Disentangling processes of neighbourhood change: Towards a better understanding of upgrading and downgrading of neighbourhoods in the highly-regulated context of the Netherlands

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Puzzling patterns in neighbourhood change: upgrading and downgrading in highly-regulated urban housing markets

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Abstract
This study disentangles the relationship between income and real estate value development in Dutch urban neighbourhoods. Within the literature on upgrading and downgrading, it is often assumed that neighbourhood income and real estate value development are strongly linked. The results reported here – based on research in Amsterdam, The Hague, and Tilburg – indicate that income and real estate values develop simultaneously in only a relatively small number of neighbourhoods, which are at the top and bottom of the housing market hierarchy. The majority reveal a more complex relationship: a number of neighbourhoods show a time lag between the trends, whereas in other neighbourhoods income and real estate values show partially diverging trends. Several tentative explanations are offered for the complex relationship and stress the importance of place-specific knowledge. Three points of attention are suggested for further research: understanding the role of household dynamics, the position of neighbourhoods within their urban system and the role of the state and housing associations in neighbourhood change.

2.1 Introduction

Processes of neighbourhood upgrading and downgrading, in terms of income and/or real estate values, have received a great deal of academic and professional interest. Before the 1960s, most studies focused on downgrading processes (e.g. Burgess, 1925/1974;
Hoyt, 1939). These ‘classic’ studies assumed that the general trend in neighbourhood change was downward: once a neighbourhood was fully developed, the quality of its housing stock would decline over time. Affluent households would be replaced by lower-income households and eventually the neighbourhood would fall into disrepair. Neighbourhood change in other directions was generally ignored, but in the 1960s a revaluation of inner-city working-class neighbourhoods was initiated, with a special focus on young single or dual households (Glass, 1964). Over the past several decades, the gentrification process has been recognized as a process that not only spreads to neighbourhoods adjacent to the original gentrifying neighbourhoods, but also to other (smaller) cities (Lees et al., 2008). However, gentrification is but one form of socioeconomic and real estate upgrading, taking place when in-migrants are of higher socioeconomic status than out-migrants together with a reinvestment of building capital (Clark, 1992). Under this definition, gentrification is only one among several distinct processes of neighbourhood change (Clay, 1979; Walks and Maaranen, 2008a). Neighbourhood change may also be related to the in-place population or occur without reinvestment, which is referred to as incumbent upgrading (Clay, 1979). Yet, despite the appearance of upgrading and gentrification, downgrading may still occur, often because an upward trend in one area implies a process of (relative) downgrading elsewhere within the urban area.

Most studies on neighbourhood change use socioeconomic data to assess its status according to criteria such as income, occupation, educational attainment or unemployment data (e.g. Musterd, 1991; Bourne, 1993; Kitchen and Williams, 2009; Mikelbank, 2011). A number of scholars have also examined the physical dimension, by studying changes in the built environment, for example in terms of the percentage of renovated housing or the evolution of the mean rent level (Musterd, 1991; Hammel and Wyly, 1996; Van Crieckingen and Decroly, 2003). Others examine the real estate values of dwellings (Musterd and Van der Oord, 2008; Walks and Maaranen, 2008a). Within neighbourhood studies and especially gentrification studies, it is often assumed that socioeconomic and housing market changes are related and perhaps even synonymous. More specifically, it is assumed that a rise or decline in the real estate value of a residential property covaries with a rise or decline in the income level of a neighbourhood and vice versa. However, few studies actually focus on how these processes relate to one another; we still know very little about this relationship and it is unclear which process dominates in the shaping of neighbourhood change.
Another characteristic of studies on neighbourhood change is their focus on market-dominated urban contexts, in which private capital and investment play a major role in a neighbourhood’s income and real estate value development. Consequently, upgrading and downgrading are portrayed as spontaneous processes of supply and demand. But in Western European cities, the state and other non-market institutions play a leading role in development and regulation of many spheres of life, including those of neighbourhoods and housing markets (Le Galès, 2002; Häussermann and Haila, 2005; Kazepov, 2005; Van Kempen and Murie, 2009; Van Gent, 2010a). The regulation and control of housing markets, the legacy of publicly funded social housing and the presence of interventionist urban policies imply that spontaneous upgrading and downgrading processes may not be that easily observable in Western European cities. As a result, the relationship between income and real estate value development may be influenced by government intervention as well as general neighbourhood change.

This article seeks to address this caveat in the literature by exploring and disentangling the relationship between income and real estate value development in Dutch urban neighbourhoods and providing tentative explanations for observed trends that cannot be attributed to spontaneous processes of supply and demand. These explanations may serve as a first step toward a new research agenda concerning studies of neighbourhood change. The following research questions will be addressed:

1. What patterns of upgrading and downgrading of income and real estate values can we observe at the neighbourhood level in Amsterdam, The Hague, and Tilburg between 1999 and 2006?
2. How are income and real estate upgrading and downgrading patterns related to each other over time?

The first question is mainly focused on spatial patterns of upgrading and downgrading between two fixed points in time; the second question examines the temporal relationship of the neighbourhood processes. The latter also investigates trends more closely to see if the processes occur simultaneously or diverge.

The study is structured as follows. First, essential literature on upgrading and downgrading will be discussed and evaluated, focusing on the assumed relationship between income and real estate values in the relevant literatures. Next, following a section on methodology, the results of the analyses will be presented in two parts to
address each research question separately. The final section will reflect on how successfully traditional approaches to upgrading and downgrading can explain neighbourhood change and three points of attention for future research will be suggested.

2.2 Theories on neighbourhood change

Within the body of studies that treat upgrading, downgrading and gentrification, a distinction can be made between traditional, demand-side, supply-side and institutional approaches. This section will briefly discuss those approaches as it focuses on the assumed sequential relationship between income and real estate value development at the neighbourhood level.

To begin with, neighbourhood change was an important topic of study for the early-20th-century Chicago School. Most relevant is the filtering theory of Hoyt (1939) that discusses the relationship between income and real estate development. In short, he assumed that social changes would be preceded by physical changes: the aging of the housing stock signals the onset of real estate value downgrading and households with sufficient capital begin to move to higher-quality areas. Consequently, the stature of the neighbourhood declines relative to other (newer) neighbourhoods as lower-income newcomers can increasingly afford the vacated dwellings. This leads to income downgrading, but filtering theory cannot provide a satisfactory explanation. Later gentrification studies demonstrate the revaluation of aged neighbourhoods. Nonetheless, households are not as mobile as assumed, and increases in income may not necessarily result in a move (Bassett and Short, 1980).

Demand-side approaches explain neighbourhood change as the result of migration decisions by households (Bassett and Short, 1980). People reside in neighbourhoods and dwellings that best match their socioeconomic status and needs. Tensions resulting from differences in characteristics of households, dwellings and neighbourhoods may trigger a move. The life-cycle approach, for instance, links such residential decisions to stages in a family’s life cycle (Clark and Dieleman, 1996). Gentrification studies emphasize the importance of economic and cultural capital (e.g. Bridge, 2001; Butler and Robson, 2001). The latter claim that middle-class households move into disinvesting working-class neighbourhoods as a means to acquire cultural and economic capital and to distinguish them from other middle-class households.
Most demand-side approaches centre on socioeconomic differentiation and do not consider physical neighbourhood aspects. In the gentrification literature, however, stage models describing the gentrification processes focus on both socioeconomic and physical aspects (Clay, 1979; Gale, 1979). Such models assume that physical changes are preceded by social changes. In the first stage, ‘pioneers’ move into disinvested working-class neighbourhoods, generally with incomes similar to those of working-class households. By investing their own labour in the upkeep of dwellings, the attractiveness of dwellings and neighbourhood increases. This increased attractiveness in turn lures higher-income households and thereby produces income upgrading. Further renovation and increased popularity initiates real estate upgrading. In later stages, investments by professionals propel further increases in real estate values and the attraction of more higher-income households into the neighbourhood (Clay, 1979).

Supply-side approaches explain neighbourhood change as a result of the operation of housing markets and the role of capital (Hamnett, 1991). These approaches complement demand-side studies, which tend to overemphasize the role of households as the sole actors in the local housing market (Bassett and Short, 1980) and lack attention for the supply of dwellings and accessibility aspects (Hamnett and Randolph, 1988). The rent gap theory of Smith (1979) stresses the relationship between land and property value. The assumption is that social changes are preceded by physical changes: if the potential ground rent of a neighbourhood is higher than the real ground rent, real estate upgrading will take place as a result of investment in the built environment. This attracts higher-income households. Although influential, this theory does not adequately explain neighbourhood change. In many redeveloping urban areas, the rent gap has never reached the critical point of investment. Redevelopment and subsequent change may be subsidized either by unpaid labour (sweat equity) or by the state, or entirely by state-related institutions (Lauria, 1982). Furthermore, the theory is based on market-dominated conditions and thus only with a relatively small role for government intervention.

Institutional approaches emphasize regulations and the intervention of agents such as governments and housing associations (Pahl, 1970; Robson, 1975; Bassett and Short, 1980). The theories discussed above are mostly based on market-dominated contexts, whereby private capital and investment play major roles in neighbourhood development. However, particularly in Western Europe, the state and other non-market institutions also play an important role in neighbourhood development. Through intervention, social
changes will be preceded by physical changes. Renovation, demolition of public housing and construction of owner-occupied housing cause real estate values to increase. Usually, only higher-income households can afford such dwellings, which leads to income upgrading. In addition, institutional action can be expressed in the form of regulation. For instance, public housing is generally only available to lower-income households, so the influx of such households into public housing may produce income downgrading, with real estate values remaining unaffected.

2.3 Findings of housing and real estate studies

While dealing with real estate values, the literature on neighbourhood change is often focused on social change at the neighbourhood level. Conversely, for housing and real estate studies the emphasis is on real estate values. Here, it is often assumed that income and real estate values are both strongly linked and highly sensitive to each other (e.g. Hort, 1998; Tsatsaronis and Zhu, 2004; Moos and Skaburskis, 2010). Yet, income is seen as only one factor among many. It should come as no surprise that housing characteristics such as quality, floor space, dwelling type and number of rooms are quite important in determining real estate values (Spit and Needham, 1987; Boelhouwer et al., 2000). However, the spatial rootedness of housing implies that environmental factors play a role too. Gaddy and Hart (1993) argued that real estate values are created and developed by four kinds of interrelated externalities: physical, political, economic and social. First, physical externalities refer to topographic features; in terms of neighbourhood attributes, these may include urban design and location. Second, political externalities entail the institutional framework of tax, building and housing regulations. Contrary to federal states such as the United States, this framework is largely the same for neighbourhoods in the Netherlands; only area-based policies may unevenly affect values among neighbourhoods. Third, the economic situation is always important. In periods of economic growth with rising wages, there is higher demand for housing, which results in a general increase in real estate values (Boelhouwer et al., 2000); at the same time, spill-over demand occurs in weak neighbourhoods, usually those located near high-demand areas (Aalbers, 2003; see also Porter, 2011). Rising incomes allow households to spend more on their dwellings and can result in a greater demand for dwellings as well as a scarcity of available housing. Consequently, real estate values are likely to increase. And fourth, social externalities refer to general demographic changes.
in population and household composition. At the neighbourhood level, this may refer to the level of social efficacy (e.g. safety levels in Visser and Van Dam, 2006). In such cases, a level of social organization may be capitalized in higher real estate values, whereas social disorganization would mean low values. Moreover, social externalities may refer to the ethnic composition of a neighbourhood population. In the Netherlands, Visser and Van Dam (2006) showed that the presence of large numbers of non-Western (low-income) immigrant groups may negatively influence real estate values. This is also related to processes of stigmatization, yet immigrants are not necessarily poor and therefore do not always initiate downgrading. Indeed, Moos and Skaburskis (2010) found that Vancouver’s inner-city real estate values increased rapidly in neighbourhoods settled by affluent immigrants.

2.4 The study area

Before focusing on Dutch urban neighbourhoods, we need to consider the institutional context of neighbourhood change in the Netherlands. To begin with, the state has several policy instruments, such as subsidies and taxes, to redistribute income and provide public housing for low-income households in mixed neighbourhoods (Musterd and Ostendorf, 1998; Elsinga and Wassenberg, 2007). The interventionist posture of the state has also led to the formulation of extensive policies regarding urban renewal in deprived neighbourhoods. Through renovation and demolition of public housing and the construction of owner-occupied housing, the state together with housing associations aims to improve the physical and social quality of deprived neighbourhoods, which in turn influences upgrading and downgrading patterns (Van Kempen and Van Weesep, 1994; Musterd and Ostendorf, 2008; Van Gent, 2010a). These associations pursue public tasks (e.g. housing lower-income households) as well as market activities, such as developing owner-occupied housing (Priemus, 2003; Boelhouwer, 2007). They also work to maintain the quality and value of their properties. Overall, the Dutch state and the housing associations intervene in both the public and private housing market-places to the extent that we can speak of highly-regulated housing markets – which may affect spontaneous processes of neighbourhood change.
The three metropolitan areas – Amsterdam, The Hague and Tilburg (Figure 2.1) – possess different historical, social and economic contexts, but nonetheless are a good representation of the Dutch urban landscape. There are some size differences that should be noted. Amsterdam consists of 148 neighbourhoods, including Amstelveen, Diemen, Duivendrecht and Badhoevedorp, with a total population of about 875,000. The Hague contains 164 neighbourhoods, including Rijswijk and Leidschendam-Voorburg, with a total population of about 600,000. And Tilburg has 44 neighbourhoods, which are home to about 200,000 residents. Certain variations in social and economic history should also be kept in mind.

Amsterdam is characterized by significant commercial and service industries and the metropolitan region is generally seen as an attractive place for locating economic activities, both nationally and internationally (Musterd et al., 2006). Not surprisingly, the regional housing market is characterized by high demand and high prices. The Hague is the governmental centre of the Netherlands and its labour market is dominated by an extensive public sector. In addition, several international organizations in the fields of
human rights and international cooperation are located here. Moreover, The Hague is one of the most segregated cities in the Netherlands, ranging from very poor areas to extremely affluent villa parks (Bolt et al., 2002). Tilburg is strongly marked by its industrial past and the city emerged from a conglomeration of smaller villages; consequently, it lacks a major historical centre and has only a few densely built pre-war neighbourhoods. Tilburg’s economy has diversified since the 1960s, but still focuses on manufacturing and transport.

2.5 Data and methodology

2.5.1 Income data
Social grading is usually measured by using income data (e.g. Musterd, 1991; Bourne, 1993; Meulenbelt, 1997), but a number of studies have also employed occupational, educational or unemployment data (e.g. Butler and Robson, 2001; Ley, 2003; Kitchen and Williams, 2009). Occupational and educational-attainment data are often used in gentrification studies, because this phenomenon is usually associated with the emergence of a new middle-class employed within the tertiary or quaternary sector. This study measures social grading by examining income data, since the level of earnings mainly drives the consumption sector and generally determines choice in housing and neighbourhoods (Bourne, 1993). In any case, educational and occupational data are not available at neighbourhood level in the Netherlands.

The income data used here derive from the Social Statistical Database (SSD) of Statistics Netherlands. The SSD registers data on income from employment, fringe benefits and pensions, as well as several individual and household characteristics such as ethnicity, age and gender for the period 1999-2006. The standardized net income per household is used as the key indicator (averaged by neighbourhood), which corrects for differences in size and household composition and facilitates neighbourhood comparison.

2.5.2 Real estate data
Real estate data were obtained from Kadaster (Land Registry Office), a government agency that compiles all real estate transactions in the Netherlands. Transaction values for different types of dwellings were used, which then were averaged at the neighbourhood level. The dataset contains values of owner-occupied housing as well as
rental units converted to owner-occupied housing; one constraint, however, is that real estate values of public housing are not included. Notwithstanding, Visser and Van Dam (2006) found that public housing does not significantly influence real estate values, although this may vary regionally. Another constraint is that this dataset does not report square meter values, with real estate values based on the sale price of different types of housing (apartments, terraced houses, corner houses, detached houses and semi-detached houses). For all neighbourhoods, the grading of real estate values was calculated for each type of dwelling. Next, the weighted average of the real estate value per dwelling type was calculated. The data were checked for extreme outliers and in order to ensure reliability, a minimum of 30 transactions were required for each neighbourhood and two three-year periods were compared. The first period was based on transaction values from 1998 to 2000, with a total of 48,516 transactions in the three urban cores; the second period was based on values from 2005 to 2007, with a total of 59,149 transactions. In the remainder of this study, these periods will be referred to as 1999 and 2006.

Although this study relied upon real estate values for owner-occupied housing, it is important to stress the importance of the public housing system. Unlike the United States, Dutch cities still have a significant public housing sector. In Amsterdam, for instance, housing associations owned 55 percent of the total housing stock in 2006 (Woonbarometer, 2010). The public housing system provides affordable housing of relatively high quality for low-income households. Furthermore, many households living in public housing receive rent subsidies. Consequently, low-income households have relatively good housing opportunities. In addition, households are not obliged to vacate their dwelling when their income increases. This means that households sometimes remain in the public sector, particularly in attractive locations and in units of good quality.

2.5.3 Defining neighbourhood upgrading and downgrading

In the first stage of the results, upgrading and downgrading spatial patterns were examined for the 1999-2006 period (Table 2.1). A neighbourhood was deemed to be upgrading when the growth of its income level or real estate value was more than half a standard deviation above the average of the city level between 1999 and 2006. Alternatively, a neighbourhood was classified as downgrading when the growth of its income level or real estate value was more than half a standard deviation below the
average city level. When the growth of its income level or real estate value was between half a standard deviation below and above the average city level, a neighbourhood was considered to be keeping pace with the city’s overall development. ArcMap was used to produce maps that displayed the spatial distribution of income and real estate grading patterns in Amsterdam, The Hague and Tilburg between 1999 and 2006.

Table 2.1 Overview of variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Indicator</th>
<th>Data source</th>
<th>Precondition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income upgrading</td>
<td>Growth of neighbourhood income &gt;0.5 standard deviation above average city level</td>
<td>Standardized net income per household</td>
<td>Social Statistical Database (Statistics Netherlands)</td>
<td>Minimal 15 households per neighbourhood</td>
</tr>
<tr>
<td>Income ‘keeping in pace’</td>
<td>Growth of income between 0.5 standard deviation above and below average city level</td>
<td>Standardized net income per household</td>
<td>Social Statistical Database (Statistics Netherlands)</td>
<td>Minimal 15 households per neighbourhood</td>
</tr>
<tr>
<td>Income downgrading</td>
<td>Growth of neighbourhood income &gt;0.5 standard deviation below average city level</td>
<td>Standardized net income per household</td>
<td>Social Statistical Database (Statistics Netherlands)</td>
<td>Minimal 15 households per neighbourhood</td>
</tr>
<tr>
<td>Real estate upgrading</td>
<td>Growth of neighbourhood real estate value &gt;0.5 standard deviation above average city level</td>
<td>Real estate transactions of owner-occupied housing</td>
<td>Kadaster (Land Registry Office)</td>
<td>Minimal 30 transactions per neighbourhood</td>
</tr>
<tr>
<td>Real estate ‘keeping in pace’</td>
<td>Growth of real estate value between 0.5 standard deviation above and below average city level</td>
<td>Real estate transactions of owner-occupied housing</td>
<td>Kadaster (Land Registry Office)</td>
<td>Minimal 30 transactions per neighbourhood</td>
</tr>
<tr>
<td>Real estate downgrading</td>
<td>Growth of average neighbourhood real estate value &gt;0.5 below average city level</td>
<td>Real estate transactions of owner-occupied housing</td>
<td>Kadaster (Land Registry Office)</td>
<td>Minimal 30 transactions per neighbourhood</td>
</tr>
</tbody>
</table>
In the second stage of the results, the temporal relationship between income and real estate value development was analysed. The 1999-2006 period was subdivided into three components. Income data were examined for 1999-2001, 2001-2004 and 2004-2006. In order to enhance the reliability of the real estate transaction values, their grading was based on values for 1998-1999 to 2000-2001, 2000-2001 to 2003-2004 and 2003-2004 to 2005-2006. Moreover, since real estate data were available until 2009, the 2005-2006 to 2008-2009 was used to see if the trend continued after 2006. Both income and real estate grading were analysed for these time periods and their patterns compared to one another to obtain further insight into how the processes were correlated over time. In this manner, it was possible to examine which neighbourhoods showed simultaneous trends of income and real estate change over the entire period; which neighbourhoods exhibited a time lag; which neighbourhoods evinced partial divergence between income and real estate patterns; and which neighbourhoods displayed true divergence between the two processes.

2.5.4 Neighbourhood definition
Finally, this study adheres to the national classification of neighbourhoods in the Netherlands. Neighbourhood boundaries are determined by municipalities. The neighbourhoods are generally socially and physically homogeneous territories that are often clearly set off by streets, railroad lines or waterways (Statistics Netherlands, 2010). Both the income and real estate value datasets are geocoded according to this neighbourhood classification.

2.6 Mapping upgrading and downgrading

Figures 2.2 and 2.3 respectively display grading patterns of income and real estate values in Amsterdam. Figures 2.4 and 2.5 show these patterns for The Hague and Figures 2.6 and 2.7 similarly cover Tilburg. At first glance, it is clear there are spatial differences between income and real estate grading patterns. Table 2.2 summarizes the main findings of income and real estate upgrading patterns and briefly elaborates them. Table 2.3 does likewise for downgrading patterns.
Figure 2.2 Income grading in Amsterdam, 1999-2006

Figure 2.3 Real estate grading in Amsterdam, 1999-2006
Figure 2.4 Income grading in The Hague, 1999-2006

Figure 2.5 Real estate grading in The Hague, 1999-2006
Figure 2.6 Income grading in Tilburg, 1999-2006

Figure 2.7 Real estate grading in Tilburg, 1999-2006
Disentangling Processes of Neighbourhood Change

Table 2.2 Summary of upgrading patterns

<table>
<thead>
<tr>
<th>Trend</th>
<th>Amsterdam</th>
<th>The Hague</th>
<th>Tilburg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income upgrading</td>
<td>Prosperous neighbourhoods, pre-war and centrally-located; Former working-class neighbourhoods, pre-war and centrally-located</td>
<td>Prosperous neighbourhoods, pre-war and centrally-located; Former working-class neighbourhoods, pre-war and centrally-located</td>
<td>Prosperous neighbourhoods in southwest part</td>
</tr>
<tr>
<td>(28.6 percent of neighbourhoods)</td>
<td>Some overlap with income upgrading neighbourhoods; Low density neighbourhoods, peripherally-located</td>
<td>Some overlap with income upgrading neighbourhoods; Neighbourhoods near seaside; Centrally-located renewal neighbourhoods</td>
<td>Former working-class neighbourhoods, pre-war and centrally-located</td>
</tr>
<tr>
<td>Real estate upgrading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(31.8 percent of neighbourhoods)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.6.1 Income upgrading

In Amsterdam, The Hague and Tilburg, 28.6 percent of the neighbourhoods show income upgrading, with accompanying income levels at 7 percent above the citywide trend. In Amsterdam and The Hague, most of the upgrading neighbourhoods are centrally-located and were constructed before World War II. In general, two types of neighbourhoods typically characterize income upgrading. The first type includes relatively prosperous neighbourhoods marked by high proportions of owner-occupied, single-family townhouses and a uniform middle and upper-middle class population with generally high income levels. Thus it appears that affluent neighbourhoods are becoming more affluent. The second type includes former working-class neighbourhoods, characterized by lower incomes and real estate values in the 1980s and 1990s. These neighbourhoods became increasingly attractive for middle-income households, which led to the upgrading of income and real estate values. Dutch gentrification studies provide varying explanations for such upgrading: middle-income households were drawn by the proximity to work and other facilities; demographic and sociocultural
changes; the rise of the service industry led to more jobs in the urban core; low real estate values; unoccupied warehouses and business space; and the gentrification aesthetic of pre-war architecture (see for example Cortie and Ostendorf, 1986; Wagenaar, 2003).

In Tilburg, several income upgrading neighbourhoods in the south-western sector of the city are relatively prosperous with high levels of income and real estate values; but other areas are more diverse. However, the scale and extent of gentrification observed in Amsterdam and The Hague are absent in Tilburg.

2.6.2 Real estate upgrading
Of all the neighbourhoods studied, 31.8 percent exhibit real estate upgrading. Real estate values in these neighbourhoods show an average increase of 15 percent above their citywide trend. In Amsterdam, real estate upgrading is widespread across the city. There is some overlap with income upgrading neighbourhoods, but peripheral parts of the city also show real estate upgrading. Those neighbourhoods are generally marked by low densities and owner-occupied, single-family housing. In The Hague, there is some overlap between the upgrading of income and real estate values. In addition, a number of neighbourhoods located near the North Sea coast show real estate upgrading as do certain centrally-located neighbourhoods undergoing urban renewal. The latter are subject to regeneration programs, aimed at improving housing and living conditions. However, renewal areas on the periphery of The Hague (and Amsterdam) do not show any upgrading (see below). In Tilburg, the upgrading of real estate values is confined to former working-class neighbourhoods in and around the city centre. It is also notable that, whereas transaction values rose rather swiftly, these central neighbourhoods did not exhibit income upgrading. Those discrepancies are discussed below.

2.6.3 Income downgrading
In the three urban cores, 38 percent of the neighbourhoods experienced income downgrading (Table 2.3). The income level in these neighbourhoods only rose at an average of 8 percent below citywide trend. In Amsterdam and The Hague, income downgrading is concentrated in the urban periphery. In Tilburg, a number of peripheral neighbourhoods also evinced income downgrading. Most were constructed in the years following World War II. As such, they are characterized by multi-family housing, open space and a substantial quantity of public housing. Like in many Western European countries, the early post-war period in the Netherlands was marked by housing
shortages, so residential construction emphasized quantity and produced overwhelming homogeneity. Such neighbourhoods showed relatively low levels of income and real estate values. Many have undergone decline over the past few decades, much of it attributed by researchers to housing stock characteristics (e.g. Prak and Priemus, 1984; Power, 1999). Individual dwellings tend to be small and noisy and their overall uniformity is not popular. A significant number of households that could afford to leave moved to higher-quality neighbourhoods, mostly suburban neighbourhoods dominated by single-family dwellings. They were replaced by newcomers of lower income and many were recently arrived (non-Western) immigrants or second-generation immigrants who had arrived in the Netherlands in an earlier date (Musterd and Van Kempen, 2007). Consequently, a process of filtering and succession was set into motion. Nowadays, a significant component of the population of early-post-war neighbourhoods is of non-Dutch origin. And it should also be noted that post-war housing can be in demand even when location, price and dwelling size are balanced (Van Kempen and Musterd, 1991).

Table 2.3 Summary of downgrading patterns

<table>
<thead>
<tr>
<th>Trend</th>
<th>Amsterdam</th>
<th>The Hague</th>
<th>Tilburg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income downgrading</td>
<td></td>
<td></td>
<td>Post-war peripherally-located neighbourhoods; Former working-class</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>neighbourhoods, pre-war and centrally-located</td>
</tr>
<tr>
<td>(38 percent of neighbourhoods)</td>
<td></td>
<td></td>
<td>Post-war peripherally-located neighbourhoods</td>
</tr>
<tr>
<td>Real estate downgrading</td>
<td></td>
<td></td>
<td>Post-war peripherally-located neighbourhoods, but little overlap with</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>income downgrading neighbourhoods</td>
</tr>
<tr>
<td>(46.6 percent of neighbourhoods)</td>
<td></td>
<td></td>
<td>Post-war peripherally-located neighbourhoods, but little overlap with</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>income downgrading neighbourhoods</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Late-20th-century constructed suburban neighbourhoods</td>
</tr>
</tbody>
</table>
2.6.4 Real estate downgrading
Of all the neighbourhoods investigated, 46.6 percent showed real estate downgrading, with real estate values that increased on average at 10 percent below citywide levels. Real estate downgrading is mainly clustered in high-density post-war neighbourhoods, but generally in neighbourhoods other than those marked by income downgrading. Some real estate downgrading neighbourhoods have experienced renewal before 1999 or between 1999 and 2006; all were formerly characterized by a high percentage of public housing. Physical interventions took place in the form of renovation and demolition of public housing and the construction of new (often owner-occupied) housing, a policy designed to restructure the housing market. Despite this regeneration, the sale of owner-occupied dwellings during the entire period did not increase in value as much as elsewhere in the three urban cores.

In Tilburg, downgrading was mainly concentrated in the western extension of the city that was constructed during the late-20th-century. This area is characterized by suburban type neighbourhoods with single-family and often owner-occupied dwellings. Between 1999 and 2006, new owner-occupied housing was still being added to this stock and may have influenced grading patterns. However, most of the housing predates 1999 and downgrading could very well result from a declining popularity of the area’s housing after the early 1980s.

2.6.5 Complex spatial patterns of income and real estate values
As noted earlier, income and real estate value development display different patterns. No more than 12.7 percent of all neighbourhoods studied showed both income and real estate upgrading; on the other hand, 16.2 percent of all neighbourhoods showed both income and real estate downgrading between 1999 and 2006. In another 16.2 percent, income and real estate grading were seen to be keeping pace with average city development. Therefore, in contrast to the assumption made in the literature that income and real estate value development go hand in hand, it was observed that in more than half of the neighbourhoods (55 percent) the relationship between income and real estate value development was more complex. In some cases there is income upgrading in tandem with the downgrading of real estate values. Or real estate values may follow a citywide trend, while an individual neighbourhood may exhibit income upgrading or downgrading. Furthermore, there can be a time lag between the two processes: for instance, there may first be income upgrading followed by real estate upgrading at a later
stage. The rest of this study will examine how these trends relate to each other over time, because this may provide some of the explanation for the partial dissimilarity between the two trends.

2.7 Temporal relationships between income and real estate value development

One possible explanation for the non-simultaneous trend of income and real estate value development in 55 percent of the neighbourhoods is that the comparison of the processes is based on two points in time (1999 and 2006). There could be a time lag between the two trends: for example, income upgrading could precede real estate upgrading or vice versa. To explore this notion, the 1999-2006 period was subdivided into three components, as discussed earlier (1999-2001, 2001-2004, and 2004-2006). Both income and real estate grading were investigated for these years and their patterns were compared to each other to better understand how these trends relate to each other over time.

The temporal relationship between changes in income and real estate grading was examined for all neighbourhoods, including those that revealed both upgrading and downgrading of income and real estate values in the previous analysis. Although it may seem that in this latter group income and real estate grading covary, there may still be a time lag between the two. Six categories were distinguished to describe the temporal relationship between income and real estate value development (Table 2.4), into which 87.6 percent of all the neighbourhoods studied could be classified. The remaining 12.4 percent showed an unclear relationship between the two processes, or they could not be classified because data were missing. Two graphs were drawn for each category (Table 2.4): the first shows a temporal relationship between income and real estate development for upgrading neighbourhoods, whereas the second shows that relationship for downgrading neighbourhoods.

In the previous section, in which the examination of upgrading and downgrading patterns was based on two points in time (1999 and 2006), it was shown that 45 percent of the neighbourhoods exhibited a simultaneous trend between income and real estate patterns. However, when the processes are viewed in greater detail by examining the patterns of each of the three time periods (1999-2001, 2001-2004, and 2004-2006), it is seen that in only 29.7 percent of the neighbourhoods income and real estate value
patterns simultaneously moved up or down or simultaneously adhered to the citywide trend across the entire period (Category A in Table 2.4). In the remaining 15.3 percent, there appears to be a time lag between the two processes, with one following the other at a later stage.

**Table 2.4** The temporal relationship between income and real estate value development

<table>
<thead>
<tr>
<th>Trend</th>
<th>Upgrading</th>
<th>Downgrading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Simultaneous trend (up, down or keeping in pace)</strong> (77 neighbourhoods, 29.7 percent)</td>
<td><img src="#" alt="Graph A1" /></td>
<td><img src="#" alt="Graph A2" /></td>
</tr>
<tr>
<td><strong>B. Real estate value development follows income development at later stage</strong> (27 neighbourhoods, 10.4 percent)</td>
<td><img src="#" alt="Graph B1" /></td>
<td><img src="#" alt="Graph B2" /></td>
</tr>
<tr>
<td><strong>C. Income development follows real estate value development at later stage</strong> (23 neighbourhoods, 8.9 percent)</td>
<td><img src="#" alt="Graph C1" /></td>
<td><img src="#" alt="Graph C2" /></td>
</tr>
<tr>
<td><strong>D. Income level following citywide trend, real estate value development up or down</strong> (65 neighbourhoods, 25.1 percent)</td>
<td><img src="#" alt="Graph D1" /></td>
<td><img src="#" alt="Graph D2" /></td>
</tr>
<tr>
<td><strong>E. Real estate value development following citywide trend, income level up or down</strong> (14 neighbourhoods, 5.4 percent)</td>
<td><img src="#" alt="Graph E1" /></td>
<td><img src="#" alt="Graph E2" /></td>
</tr>
<tr>
<td><strong>F. Diverging income and real estate value developments</strong> (21 neighbourhoods, 8.1 percent)</td>
<td><img src="#" alt="Graph F1" /></td>
<td><img src="#" alt="Graph F2" /></td>
</tr>
</tbody>
</table>

**Legend:**
- Income
- Real estate value

Total: 227 neighbourhoods (87.6 percent of all cases)
Neighbourhoods with a time lag between the trends were classified in categories B and C. Category B shows neighbourhoods in which income development follows real estate value development at a later stage (10.4 percent), whereas category C shows neighbourhoods where real estate value development follows income development at a later stage (8.9 percent). Therefore, eventually, these neighbourhoods do show upgrading and downgrading of both income and real estate values, but one process follows the other. As noted, a number of neighbourhoods that displayed simultaneous trends in the previous analysis were based on two points in time and appeared to show a time lag between the processes. In addition, several neighbourhoods displayed one trend (upgrading or downgrading), while the other followed the citywide trend in the previous analysis, appearing to show a time lag when viewed in greater detail. For instance, such a neighbourhood could exhibit income upgrading from 1999 to 2006 while real estate grading was consistent with the citywide trend from 1999 and 2004 and only displayed upgrading from 2004 to 2006.

Although a relatively large number of neighbourhoods showed upgrading and downgrading of both incomes and real estate values, whether they occurred simultaneously (Category A) or involved a time lag (Categories B and C), a significant number of neighbourhoods still showed an ambiguous relationship between the trends. A relatively large number of neighbourhoods also exhibited partially diverging forms of the processes: one trend followed citywide development, while the other trend is marked by upgrading or downgrading (Categories D and E). Notably, Category D is much larger than Category E: 25.1 percent vs. 5.4 percent of the neighbourhoods. This appears to reflect the volatile nature of housing markets vis-à-vis neighbourhood income levels. The final Category F showed neighbourhoods with diverging trends, whereby one trend is upgrading while the other involves downgrading. This category is relatively small (8.1 percent of all neighbourhoods).

The next section discusses neighbourhoods with simultaneous trends in income and real estate values. Since most of the neighbourhoods showed a more complex relationship between the trends, these are of particular interest and will be examined in greater detail.

2.7.1 Simultaneous trends of income and real estate value development
Neighbourhoods that evinced a simultaneous upgrading of both income and real estate values throughout the entire period (Category A1) were relatively prosperous, centrally-
located and of pre-war vintage. All were located in Amsterdam and The Hague and exhibited high incomes and real estate values. Moreover, they have hosted a prosperous population for many decades and were characterized by demographic homogeneity and a high percentage of owner-occupied housing. Neighbourhoods showing simultaneous income and real estate downgrading across the entire period (Category A2) were mainly peripheral in location, of post-war age, characterized by multi-family housing and possessing a high percentage of public housing. They also showed relatively low levels of income and real estate values.

As already mentioned, both the upgrading/downgrading and housing studies literatures assume a close relationship between neighbourhood income and real estate value development. Based on the data analysed here, it can be concluded that only 29.7 percent of the neighbourhoods showed simultaneous upgrading or downgrading over the entire period and that they rank at the top or bottom of the housing market hierarchy. Affluent neighbourhoods are becoming more affluent, while neighbourhoods with low incomes and real estate values fall farther behind. However, most of the neighbourhoods studied, rank between the top and bottom tiers of the hierarchy and display a more diffuse relationship between the two processes. These patterns are discussed next.

2.7.2 Time lags between income and real estate value development

This section discusses the neighbourhoods that display time lags between the two trends. Like Category A neighbourhoods, these also exhibit parallel trends of income and real estate values in the end (but with a time lag), but the types of neighbourhoods in these categories differ from those in Category A. It should be kept in mind that to fully understand the complex relationship between the trends, each neighbourhood and its evolution would need individual study. Despite this complexity and context dependency, several observable patterns can be highlighted. The discussion will use detailed examples to provide tentative explanations, which may form the basis for future inquiry.

Neighbourhoods in which real estate upgrading follows income upgrading at a later stage (Category B1) are mainly centrally-located, of pre-war age and are primarily found in Amsterdam (Figure 2.8). Many began to gentrify in the 1980s or 1990s and have become popular among middle- and higher-income households; but the gentrification process has now reached a more advanced stage. Single and dual middle-income households and increasingly those with higher incomes, have moved into these
neighbourhoods. In particular, the number of higher-income households with children has increased over the past decade (Boterman et al., 2010). These trends lead to income upgrading, housing has become scarce and real estate values have increased rapidly. This concurs with the assumption made in the gentrification literature that real estate upgrading will follow income upgrading.

Neighbourhoods in which income upgrading follows real estate upgrading at a later stage (Category C1) are mainly found in Amsterdam and resemble Category B1 neighbourhoods (Figure 2.8). In many of these neighbourhoods, new owner-occupied housing was constructed in the 1990s and 2000s. These residences complemented the municipality’s policy of adding larger dwellings to its housing stock in order to keep middle- and higher-income households in the city (Municipality of Amsterdam, 2008); consequently, the addition of these new dwellings led to real estate upgrading. The time between the sale of the dwellings and their delivery (between 1 and 4 years) could have contributed to the observed time lag between the trends. The newly-constructed dwellings could also be a trigger for the real estate upgrading of surrounding housing.

Figure 2.8 Time lags in upgrading neighbourhoods in Amsterdam
A second possible explanation is related to speculation. Since at least the late-1990s, Amsterdam has been recognized as an especially attractive place to live for city-oriented households and its housing market is understandably dominated by high demand (Aalbers, 2003; Booi et al., 2008). Thus income upgrading could be preceded by real estate upgrading whereby (young) households took out loans in order to buy more expensive dwellings as they speculated on having higher incomes later.

Neighbourhoods in which real estate downgrading follows income downgrading (Category B2) are mainly of post-war vintage, peripherally located, and contain high densities. They are marked by large proportions of multi-family dwellings and public housing. This category is absent in Tilburg, but in The Hague a cluster of Category B2 neighbourhoods in the Southwest district has been subject to the early phases of large scale urban renewal projects since 2000 (Municipality of The Hague, 2010). Through interventions such as renovations, demolition of public housing and construction of new owner-occupied dwellings, the municipality together with housing associations and the central government aim to improve the physical and social quality of these neighbourhoods. The income downgrading may result from the fact that the early phase of renewal requires the movement of residents. The subsequent demolition of public housing and construction of new housing generally impact the safety and liveability of neighbourhoods (Wittebrood and Van Dijk, 2007). This new situation can lead to a depression of real estate values.

Interestingly, in Amsterdam many of the Category B2 neighbourhoods are located next to or near neighbourhoods that had experienced urban renewal since 1999, including the demolition of public housing and construction of new owner-occupied housing. As a result, a significant proportion of households had to move out of these neighbourhoods. However, not all were able to return because a considerable amount of public housing was replaced by more expensive dwellings. This led to the displacement of mainly low-income households (Musterd and Ostendorf, 2005; Den Uyl, 2008), a substantial number of which relocated to Category B2 neighbourhoods. These were generally low-income households, thereby inducing income downgrading in their new neighbourhoods. Thus, real estate values can exhibit downgrading after a neighbourhood becomes less attractive as a result of such social changes. Den Uyl (2008), for example, studied displacement processes in Amsterdam Southeast and found that neighbourhoods receiving relocated households relocated from renewal neighbourhoods had been
recently identified as problem areas (this displacement process is known as the waterbed effect in the Netherlands; see Slob et al., 2008).

Neighbourhoods where the downgrading of income follows real estate downgrading (Category C2) tend to be more diverse, usually constituting disadvantaged high-density neighbourhoods that have not experienced large-scale renewal. Such neighbourhoods are common in and around the three urban cores and, except for an absence of intervention, the relationship among these neighbourhoods is not directly clear.

2.7.3 Partial diverging income and real estate development

Besides time lags, it is also interesting to examine neighbourhoods in which one trend (either income or real estate value) is upgrading or downgrading while the other follows citywide development. The divergence of one trend could be an early sign of change in the neighbourhood, with the other trend perhaps becoming established later. This may represent an early stage in the observed time lags in gentrification neighbourhoods as noted above, but, as we shall see, other explanations are possible. The majority of neighbourhoods with real estate upgrading, but where income levels follow the citywide trend (Category D1, Figure 2.9), are located in Amsterdam and The Hague. These neighbourhoods are characterized by low urban densities and a high percentage of households with children, with the latter indicative of an upward trend in the city over the past two decades (Boterman et al., 2010). In the core cities, however, low-density neighbourhoods with single-family housing are scarce, leading to increased real estate values. This could explain the real estate upgrading as while income levels follow the citywide trend. In Tilburg, on the other hand, several Category D1 neighbourhoods are located near the city centre, perhaps signifying an early stage of revaluation in the inner city. This is an intriguing notion because, as mentioned above, processes of gentrification are less common in middle-sized, older industrial cities such as Tilburg.

Neighbourhoods classified as Category E1, on the other hand, are relatively affluent with high incomes and real estate values. Only five of the neighbourhoods studied belong to this category. One would expect such neighbourhoods to exhibit income as well as real estate upgrading, but they probably showed an upgrading of both trends earlier before the local housing market became less elastic. With real estate values peaking and levelling off, they follow the citywide trend as the neighbourhood continues to show income upgrading.
In Amsterdam, several neighbourhoods that show real estate downgrading as income follows the citywide trend, are centrally-located and only just beginning to gentrify before 2006. A likely explanation for the falling values is the state’s policy of privatization and deregulation of the housing system in the late 1990s and early 2000s (see Boelhouwer, 2002; Van Kempen and Priemus, 2002). This meant that part of the public housing stock was sold off. Since the late 1990s, many (relatively small) apartments were placed on the owner-occupied housing market at prices below market level (De Heer and Dignum, 2005). Although this occurs in many urban neighbourhoods, this may have had a particularly strong impact in those where the real estate value of existing owner-occupied housing did not increase substantially. It is therefore unlikely that the observed decrease in real estate values would be followed by a decline in income levels as in the Category C2 neighbourhoods. In those centrally-located neighbourhoods, it is far more likely that both income and real estate values would increase after the privatized dwellings are re-sold on the market.

In Tilburg, Category D2 neighbourhoods are located in the oldest part of the late-20th-century western extension. With new suburban-type housing becoming available here between 1999 and 2006, it is likely that the older dwellings are less attractive than their newer counterparts, which would depress real estate values at least temporarily.
However, these neighbourhoods have seen a surge in the number of ethnically diverse households. In the Vlashof neighbourhood, for instance, the percentage of households of non-Western origin increased from 33.1 percent in 1999 to 42.2 percent in 2006 (Municipality of Tilburg, 2010). The influx of this population may also have stigmatized these neighbourhoods and depressed real estate values (e.g. Permentier et al., 2009).

A small number of neighbourhoods exhibit income downgrading but citywide development of real estate values (Category E2, 3.5 percent of all neighbourhoods) and they are characterized by a large proportion of public housing. Household income level may show downgrading, but real estate values may continue to follow the citywide trend when the physical condition of public housing remains sufficiently high. Another explanation for some Category E2 neighbourhoods may be related to the aging of the original population of post-war neighbourhoods, with much of the latter still in place. Buitenveldert-Oost in Amsterdam, for example, is marked by such population cohorts. Some of these residents settled in this well-located neighbourhood of spacious housing when it was constructed during the 1960s. When these middle-class residents reach retirement age, their incomes would drop significantly and so would the neighbourhood’s average income level, while real estate values would be maintained. This process is often referred to as internal social downgrading.

2.7.4 Diverging trends

Only 8.1 percent of the neighbourhoods show a real discrepancy between their growth trajectories of income and real estate values (Category F). Of this category, nine neighbourhoods showed income upgrading concomitant with real estate downgrading, and many were located in The Hague (Category F1, Figure 2.10). The majority are similar to Category E1 neighbourhoods and are relatively affluent with high income levels and real estate values. Like Category E1, one might expect such neighbourhoods to show upgrading of both incomes and real estate values. But the housing market here may have become even less elastic than in E1 neighbourhoods and the rise in real estate values of dwellings has reached its peak. Thus real estate values in these neighbourhoods show relative downgrading even as the neighbourhood still evinces income upgrading.

A number of neighbourhoods displaying real estate upgrading in tandem with income downgrading (Category F2, 12 neighbourhoods) have experienced urban renewal projects. Parts of the public housing stock have been renovated and owner-
occupied housing has been added. This may have led to incumbent real estate upgrading as well as upgrading in nearby neighbourhoods. However, public housing is still dominant and because it is home to low-income residents, the neighbourhoods can still experience income downgrading.

**Figure 2.10** Diverging income and real estate grading in The Hague

2.8 Conclusion

This study began with the assertion that there is a close relationship between income and real estate value development in urban neighbourhoods. It is often assumed that these developments are related or even synonymous, but an investigation of upgrading and downgrading of income and real estate values in three Dutch urban cores revealed that this relationship is complex and context dependent. Only in a relatively small number of neighbourhoods (less than 30 percent) did income and real estate values covary during the entire period. As was shown, such neighbourhoods were at the top or bottom of the housing market hierarchy. Another 20 percent of the neighbourhoods showed that income and real estate values develop in parallel fashion but with a time lag between
them. Finally, a significant proportion of the neighbourhoods showed partial divergence between the two.

Whereas the neighbourhoods and categories merit further and more detailed research, the main intention here was to elaborate on several tentative explanations for the disparities in trends and formulate a research agenda for analysing neighbourhood change, especially in non-extreme ‘middle’ neighbourhoods. To encourage future research, attention is drawn to three interrelated issues. First, it has been shown that neighbourhood change can result from both the migration patterns of households as well as the development of existing households within a neighbourhood. As is widely acknowledged, comprehending the social dynamics of an area can be key for understanding neighbourhood change. Earlier, specific references were made to migration patterns among neighbourhoods and to the internal dynamics of households (such as an aging population). There are no general laws that govern these dynamics because mobility patterns tend to differ by type of household and neighbourhood. But it is important to distinguish between different households, not only in terms of demography, employment, educational attainment and size and composition, but also in terms of life course, culture and forms of capital. Different types of households have different attitudes and relationships with respect to different types of neighbourhoods. For instance, a typical relatively poor urban neighbourhood may trap certain disadvantaged individuals, yet it may simultaneously provide a social support network to others and offer new young households the opportunity to come and live in urban core.

Second, to understand the relationship between households and their neighbourhood, it is important to appreciate what one may mean for the other. We asserted that neighbourhood change is defined by household behaviour and attitudes. However, the household neighbourhood relationship is two-way, with household behaviour and attitudes also defined and determined by the neighbourhood itself. Thus the characteristics of the neighbourhood play an important role, especially in and how they translate into meaning for residents. Characteristics imply place-specific features such as physical location, proximity to centres of consumption and production, dwelling characteristics and local housing market structure. These suggest that neighbourhood change is slow, but can become more fluid when its meaning for households is expressed and defined by its reputation. An image based on physical or social neighbourhood characteristics may affect and accelerate neighbourhood change when it is good (‘hip and upcoming area’) or bad (‘underclass ghetto’). A good reputation may result in new
categories of residents migrating into the neighbourhood. But when reputations amount to stereotyping and stigmatization, they can inhibit migration patterns and block neighbourhood change. In short, attention has to be given to the structures that shape opportunities and constraints for households to settle, stay or leave an area, as well as shape meaning for its residents.

Third, the role of institutions and the Dutch state has been described, particularly in the upgrading and downgrading of neighbourhoods. Although many studies on real estate values have shown that, besides the income level of households, additional factors affect real estate values (such as dwelling and neighbourhood characteristics), it was noted here that disparities in income and real estate value developments can be significantly attributed to the role of institutions and place-specific policies. One concerns policies focusing on local urban renewal, which impact neighbourhood change because these physical interventions usually lead to increases in real estate values. Demolition of public housing causes low-income households to move out of the neighbourhood, whereas higher-income households are attracted to renovated or newly constructed dwellings, thereby producing income upgrading. However, it has been seen that in neighbourhoods undergoing renewal the relationship between income and real estate value development is far more complex, both for the targeted neighbourhoods and for those in adjacent areas. It appears that the renewal stage, whether or not the goal is social transformation and possible displacement (or waterbed) effects, is important.

The state and other institutions can also influence upgrading and downgrading patterns in additional ways. The state developed instruments (subsidies, taxes) leading to the redistribution of incomes as well as fair housing for households. Consequently, low-income households have access to relatively good housing opportunities. First, through privatization and deregulation of the housing system, part of the public housing stock was sold off at a price lower than market price; this led to real estate downgrading in a number of neighbourhoods. Second, the construction of new owner occupied dwellings in a number of neighbourhoods and new city extensions to retain middle- and higher-income households led to real estate upgrading in these areas and in certain cases depressed values nearby. Thus, spontaneous upgrading and downgrading processes are not that readily observable in the Netherlands because of the highly regulated housing market. However, the role of institutions is context-dependent, so their impact on upgrading and downgrading patterns varies in the three urban cores studied.
In sum, it seems that the upgrading and downgrading literature mainly refers to ‘ideal types’ of neighbourhood development, which explain only a part of the process. In reality, upgrading and downgrading patterns are far more complicated. The claims here are based on the Dutch case, but it is likely that they also apply to other Northern and Western European cities, and perhaps even to North-American cities where the state plays a comparatively smaller role and where time lags may occur for other, household-related reasons. A case-study approach should further complement this study and would enable a more in-depth analysis. Moreover, it would serve to capture the historical and institutional contexts of a neighbourhood and identify the role of different actors in upgrading and downgrading processes. In the end, neighbourhoods are shaped by the interplay between two social actors. On one hand, institutions, such as the state and housing associations, shape opportunities, constraints and meaning; on the other hand, households shape and define neighbourhoods through their residential choices as well as their social and financial investments in their living environment. No inquiry into neighbourhood or urban change can afford to ignore either.