Attachment 14.4

Dwelling Start Forecasting Methodology

A report by BIS Shrapnel

2016/17 to 2020/21 Access Arrangement Information

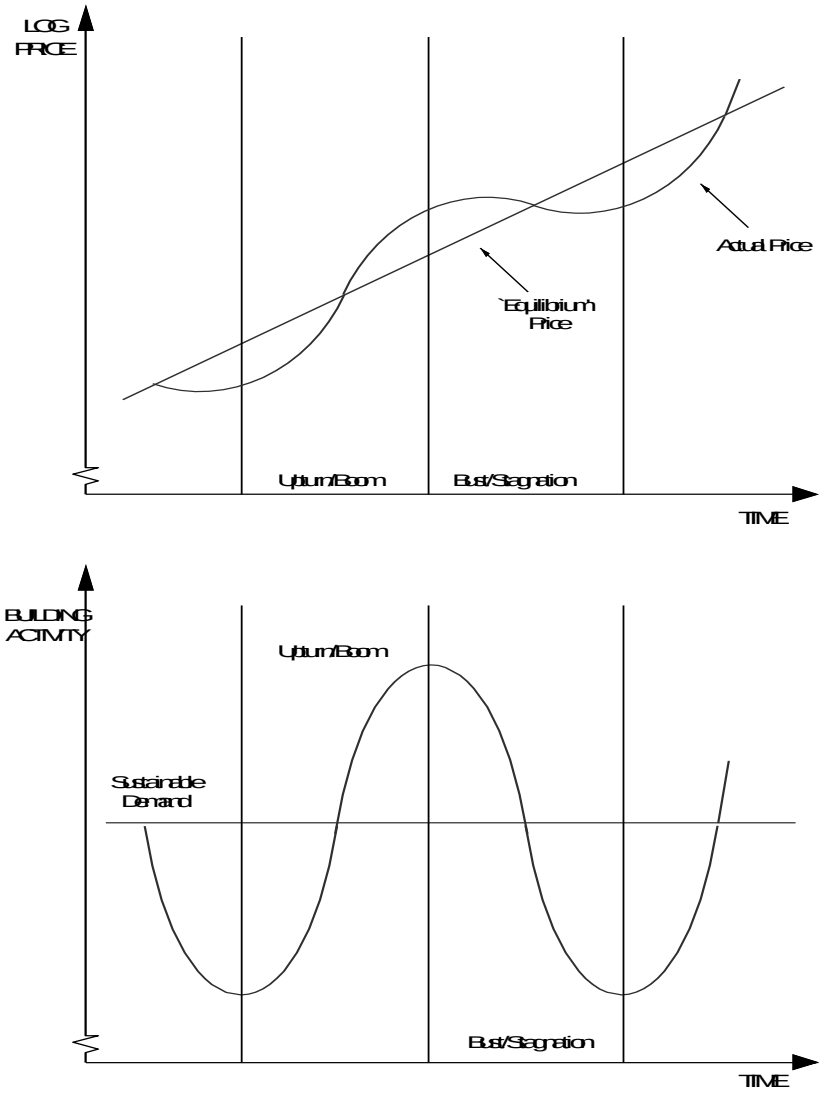
Australian Gas Networks

1. DWELLING FORECAST METHODOLOGY

1.1 Underlying theory

Building activity follows a shorter-term cycle around an underlying longer-term trend. Our forecasting process seeks to separate the long-run structural influences on building activity from short-run cyclical swings. Actual activity levels in each building sector tend to cycle around long term trend sustainable levels with a corresponding cycle in prices. In the short term, the cyclical element dominates the underlying influences on activity levels. However, over time, the short-term fluctuations even out to the long-term level (Chart 1).

Chart 1: Price and activity in the building investment cycle



The short run building cycle

The building industry - more than most other sectors in the economy - is subject to very strong cyclical fluctuations in the short run.

The ‘short run’ is defined as a period during which supply does not immediately respond elastically to demand, leaving a gap between supply and demand of stock.

The short run building cycle is therefore a stock cycle. Building activity responds to a natural physical stock shortage or surplus, in a de-stocking and re-stocking cycle that sees the amount of building being undertaken trying to adjust to match demand.

The building stock cycle typically has four phases: upturn, boom, downturn, and bust:

→ after a period of stagnation in building activity, below the long-run sustainable level of demand, stocks are low and excess demand emerges

→ deficient stock leads to activity levels that start to rise (upswing)

→ developers' margins become more attractive and activity accelerates

→ maximum building activity leads to industry at full capacity (boom)

→ activity eventually overshoots, to a level greater than sustainable by the underlying demand

→ surplus stock sees sales volumes fall and activity levels slump dramatically (downturn)

→ forced sales result in a substantial moderation in demand expectations

→ activity levels bottom below long-run desired levels (bust)

The bust allows the stock surplus to dissipate and, in turn, sows the seeds for the next upturn in building activity. The period of stagnation allows absorption of excess stocks built up during the boom.

The net result in the short term is that cyclical factors dominate the course of building activity, with over-building during the boom which is counter-balanced by under-building during the bust.

A critical cause of the building cycle is uncertainty. Uncertainty results in under-production or over-production of new physical stock, which in turn can create sharp supply-side ripple effects on volumes (and prices) across the market.

The uncertainty effect increases with longer lead times between planning and completion, and is particularly evident where supply-side constraints limit the supply responsiveness of new building stock.

The long term trend in building

The short run building cycle tends to smooth out over the medium term and tend towards the long run sustainable level of building.

The 'long run' is defined as a period lengthy enough for supply to respond fully to the underlying level of demand. In the long run, the industry is operating at its steady state. This sustainable or steady state level of building activity is determined by a constellation of economic and demographic trends.

For residential building these include:

- household formation
- demolitions
- the demand for second homes
- employment and real incomes

- interest rates
- the relative price of housing
- the age of the housing stock
- land supply and urban consolidation

Generally, in any specific sector of the building industry, the sustainable level of building activity is determined by the underlying demand for the services provided by that sector, in light of economic and demographic trends.

1.2 Forecasting method

Utilising this supporting theory we undertake a multi-staged process to arrive at our forecasts for new building activity across Australia, and in this case South Australia.

1. Overlay ABS building data to identify the current stage of the cycle

Using ABS building data on approvals and commencements we build a historical data series on the key building activity indicator off which to base our forecasts. This also allows us to identify the current stage of the cycle by placing current activity in its historical context.

2. Undertake demographic analysis to forecast long run trends

The ABS provides data on the population and number of households by age group and by state. Using this data we are able to identify the actual 'household formation' rates by age group, that is the propensity for individuals to form new households. Adjusting these rates for short term factors such as house prices, interest rates, employment etc. allows us to identify the long-term 'desired household formation ratio'. This then feeds into our estimate of the demand for new dwellings over the longer term, or the underlying demand for new dwellings.

Once we have the demand side of the equation we can match this against supply data to understand the state of the market. Using ABS Census data to understand the number of demolitions and unoccupied dwellings as well as more regular building completions data allows us to arrive at an estimate of market balance and understand whether there is a deficiency or oversupply of dwelling stock over the longer term.

3. Set the underlying economic assumptions & incorporate supporting cyclical data

As part of our wider range of forecasting and consulting activities, BIS Shrapnel forecasts a number of economic indicators including interest rates, currency fluctuations, and commodity prices. The assumptions concerning these indicators act as inputs into the forecasting process. The movement of interest rates is particularly important for the property and building markets.

Alongside the long run indicators we now include a number of short term indicators to better understand the influential factors in the current cycle. These include property related indicators (price & rental data, vacancy rates, housing finance etc.), economic indicators (interest rates, employment, business investment etc.) and more miscellaneous data such as the influence of foreign investment. These indicators help give us a more holistic understanding of the market and the short run cycle.

4. Utilise residential project listings to add shape to forecasts

To further strengthen our forecasting process, particularly at the medium density and high density levels, we also utilise a detailed listing of identified apartment and townhouse projects. Whilst this list is not exhaustive it does capture the larger projects that can act as outliers in the data and throw off a more modelled approach to forecasting dwelling activity. This helps us to better shape our forecasts and is particularly helpful in smaller markets where a large apartment project accounts for a more significant proportion of the total.