The Honeycomb Cycle in Real Estate

Jos Janssen*
Bert Kruijf**
Barrie Needham***

Abstract. A change in market conditions can trigger a cyclical response in the housing market, a cycle in both prices and number of transactions. This is caused not only by production lags but also by the reactions of buyers and sellers. The fact that many buyers are also sellers, and vice versa, has a special effect on this cycle. In this paper a theory of this cycle in prices and transactions is developed and empirically tested. It is found that volume changes are much more closely related statistically to changes in market conditions than are price changes. A clear cycle is found in two of the four towns studied.

Introduction

The research that this article reports began as an attempt to explain changes in the prices of existing owner-occupied housing. The aim was to produce a dynamic theory that could explain the often dramatic rises and falls in house prices. It was necessary to incorporate into this theory the fact that most houses are bought by those who already own one; and also, that most houses are sold by those wanting to buy another house. It was discovered that this aspect was very important for the theory. Also it became clear that the number of sales per year (the transaction volume) fluctuated much more than the average price: so explaining changes in transactions becomes as important as explaining changes in prices.

The theory in its most basic form explains price changes and transaction changes in interaction with each other. Under certain circumstances, these changes are such that, when a price/volume graph is plotted (i.e., of the average of realised prices in one period against the number of realised transactions in that same period), it has the shape of a hexagon. For that reason, we have called this the honeycomb cycle. However, we want to emphasize that other paths are possible, giving graphs with different shapes. The core of the theory remains, however. It is that price changes and volume changes are linked and need to be explained in combination.

The presentation is as follows. First, a distinction is made between the internal and external dynamics. This applies to all real estate types and is crucial to the price/transaction theory. Second, some factors important for the interaction between price and transactions in the housing market are developed, especially the relative importance of primary and secondary supply and demand. The presentation of the honeycomb cycle follows. That completes the theoretical exposition. The theory is

* Dutch Association for Real Estate Agents (NVM), Fakkelstede 1, PO Box 2222, 3430 DC Nieuwegein, The Netherlands.
** Department of Construction and Real Estate Economics, University of Amsterdam, 1018 WB Amsterdam, The Netherlands.
*** Department of Physical Planning, University of Nijmegen, PO Box 9108, 6500 HK Nijmegen, The Netherlands.
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empirically tested in the remaining sections. The first empirical test is an attempt to explain prices alone: it was unsuccessful. The attempt to explain the volume of transactions was successful. Finally, we try to explain changes in the combination of prices and transactions. The practical importance of this is that it can be used to predict turning points in the housing cycle.

The Internal and the External Dynamics

The *internal dynamics* of the real estate market refers to the following. Suppose there is a regional housing market that is initially in equilibrium. Then it receives a jolt from some external factor (e.g., a big change in interest rates). The normal mechanisms in this market try to restore equilibrium but for real estate that cannot happen immediately. The external disturbance sets off a cycle of events and equilibrium is finally regained (unless in the meantime external factors have changed again).

The best known example of internal dynamics is the hog cycle (giving rise to the cobweb theorem). Because of long production times, there is a lag in the reaction of supply to changed demand. After an external disturbance (causing a change in demand), the market oscillates until it reaches equilibrium again. The oscillations in realised price and realised volume take a path such as that shown in Exhibit 1.

The cobweb theorem however is insufficient to explain the cycle in house prices and transactions. This is because it considers only one source of supply, namely from new production. It does not take account of the response of owners of existing housing (the secondary supply—see below). Their activities, buying and selling, also respond to external factors.

In the theory presented here, the mechanisms for the internal dynamics are a combination of:

- demanders reacting slowly to changes in price and also to their expectations of price changes;
- long production times whereby primary suppliers, even if they react quickly to price changes, cannot bring that supply quickly onto the market (this is the core of the hog-breeding cycle);
- a disproportionately large secondary market, which can react quickly to price or other changes, thus affecting transaction volume but not prices.

The *external dynamics* of a real estate market refers to the changes in factors which are external to that market but which nevertheless affect it. There is normally a cyclical pattern in the external factors, namely the trade cycle. Observations show that the real estate cycle tends to be contained within the time scale of the business cycle. The housing cycle is triggered by an upswing in the economy, followed by a slump, then a recovery concurrent with another increase in economic activity. The complete cycle covers many years. This gives a sequence of stimuli and checks to the real estate market, in a regular way.

A single external disturbance sets the internal dynamics in operation and this brings the market back into equilibrium. A number of external disturbances following each other closely can prevent equilibrium ever being reached. Moreover, the effect on the market of an external change will be influenced by how the market is reacting at that
Exhibit 1
The Cobweb Theorem

\[ S : \text{long-run supply curve} \]
\[ D_1 : \text{initial demand curve} \]
\[ D_2 : \text{demand curve after an external disturbance} \]
moment to a previous external change (i.e., by the stage it has reached in its internal dynamics). Under those circumstances, it might not be expected that the housing market changes regularly and cyclically. It is argued here, however, that the internal dynamics of the housing market is cyclical. If the external factors also change cyclically, then the combination of these two dynamics can cause prices and the transaction volume to change cyclically.

Other research into the cyclical nature of the property market should be mentioned here, namely into office cycles. Barras (1983) develops a model for office building based on the accelerator principle and he examines the conditions under which this would lead to cyclical behaviour. His research is an investigation of the "internal dynamics" and he explains how the interaction with the "external dynamics" could reinforce or dampen any internal cycle. He discerns an office development cycle in the United Kingdom every eight to ten years. On the other hand, neither Hekman (1985) nor Voith and Crone (1988) found evidence of cycles in the office market. Hekman found that construction in the past was not significantly related to current rental levels or current vacancy rates, which would be the case if there was a hog cycle in the office market. Voith and Crone found that the effects of shocks on vacancy rates in office markets were short-lived: a shock dissipated to one half of its original magnitude within one year in most of the cities investigated. Such research into the cyclical nature of the office market can suggest methods for investigating the cyclical nature of the housing market. However, the results need not be the same. One reason is that the decision to supply new stock can be different in the two markets: for example, the developer of offices might anticipate market changes better than the developer of houses. Another reason is that secondary supply (see below) is more important in the housing market than in the office market.

Primary Supply and Demand, Secondary Supply and Demand

In the housing market most transactions take place when people move from one property to another. The consequences of this can be investigated by dividing supply into primary and secondary supply, likewise demand into primary and secondary. Primary supply is when the supplier is not also a demander: such suppliers are developers of new property and people who are moving out of the market or otherwise vacate (for instance, because of death). Secondary supply is when people put their property on the market as part of a move in which they demand another property in the same market. Similarly, primary demand is when people demand property without at the same time supplying vacated property: they are first-time occupiers, or they are moving into the market from outside. Secondary demand comes from those who are already occupying and so will supply a property as part of a move.

The significance of this distinction lies in the following:

- secondary suppliers are motivated differently from primary suppliers: their supply curve is not commercially determined;
- secondary suppliers have a price inelastic supply function: they have only one property to supply;
- secondary demanders are motivated differently from primary demanders. There is no reason to think that they value housing characteristics
differently. But their demand is strongly influenced also by their knowledge that they can realise it only by becoming suppliers. Also, they can withdraw their demand easily, by deciding not to move or by delaying their plans to move from one house to another;

- secondary supply creates its own secondary demand (a version of Say's law that he himself could not have imagined!); secondary demand creates its own secondary supply; the two must be equal in volume. (It is worth noting that in some countries—e.g., Belgium—primary demand to some extent creates its own primary supply, as people have their own houses built. In the Netherlands, however, this is of much less importance);

- if secondary demand changes (the demand curve shifts), secondary supply changes by the same amount. This causes the transaction volume to change, but not prices. Only changes in primary demand and in primary supply are independent of each other.

The effect on the market of the fact that secondary supply and secondary demand are motivated differently from their primary counterparts is dependent on their share in the total number of transactions. The bigger is that share, the more will secondary supply and secondary demand determine what happens in that market. In the Dutch housing market, about two thirds of all housing moves are by households who leave a dwelling behind (i.e., secondary demanders) (Nationaal Rayon Onderzoek, 1990).

One of the characteristics of secondary demand is that it can very easily be increased or decreased. Because secondary demand dominates the housing market, it can dominate price changes also. 'Housing prices level out, just because transactions fall when the market worsens' (Neuburger and Nicholl, p. 47). As a result, it is to be expected that the volume of transactions will fluctuate more than the level of prices. Also, one would expect transactions to react to different forces than prices react to, or to react differently to the same forces. The conclusion to be drawn from this is that a theory to explain prices alone is insufficient. It is necessary to explain the volume of transactions also. Moreover, it might not be possible to explain price changes without taking account of transaction changes. This is the reason that the theory presented here explains both prices and transactions as linked variables.

The Honeycomb Cycle for the Housing Market

The theory linking price and volume changes in the housing market is based on the microeconomic theory of the market behaviour of the economic subjects. Presented here is a particular version of this theory, a version stimulated by observations of the course of realised average price and realised number of transactions. These observations indicated a six-phase cycle with a particular pattern (a honeycomb) and lasting between nine and ten years. It must be repeated that this is only one possible version of the price/transaction theory: it arises when the regional housing market gives the internal dynamics a particular form and when the external dynamics follows a specific course.

The interaction between these two cycles can move the (regional) housing market through a series of provisional market-equilibria (see Exhibit 2). The equilibria are
D = total demand composed of D₀ = primary demand and D₂ = secondary demand. S = total supply composed of S₀ = primary supply and S₂ = secondary supply. Total demand at market equilibrium E₁ is D₁; it shifts to D₂. Total supply at E₁ is S₁; it shifts to S₂. This creates a new market equilibrium E₂.

The change in total demand ΔD is composed of the change in primary demand ΔD₀ and the change in secondary demand ΔD₂. These changes can be positive (+) or negative (−). The change in one variable can be equal to the change in another variable (=), greater than it (>) or less than it (<). If the absolute change in one variable is greater than the absolute change in another variable, this is shown (|| > ||).

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only provisional and the turning points are influenced by the underlying business cycle. We now give an explanation for each of the six phases and of why they follow each other in that sequence.

E1→E2
Suppose that the economy is growing and the economic prospects are good (consumer confidence is high). Secondary demand increases, which means that secondary supply increases, but by the same amount. So the volume of transactions goes up; but that in itself has no effect on prices. Primary demand too is shifted upwards. Prices begin to rise and suppliers want to react to this; but primary supply is price inelastic in the short term so prices continue to rise.

E2→E3
At turning point E2 external conditions change, causing negative expectations about the near future. Primary supply expects unfavourable economic conditions; therefore starts of new construction fall significantly. The primary demand will however still be strong because these people want to get into the market before prices rise even further. Movers (secondary demanders and suppliers) might postpone their plans because of the poor economic prospects, thus affecting the transaction volume (but not prices). Total demand has, however, risen more than total supply, causing prices to rise.

E3→E4
The prospects look so bad, with volume falling and prices still rising, that primary demand now stops increasing or starts to fall. Primary suppliers have no reason to come onto the market, but because of the lagged effects in production, new houses continue to be supplied. In this phase, the volume of primary demand and of primary supply are more or less equal. Meanwhile, secondary demand continues to fall (as does secondary supply), pulling down the volume of transactions without affecting prices.

E4→E5
This is the counterpart of E1→E2. It has become clear to all households that the economy is in a slump. The number of primary demanders is decreasing, especially if they see prices falling and expect a further fall. The primary suppliers have no reasons to supply new houses at all and they will certainly supply fewer houses than in the preceding period, mainly because the market will be cleared from “lagging effects”. This is a slow process. The fall in primary demand goes faster. Secondary demand is discouraged by the market conditions, and decreases further. Secondary supply falls by an equal amount, pulling down the volume of transactions. The market is very inactive.

E5→E6
E5 is another turning point in the economy external to the housing market. The economic perspectives are judged better. Primary supply expects the economy, which is almost at its lowest point, to start growing again. Therefore construction starts. Primary demand however is initially very low. Secondary demand might increase because of better perspectives. Secondary supply will also increase because of the
financial difficulties of owners who bought their houses at E3 but who face mortgages they can no longer afford. Because of these sales and the starting of new construction, the transaction volume grows but prices keep falling. Primary supply is increasing more than primary demand, thus pushing prices down.

**E6—E1**

Prices stabilize, because primary demand increases and primary supply is able to keep up with this demand, which has not yet reached a high level. Movers want to realize their delayed moving plans, so secondary demand increases (which increases secondary supply by an equal amount).

The phase E6–E1 would continue until the delayed residential moves of the secondary demanders had been realized. Then price and volume would stabilize. However, if the economy is still growing, more households might be tempted by the stable prices and the good prospects to become house owners, thus increasing primary demand. Because of the production lag, primary supply cannot keep up, so prices begin to rise again. Exhibit 3 summarizes the turning points and shifts in demand and supply.

The theory is now tested empirically using data for the country as a whole and for four towns.

### Prices and Transactions of Houses in the Netherlands, 1976–1989

The period 1976–1989 has been chosen for study because it starts at the beginning of a wild boom in the housing market and includes the subsequent slump and slow

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<table>
<thead>
<tr>
<th>Phase</th>
<th>Market</th>
<th>Supply</th>
<th>Demand</th>
<th>Supply</th>
<th>Demand</th>
<th>Price</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1–E2</td>
<td>Active</td>
<td>0/+</td>
<td>0/+</td>
<td>0/+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>E2–E3</td>
<td>Stagnating</td>
<td>−/0</td>
<td>−/0</td>
<td>0/+</td>
<td>+</td>
<td>+</td>
<td>−</td>
</tr>
<tr>
<td>E3–E4</td>
<td>Recession</td>
<td>−/0</td>
<td>0/−</td>
<td>−/0</td>
<td>−/0</td>
<td>0</td>
<td>−</td>
</tr>
<tr>
<td>E4–E5</td>
<td>Inactive</td>
<td>−/0</td>
<td>−/0</td>
<td>−/0</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>E5–E6</td>
<td>Turning</td>
<td>0/+</td>
<td>0/+</td>
<td>+</td>
<td>0/+</td>
<td>−</td>
<td>+</td>
</tr>
<tr>
<td>E6–E1</td>
<td>Recovering</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>0</td>
<td>+</td>
</tr>
</tbody>
</table>

+: increase
−: decrease
0/−: stable or increase
−/0: decrease or stable
recovery. Figures have been collected for average prices per year and the number of transactions in the Netherlands as a whole (population end 1985, 14,805,000) and for four selected towns (Eindhoven, population 192,900; Enschede, 146,000; Lelystad, 58,100; and Rosmalen, 27,100—all population sizes begin 1990).

The data used to test the theory are the average price per year and the number of transactions per year. Some of the tests are carried out using these data processed in the form of indicators. These are:

the price indicator

\[ PI_i = \frac{P_t - P_{t-1}}{P_{t-1}} \]  

(1)

the volume indicator

\[ VI_i = \frac{V_t - V_{t-1}}{V_{t-1}} \]  

(2)

the market indicator

\[ RI_i = \frac{V_t \cdot P_t - V_{t-1} \cdot P_{t-1}}{V_{t-1} \cdot P_{t-1}} \]  

(3)

It must be pointed out that working with average prices can give a distorted picture, because the composition of the housing transactions can change from year to year. This can affect not only the data but also the price indicator and the market indicator derived from these data. The effect is likely to be greater the more heterogeneous is the stock of properties, and therefore greater when testing with national rather than with local data.

In 1977 and 1978, the Dutch housing market was very active, caused partly by rising real incomes. Average incomes rose in real terms by 11% between 1970 and 1979 (de Kleijn and Van de Stadt, 1985). Inflation was high by Dutch standards (in 1975, 6.4%) which made it profitable to acquire debts and to buy assets. Buying a house was an ideal way of doing this ("a hedge against inflation"). Economic growth was steady, reaching 2.3% in 1979. The number of houses bought and their average price rose steeply. The national economy went into recession after 1979 and real incomes per capita fell until 1982. House prices began to fall in 1980, tumbling in 1982, and the number of sales also fell sharply. It was not until 1984 that the housing market began to recover, with small increases in both prices and transaction volume. This continued until the Gulf War in 1990, when prices stabilized and the volume fell. At the beginning of 1991 the volume began to grow again.

Exhibit 4 presents the price, volume, and market indicators for the Netherlands, calculated as described earlier. It is clear that the number of transactions per year fluctuates much more than the average price. It was found that the four towns followed national trends quite closely, so it is not necessary to present those local trends as well.

**Attempts to Explain the Changes in Terms of External Factors**

Changes in prices are usually explained by changes in factors that cause the supply or demand functions to shift, that is by changes in factors external to the market. There are many examples of this type of research (e.g., Neuberger and Nichol, 1976; McAvinnie and Macleannan, 1982; Carn and Rabianski, 1990; Wheaton and
Exhibit 4
Course of Price, Volume and Market Indicators in the
Netherlands, 1976-89
(expressed as percentages)

<table>
<thead>
<tr>
<th>Year</th>
<th>Price</th>
<th>Volume</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976-77</td>
<td>39.65</td>
<td>19.17</td>
<td>66.42</td>
</tr>
<tr>
<td>1977-78</td>
<td>6.84</td>
<td>28.56</td>
<td>37.36</td>
</tr>
<tr>
<td>1978-79</td>
<td>-4.83</td>
<td>-0.67</td>
<td>-5.47</td>
</tr>
<tr>
<td>1979-80</td>
<td>-8.65</td>
<td>-6.19</td>
<td>-14.30</td>
</tr>
<tr>
<td>1980-81</td>
<td>-10.29</td>
<td>-10.33</td>
<td>-19.56</td>
</tr>
<tr>
<td>1981-82</td>
<td>-10.03</td>
<td>31.43</td>
<td>18.25</td>
</tr>
<tr>
<td>1982-83</td>
<td>2.90</td>
<td>12.21</td>
<td>15.46</td>
</tr>
<tr>
<td>1983-84</td>
<td>-1.76</td>
<td>9.88</td>
<td>7.95</td>
</tr>
<tr>
<td>1984-85</td>
<td>0.36</td>
<td>14.42</td>
<td>14.83</td>
</tr>
<tr>
<td>1985-86</td>
<td>5.07</td>
<td>22.22</td>
<td>28.42</td>
</tr>
<tr>
<td>1986-87</td>
<td>4.28</td>
<td>-3.46</td>
<td>6.7</td>
</tr>
<tr>
<td>1987-88</td>
<td>4.89</td>
<td>4.90</td>
<td>10.02</td>
</tr>
<tr>
<td>1988-89</td>
<td>6.58</td>
<td>1.72</td>
<td>8.42</td>
</tr>
</tbody>
</table>

Source: Central Bureau of Statistics (CBS); Dutch Association of Real Estate Agents (NVM)

Dipasquale, 1990). In the research reported here, a statistical connection is sought with the following external factors:

- the nominal mortgage rate;
- an index of consumer confidence;
- an index of willingness to purchase luxury goods;
- an index of the economic climate;
- an index of housing rents;
- changes in construction costs.

The indices mentioned above are all compiled by the Dutch Central Bureau of Statistics. The statistical connection between external factors and prices was investigated using multiple regression analysis and Spearman’s rank correlation test. The change was studied annually, quarterly and monthly: the annual analysis gave the best results.

The results of the analysis of the national data are reported first. Exhibit 5 shows the partial correlation coefficients (from the correlation matrix) between each external factor separately (as independent variable) and the average price (as dependent variable). Because of the importance of the transaction volume, the analysis is repeated with that volume as the dependent variable. (The partial correlation
Exhibit 5
Relation of External Factors to Average Price and Volume of Transactions, the Netherlands (1976–89)

<table>
<thead>
<tr>
<th>External factor</th>
<th>Partial Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Price</td>
</tr>
<tr>
<td>Nominal mortgage rate</td>
<td>.107</td>
</tr>
<tr>
<td>Index consumer confidence</td>
<td>.272</td>
</tr>
<tr>
<td>Index willingness to purchase</td>
<td>-.027</td>
</tr>
<tr>
<td>Index economic climate</td>
<td>.572</td>
</tr>
<tr>
<td>Index housing rents</td>
<td>-.258</td>
</tr>
<tr>
<td>Changes in construction costs</td>
<td>-.174</td>
</tr>
</tbody>
</table>

Source: Dutch Central Bureau of Statistics (CBS)

coefficients are taken from multiple regression tests made on annual data and they measure the strength of a relationship. Coefficients higher than .5 or lower than −.5 are regarded as relevant.)

It can clearly be seen that attempts to explain price changes in this way are unsatisfactory: there was only one external factor, namely the index of economic climate, which was closely related with prices. On the other hand, the transaction volume was closely related with three of the six external factors analysed; mortgage rate, consumer confidence and construction costs.

The multiple regression analysis (MRA) carried out on the price data gave a very low $R$-squared of 30% and the only significant connection was with the index of willingness to purchase, which was very weakly negatively correlated. However, when the analysis was carried out on volume data, the $R$-squared was 95%, and the same variables were significant as those that gave the high partial correlation coefficients (see above).

When the same analyses were carried out on local data, the results were similar. The price level showed no significant relationship with any of the external factors. Once again, however, the change in transaction volume had a strong statistical relationship with external factors. These were, in three of the four towns, the same external factors that were important nationally (with the index of housing rents also important locally).

In one more attempt to explain changes caused by external factors, changes in prices and volume were combined in the market indicator. A relationship was sought between this and an indicator that combined a number of external factors, namely the business-cycle indicator compiled by the National Bank (the DNB indicator). A clear relationship was found in each of the four local housing markets studied, but not nationally. The heterogeneity of the market and the high aggregated level of analysis were probably responsible for this.
Attempts to Explain Changes in Prices and Changes in Volume Together

The results of the empirical analysis above show the importance of studying not only prices but also transaction volumes. Next we investigated the connection between these two variables.

The first question is, Is there any direct connection between changes in price and changes in volume? The Spearman's test was applied to both national and local data. No connection was found. The second question was, Do changes in one of those variables precede changes in the other? This was investigated using the price and volume indicators. Nationally, the changes in the volume indicator preceded changes in the price indicator. This was so in three of the towns also. In the fourth town (Rosmalen), both changed in phase.

Finally the question was asked, Did price and volume change in accordance with the honeycomb cycle? It has already been pointed out that this is difficult to investigate, mainly because the explanation of that cycle assumes a particular coincidence of the internal and the external cycles. Perhaps that is the reason why the national data did not give a cyclical pattern when plotted on a graph. Another reason could be the possibility noted above that price changes can be caused partly by compositional changes.

The honeycomb cycle at the national level was then subjected to the following less stringent test. The cycle implies that the indicators (price, volume and market) each change in a particular sequence and each in a particular way with respect to the others. This is represented in Exhibit 6.

The empirical test is then, Did the indicators at the national level (Exhibit 4) change in the way presented in Exhibit 6? Some resemblance to the honeycomb pattern was found, but it was not very close. The reason why a closer fit was not achieved might be that the data used were annual, whereas it is not necessary that one phase lasts one year or a multiple of one year, or that all phases are of the same duration.

### Exhibit 6

**Expected Course of Price, Volume and Market Indicator under the Honeycomb Cycle**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Price Indicator</th>
<th>Volume Indicator</th>
<th>Market Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1–E2</td>
<td>increase</td>
<td>increase</td>
<td>strong increase</td>
</tr>
<tr>
<td>E2–E3</td>
<td>increase</td>
<td>decrease</td>
<td>indeterminate</td>
</tr>
<tr>
<td>E3–E4</td>
<td>stable</td>
<td>decrease</td>
<td>decrease</td>
</tr>
<tr>
<td>E4–E5</td>
<td>decrease</td>
<td>decrease</td>
<td>strong decrease</td>
</tr>
<tr>
<td>E5–E6</td>
<td>decrease</td>
<td>increase</td>
<td>indeterminate</td>
</tr>
<tr>
<td>E6–E1</td>
<td>stable</td>
<td>increase</td>
<td>increase</td>
</tr>
</tbody>
</table>
Exhibit 7
Course of Prices and Transactions in the Cities of Eindhoven and Enschede


- Average sales price (Hfl)
- No. of transactions

B. Enschede (1976–1990)

- Average sales price (Hfl)
- No. of transactions

Source: Authors' calculations
When the honeycomb cycle was tested with local data, the pattern was clearly identifiable on a graphical plot for the Dutch towns Eindhoven and Enschede (Exhibit 7). One reason why the pattern was found locally and not nationally might be that the assumption of no compositional change is more valid for local markets. Another reason may be that the town cycles were not in phase with each other so that when aggregated to the national level the data would be smoothed. The reason why the pattern was not found in the other two towns could be particular local circumstances (in Lelystad, a continual oversupply; in Rosmalen, a large increase in primary supply in the 1980s).

Conclusions

Perhaps the clearest conclusion is that, when attempting to explain changes in real estate markets, it is as important to investigate changes in transaction volume as it is to investigate changes in prices. In the housing markets investigated here, volume fluctuated more than price and volume was more closely related statistically to external factors than was price. Transactions were more important indicators of changing market conditions than price.

Volume is the important variable in the housing market because of the importance of secondary demand and supply. The secondary demanders (and suppliers) can react to external changes by changing the volume without affecting prices. This gives rise to the possibility of the housing market having its own internal dynamics. This will be more complex than that caused by production lags alone (the hog-breeding cycle) because in the housing market there are not only production lags but also the mechanisms of secondary demanders (and therefore secondary suppliers). If these internal mechanisms are combined with a cyclical change in external factors then one possible outcome is the honeycomb cycle, that is, a particular sequence of the realised prices combined with realised transactions. Other sequences are possible, however; it is clear that further research is needed to explain why realised prices and realised transactions change in combination.

Further research should go more deeply into the component processes in the housing market. In particular we need data that separate the buyers of housing into primary and secondary demanders, the sellers into primary and secondary suppliers. Then we should be able to investigate how the primary and the secondary components react under various conditions. Such an investigation would give more insight into the factors affecting the production of new housing.

It seems to us there are exciting possibilities to be pursued that can be fundamental to understanding property markets. One of these possibilities could be a new forecasting method.

References


