on to consumers in the form of higher house prices. According to the HIA:

These costs are very large to those who bear them - and they are not simply cancelled out by periods of housing booms because the fact of instability can affect the decision making and organisation of the industry. For example, relatively labour intensive processes may be retained to increase flexibility; manufacturers may undercapitalise their operations and use less sophisticated low cost technology than otherwise to keep down overheads during slack periods; and workers may demand higher wages, subcontractors demand higher contract prices and developers and builders seek higher rates of return than otherwise to cover their greater risks. (HIA 1990, 24)

These problems highlight the need for an examination of company responses to instability and the search for flexibility. Flexibility can assume a variety of forms.

For example, while subcontracting has always been used extensively in the construction process, studies have observed a growth in the practice since the Second World War (Hutton 1970; Stilwell 1980; Travers Morgan 1991). This has consequences not only for flexibility, but also for the need for tighter management of operations and places greater emphasis upon organisational skills within the sector.

The issue of flexibility also needs to be addressed from the perspective of diversification of demand (HIA 1990). Judd et al. (1985, 3) have argued that:

In Australia, changes in population structure, social attitudes and behaviour are placing new demands on housing. The net effect of such change is a diversification of household types and lifestyles away from the traditional nuclear family...The relevance of existing housing types and urban residential structures are being questioned as more appropriate ones are being explored.

This growing diversification may indicate a need for more niche market production among smaller builders and more flexible diversified production among volume builders.

Micro-electronic-related innovations (MRI's) have also affected the production process. In particular it affects the interlinkages between firms. As the Housing Industry Association observes: "Computerisation has become a major component of home building activities, providing firms with a powerful tool for cost and inventory control. The electronic revolution is also becoming an increasingly common part of the new Australian home" (HIA 1990, 81; see also Gann forthcoming). According to the recent Housing Costs Study commissioned by the Department of Industry, Technology and Commerce, most builders interviewed were "moving towards CAD (computer-assisted design) and linking it to computer-based job administration, and believed this would reduce costs" (Travers Morgan 1991, 113).

Studies conducted in other industry sectors have shown that the most efficient use of MRI's occurs when suppliers and customers develop close interlinkages. This facilitates the sharing of information and the co-ordination of production. In a volatile market, MRI's can play a crucial role in cost savings through co-ordinating suppliers and subcontractors and, ultimately, reducing lead-times, work-in-progress and inventories. The capital and expertise involved in introducing many MRI's will encourage more joint ventures between companies within the industry structure. For example, during 1990, it was announced that the MB-CHAA was forming a consortium with manufacturers and power companies to promote a home automation enabling system (SMART HOUSE) originally developed in the United States of America (MB-CHAA 1990, 9)

In an industry such as residential construction, where technological changes in the production process tend to be incremental and evolutionary rather than dramatic and revolutionary, it can be hypothesised that the scope for cost reductions through organisational rationalisation assumes added importance. This point was made recently by Harman. He noted the greater emphasis firms were placing upon "planning and technical support services, financial indemnity arrangements and the direct relationship between producer and customer" (Harman 1991, 40). This is likely to encourage closer relationships between firms within the structure of housing provision and open up the potential for innovations in organisation which may be more important than physical technological innovation. Harman argues that "the problem of housing affordability will ... remain and will not be solved by innovative technology based products, but, possibly, by changing the relationships

between the producers and the consumers. This could turn out to be the most far-reaching innovation in housing during the next two decades" (Harman 1991, 40).

Overseas literature on innovation suggest similar conclusions. According to Anderson and Lundvall, the development of a system of innovation in a particular national industry sector or cluster must be premised upon the process of learning by producing, learning by using and learning by the interaction of producers and users (Anderson & Lundvall 1988). The benefits of closer interlinkages and flows of information can reverberate throughout the chain of production, affecting land developers, building suppliers, builders, sub-contractors and final consumers of the product.

The current project will address these issues in the Australian context, through examining how Australian companies are responding to the challenge of greater flexibility in a range of areas, from sourcing, to labour, the production process, through to new products and markets.

## Chapter Four

### AGENTS OF HOUSING PRODUCTION: THE LAND DEVELOPMENT INDUSTRY

#### The Structure of the Land Development Industry

This section examines the structure of the land development industry and discusses important trends within the sector which relate to the activities of building companies 'further downstream' in the structure of housing provision. The industry supplies a key input into the residential construction industry. It has been estimated that approximately 50% of all new-build housing is constructed on the urban fringe or on recently sub-divided land (Travers Morgan 1991, 29). Its importance is also reflected in estimates that land developers represent around 25% of dwelling construction investment (DITAC n.d.).

The supply and timing of land development therefore ultimately affects residential dwelling costs. According to the 1978 Eyers Report (Vol. 1 1978, 68): "Issues associated with the cost of producing serviced residential land were identified in many submissions to the Committee as the most significant factors contributing to increased housing costs". More recently, at the Special Premiers' Conference on Housing in March 1989, "residential land prices were identified as a major factor in house cost increases" (IPC 1990, 10).

Land developers are engaged in activities ranging from the purchase of raw land through to the marketing of serviced allotments. Due to the specialist nature of the variety of tasks within the land development process, most developers engage a number of specialist subcontractors to undertake the work.

The principal role of the developer is financing and managing the overall process. The most important components of this process include the selection of sites, purchasing the land, sub-division of the land through negotiations with government planning and approval bodies, co-ordinating the provision of on-site (and some off-site) services, the construction of sub-divisions and the marketing and sale of serviced allotments.



Over the past twenty years, the responsibilities of land developers have increased through the transfer of a variety of costs for service provision to the private sector (Roseth 1991). As the Housing Industry Association (1990, 64) has observed: "Whereas land development costs were once funded largely by councils through rates revenue and borrowings, now most costs have had to be covered upfront by the developer".

Apart from state planning and other regulatory bodies, there are a number of agents directly involved in the structure of land assembly and the provision of serviced allotments. These include state and local governments, large-scale developers, volume builders, small-to-medium size builders and individual small holders. Subcontractors and finance companies are also key agents in the process.

Projects can range in size from a couple of hectares up to hundreds of hectares. Large developers and state governments dominate large projects while small builders tend to purchase smaller sub-divisions for package sales. Individuals can also buy small holdings and arrange their own construction process.

The larger projects require a significant degree of organisational, managerial, financial and accounting skills, while the scale of smaller projects may only involve rudimentary experience. As the Travers Morgan Report (1991, 31) stated, these characteristics make the land development industry easy to enter and attractive to a wide spectrum of participants.

Despite these low entrance barriers into the industry, there exists some disagreement over trends in concentration and competitiveness. The Eysers Report (Vol. 1 1978, 70) argued in 1978 that many smaller developers were leaving the market and speculated that the degree of market concentration was increasing. On the other hand, a recent background paper from DITAC's Housing Industry Development Strategy (n.d.) claimed that "the industry is characterised by a high level of competition". The Travers Morgan Report (1991, 34) provided qualified support for this position, arguing that "the market is quite competitive in the classical sense, and despite imperfections, there is limited, however, opportunity to exploit on a large scale monopolistic practices".

However, these recent statements conflict with concerns voiced by the Housing Industry Association (1990, 66), which pointed to an increasing concentration of land development in the hands of a small number of firms. As the report stated, while "large developers often can achieve economies of scale and thus there is the potential for lower land prices, smaller builders have become concerned about the lack of competition and availability of land". These conflicting reports also have to be understood in the context of the prevailing economic climate and fluctuations in demand for housing.

Most land developers, like builders, are regionally decentralised. Vertical integration between the land development and the residential construction industries is quite low, with most builders relying upon access to land developers' resources. However, among the volume builders, companies such as AV Jennings, Hooker and Pioneer hold substantial land banks and engage in land development. Furthermore, the subsidiary of the British-based George Wimpey Pty Ltd is also a significant player in residential land development (AIRP 1989).

A number of finance corporations are also involved in the land industry. They either act independently or, more commonly, in association with developers or simply as providers of finance. During the 1960s and the early-1970s a number of finance corporations established joint ventures with private developers. However, the failure of a number of developers and the depressed market conditions during the mid-1970s led to a reduction of such partnerships (Eyers Report Vol. 1 1978, 70; Daly 1882; Sykes 1988).

While joint ventures again increased in the period leading up to the mid-1980s, the subsequent economic downturn and the impact of financial deregulation saw the withdrawal of a number of finance companies from the land market. However, a few remain important agents in the provision of serviced land. By the end of the 1980s active participants included AGC, Custom Credit, Esanda, Prudential Finance, Delfin and Town and Country (ARIP 1989, 8).

The instability which characterises the residential construction industry requires both experience and familiarity with the problems involved in land development, combined with a clear understanding of government regulatory processes. The conclusions of the Eyers Report (Vol. 1 1978, 70) appear to

be even more pertinent in the early-1990s: "The increasing complexity of residential sub-division in recent years, the long lead times and the substantial shifting of financial responsibility from the servicing and local authorities to the land developers have created a climate in which the private land developer needs to have a sound management structure and financial viability".

### **Issues Affecting the Sector**

The land development industry has traditionally been volatile, reflecting the peaks and troughs in demand for new dwellings. Furthermore, compared to house construction, the lead times involved in land development approval and production are extremely long, exacerbating the problem of matching land supply to fluctuations in housing demand. The 1978 Eyers Report (Vol. 1 1978, 77) found that in Sydney the raw land stage of the development process required an average 123 weeks and the sub-division stage another 44 weeks. The house construction stage required on average 16 weeks.

In the current climate, combining volatility with high interest rates, land developers are being forced to reassess business strategies to cope with the higher risks of substantial land holdings and land banks. For instance, a number of commentators have reported a tendency for land developers to alter their stock-holding practices, through holding much smaller stocks of land than previously, in order to ease the burdens associated with high interest rates and tied capital (HIA 1990; Bird 1990).

According to Bird (1991, 23), the corporate collapses of the 1970s provided a catalyst for this shift in business strategy:

As a consequence of these dramatic events in the 1970's, surviving property development companies concentrated more on inventory control. In this context, 'inventory control' meant minimising cash exposure by keeping broadhectare holdings and stocks of vacant lots as low as possible relative to anticipated 'real' demand...Prudent investors now hold en globo land stocks by option or at worse through borrowings serviced by income from the rural use of the land. New subdivisions are processed as far down the line as possible without committing significantly more funds and are turned out in smaller stages.

The Housing Industry Association (1990, 62) has also reported that developers are attempting to respond more quickly to demand while reducing stock

holdings: "The high costs of developing land have .... meant that, as in manufacturing, land developers have been moving to 'just-in-time' production".

Just-in-time (JIT) production is a strategy designed to allow quick response to market demand through producing or servicing only what the market currently requires (or 'pulls') rather than the more traditional method of 'pushing' as much production as possible upon the market, with the risk of having to hold stock through unmet demand. JIT not only involves land developers reducing land stocks but also shortening lead times for serviced land.

This response has implications which flow throughout the length of a chain of production. Its ultimate success depends upon a high degree of planning and co-ordination between suppliers and customers, in order to supply services as required (or 'just in time') and to respond more effectively to demand. Within the land development industry, this must involve much closer co-ordination between the developer, state planning and land use bodies, sub-contractors and the residential construction sector. The Eyers Report (Vol. 1 1978, 70) stressed the importance of closer co-ordination between developers and builders in promoting "greater flexibility in sub-divisional design, increasing choice and offering potential for cost savings". In a market characterised by instability and growing diversity, this recommendation is more significant now than a decade ago.

Thus, overall, industry volatility and high interest rates are forcing land developers to reassess corporate strategies in order to minimise the risks involved in stock holding and to respond more quickly to demand. Potentially, their responses will have a large impact upon their relationship with their suppliers and customers within the structure of housing provision. Large builders are also "seeking to play a greater role in land development" (HIA 1990, 66), thus further breaking down the traditional separation between land development and the residential construction industry.

This project will examine these claims in greater detail, and explore the forces behind the apparent tightening of this link in the housing chain of production. It will also take into consideration the considerable role which the state can perform in reducing costs in the land development sector through

improvements in the land supply and approval processes. However, the focus of the research will be on the responses of private land developers to the abovementioned challenges. In particular, the project will focus on house builders that are engaged in the development process.



## Chapter Five

### AGENTS OF HOUSING PRODUCTION: THE BUILDING MATERIALS INDUSTRY

#### The Structure of the Building Materials Industry

The building materials manufacturing sector is another crucial 'upstream' industry for the residential construction industry. A study conducted in 1977 reported that materials and manufactured items represented 48% of total building costs. Other costs included site labour (24%), other site costs (3%) and overheads (25%) (cited in the Eyers Report Vol. 1 1978, 151).

Due to the physical characteristics of most building products, such as their volume, weight, and problems of transportability, there are natural barriers to import competition, and despite recent tariff reductions imports do not, as yet, constitute a major threat to the building materials industry (IPC 1990, 16). Demands for imports are lower than in the economy as a whole, thus lending support to the argument that investment in housing generates productive activity in other sectors of the local economy. Stringent government regulations for building standards and use of materials in construction projects can further inhibit importing.

While activity within the building materials sector fluctuates according to demand within the housing sector, the industry is not dependent upon the housing sector, and most of the materials produced are not specific to housing. The Indicative Planning Council for the Housing Industry estimated in its 1988 Resources Report that only "for a few items would housing demand account for more than half the total demand for that item" (IPC 1988, 33; see also MB-CHAA 1989, 23). Sales for building materials in 1988-89 amounted to \$10 billion, and it has been estimated that the residential construction industry accounted for \$3 billion of this demand. Employment within the sector during the same period was 60,900.

Housing industry demand for building material products include timber, bricks, tiles, plasterboard, steel and other metal-based products and cement. The composition of building material costs for a typical dwelling is timber/joinery (33.8%), metal products (17.4%), concrete/cement products

(15.5%), clay bricks/terracotta tiles (9.7%), plaster products (6.5%) and other products (17.1%) (IPC 1988, 38).

There have been a number of changes in the composition of products over the past thirty years, reflecting changing consumer tastes, innovative designs, new technologies and the search for better material handling (for historical and regional variations, see Paris 1987). For example, concrete slab flooring now predominates over timber flooring. It has been estimated that 75% of new homes are built on concrete floors. Brick now dominates the external cladding market (for either double brick or brick veneer homes), rising from under 50% at the beginning of the 1960's to 90% by the end of the 1980's. Fibrecement and timber account for most of the remainder. Despite the overall decline in timber cladding, there is still a strong niche market demand for its use. Concrete tiles constitute 64% of the roofing market, although steel roofing has increased its market share significantly over the past twenty years, rising from 19% to 35% (IPC 1988).

Thus, while there has been little visual change in the outward appearance of houses, incremental and evolutionary transformations have occurred in the use of house-building materials. Reinforcing this relationship between appearance and substance has been the growing adoption of 'composite' materials, which combine features of two or more materials in a final product to improve its functionality while retaining its traditional visual appearance.

The 'across the board' reduction in tariff barriers and the economic downturn of the early-to-mid 1970's produced a series of mergers and takeovers, accentuating the most prominent characteristic of the building materials industry structure, namely, the high level of concentration in most product categories (see IPC 1988, 39). In most segments of the market, two or three large companies dominate. For example, a duopoly exists in the plasterboard market, through CSR and Boral, while James Hardie Industries has a monopoly over fibrecement products. Monier PGH, Pioneer and Boral control the roof-tiling market and the brick industry has also become more highly concentrated over the past decade.

While the Bureau of Industry Economics (1990b, xv) has claimed that the process of mergers within the industry "are likely to have had only a small effect on the development of the industry" it should be noted that builders

interviewed in the Travers Morgan Report (1991, 53) experienced "a greater ability to negotiate timber prices than almost any other material". The timber industry is far more fragmented and less concentrated than the other sectors of the building materials industry. Campbell (1991, 3) is also more cautious on this issue: "The degree of competition and efficiency in the building products sector is perhaps not as clear cut as the construction side of the industry. It is an area which requires further research".

This characteristic of the industry is partly a reflection of wider problems facing the Australian economy, such as the structural disadvantages of small market size and remoteness, and have been discussed in detail in a recent report commissioned by the Australian Manufacturing Council (AMC 1990).

The conditions which produce natural advantages of remoteness can also create problems of business growth and adoption of innovative practices. DITAC's Housing Industry Development Strategy (n.d.) has observed that, with "market positions in many of the larger material segments stabilised...and sales and profit growth circumscribed by the overall market size, and product demand being hampered by the cyclical nature of the housing industry, most of the larger operators are exploiting export markets because of the stability, economies of scale, and growth potentials being offered". Although companies such as Readymix, Pioneer, Hume, James Hardie, Wormald and Boral have been active in overseas operations for some time, recent trade deregulation measures have given added impetus to this trend.

### Issues Affecting the Sector

There is little vertical integration between the residential construction industry and the building materials industry. However, fluctuations in either sector affect the operations and profitability of the other. In a number of key respects, intersectoral relationships are becoming closer, and these relationships will have flow-on effects for organisational and manufacturing strategies adopted by firms in both sectors, and affect the structure of, and costs within, the housing industry.

While building material prices have remained generally in line with CPI movements, they have tended to increase to a greater or lesser extent during cyclical upturns in the housing industry (see MB-CHAA 1989, 24; IPC 1990,

17; BIE 1990a, 11). Given the significant share held by building materials in total construction costs, price shifts clearly influence building costs.

For example, the Bureau of Industry Economics (1990a, 24) has argued that while volatility within the housing industry has not adversely affected material producers' profitability this does not imply that the economic costs of volatility are low: "It may mean that the costs of volatility are passed on to the consumer in the form of higher housing construction costs". Even if the dynamic instability which has characterised the industry over the past period was controlled, instability in levels would still remain and affect the building materials sector, through stockouts or overstocking.

Material manufacturers can adopt a number of business strategies to deal with this problem. For instance, demand can be met through stockpiling. However, as the literature on post-fordism has demonstrated, companies across manufacturing sectors are rejecting this option due to the costs associated with holding large inventories in a climate of historically high interest rates. A more appropriate response would be the shift towards more flexible manufacturing systems (FMS).

An additional catalyst for adopting FMS may come from the building materials merchants and wholesale sector. Over recent years this sector has witnessed the twin phenomena of growing specialisation combined with the growth of large national merchant chains. Less than 20% of building material merchants control over 80% of the market (HIA 1990, 90).

Merchants and wholesalers are important intermediaries between builders and building material manufacturers. Over the past decade they have been introducing computer-related technology into their inventory control systems in an attempt to respond more quickly to market demand and free up capital. Bar-coding and Electronic Data Interchange (EDI) have not only improved their inventory control, but also provided a more efficient service to customers, through more accurate product delivery service, faster delivery and reduced incidences of stockouts (IPC 1990, 16; HIA 1990, 90).

In association with just-in-time and quick response managerial strategies, there has also been a tendency for material wholesalers and distributors to become 'leaner', carrying only the barest minimum of stock. As the Housing Industry

Association (1990, 90) reported: "Through the advanced use of computers complete ordering and supply is now being undertaken from manufacturer to merchant to builder/end user and in both directions". These techniques open up the potential for the merchant to act as a more sensitive conductor of information between builders and material producers, and provide more accurate signals in either direction on demand and industry volatility.

As stated earlier, these changes will place additional pressure on manufacturing suppliers to adopt more flexible manufacturing systems. The Indicative Planning Council for the Housing Industry (1988, 36) has warned that the tendency for building merchants and wholesalers to reduce inventories and become leaner "may accelerate supply problems unless production levels are more flexible". FMS's are particularly suited to volatile and diversified markets.

However, up until now, it appears that there has been little research undertaken on this aspect of the structure of housing provision within Australia, despite the potential for cost reductions throughout the chain of production, involving suppliers, merchants and builders adopting and co-ordinating the use of computer-related ordering systems and flexible building supplier manufacturing systems (for Britain, see Cullen 1982).

The potential cost reductions which could be achieved through closer relationships was discussed by Alex Ramsey in the 1978 Commission of Inquiry into Housing Costs (Eyers Report Vol. 2 1978, 101-2):

It could be argued that it is too much to expect a small builder, gaining his edge because he is small, to follow the ups and downs of the complicated dwelling market. I believe the credit officers of the large suppliers of building materials have a large responsibility here. Such men can be aware of the level of output and likely demand and they are in a strategic situation to see that a small builder does not over extend himself in a boom or is denied credit when it is fairly obvious that an upturn is on the way.

Another phenomenon which reflects the growing interrelationship between builders and material manufacturers is prefabrication. Prefabrication has been incorporated into a range of building operations, including pre-



assembled roof trusses, timber and steel wall frames and windows, floors, walls and ceilings, pre-plumbed bathroom units and shower recesses.

Prefabrication can be viewed either as a response to growing skills shortages within the building sector or as an attempt by builders to reduce on-site labour costs. It provides numerous other advantages apart from on-site labour savings for builders. These include improved quality control, standardisation, access to technical support services and a reduction in material use and wastage. This provides potential cost reductions throughout the chain of production, and emphasizes the need for greater information transfer from builders to manufacturers. Indeed, DITAC's Housing Industry Development Strategy (n.d.) considers that the more "widespread use of specialisation and off-site manufacturing techniques has the potential to generate economies of scale and other efficiencies in resource use critical to Government attempts to make the supply side of the Australian housing industry more flexible and productive, and improve the efficiency with which the industries resources are used".

However, while this potential exists, it should not be assumed that new technologies, new products and new production methods automatically flow through to other related industries once developed. The rate of adoption of new practices is strongly influenced by variables dependent upon the structure of industry provision, including the relationships between employers, employees and sub-contractors, inter-firm relationships and the overall market conditions. For example, the Travers Morgan Report (1991, 50) pointed out that the use of more technologically advanced and more efficient production methods may be retarded when the overall cost structure of the building process is taken into consideration. Builders interviewed in that study "agreed that the cost benefits of the shorter on-site frame time using pre-assembled components did not offset the lower labour costs of site cut framing". Harman (1991, 38) has recently made a similar point that "when work is short builders can pressure sub-contractors to reduce their charges and so lessen the relative advantages of technology based products" (see also Eyers Report Vol. 1 1978, 109-10).

This also brings in the contentious issue of union strength within the housing industry. In relation to the introduction of new technology, union strength

can be a double-edged sword. It may:

- maintain relatively high labour costs, thus encouraging more efficient and value-added techniques among employers, in an attempt to either heighten productivity per-employee/sub-contractor or reduce labour levels: or
- result in higher costs being transferred to consumers in the form of higher prices for the housing product.

On the other hand, a weak presence of organised labour may discourage the introduction of new technologies, new products and new work methods, due to the relative 'competitiveness' of existing labour (see also Needleman 1965, 101, for a comparison between the United States and the United Kingdom, relating prefabrication to labour costs).

Thus, questions of greater efficiency within an industry sector through the adoption of new products and processes cannot be automatically assumed to flow into an industry. The realisation of an innovative practice is influenced by the structure and organisation of the industry. Factors such as total costs and the relationship between agents or actors in a structure of provision must also be taken into consideration. This project will examine these issues in greater depth.

## Chapter Six

### AGENTS OF HOUSING PRODUCTION: THE BUILDING INDUSTRY

#### **Introduction**

Residential construction *per se* is the most complex process within the housing industry chain of production. This complexity affects both volume builders and small builders alike, as well as different types of building companies, from project to speculative builders and to owner-builders. It is at this point of the industry that the various agents within the structure of housing provision most closely intersect. The complexity of the building function, and its consequences for housing costs, has been described by Lionel Needleman (1965, 114-5):

House-building is a complex process involving the inter-relationship of many interests, occupations and trades. The building owner engages the architect, both deal with the main contractor and the main contractor negotiates with a host of sub-contractors and material suppliers. The work of the painter cannot begin until the internal carpentry and plastering have been completed; the plasterer waits for the tiler, the tiler on the bricklayer and the bricklayer on the excavator. The operations in all these trades use many different materials, which have to be brought to the site in the right quantity and at the appropriate time...The possibilities of delay and inefficiency in so intricately interlocking a process are considerable - but so are the corresponding savings from careful planning of the design and adequate supervision of site work.

In addition to these complex organisational characteristics, the residential construction industry must take into account the volatile demand for the product, evolving demographic patterns within a region, changing market tastes, new technologies and alternative work techniques, not to mention the weather.

Relative to most other industries, the complexity of the building production process has encouraged the persistence of many 'traditional' practices. As Scase and Goffee (1982, 61) point out, while "the work process within many sectors of manufacturing has become highly routinised, there are persisting ambiguities and uncertainties in general building".

Among the most outstanding features of the industry, the most important are:

- the preponderance of the small firm;
- the importance of craft-related production tasks;
- the high degree of subcontracted operations; and
- the regionalisation of markets.

While these features have traditionally characterised the industry, it would be inaccurate to assume that the industry structure has remained uniform over time. As the Housing Industry Association (1990, 82) has observed: "The structure of the housing industry has changed over the past decade. Changes in the number of building firms, the size of building firms, market shares and diversification represent some of the important developments in the house building industry". In addition, the HIA reports that building firms have become more "management conscious" and are embracing new construction techniques and using new materials in an attempt to reduce costs in the highly competitive housing market.

This section examines these changes, taking into consideration different characteristics of building firms, from size of operation through to type of operation.

### **Structure of the House Building Industry**

While published statistics on building activities give an indication of industry trends, they must be treated with caution. The prevalence of small private operations often means that much activity can remain unrecorded. Furthermore, statistics classify activity by trade rather than by industry, and, given the importance of specialised crafts within the residential construction industry, many companies working within the sector conduct work on types of buildings other than housing.

Most home builders, like land developers, function as organisers and co-ordinators of house building projects, and 'hive-off' construction to a variety of specialist subcontractors. While the subcontract system will be discussed throughout this section, it will be analysed in greater detail in the following section.

With this in mind, it has been estimated that private gross fixed capital expenditure on dwellings was \$18.7 billion during 1988-89. Around \$7.5 billion was accounted for by 'alterations and additions'. In the ABS Construction Industry Survey (1988-9), 14 787 companies reported their main area of activity as 'house construction' or 'residential building construction n.e.c.'. In addition, there were 62 949 establishments in 'special trades' associated with the housing industry. These trades include concreting, bricklaying, roof tiling, floor and wall tiling, plumbing, electrical, plastering and plastic fixing, carpentry, painting and a residual category 'special trades n.e.c.'. This provides a total of 70 702 firms. Total employment within residential building and special trades was over 254 000. (It should be noted that the ABS Construction Industry Survey excluded the category of 'owner-builders', as it was considered that these builders were primarily engaged in activities outside the construction sector.)

Fluctuations in the number of building firms reflects the low entry barriers into the industry and significant movement between the status of employee, building employer and subcontractor. For instance, an electrician or painter employed by a subcontractor may decide to become self-employed during an industry upswing, and revert to the status of employee once the business cycle turns around. The capital outlay involved in switching status is minimal, given the lightly capitalised nature of most crafts associated with the housing industry. Likewise, a bricklayer or a carpenter may decide to set up his/her own building company and rely upon subcontracting work out to contacts established previously with other subcontractors.

Thus, changes in the number of firms are often only nominal, reflecting perceptions of opportunities available in a given economic climate, with craftpersons tempted to build on their own account during cyclical upswings and revert back to employee or subcontractor status once the inevitable cycle reverses. As the HIA(1990, 84) has indicated: "The number of building firms fluctuates more or less in line with peaks and valleys in home construction" (see also Bassett & Short 1980, 68).

The 'typical' building company comprises of fewer than five persons (including proprietors and partners) and produces around five houses per year. Out of 8 730 house builders examined by the Bureau of Industry Economics (1990a, 21), 6 234 firms (71%) produced between one and four



houses per year, or 18% of all housing starts in 1984-5. At the other extreme, 97 builders (1.1%) produced an average of 256 houses, representing 34% of housing starts.

In 1989, the largest home building company in Australia, AV Jennings, produced 4 060 houses, or 3.8% of the market share. Combined, the five largest companies accounted for only 9% of the market, while the twenty largest firms shared 20.5% of the market. Only three of the top twenty firms were publicly listed companies. The overwhelming majority of companies are either family-owned or partnerships.

These statistics indicate that, despite the presence of a small number of large companies, the residential construction industry is highly fragmented and characterised by a high degree of competition. However, there are significant regional variations. In 1988-89, the top five companies in New South Wales accounted for 14.9% of the market, while the corresponding figures for other states were Victoria 10.5%, Queensland 8.9%, South Australia 33.6% and Western Australia 36% (ARIP 1989, 7). The HIA has suggested that the South Australian and Western Australian markets are most highly concentrated with the top twenty firms controlling 55% and 50% of the market respectively (HIA 1990, 83). However, this simply may be a reflection of the smaller markets within these states.

The regionalisation of the market can be gauged by the fact that in 1988-89, of the top twenty companies, only AV Jennings operated in all states, while five other companies' geographical spread extended beyond one state. These companies were Hooker Homes (NSW, Vic, Qld, WA), Mansard Homes (Qld, WA), Long Orlit (NSW, Vic, Qld), Pioneer Homes (NSW, Vic, Qld, SA), and Hickenbotham (SA, Qld) (ARIP 1989, 6).

### **Issues Affecting the House Building Industry**

As stated earlier, one of the most significant on-going features of the house building industry has been the preponderance of small firms. However, despite their persistence, small firms have had to adapt to a constantly changing environment. This section will describe the variety of firms involved in house construction and discuss this process of adaptation.

There are cost advantages and cost disadvantages associated with volume builders and small builders. The distinctiveness of their operations is accentuated by the tendency of firms of different sizes to operate in different markets. In a seminar held in 1978 by the Committee of Inquiry into Housing Costs (Eyers Report Vol. 2 1978, 195), Alex Ramsey argued that, for this reason, there is "no optimum size for a building firm, and hence cost savings cannot be made through encouraging large versus small firms..."

On the one hand, large, 'volume', builders tend to dominate the first home to the middle range market (HIA 1990, 83). Volume producers are able to take advantage of economies of scale in production, bulk purchasing of materials, components and prefabricated products, better rates for subcontracting and are in a more viable position to use large scale construction techniques. Their larger labour force also provides advantages associated with specialisation of managerial functions (in contrast with the all-purpose small builder-manager).

Furthermore, volume builders are generally more aware of, and have the capacity to adopt, innovative practices before smaller companies. For example, AV Jennings was the first building firm to introduce prefabricated roof trusses into Australia thirty years ago. These now account for 98% of the market (Harman 1991, 34). It has also been reported that volume builders have better access to financial markets, an important factor in dealing with prospective first home buyers.

However, the apparent advantages of volume producers can be transformed into disadvantages in market upswings and downturns. In the past many a building firm has overextended itself in boom conditions and has been left with large landholdings and dwelling stocks in a deteriorating market. This can leave a company with larger than anticipated overheads and reduced levels of profitability. According to the Eyers Report (Vol. 1 1978, 104), throughout the 1970s volume builders "suffered more than the smaller builders from market instability".

Boom periods can also cause dilemmas for volume builders, through previously negotiated fixed costs in a market characterised by growing scarcity of supplies and rising costs, combined with the problems of finding and co-ordinating scarce labour. Due to the scale of operations, these problems are more difficult for the large volume builder to overcome than

smaller, more flexible, firms. The BIE (1990a, 27) found that, as a group, large builders had poor returns from the boom conditions in the late-1980s.

On the other hand, smaller firms have been successful in carving niches in various sub-markets, especially in the middle-to-upper end of the market. This market has grown over the past decade. The HIA (1990, 83) has argued that small builders have taken advantage of the trend towards trade-up and lifestyle homes.

Small builders possess the flexibility necessary to quickly meet the demands of this more discerning and specialised market (see Ball et al. 1988, 185). As the HIA (1990, 84) points out: "The dominance of trade-up buyers and a weakening of the starter market has reduced the relative importance of stock building of single family detached homes. Trade-up buyers are less inclined to buy 'off the shelf' from a stock builder and are more interested in tailoring their dream home to their own needs".

Furthermore, small builders can operate on smaller overheads than volume builders through lower administrative and organisational expenses. Indeed, as Alex Ramsey pointed out, "many small builders may reduce apparent overheads by operating from home and by failing to include the full cost of their managerial efforts in the pricing of the product" (Eyers Report Vol. 2 1978, 195; see also HIA 1990, 83).

Smaller companies are also less tempted and less able to overexpose themselves in boom times. The ease of entry into, and exit out of, the industry suggests that many small firms find this movement far less painful and costly an experience than larger, more financially committed, firms.

There is a need for more research into the dynamics of small business formation in the Australian housing industry, given the twin phenomena of rapid turnover of firms and the persistence of small entrepreneurs. There is sometimes a tendency in existing literature to view small firms as a 'stage of entrepreneurial development' in the same way, for example, that an acorn becomes an oak tree. For example, the Australian Institute of Urban Studies (1975, 21) claimed:

In the housing industry, the average building firm is small and has the typical attributes of small firms, namely their short life; and bankruptcies are frequent. The essential point about the small firm is that it is small because it is a beginning and, with all beginnings, there are some which improve and become larger, and some which do not.

However, evidence gathered from Britain by Scase and Goffee (1982) suggests that many small businesses within the industry choose to remain small, regardless of whether they 'improve' or not. Small entrepreneurs (such as the self-employed, small employers, owner controllers and family-owned firms) may not operate on the same dynamics as larger firms. They may deliberately constrain their growth in order to preserve certain advantages associated with small size, such as greater control over the pace of work orders, self-reliance and direct control over all aspects of their company's operations. It can be argued that at a certain level of activity and growth a small entrepreneur has a choice either to remain small or to transform the firm organisationally into a medium-sized operation with a more complex division of labour.

Given the high degree of variability and diversity possible in the housing product, small firms are able to satisfy niches which might not be as appealing to volume builders with their cost advantages arising from economies of scale. Small builders are also able to provide a more personalised service.

While volume builders dominate the first home market, this segment accounts for only a limited proportion of overall new-build demand. According to Banks (1985, 43), less than half of first home buyers purchase a new house. However, he also argues that "First Home Buyers not only buy houses for themselves but by ending housing chains, they enable existing owners to trade up or down and so generate demand for new houses".

Paris (1984, 10) has also pointed out that: "High quality, expensive dwellings, aimed at existing owners who want to trade up, are of increasing importance to the housing construction industry". Other important sectors of new-build housing demand include investors, the holiday home market and retirement accommodation, or 'last home owners' (Auld 1985, 55).

The challenge facing the volume builders will be to harness their strengths in economies of scale with the flexibility and product diversity demanded in the trade-up market. Indeed, according to the HIA (1990, 84), "a number of the

larger project builders have diversified into this market segment by acquiring custom home building companies and by establishing smaller specialised divisions".

Evidence also suggests that many companies are extending their operations, not only through diversifying across markets and market segments within the building industry, but also through diversifying away from their core activities and engaging in land development, light industrial and commercial ventures, alterations and additions, or integrating backwards with building suppliers. The 1989 HIA Member Survey revealed that 60% of respondents were involved in other activities which accounted for more than 25% of their aggregate turnover (HIA 1990, 85).

The alterations and additions segment of the industry may be particularly important in this respect. The IPC (1990, 5) estimated that "capital expenditure on alterations and additions accounted for 43% of private investment in dwellings" during 1989-90. Kilminster and Walker (1984) have argued that actual levels of expenditure in this sector could be considerably higher than official statistics suggest. They estimated that employment in the home improvement sector was around 40 000, or 11% of the construction industry workforce. They also argued that there did not "appear to be a high degree of mobility between the home improvement sector and other segments of the construction industry". However, taking into consideration the fact that expenditure on alterations and additions has increased during the 1980s, and also the tendency for the segment to be less cyclical than new-build housing activity, it would be useful to have more information on the extent to which companies have diversified into this field.

Another important trend within the housing industry has been the reduction over the years in the number of houses built on a speculative (or spec.) basis, relative to houses built on a contract basis (see Hutton 1970). In the language of post-fordism, spec. builders 'push' their product onto the anonymous market in the hope of meeting demand. If demand is at saturation point, then spec. builders are faced with high holding costs and face the possibility of severe cash flow problems, due to capital being tied up in unmet demand for their expensive product.



The alternative is the practice of 'pulling' a product onto the market in accordance with demand through securing a contract with the customer prior to construction. This generates an immediate sale on completion of the project and saves builders the anxiety of judging whether they have delivered the right product at the right price at the right time to the market. This practice also keeps holding and inventory costs to a minimum.

'Project' building and 'speculative' (or 'forward') building represent two opposing 'ideal types' of corporate strategies adopted by building firms.

Project building is more representative of the market 'pull' strategy. It offers a variety of standard designs for prospective buyers who have obtained a block of land. These designs may be viewed either 'off the board' or in the form of display homes. After variations in design are agreed upon, and the site conditions examined, a price is agreed upon and a contract signed between the builder and the client. Contracts generally state a fixed price and construction time-frame. Often clients are obliged to provide a number of progress payments throughout the course of construction, while the builder arranges the necessary building insurance and approval. The builder, acting as the main contractor, then arranges the purchase of materials and the subcontracting of specialist trades to undertake the construction work.

Spec. builders, on the other hand, push their product onto the market. They will purchase a block of land and build the dwelling, usually on a subcontracted basis. Spec. builders must rely more heavily upon their own understanding of market demand. Often the spec. home will be advertised during construction in an effort to realise a sale as soon as possible, thereby reducing holding costs. If a spec. builder is left holding the finished stock, one alternative is to rent out the house in order to maintain a cash flow and recoup part of the holding costs.

Alex Ramsey (Eyers Report Vol. 2 1978, 197) has listed four advantages held by project builders:

- they obtain a guaranteed sale on completion of the project;
- project building requires a much lower level of funding during construction time, through progress payments from the client. Indeed, it has been argued that "a well-managed project home can generate a positive weekly balance" (Travers Morgan 1991, 46);

- the builder is freed from the cost of buying the land and paying rates, allowing management to be concentrated upon the actual process of construction; and
- the full profit from the operation is realised immediately after completion and settlement.

On the other hand, spec. builders take advantage of a market niche where clients are unwilling or unable to become involved in land purchasing and seek a 'ready to occupy' land and house package. In addition, despite the fact that a spec. project generates a negative weekly balance through land and construction holding costs, spec. builders often operate on economies of scale, thus ultimately off-setting higher holding costs. They can purchase land and materials in quantity, are able to control work schedules through setting the commencement time of projects, and their control over location provides an opportunity to rationalise travel time between different projects, helping to reduce lead times.

Spec. builders also tend to dominate the investor market. As the HIA (1990, 84) explain: "In contrast to the detached housing market, speculative building of medium and high rise units is still very common and likely to remain so. The importance of rental investors in this sector reduces the requirements of customised units".

While many commentators have claimed that the trend away from spec. building has been accelerating over the past decade, it is useful to place spec. building in historical perspective. According to John Hutton (1970, 87):

Immediately after the war, when the pent up demand for housing was particularly acute, most dwellings were erected by small local builders on a speculative basis. As total demand grew and the capacity of the industry expanded, speculative sub-division and home building operations became more perilous. Few small builders had sufficient finance or credit to risk holding unsold land and dwellings on their hands. From the late 1950's onwards, many small local builders either went out of speculative home construction entirely or turned themselves into project home builders, attempting to secure orders and arrange finance for individual home construction before actual building work commenced.

In reality, many companies operate both as project builders and spec. builders, varying their spec. proportions according to their perception of market demand. However, it may be hypothesized that periods of increased market

volatility pose significant problems and dangers for highly geared companies, and make firm orders even more attractive than speculative ventures.

Recently, there has also been a growth in joint ventures between financiers, builders, land developers and/or State Government schemes to provide house/land/finance packages aimed at the first home buyer. These schemes combine features of both project and spec. building. As the Travers Morgan Report (1991, 46-7) notes, these schemes present numerous advantages to builders:

- Capital is not tied up in land;
- overheads are minimised;
- sales are secured before or shortly after building commences;
- management can be concentrated on construction while marketing is left to other parties involved in the venture; and
- stamp duty only affects the sale between the land owner and the final customer.

Another form of building which should be mentioned is 'owner-building', defined by the ABS as "persons other than recognised builders who are erecting buildings owned by themselves (principally their own home) without the services of a contractor responsible for the whole job". Owner -building is common in most Third World countries (Ward 1982), but is also the most prevalent form of construction in some advanced industrial countries, such as 'West' Germany (Ball et al. 1988, 177-8).

Immediately after the Second World War, the shortage of skilled tradespeople and builders, combined with high demand for dwellings, encouraged a high level of owner-builder activity. However, owner-builder rates dropped from 44% of private house construction in 1956 to under 15% by the early 1970's. There has since been a reversal of trends, with 25.9% of houses being owner-built in 1985 (Travers Morgan 1991, 48-9; see also Neutze 1978, 165-6).

One significant change in this form of provision relates to the nature of the owner-builder. Whereas a high proportion of owner-builders immediately after the war were on lower incomes building modest houses, recent owner-builders have tended to construct larger homes than contract built homes. This could suggest that a proportion of the trade-up or custom market has been absorbed by the owner-builder (see Travers Morgan 1991, 48-9).

While many owner-builders reduce their costs through personally undertaking some of the construction work, such as painting or labouring, most simply act as the purchaser of land before organising the production stage through subcontracting specialised trades.

The trend towards prefabrication, and the resulting deskilling of on-site construction, places more tasks within the competence of owner-builders (as does the availability of kit homes where the main prefabricated structural elements are delivered on-site for erection). These technological changes, along with estimates that owner-builders can achieve cost reductions of up to 30% compared to similar products built through contracting a builder (Travers Morgan 1991, 93), should ensure that the owner-builder market will remain an important niche in the future. However, if, as evidence suggests, owner-builders tend to be trade-up buyers, this may limit the potential of owner-building as a significant alternative form of low cost owner-occupied housing. There is clearly a need for a greater understanding of the nature of the owner-builder market.

This section has outlined the structure and organisation of the sector of housing provision directly involved with housing construction. The Australian housing literature suggests that a number of important changes have occurred within the residential construction industry. A number of key issues and problems have been identified. These include:

- if instability within the residential construction industry has increased, how have building companies responded to this problem;
- if markets are becoming more diversified, how have companies responded to meet this demand;
- to what extent have altered market conditions affected marketing techniques;
- what are the costs and benefits associated with diversifying company operations;
- how have companies responded to the appearance of new products, processes and technologies and what factors have encouraged or inhibited their adoption;
- have any innovative techniques been introduced in an attempt to keep lead-times to a minimum;

- what other forms of flexibility have been introduced;
- have changes within the industry heightened the need for higher managerial and entrepreneurial skills.

Responsiveness to change is an important indicator of an industry's efficiency. If (as the BIE claim) the recent past has been characterised by more 'dynamic instability', then there is a need to examine how existing companies have adapted to the altered environment through measures which contain building costs.

In addition to the issue of volatility, there is a need to explore how building firms have responded to the growing diversification of the product market. The comments by Ball et al. (1988, 189) on the European market may also apply to conditions facing Australian builders:

Gone are the days of chronic housing shortage and plentiful funds to tackle them. Builders can no longer expect to see continually expanding markets. They have to be capable of spotting ever-shifting market gaps, and of finding new ways of encouraging clients to undertake housing developments or of inducing purchasers to buy their houses.

It can be argued that, for firms and industry associations, this trend towards market diversification raises the importance of monitoring changing demographic profiles and changing consumer tastes (Judd et al. 1985).

Related to these changes, the project will also examine the issue of entrepreneurial and managerial skills, and the administration of projects through individual cost control systems. The existing literature suggests that improved management capacity is an essential ingredient of success in a tighter economic climate. This includes systems relating to inventory control and linkages with suppliers and clients.

The project will therefore also examine how different types of builders, from project through to spec., organise and schedule work most efficiently. For example, the search for shorter lead times is crucial to the lowering of housing construction costs. During boom times, they can increase to 20 weeks, compared to flat periods where lead times of 10 weeks can be achieved (Travers Morgan 1991, 88).



In addition, the project will also explore new construction systems which introduce greater flexibility into the construction process. These include both work reorganisation and subcontracting, on the one hand, and the application of new technologies and materials on the other. Central to this concern is the rate at which new technologies are diffused through the industry, and factors which encourage or inhibit the adoption of new processes and products.

Another issue relates to the costs and benefits of the broader concept of corporate restructuring, including specialisation and diversification. On the one hand, the more diversified nature of the housing market provides growing opportunities for many small companies to exploit and specialise in various market niches. On the associated issue of diversification within companies the project will examine the costs and benefits associated with diversification and also joint ventures between companies in the structure of housing provision.

## Chapter Seven

### AGENTS OF HOUSING PRODUCTION: SUBCONTRACTORS

#### The Organisation of Subcontracting

One of the most significant features of the structure of the house building industry is its peculiar method of work organisation. This involves building firms (whether large or small, project or spec.) 'hiving-off' or subcontracting the specific trade operations specialist firms. This pervasive feature of the house-building industry merits separate attention. The following section examines the function of subcontracting, its evolution as well as the benefits and costs associated with this form of work organisation.

Generally, building firms act as co-ordinators and administrators of a house-building project and rely on the services of subcontractors to undertake the actual process of production. The fluctuating and uncertain nature of the market makes it more cost effective for a building firm to contract the services of tradespersons as and when required, rather than employing them on a permanent basis.

Most builders, especially small builders, do not possess the volume of work to employ permanently specialist tradespersons as wage labourers, given the variety of tasks required on a project and the small proportion of time each specialist task absorbs relative to total construction time. The Bureau of Industry Economics (1990a, 22) study on industry volatility claimed that the characteristics of the industry:

make conventional employer-employee relationships between the builder and the various trades costly and impractical. It is not cost effective for the builder to be permanently on site to check the time worked, the quality of the work, or to ensure the necessary tools and equipment associated with the particular trade is available on site when the tradesman arrives, sometimes for minor work requiring little time on site.

Factors which encourage the proliferation of trade subcontracting firms within the industry include:

- the variety of specialist trade tasks involved;
- the labour-intensity of these work tasks;
- the fluctuating nature of the housing market;
- the prevalence of the small building firm; and
- the fact that around 80% of work on residential building is undertaken by specialist trade contractors.

Generally, building companies subcontract all building functions from the 'starting trades', such as bricklaying and carpentry, through to the 'finishing trades', such as plastering and painting. Larger companies often employ permanently a limited number of tradespersons for maintenance tasks.

The main form of subcontracting is the 'labour only' contract, where the builder provides the building materials or components, and the subcontractor provides the necessary trade skills. In most cases, the subcontractor will also provide specialised trade tools and equipment. The other form of contract involves 'supply and fix', where the subcontractor purchases the materials, in addition to supplying the labour and tools. Alternatively, a builder will purchase materials from a building supplier or manufacturer, who will arrange the fixing through an authorised tradesperson. This is most common in roof tiling and plasterboard fixing. Figure 1, produced by Cummings (1986, 8), describes the complexity of the subcontracting relationship in the housing industry.

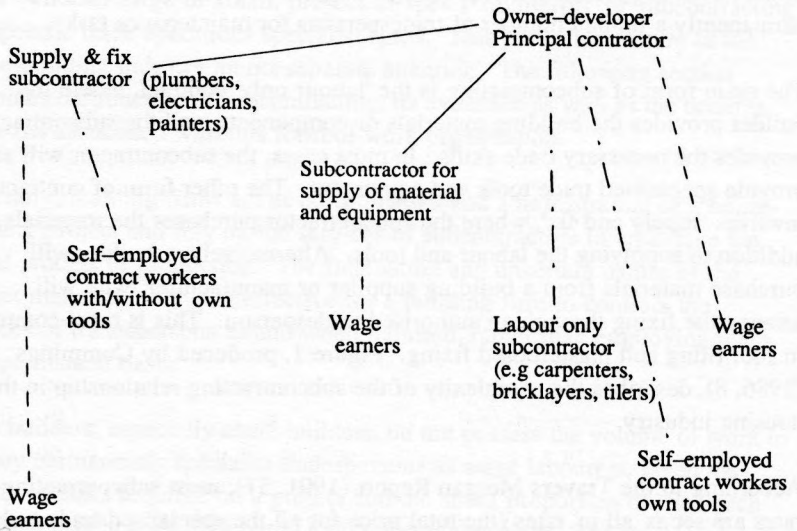
According to the Travers Morgan Report (1991, 51), most subcontracting rates are set as 'all in' rates (the total price for all the specialised trade tasks on a project) rather than piece work rates. However, some tasks, such as bricklaying, are more amenable to piece work rates than others. The report argues that the reason for the prevalence of this payment system is that it "simplifies negotiations, calculation and administration, and also reduces the risk of the work being deemed employment rather than contracting".

While subcontract rates are generally specified by the builder, they have varied historically according to demand in the housing market. In boom times, rates tend to increase while during slumps they either stabilise or decline. For instance, rates for bricklaying in Sydney increased by 60% during the 1987-88 boom (ARIP 1989, 51). Increases in rates reflect growing labour shortages experienced by the industry during periods of rising housing

demand. Slumps result in greater competition between subcontractors and, consequently, builders are in a better position to take advantage of lower rates.

**FIGURE ONE**

**Subcontracting Relationships within the Housing Industry**



————— contract for service  
 - - - - - contract of service  
 - . - . - . ambiguous, employment relationship disguised as contract

Despite the independent status of subcontractors, builders prefer to retain those they know to be reliable and who are able to provide the required quality. The consequence is that, over time, the relationship between builders and their principal subcontractors tends to become 'permanent'. For example, some builders interviewed in the Travers Morgan Report (1991, 50) had retained the same subcontractors for over a decade. While no future contracts are ever guaranteed, this permanency fosters 'mutual efficiency' between partners, in that the subcontractor minimises the time spent searching for work and the builder has a better guarantee of the quality of the work paid

for. The BIE (1990a, 22) has argued that:

both the builder and the subcontractor benefit from a 'permanent' relationship. This generates a close working relationship between many builders and their subcontracting trades. The relationship offers many of the attributes of conventional employer-employee relationships (ie. stability and continuity of work) while recognising the special nature of the 'site based' technology used.

For the builder, it should also be noted that the relationship provides the added advantages of reducing overheads and other obligations which characterise the wage-labour relationship.

Finally, subcontractors tend to be paid weekly, although the Travers Morgan study (1991, 51) reported that some builders "were considering changing this to fortnightly payments to improve their cash flow". There is therefore a need to assess how this advantage to the builder affects the costs of subcontracting firms.

Like the building firms, specialist subcontracting firms are overwhelmingly small in size. Using ABS data from the 1988-89 Construction Industry Survey it is possible to divide the number of trade establishments by employment. This provides an indication of the average size of firms. Care must be taken however, in interpreting this data, for some trade establishments do not operate within the residential construction sector. Alternatively, the housing sector may account for only a proportion of other establishments' business.

Given these qualifications, a general picture emerges throughout the building trade of the predominance of firms employing under five persons. The averages for the trades recorded are concreting 4.1, bricklaying 2.8, roof tiling 3.6, floor and wall tiling 2.1, plumbing 3.5, electrical 4.4, plastering and plaster fixing 3.6, carpentry 2.4, painting 2.8 and special trades n.e.c. 4.3. This picture is supported by HIA findings (1990, 83) that around "three quarters of the establishments have employment of less than five persons (including partners and working proprietors)." The HIA also warn that this proportion is probably understated, considering that many of the establishments in the statistics with unrecorded employment figures would also employ under five persons.



### Issues Affecting the Role of Subcontracting

An important characteristic of trade subcontracting firms is that they tend to be highly mobile, possessing skills that are transferable across industry sectors, rather than being industry specific. During periods of market depression, subcontractors can remove themselves from new-build residential construction and enter other sectors such as non-residential construction or the alterations and additions sector (see IPC 1990, 13). The growth of this latter segment provides relief for subcontractors from dependence upon the building contractor. However, in relation to the costs of new-build housing, this transferability means that the demand for labour in other sectors becomes important in determining subcontracting rates, and, consequently, building costs.

Low rates of unionisation also characterise subcontracting within the Australian residential construction industry and its subcontracting firms. In this respect, the Australian industry resembles the British industry (see Austrin 1980; Ball 1983). A number of commentators have argued that this has left the industry relatively free of demarcation and other industrial disputes, and allows subcontractors to achieve high rates of reward for working long hours (see MB-CHAA 1989; HIA 1990; DITAC n.d.). However, this feature is not universal. For example, Danish subcontracting gangs are highly unionised (Ball et al. 1988, 196).

While subcontracting has been a traditional feature of the industry, it appears that this form of work organisation has been extended to a growing variety of areas since the Second World War. The number of persons classified as contractors fell from 13.7% in 1946 to 9% in 1977, while the number classified as subcontractors rose gradually from 12% in 1946 to 16% in 1962, 20% in 1968, 23% in 1974 and 27% in 1977. Wage and salary earners on the other hand declined from 76% in 1962 to 64% in 1977 (Hutton 1970, 81; Evers Report Vol. 1 1978, 148; Neutze 1978, 164-5; Cummings 1986, 39).

Twenty years ago Hutton (1970, 81) argued that these changes in work organisation suggested that "whereas immediately after the war the average building contractor employed a substantial number of regular tradesman, today he increasingly relies on financially independent sub-contractors for the organisation and carrying out of many types of basic building work".

This Australian trend appears to mirror the tendencies noted by Ball et al. (1988, 176) in their comparative international study, which linked these transformations to changes in managerial techniques:

Housebuilders in the years of the long boom were keen to use their workforce intensively. The interlinked issues of pace of work, discipline and productivity structured site relations. In the main, construction companies followed the fashionable management strategies of the day: the growth of detailed work study in the 1950s and 1960s, superseded by the more flexible incentive schemes and a growing reliance on subcontracting and 'just-in-time' dovetailing of materials, equipment and specialist gangs of workers in the 1970s and 1980s.

It could also be argued, using this line of reasoning, that the transformation of work organisation also reflects the failure of 'productionist' or 'fordist' systems of construction, and the demand for more 'flexible' 'post-fordist' systems of work organisation to meet the challenge of more diversified markets during the 1980s and 1990s. For example, the problematic relationship between prefabrication and on-site labour (which was discussed earlier) highlights the complex relationship which exists between new technology, work organisation, profitability and cost reductions.

Subcontracting offers a number of significant advantages for builders in contemporary markets. It assists in reducing construction lead times, due to the general acceptance of subcontractors to work longer hours than if they were direct employees of the builder. Studies in the 1960s indicated that construction times could be reduced by as much as 10% to 20% using subcontracted labour (Hutton 1970, 82).

Furthermore, if, as some claim, the industry has become more volatile, it could be argued that builders have responded by becoming more conscious of the need to reduce their fixed overheads, and the need to submit more accurate tenders for a building project. Given the prevailing practice of fixing rates in advance, subcontracting allows builders to achieve this goal with greater certainty.

In addition, while many subcontractors are used by builders on an almost permanent basis, the independent status of the subcontractor reduces the

builders' risk during market depressions by rationalising labour costs. From the builders' perspective, therefore, subcontracting provides the dual advantages of greater organisational flexibility and the financial benefits of reduced overheads.

Ball et al. have claimed that a relationship exists between the growth of subcontracting, new managerial strategies and the demands of the contemporary market. They argue that "the combination of more subcontracting and tighter site procedures have enabled producers to minimise the working capital required for production, and, in the case of speculative house sales, enabled producers to gear production more closely to sales achieved" (Ball et al. 1988, 186).

While speculative building appears to have declined in the Australian context, studies suggest that the subcontracting relationship has helped builders to contain their costs. For example, the Bureau of Industry Economics (1990a, 20) has argued that much of the burden of "adjusting to cyclical instability is transferred to the subcontractors, who may be better placed to bear it". Cummings (1986, 43) has also reported that "a major contributing factor to the growth in subcontracting in the housing industry is the economic advantages to employers of a flexible and mobile workforce".

While the BIE does not state the reason why subcontractors are better placed to bear these burdens, one factor may be their ability to transfer their skills out of the housing sector during cyclical downturns. This factor, however, highlights one of the major disadvantages inherent in the subcontracting system: the inability of the industry to ensure the entry, and re-entry, of a sufficient supply of labour into house-building during upswings, and the longer term retention of skilled tradespersons.

A number of commentators have voiced concern that the combination of industry instability and the nature and role of subcontractors have inhibited adequate levels of apprentice intake and skills retention within the housing sector. This problem has been a longstanding source of concern in the industry. During the 1960s Hutton (1970, 82, see also Ch. 10) pointed out that "the weakness of subcontracting is that, in most cases, it makes no provision for the adequate training of apprentices".

In its submission to the 1978 Report of the Committee of Inquiry into Housing Costs, the Department of Employment and Industrial Relations listed "instability, the high cost of apprenticeship training and the predominance of the subcontracting system" as major factors accounting for reduced levels of apprenticeship intake during the 1970s (Eyers Report 1978, 147). Furthermore, the Eyers Report (1978, 117) considered that the "conservative character" of the subcontract system acted "as an impediment to the introduction of novel techniques".

This concern has continued to be expressed throughout the 1980s and into the 1990s. The Indicative Planning Council for the Housing Industry's 1988 Resource Report (1988, 22) noted:

The level of apprenticeship training has been limited by the cyclical nature of demand in the construction industry, the long indenture periods and by the small size and specialist nature of many subcontracting firms...While training intakes move up and down with the state of the industry, the cycles in housing activity are frequently shorter than the required indenture periods. Therefore, self-employed contractors and small firms tend to be less willing or able to take on apprentices.

The recent Travers Morgan study (1991, 92), while reporting favourably on the subcontracting system, also conceded that labour needs within the industry "are hard to predict and the problem is compounded by subcontracting and the industry's instability".

In relation to the cost of housing, there appears to be a growing dilemma for builders. While it has been reported that cost savings can be achieved through the more 'flexible' subcontracting system (relative to prefabrication) the very nature and function of subcontracting makes it difficult to provide an adequate supply of labour.

The problem appears to be compounded by the ageing of the subcontracting workforce (Travers Morgan 1991, 92), low levels of training and apprenticeship intake. The cyclical nature of the industry has traditionally discouraged an adequate level of apprentices.

A wide range of policy options have been suggested recently to overcome these problems (see MB-CHAA, 1989, 16-8). Furthermore, initiatives, such

as group incentive schemes and shorter indenture periods, have been implemented in an attempt to address this dilemma and make the apprenticeship system more responsive to the longer term requirements of the industry (DITAC n.d.).

Over the past decade, collective organisations representing a variety of interests have continued to debate the costs and advantages of the subcontracting system. In addition the system has been subjected to government scrutiny.

In 1979 a Commission of Inquiry into the Nature and Terms of Employment in the NSW Housing Industry was established. Commissioner Burns handed down findings which supported the view that the system operated to the advantage of consumers, as well as being the most cost-effective for the industry. It recommended that the subcontract system remain.

In June 1981, the Department of Housing and Construction, the Housing Industry Association and the Master Builders' Federation of Australia (1981) released a joint paper which voiced concern that the system was under threat from the union movement, as well as from deficiencies within the legislative framework, which had consequences for the legal position of subcontractors as independent operators. The report listed seven advantages of the subcontract system which, they argued, contributed to overall efficiency within the housing sector:

- it generated competition, as tradespersons could enter the sector with minimum capital outlay;
- it allowed motivated tradespersons to increase substantially their earnings through relating income more closely with their actual time worked and with their efficiency;
- it reduced contractors' overheads, such as supervision, administration and clerical duties;
- relative to direct employment, subcontractors had greater incentive to solve on-site problems quickly, due to the fact that they were not paid for resulting delays;
- subcontract prices were fixed by the market, rather than through the collusion of a few main contractors;
- it encouraged the geographic mobility of skills and labour, as regional subcontracting prices varied according to demand; and



- unlike other sectors of the construction industry, the housing sector was relatively free from industrial disputation, as subcontractors were bound to the contract entered into with the main contractor.

More recently, the Master Builders'-Construction and Housing Association (1989, 14-5) has argued that home-buyers have been shielded from the effects of industry volatility partly through the operation of the subcontract system, which has kept housing cost increases down to a minimum. In its 1990 Annual Report the MB-CHAA's National Housing Council (1990, 6) reaffirmed this position on subcontracting, stating that it opposed any moves "to reduce the efficiency of the subcontract system".

The Housing Industry of Australia recently also reaffirmed this stance on subcontracting. They argued that, along with the competitive nature of the industry, the subcontracting system has secured "a high degree of efficiency and productivity in the industry" (HIA 1990, Ch. 4). Their argument that subcontracting kept costs in check reiterated the points made in the 1981 joint paper they authored with the Department of Housing and Construction and the Master Builders' Federation of Australia. On this basis, the HIA argued that "it is essential that the flexibility of the subcontract system be retained if we are to meet (future) demand in an efficient way at the lowest possible cost" (HIA 1990, 23).

The recent BIE study (1990a, 22) on industry instability also reported that most of the builders interviewed in the study "felt the subcontract system was absolutely vital to low-cost housing. They were concerned that threats to the subcontract system would ultimately decrease housing affordability and so impact on demand". The Travers Morgan Report (1991) also supported these claims (see for example p. 53).

However, a number of commentators within a political economy framework have questioned the overall efficiency of the subcontract system. For example, John Short, has argued that the system helps to perpetuate low rates of productivity: "Because of fluctuating demand there is a great deal of subcontracting in the construction industry and a lack of investment. This allows opportunity for small firms that rely on subcontracting and need little by the way of large capital investment to start up" (see also Austrin 1980; Ball 1983; Ward 1985, Ch. 7).

In the Australian context, Stilwell (1980, 64-5) has voiced this concern regarding levels of skill formation. He also questioned the benefits which have accrued to workers through the growth of subcontracting. As a consequence of this particular form of work organisation there was a tendency:

towards an increased exploitation of labour; harder work minus the conditions won by the organised labour movement. The crisis in the industry, encouragement of subcontracting by employer groups, and the lack of security and employment for building and construction workers has produced a situation where there is greater competition among workers for the few jobs that are available.

In a study of 'non-standard' employment practices in Australia, Cummings (1986) also addressed a number of negative consequences associated with the subcontract relationship. These included the potential for income and payroll tax avoidance, avoidance of workers' compensation, evasion of industrial award conditions, lack of training provisions and inadequate health and safety provisions (pp. 45-7).

While acknowledging reports that the Australian cottage construction industry was extremely efficient by world standards, Cummings posed the question: "Efficiency - at whose cost?", and argued that "this high productivity is gained at a price which is often not easily quantifiable". She claimed (1986, 48) that:

The highly competitive and unregulated nature of the industry increases pressures on subcontractors to exploit themselves, benefiting the employer and sometimes the consumer at the workers' long-term expense. This is done through pressure to work long hours, to use family labour, to work under dangerous conditions or to take shortcuts resulting in inferior work. A more disguised form of exploitation occurs as large increases in productivity achieved through specialisation and intensification are not reflected in contract rates. In some cases the contract worker may be paid more in total but always much less per unit of production.

Many of these issues have been raised by the organised labour movement, particularly by the Building Workers' Industrial Union (BWIU). However, employer organisations have consistently opposed increased union involvement in the housing sector.

The MB-CHAA (1990, 6) has argued that such a move would increase the costs of housing to the consumer through introducing greater rigidities into the work process. In addition they argue that other initiatives aimed at benefiting consumers and improving efficiencies (such as improved training systems, better and more efficient land supply and Green Streets projects) "will be undermined if unions are allowed to penetrate the housing sector".

A number of commentators have noted that rates of unionisation vary in accordance with the form of dwelling construction. Union coverage tends to be much higher in attached housing and unit construction (sometimes referred to as 'commercial' sites) than in cottage construction. It has also been claimed that labour rates on commercial sites are significantly higher than on detached housing sites (Bell & Dean 1991, 14; Travers Morgan 1991, 106-10). It may be the case that these cost differentials influence builders' decisions to construct one form of housing over another. This is an example of how the organisation of the housing industry can affect not only the cost of the housing product, but also the variety and available choice of the product.

The union movement has recognised the important role of subcontracting in the housing sector. They have emphasized that their aim is to reform the system. In particular, the BWIU (1982, 5) has argued that a distinction should be made between different types of self-employed subcontractors according to whether the contract between the parties is one of a contract for services between contractor and subcontractor or, alternatively, a contract of service between employer and employee. The former category involves "independent self employed sub-contractors who conduct their own business and obtain and carry out work as part of that business and who are usually paid a total price for the job". The latter category involves "self employed sub-contractors (contract workers) - who are not employed in terms of an industrial award, but who work on a price that is usually based on an amount per unit of production (ie., square metre, lineal metre etc.) and who do not conduct their own business, but who operate as part of the business of others".

Figure 1 demonstrated that contracts within the building industry often can be ambiguous. The BWIU (1982, 5) has sought to protect workers who fall within the latter category:

In respect of sub-contractors who genuinely carry on their own business, the trade union movement does not seek any change in current practices and does not seek to have their prices regulated by a Tribunal, but in respect of those other self employed sub-contractors (contract workers), it strongly recommends that an appropriate Tribunal be established to fix by Arbitration, minimum contract prices that are legally enforceable.

This section has examined the significance of subcontracting in the structure of Australian housing provision. While this form of work organisation has always been an important aspect of the industry, it has grown over the years as builders have attempted to introduce greater flexibility into their work organisation. The volatile nature of new-build housing demand, combined with the other features of the industry which encourage small business formation (Scase & Goffee 1982) will ensure that subcontracting remains a central feature of the structure and organisation of housing provision in Australia.

## Chapter Eight

### CONCLUSION

This paper has had two principal objectives. Firstly, it explained the focus and the theoretical underpinnings of the project. Secondly, it described the structure of the various industry segments which form the basis of the project and discussed a variety of issues which will be addressed in the course of the fieldwork.

The literature review showed that despite the growing concern over the issue of housing costs, most commentators have concentrated their attention on the demand side of the housing cost equation. Much less attention has been devoted to the structure and organisation of the housing industry, especially the production of housing.

The paper then reviewed overseas and Australian literature on housing supply. While there have been no comprehensive analyses of the production of housing, existing evidence suggests that a variety of forces have affected the structure and organisation of Australian housing provision. Furthermore, this evidence also suggests that there is a need to examine how actors within this environment are responding to changing circumstances. The view that nothing changes within the industry may well need significant qualification.

It can also be argued that many of the changes occurring within the industry in many respects bear a resemblance to changes throughout industry more generally. The paper discussed these changes in the light of recent comments made by organisational theorists and industrial sociologists on the 'flexibility debate'.

The remainder of the paper then examined in greater detail the literature on changes affecting various sub-sectors central to the structure of new-build housing production. These included the land development industry, the building materials industry, the construction sector of residential dwellings and trade subcontractors.

This literature identifies a number of key issues and problems which affect the cost of housing. These include:



- the role of the state in reducing land development costs through improvements in land supply and approval processes;
- the effect of land developers' reassessment of corporate strategies to reduce the risks associated with land holding and the potential for reducing lead times for serviced land;
- the ability of the building materials sector to apply flexible manufacturing techniques which can respond to the instability within the housing sector without incurring the costs associated with high inventory levels and stockouts;
- if (as many commentators have claimed) instability within the residential construction industry has increased, then what costs have builders incurred;
- what measures building companies have adopted in response to growing volatility;
- what measures building firms have taken in response to more diversified market conditions;
- what factors have encouraged or inhibited increasing the choice of the housing product;
- what advantages and disadvantages have been associated with diversifying building company operations;
- what factors have inhibited or fostered the adoption of new products, new processes and other new technologies;
- the role which the adoption of micro-electronic innovations and computerisation can perform in lowering company costs and fostering better channels of communication between companies throughout the housing chain of production;
- the effect of other innovative techniques introduced in an effort to increase operational flexibility and efficiencies;
- whether changes within the industry have heightened the need for greater managerial and entrepreneurial training.

These issues affecting the structure of housing provision bring into question many of the 'traditional' features of the industry and bring into focus the significance of change within the industry. More importantly for the current project however, is the possibility that these changes, and builders' responses to changes, may have implications for the cost structure of housing production.

The literature also suggests that there are a number of more traditional characteristics of the industry which need to be addressed in order to assess the ability of the existing structure and organisation of housing provision to supply accessible, affordable low-to-medium priced housing. These include:

- levels of industry concentration along the housing chain of production;
- the relative advantages and disadvantages of different size builders;
- the relative advantages and disadvantages of different types of builders;
- the role of subcontracting;
- the ability of the industry to retain an adequate supply of tradespersons;
- the ability of the industry to continue encouraging small business formation at the building materials, builder and subcontractor levels;  
and
- the role of the union movement in the housing industry.

Agents of housing provision are having to reassess their business or corporate strategies in response to the changing environment. Furthermore, it can be argued that these responses have implications for their relationships with other companies along the housing chain of production. There is also a need to examine the extent to which the effectiveness of these responses is conditioned by the existing structure of these relationships.

In sum, the overall aim of this preliminary assessment of the patterns and consequences of new structures and social relations of housing provision has been to generate discussion on the potential for cost reductions in housing production and identify areas for future research.

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