

Housing Liberalization and Gentrification; The Social Effects of Tenure Conversions in Amsterdam¹

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Abstract

Privatization and liberalization of the housing market are often used as governmental strategies for engineering the social composition of urban neighbourhoods. Drawing on longitudinal register data, this study reports findings from the highly-regulated housing context of Amsterdam. Through regression modelling and GIS-analyses, we demonstrate that tenure conversions from rent to owner-occupancy are not just bringing about changes in social-class composition, but also affect the ethnic and demographic compositions. Moreover, conversions from rent to ownership have highly spatially-specific effects. Our evidence suggests that tenure conversions may contribute to gentrification in the inner-city of Amsterdam, while conversions in post-war neighbourhoods do not lead to a social upgrading and may even facilitate downgrading. Furthermore, trends in the converted section of the housing market are not just mirroring income developments but also seem to reflect trends in ethnic segregation and demographic trends such as a renewed interest among families to live in the inner-city.

Introduction

In recent decades, the predominant trend in Western contexts has been the privatization, deregulation and liberalization of urban housing markets. More specifically, the trend has been to decrease state-regulated (social) rent in favour of market-regulated owner occupancy. The most direct instrument to achieve both ownership and social transformation has been the conversion of tenure, meaning selling of social rental dwellings or the deregulation of the private rental sector. Policy discourse has pointed to the benefits of owner occupancy for individual citizens (Ronald, 2008). What is more, the push for more 'home ownership' in the city is closely associated with the political aim in many Western European Cities to create a more 'sustainable economic population' (Lund Hansen, 2003, Cochrane, 2007). As the acquisition of owner occupied housing generally requires more financial capital or income than entering (social) rental housing, particularly in high-demand areas, tenure conversions typically entail that new residents will be of a higher social economic status. So, by accommodating more middle class and curtailing low-income housing provision, the housing market is used as a tool to bring about social change. This type of social change at the level of the neighbourhood is commonly referred to as gentrification (Clark, 1992).

There have been several studies which have shown the effect of tenure conversions on stimulating gentrification (Hamnett and Randolph, 1984, Millard-Ball, 2002, Murie, 1991, Murie and Musterd, 1996, Kennett and Forrest, 2003, Engels, 1999). Like much of gentrification research, these studies have a tendency to focus on social economic transformation, i.e. changes in income or class over time. While this is a valuable avenue of enquiry, tenure change may also have repercussions for the ethnic and demographic composition of urban neighbourhoods. For an individual household, the decision to buy a dwelling in the city is not only a matter of available economic capital, but it is also linked to life course, ethnicity and other household characteristics (Mulder, 2006b, Chen and Lin, 2011, Sampson and Sharkey, 2008, Clark and Dieleman, 1996, Özuekren and Van Kempen, 2002). In

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the literature on tenure conversion and gentrification, this type of social change has been remarkably under-researched. There appears to be no study that has investigated the various class, ethnic and demographic effects of tenure conversions at the level of the city. Moreover, there is even less known about how social effects of tenure change differ across space (Murie, 1991). Yet, by commodifying housing, neighbourhood trajectories become more dependent on market processes. In high demand areas, tenure conversions may enhance processes of gentrification while in other areas these conversions may have the contrary effect of downgrading housing market status.

The aim of this study is to gauge the spatially-variegated social effects of tenure conversions with regard to income, demographic, and ethnic characteristics of the population, in order to reflect on the role of tenure conversions in on-going urban processes such as gentrification, demographic change and ethnic segregation. The research question is:

How do new buyers of converted dwellings compare to old tenants and to the rest of Amsterdam in terms of socio-economic, demographic, and ethnic characteristics, and how do differences between occupants of converted dwellings vary across neighbourhoods?

We will look at the Dutch city of Amsterdam between 1999 and 2006. Since the late 1990s, municipal policies have been promoting tenure conversions to modernise tenure and accommodate a new population in the city as a whole, and, in some cases, to regenerate problematic neighbourhoods in particular. In a context of high-demand, this case serves to identify various aspects of social transformation through conversion. While applying an exceptionally rich data source (individual level longitudinal data of the entire population residing in the Netherlands), we are able to compare former tenants with new owners of converted dwellings. Furthermore, as individuals are geo-coded for statistical neighbourhood units, we are able to map social economic as well as demographic and ethnic transformations through tenure conversions.

The remainder of this paper will be structured as follows. First, our literature section will discuss the policy and social effects of tenure conversions in relation to gentrification. The paper proceeds by setting out the case of Amsterdam and subsequently outlines the methodology. The results section is split in two: the first section presents regression models to establish how new buyers relate to tenants and the rest of the Amsterdam population. The second part of the results shows our GIS analyses of spatial distribution of differences between buyers and tenants. Lastly, the discussion and conclusion sections will connect the findings with broader literatures on neighbourhood policies and gentrification.

The policy of tenure conversion and gentrification

In a broad sense, there are two forms of tenure conversion. First, tenure conversion may be the transfer from state-owned or state-regulated rental housing to owner occupied housing. This is often referred to as privatisation. [1] In this case, conversion is the product of state policies and politics. Second, tenure conversion may also be the sale of privately-owned rental dwellings to owner occupied dwellings. In case of multi-family housing where formal ownership needs to be established for all housing units, this type of conversion is also subject to state regulation. Whether a permit for the partition of property is conditional depends on the institutional context. Both forms are related to state power, policy and regulation. Yet, as a state policy and a property-owner practice, tenure conversion is not necessarily done to trigger or stimulate urban gentrification. Below we will outline three theoretical perspectives which specify related drivers and objectives on different scales.

The Push for Homeownership

Tenure conversion in cities may be seen as part of a wider trend in state policy to promote and increase owner occupancy in society. A well-documented case is Great Britain, where since the 1980s, housing policies, such as the Right-to-Buy legislation, aimed to promote 'ownership' by

increasing owner occupancy (Forrest and Murie, 1995, Jones and Murie, 2006, Hamnett, 1999, Watson, 2009). However, in recent decades, the promotion of home ownership has also manifested itself in other Asian and European contexts, including countries known for their large social rental stock such as Sweden and the Netherlands (see Atterhog, 2006, Kemeny, 2005, Doling and Ronald, 2010, Groves et al., 2007, Boelhouwer and Priemus, 1990). These policies are legitimised by an ideological discourse which casts owner occupancy as ‘natural’ and superior to rental. In short, the discourse portrays owner occupancy as producing more responsible and more autonomous citizens, while granting them social status, income and economic security (Ronald, 2008). In relation to the last two points, the discourse refers to the possibility to siphon off unmortgaged equity at an advanced age to augment pensions or health care arrangements. For this reason, the promotion of owner occupancy as a governmental strategy has been connected to the politics of welfare state restructuring and a move towards asset-based welfare (see Van Gent, 2010, Malpass, 2008, Groves et al., 2007, Kemeny, 2001, Doling and Ronald, 2010, Elsinga et al., 2007).

In sum, when regulated by housing policy, tenure conversions may be related to a broader welfare and ownership agenda. While policy objectives are related to transformations on an individual and societal scale, they are less concerned with area-based processes such as gentrification. Nevertheless, ownership policies may enable gentrification (Watt, 2009, Van Gent, 2013).

Neighbourhood regeneration and upgrading

Tenure conversion may also be part of area-based policies that aim to regenerate or upgrade urban neighbourhoods which are deemed problematic. While these policies are often associated with urban renewal (see Kleinhans, 2004), the localised sale of public-funded rental dwellings, often after being renovated, may also be employed to achieve tenure restructuring and consequently a transformation of an area’s social composition (Cameron, 2006, Van Gent, 2013). The desired transformation involves accommodating middle class households. The altered social mix is assumed by policy to produce beneficial effects for poor residents who remain in the neighbourhood (Andersson and Musterd, 2005). As these types of ‘neighbourhood effects’ are more complex and context-dependent than assumed in policy and practice, it is doubtful whether ‘social mixing’ will produce the desired social outcomes with regard to poverty and social exclusion (see Galster, 2007, Musterd et al., 2012, Pinkster, 2012, Van Ham et al., 2011, Van Eijk, 2010).

While most policies emphasise the need to address socio-economic issues, localised housing market restructuring is also seen as a remedy for ethnic segregation and concentration (Bolt, 2009). The switch from (regulated) rental to owner occupied housing is thought to attract more native (‘white’) buyers to areas with high concentrations of non-natives. The tenuous relationship between tenure and ethnicity, however, is illustrated by the renewal of the Bijlmermeer in Amsterdam, where, contrary to policy expectations, immigrant (‘black’) middle classes moved into new owner occupied dwellings (Aalbers, 2011).

In accordance with the goals of local neighbourhood transformation, the state may allow and encourage tenure conversions. In most cases dwellings are sold to new occupiers, but this is not always the case. When dwellings are sold to occupying tenants, there will not be an immediate impact, but the dwelling’s social and housing market role will change when the privatised dwelling is exchanged through the market. At resale, privatisation becomes commodification (Forrest and Murie 1995).

Several scholars have criticized regeneration and upgrading for actively encouraging gentrification and displacement. They argue that, rather than helping poor residents, these policies accommodate and cater to the middle classes. These criticisms also extend to regeneration of areas which are located on the urban periphery and which are low in demand (see Lees, 2008, Uitermark et al., 2007, Wyly and Hammel, 1999, Allen, 2008).

Value gap theory

Tenure conversions may also be explained by the financial rationale of property owners, particularly of private real-estate investors and regulated non-profit organisations like housing associations. The value-gap theory holds that when a property’s value is greater under owner occupancy than under rental, owners may decide to convert tenure (Hamnett and Randolph, 1984, Clark, 1992). The theory is related to – yet conceptually different from – rent-gap theory (Smith, 1987), which explains the

return of capital in disinvested areas rather than tenure conversion (Clark, 1992). The value gap between owner occupancy and rent may be the result of housing regulations (e.g. rent control) and tax codes which favour owner occupancy or place financial burdens on renting over time. Consequently, the conversions are conducive to gentrification in some residential areas. However, in highly-regulated contexts such as Sweden and the Netherlands, the mere existence of a value gap is insufficient to trigger gentrification, as conversions are often regulated and, in the case of housing associations, not always preferred (Conijn and Schilder, 2011, Millard-Ball, 2000).

Social effects of tenure conversions

The policy of tenure conversions has several social objectives which are all based on a notion of owners having a higher social economic status. In case of regeneration, tenure conversions are purposefully done to achieve socio-spatial transformation. Moreover, as a general policy and practice, tenure conversions seem to have context-dependent, complex, and occasionally contradictory effects on social patterning in the city (Millard-Ball, 2002, Murie and Musterd, 1996).

Socio-economic displacement

In terms of socio-economic change, effects are most heavily debated and researched in terms of the displacement of lower income groups from housing and neighbourhoods. More than a few studies have demonstrated that the conversion from rent to owner-occupancy is accompanied by direct and indirect forms of displacement (Marcuse, 1986). Direct forms of displacement have been associated with the closing of value gaps. When landlords have capitalised on the gap, the capital required to live in converted dwelling is much higher than before, resulting in the displacement of lower income groups (Clark, 1992).

As Hamnett and Randolph (1984) have shown, gentrification processes in various boroughs of London went hand in hand with right-to-buy policies that stimulated homeownership, and the decline of private landlordism. Private rent conversions have enabled the closing of large value gaps, resulting in the displacement of lower classes and the influx of middle classes. Various scholars drawing on data from other British contexts have also shown that the privatisation and re-commodification of social rent have caused displacement and facilitated processes of gentrification (Allen, 2008, Harloe, 1995, Murie, 1991).

In addition to direct forms, tenure conversions may also result in indirect forms of displacement. The extraction of lower income housing from the housing stock may result in exclusionary displacement at the level of the metropolitan housing market (Slater, 2009). As Millard-Ball has shown for Stockholm, tenure conversions from rent to (collective) ownership may create a scarcity of rental dwellings, leading to a fiercer competition for the remaining rental dwellings thereby inflating rents. According to him conversions from rent to ownership have effects for the entire Stockholm rental sector (Millard-Ball, 2002). It is evident that tenure conversions are often connected to processes of gentrification, particularly in case of neighbourhood regeneration based on changes in class structure (Davidson and Lees, 2005). The impacts of tenure conversions, however, extend beyond gentrification and class transformations. Tenure conversions may also change demographic and ethnic composition of neighbourhoods. These changes may intersect with gentrification as described for example for Harlem, New York (Freeman, 2006) or Brixton, London (Butler and Robson, 2001) where class and ethnicity are both relevant factors for explaining neighbourhood transformations. Nevertheless, tenure conversions may also cause other forms of social change at the neighbourhood and the city level, which are not exclusively related to class.

Ethnicity

There is a vast literature that has established that patterns of ethnic segregation are closely related to housing market structures (e.g. Özüekren and Van Kempen, 2002, Arbaçi, 2007, Phillips, 2007, Musterd, 2005). For example, Hamnett and Butler (2010) have demonstrated that the effects of the massive sale of council housing have exacerbated the association between ethnicity and tenure in the inner city of London. The right-to-buy legislation has mostly led to native tenants becoming owner occupants, leaving ethnic groups 'behind' in social rent. In a European comparison, Musterd (2005)

has shown that in various European cities ethnic minorities tend to be strongly overrepresented in the social housing sector. While acknowledging that income plays a crucial part, he argues that dependency of particular ethnic groups on the social rental sector may also be explained by other aspects of the housing market. Having access to mortgage financing is not only a matter of income levels, but is also influenced by various forms of discrimination (see Aalbers, 2010, Özüekren and Van Kempen, 2002). Furthermore, renting or buying is also related to housing and tenure preferences, which also differ between various ethnic groups (Musterd, 2005). Consequently, the privatization of rental housing may have various repercussions for different ethnic groups.

Demography

In addition to class and ethnicity, tenure conversions also relate to household structure and other demographic aspects. Although household composition is also interrelated with both ethnicity and purchasing power, there is overwhelming evidence that tenure is associated with life course (Clark and Dieleman, 1996, Michelson, 1977, Rossi, 1955). Particularly, family formation and having children is associated with the transition from rent to owner occupancy (Mulder, 2006a). In an analysis of the social effects of tenure conversions in Britain, Murie (1991) shows that buyers of council housing in London and Birmingham differed from former tenants in terms of class as well as in terms of household composition and housing histories. Buyers of council housing were often younger households in the early stages of their housing careers, but not necessarily first-time buyers. A relatively large group had lived in owner-occupancy before. Furthermore, many new buyers were in a phase of family formation. Murie argues that privatisation of council housing is 'compatible with the early stages of gentrification', but 'the variation in the progress is likely to relate to regional factors, pressures and prices' (Murie, 1991: 146).

Tenure conversions in Amsterdam

The housing market structure of Amsterdam is characterised by its comparatively high share of social rental housing. After the economic crises of the 1970s, new housing was predominantly social housing until the late 1980s, when central government subsidies were cut back. In this period, the increases in social-rental units were mostly at the expense of the private rental market, but little new owner occupied housing was added to the stock. In 1995, housing associations owned 58% of the city's housing stock (almost all was socially rented). These associations are state-regulated entities which develop, acquire and manage commercial and residential real estate for (social) rent.

Depending on the size and quality of the dwelling, rents may be regulated, irrespective of whether the owner is a private landlord or social agency. Rental housing is thus divided between social owned, private owned and rent regulated and private unregulated, although most, most rental dwellings are owned by housing associations. This means that conversion from social rental to private rental require substantial renovation and/or expansion of the dwelling in order for the unit to be classified within the free private rental market. This type of conversion, involving renovation, is not the concern of this paper. Up until 2011 [2], all rent controlled dwellings were open to low- and middle-income households. Once tenants were allotted a dwelling of their choosing –usually after a period on a waiting list– they could remain indefinitely, even if their income increased. Consequently, as the dwellings are generally of good quality and rent-controlled, social rental housing have also been occupied by middle class residents, particularly in high-demand areas.

The large social sector and strict regulatory regime mean that private sector housing is limited in Amsterdam. Simultaneously, demand for housing in Amsterdam has grown substantially since the 1990s. Consequently, social rental waiting periods have increased and housing prices have gone up. Affluent areas such as the historic city centre and the pre-war Oud-Zuid area south of it show increasing housing prices, while other nineteenth-century neighbourhoods have also seen above-average increases (Teernstra and Van Gent, 2012).

The high demand has led to reinvestment and gentrification in several areas, which is a change from the period of disinvestment witnessed before the 1990s. These dynamics have led the Amsterdam municipality to nod directly toward recent gentrification as one of its city housing policy successes and have indicated an intention to expand and capitalise upon it (Gemeente Amsterdam,

2008). Indeed, in the course of the 1990s and 2000s, the municipality of Amsterdam has started to liberalise and deregulate part of its housing stock (Van Gent, 2013, Uitermark, 2009). Tenure conversions, however, are not pursued simply for the sake of gentrification itself. Rather, gentrification through conversion is a by-product of home ownership policies, it is aimed for in regeneration efforts, and serves a purpose in sustaining Amsterdam's social housing sector.

Ownership

Following national home ownership policies, the Amsterdam municipality has set out to increase the share of owner occupancy in the city. This is mainly presented as a diversification and modernisation of the housing stock. In addition to new construction, the shift to owner occupancy is achieved by tenure conversion from social and private rental dwellings.

As the housing associations own most of the social rental stock, they are important actors in the conversions. In 1997, the municipality, borough authorities and housing associations agreed to sell a maximum of 15,575 social rental dwellings between 1998 and 2001. A second covenant (2001) expanded the privatisation quota for associations with an additional 13,000 dwellings (*Gemeente Amsterdam, 2001*). Between 1999 and 2006, 9582 social rent dwellings were sold to the market, which is much less than the quota allowed for. Approximately 25% of these dwellings were bought by the former tenants.[3] The sale of social housing has not occurred evenly across space. Particularly in the north and south-eastern periphery, a substantial number of dwellings have been converted from social rent to owner-occupancy (about 5% of the total housing stock in these neighbourhoods).

Like the housing associations, the municipality also changed its policy with regard to privately-owned property. Originally, the policy was to stop division of property ownership in order to retain an affordable rental stock. After 2002, however, municipal policy has come in line with national ownership policy and specified a quota of division permits for pre-1940 dwellings in centrally-located neighbourhoods (*Gemeente Amsterdam, 2011*). This allowed real-estate investors like pension funds to capitalise on the increasing value gap between strongly-regulated rent and rising housing prices.

Regeneration

Tenure conversions were also incorporated as a regeneration strategy to transform neighbourhoods in terms of housing market and social composition. In this case, a cluster of buildings would typically be vacated and renovated before being privatized. The aim was to attract higher income households to the neighbourhood and create a better social mix, which would have beneficial social and managerial effects (see above). This strategy was pursued in areas which were deemed problematic, most notably in pre-war working-class areas with high numbers of small social rental apartments such as Westerpark, Baarsjes, and Indische Buurt. This strategy was also followed in peripheral post-war estates such as Venserpolder.

Sustaining the social housing sector

In addition to increasing ownership and changing neighbourhoods, housing associations have also privatised social rental housing to capitalise on the value gap. Since the liberalisation of the Dutch social housing sector since the late 1980s, sales have become a key aspect of associations' asset management strategies. The profits from sales are used to acquire or construct new dwellings for social housing (Gruis et al., 2004). In Amsterdam in the decade before the 2008 crises, this strategy seemed to be working, particularly because overall demand was high and housing prices were increasing (Van Gent, 2013). Therefore, conversions of social rental dwellings were also driven by a financial logic.

Data and Methods

To measure social change of tenure conversions in Amsterdam, this study draws on register data from the Dutch Social Statistical Database (SSB) of the Netherlands Bureau of Statistics (CBS). Our dataset contains individual level register data on the entire population of the Netherlands for the period 1999 to 2006 on income from work, benefits, student subsidies and pensions as well as several

individual characteristics such as neighbourhood of residence, ethnicity, age, gender and household characteristics. The dataset was merged with individual level housing data (on tenure) from tax records for 1999 and 2006, which allows distinguishing between rental and owner occupied housing. Furthermore, this study follows the neighbourhood classification of CBS. The neighbourhoods are generally socially and physically homogeneous areas clearly bounded by physical infrastructure.

The final dataset enables us to make a comparison of the residents of converted dwellings over time. We made a selection of all individuals that lived in dwellings in Amsterdam that were converted from rental (in 1999) to owner-occupancy by 2006. Because we are interested in the social effects of commodification, we excluded former tenants that bought their own converted dwelling. The selected population was divided into two groups, the residents of the rental dwellings in 1999, to whom we will refer as the (former) tenants; and the buyers of the converted dwellings who lived and owned the converted dwellings in 2006, who we will call new buyers. The following subquestions are addressed:

- 1) How do new buyers of converted dwellings compare to other inhabitants of Amsterdam in 2006 (model 1A), and to other homeowners in 2006 (model 1B)?
- 2) What are the characteristics of new buyers in 2006 compared to former tenants in 1999 (model 2), and between new buyers in 2006 compared to the former tenants in 2006 (model 3)?
- 3) What are the spatial patterns in terms of socio-economic, demographic and ethnic differences between tenants and owners across Amsterdam's neighbourhoods?

In order to identify the characteristics of our research population, the first two questions are addressed via four logistic regression analyses (using SPSS). In all four models the new buyers are compared with a different reference category thereby controlling for all other variables. The independent variables of the models are gender, age, ethnicity, level of income, development of income, and household composition. In model 1a we compare the new buyers with the rest of the Amsterdam population in 2006 and in model 1b we compare them only with other homeowners in 2006. These two models allow for an analysis of the characteristics of these new buyers.

The second model compares the new buyers in 2006 with the former tenants in 1999. To do this, buyers were attributed their income, age and household composition characteristics for 2006 and tenants for 1999. To make income comparable, we have corrected income data for inflation by making the incomes relative to the city's mean in their respective years. The income development variable was excluded. The resulting analysis allows for measuring the direct effect of the tenure conversion on the composition of the population of these dwellings, and consequently also the effect of these conversions on the population of the neighbourhoods in which these dwellings are located.

The third model compares how the new buyers differ from former tenants in terms of income position, their ethnicity, and their demographic characteristic in 2006. Approximately 50% of the former tenants still lived in Amsterdam, while the rest had moved outside of Amsterdam.[4] For this model, we have limited our population to the adult working population (25-64 years old, in 2006). This was done to account for the seven year skewness in age distribution and income development.

The third question is dealt with in the second analyses paragraph and is meant to investigate the spatial differentiation of the modelling outcomes. By making use of GIS software (ArcMap), we have made several maps that show the differences in average characteristics of households living in converted housing, aggregated to the neighbourhood level in both 1999 and 2006. When 1999 and 2006 are compared with each other income variables are made comparable through creating z-scores. The maps are used for identifying patterns of neighbourhood change across Amsterdam urban space. Four types of maps will be shown: income differences between new buyers in 2006 and former tenants in 1999 and 2006; household differences between new buyers 2006 and tenants in 1999; standardized age differences between new buyers in 2006 and tenants in 1999; and ethnic differences between new buyers and former tenants. Table 1 presents the descriptive statistics for the four tested models.

Table 1 about here.

Analyses I: Regression models

This section will discuss subquestions 1 and 2. Before we look at how former tenants and new buyers compare to each other, we will first look at how the new owners relate to the city's population and other owner occupants.

The new buyers of the former rental dwellings differ significantly from both the rest of the Amsterdam population (model A) and the other homeowners in the city (model B). Table 2 shows that the buyers of converted dwellings are more often men, younger, more affluent and also more often native Dutch than the rest of the city's population. The household composition of the converted homes also differs from the rest of the city: unmarried couples (with and without children) are particularly overrepresented in these dwellings, while single parents are the least likely to be buyers of this type of property.

Compared to other owner occupants in the city in 2006, the buyers of former rental housing are also more often men, younger and significantly less frequently married. The ethnic and income position of new buyers, however, presents a less clear-cut image. Taking into account other characteristics, including income, Turkish, Moroccan, Caribbean and other non-Western groups have relatively more often bought the converted rental dwellings; Surinamese are less likely to have bought privatised dwellings (all compared to native-Dutch owner-occupants). Compared to middle income owner-occupants, purchasers of former rental dwellings are underrepresented in both low and high income categories. Although the buyers of converted dwellings compared to the city as a whole are more likely to be young white (upper) middle classes, the alternative model shows that this group is quite mixed in both its ethnic and class profile compared to owner occupants in non-converted private dwellings.

Table 2 about here.

The second model allows for a comparison in time between the former tenants and the new buyers. So, this model 2 shows what the effect is of the change of the tenure of this segment of the housing stock. It appears from Table 3 that buyers are more often men, they are younger, they are more often of Western, Turkish and other non-Western descent and they are richer than the former tenants. Furthermore, new buyers are more often unmarried couples with children. Equally important, compared to native Dutch, new buyers are less often Moroccans and, compared to singles, all other household compositions are less likely to be new buyers except for unmarried couples with children. The third model compares the new buyers with the former tenants of those dwellings in 2006. The picture is similar to the previous model, however, some important differences appear. Since ethnicity is constant over time, the effects of ethnicity have obviously changed little. The income effect is weaker: compared to middle incomes, low incomes are still much less represented among the new buyers but the higher income categories are not significantly overrepresented. This indicates that former tenants have undergone a rise in their income position in the period 1999-2006. The advancement of former tenants in their employment and household careers is also reflected in the effect of household composition in this model. New buyers are much more likely to be singles than any other household category.

Table 3 about here.

Table 4 about here.

Analyses II: Spatial patterns

The models two and three above have shown several interesting differences between the old tenants and new owners. However, to get a better understanding of where effects are taking place, we will present several outputs from our GIS analyses. These maps will give us a better sense of the spatial

patterns of socio-economic, demographic and ethnic differences between new owners and former tenants.

Figure 1 about here.

To get a sense of where dwellings were sold, Figure 1 shows the adult population in the converted dwellings where a move took place, as a share of the total adult population in 2006 [5]. While the maximum rate is 14.3 percent, the share in most neighbourhoods is between 2 and 4 percent. Considering that between 1999 and 2006 less than half the Amsterdam population moved house, the conversions will have an impact on any social transformations. Most conversions took place in the nineteenth century crescent and the early 20th century ring. These are largely apartment dwellings. Rates are also relatively high in the southeastern periphery, where terraced housing from the 1970s and 1980s has been sold by housing associations.

Figure 2 about here.

Figure 2 shows the difference in income levels (corrected for inflation and average upgrading) of the occupants of converted dwellings before and after. The income measure used is here is the equivalised household income, which can be seen as an indicator of the economic resources available to a standardised household. For a single person household it is equal to household income. For a multi-person household, it indicates the household income that would be needed by a single-person household to enjoy the same level of economic wellbeing. As such, it reflects the change of social economic status of residents through conversion in Amsterdam regardless of changes in household type. There is a substantial increase in income levels in the nineteenth century crescent and in some areas of the 17th century historic city centre. At the periphery we see an increase in income levels in two pre-war garden city estates in the north, a relatively new terraced housing estate in the west, and a separate village (Driemond) in the southeast. Other neighbourhoods in the periphery either show a smaller increase or a decrease in income levels of the dwelling occupants. Decreases are mostly in postwar housing estates, and in Indische Buurt West in the east. This prewar neighbourhood close to the city centre has been subject to a regeneration effort which mainly relied on renovation and tenure conversion of social rental housing. Owner occupancy increased from 3.5 percent in 2000 to 10 percent in 2005 (and to 20 percent in 2010). The affordable apartments and proximity to the city centre are attractive for young native Dutch households at the start of their careers. This mode of regeneration was also used in the neighbourhoods west of the historic centre, but the timing of the conversions has not made the change in social status visible through income.

Figure 3 about here.

To get a better sense of income differences per neighbourhood, we also look at the difference in equivalised household income between former tenants and new owners in 2006. Figure 3 shows this difference per neighbourhood where the dwelling is located. To be clear, former tenants may not live in the same neighbourhood anymore. This comparison is somewhat uneven, as former tenants are seven years ahead in their employment careers. So, as Amsterdam has a relatively young population, it is expected that former tenants will now earn more, resulting in a map wherein most neighbourhoods are shaded. Yet, the map still reflects most of the patterns from the previous figure (3). We see that the new owners are particularly more affluent in oud-Zuid and surrounding neighbourhoods and in the northern garden estates. Despite the income increase of former tenants, the new owners of converted dwellings have in some areas more than 40% higher incomes than the former tenants. It is in these areas where economic displacement has most likely taken place.

Figure 4 about here.

Figure 5 about here.

As the models have shown, the conversion of tenure represents more than socio-economic change. New owners have different household characteristics. To see how this social transformation plays out in space, we present the change in household type per neighbourhood in Figures 4 and 5.

Figure 4 shows the change in households with children. The models already indicated that, despite the fact that the dwellings remained the same in terms of size, there are more family households among the new buyers than among the former tenants. Correspondingly, the map shows an increase in the majority of neighbourhoods. Interestingly, the strongest increase of households with children takes place in two rather different types of neighbourhoods: affluent middle-class or gentrifying areas in the central parts of the city and peripheral postwar neighborhoods in the western part of the city. The only decreases are in areas with small apartments, which were mostly social rental in 1999. Although this study only covers the converted dwellings these spatial patterns strongly resemble the findings from a study on Amsterdam middle class families (Boterman et al., 2010). In that study it was demonstrated that (native-Dutch) middle classes are increasingly settling down in the central boroughs, while mainly Turkish and Moroccan families are causing an increase in family households in the western periphery.

Figure 5 shows the change in couples without children. While, the centre shows diverging and puzzling trends, there are some clear patterns outside it. There is a relative decrease in the peripheral areas and in affluent areas in the pre-war belt around the historic centre. These are areas where there has been an increase in households with children. Increases are seen in the rest of the 19th and early 20th century neighbourhoods.

Figure 6 about here.

Lastly, figure 6 shows the change in ethnic composition of occupants of converted dwellings per neighbourhood. Please note that in this period, the share of non-natives increased in the city from 44% to 48% (CBS, 2012).

This map shows three trends: 1) converted dwellings in peripherally located post-war neighbourhoods show a decrease of the share of native-Dutch inhabitants. The only exception being Venserpolder in the southeast where the share of natives increased from 22 to 27 percent. 2) The population of the converted dwellings shifted to a higher proportion of native-Dutch in the pre-war neighbourhoods around the historic city centre. The highest increases are seen in the Indische Buurt and Westerpark, where regeneration involves privatisation of social rental apartments. 3) The share of native-Dutch shows decreases in the historic city centre and the renewed Eastern Docklands, which is mainly related to the influx of western immigrants (ex-pats) to these areas.

Main findings

This study has demonstrated that changing the ownership status has not only caused a social upgrading of the population of converted dwellings in Amsterdam but remarkably, changing only the tenure of dwellings also facilitated demographic and ethnic transformations. Moreover, this study has shown that the social effects of these tenure conversions differ between neighbourhoods. In many areas tenure conversions are very likely to facilitate processes of gentrification via direct and exclusionary forms of displacement. In other areas, however, tenure conversions do not result in a social upgrading of the population via displacement. Closely associated with income effects, the ethnic composition of neighbourhoods is also affected by tenure conversions. Different tenure and housing preferences as well as differences in income and household composition result in various ethnic groups being affected differently by tenure conversions. Depending also strongly on the local configurations of the housing market at the neighbourhood level, tenure conversions in some areas may be associated with a diversification of the population, while in other areas the composition of neighbourhoods may become more homogenous. The relationship between tenure conversions and

ethnic segregation is hence often ambiguous. We have found that Turkish groups in particular purchase converted dwellings. This finding is in line with a general trend of increasing owner occupancy among (second generation) Western, Turkish and ‘other non-Western’ migrant households in the Amsterdam region (see Musterd and Van Gent, 2012). It is unknown why owner occupancy rates between migrant groups in the Netherlands are diverging. Nevertheless, tenure conversions seem to contribute to increasing ethnic polarisation between the central parts of the city and the post-war periphery. Even though migrant households buy converted dwellings relatively more often than native Dutch, they tend to do so in other parts of the city. Particularly converted dwellings in the 19th century belt around the historical centre are increasingly inhabited by native-Dutch residents. This seems to fit broader trends of gentrification in these areas (Teernstra and Van Gent, 2012), which is -still- primarily associated with the influx of white middle classes.

The spatial patterns of demographic changes in converted housing also seem to confirm evidence from other studies. Families with children are on the rise in central parts of Amsterdam and tenure conversions seem to facilitate this process. Particularly areas such as Middenmeer and Oud-Zuid, which are both upper-middle class areas inhabited by a substantial number of families (Boterman et al., 2010), are witnessing an increase in unmarried couples with children because of tenure conversions. Although converted dwellings only make up about 5% of the housing stock in these areas the absolute numbers are substantial. These demographic transitions are remarkable considering the fact that the dwellings themselves did not change in terms of size and location. Partially, this may be some kind of cohort effect whereby single elderly households who consumed relatively more space compared to their household size have moved or passed away. Unfortunately, the time span of our dataset does not allow a comparison of cohorts of new tenants and new buyers across neighbourhoods in different time periods. Nevertheless, the change in household composition in these areas may also be associated with the changing status of these neighbourhoods and their attractiveness for family households.

Conclusions

By making use of a comprehensive longitudinal dataset, we have been able to model and map the social changes associated with tenure conversions to a great level of detail. The possibility to use geo-coded individual data allowed us to compare residents over time, to track them after seven years, and relate differences between tenants and owners to urban space. Despite the quality of our data, we were unable to distinguish between private and social rent. Also, register data says little about the reasons and motivations for moving, which is necessary for establishing involuntary displacement. Lastly, we were unable to compare tenants and owners at the point of neighbourhood entry. In that respect, a promising avenue of inquiry would be to investigate the changing patterns of neighbourhood in and out migration by means of cohort analysis. Nevertheless, the study has yielded several unique findings which contribute to general academic and political debates about urban and housing policies, as well as gentrification dynamics.

In line with previous research, we have found a clear association between tenure conversion and socio-economic upgrading. New owners are generally of a higher status than former tenants. Our models show this over time and within the same year, which underlines the effect of exclusionary displacement through the housing market. In terms of policy implications, promoting tenure conversions may indeed facilitate the creation of an ‘economically sustainable population,’ as aimed for in urban policies. Tenure restructuring may foster and enhance processes of gentrification, particularly in areas that have a high demand for housing and in areas that are explicitly targeted for regeneration. Therefore, in one sense, these policies can be seen as quite effective. However, we have also seen that the effects of tenure conversions differ across urban space.

Although we explicitly only compared former tenants and new buyers in a particular section of the housing stock, it seems that the trends identified for converted housing in the various neighbourhoods of Amsterdam tend to reflect the status and market position of the area. This is in line with earlier work on the market position of former council housing in the UK (Forrest et al., 1996). Effects of deregulation of housing thus seem to reflect processes that are already visible within the Amsterdam housing market. This implies a stronger contrast between neighbourhoods that do well

and those that do not. By and large, in high-demand areas, processes of gentrification seem to be enhanced, whereas in areas that are at the weaker end of the market there are signs of downgrading. Furthermore, while being conducive to upgrading and revitalization on a local level in some areas, conversion policies are contributing to overall processes of social and ethnic segregation and polarization at the urban level.

In addition to socio-economic changes, this study has demonstrated that tenure conversions also cause a shift in the ethnic and demographic composition of a particular section of the housing stock and thus may facilitate social transformations of urban neighbourhoods. In the literature, there is considerable attention to the fact that gentrification is also associated with demographic trends, such as the increase of single households and female emancipation (Buzar et al., 2007, Bondi, 1991). However, most gentrification studies tend to analyse gentrification primarily from a social class perspective (Lees et al., 2008). Yet, to understand the relations between policy, gentrification and urban social patterning, it is imperative to investigate the intersections of demography, ethnicity and social class. Our case has shown that the availability of relatively affordable former-rental dwellings has generally created opportunities for immigrant communities to move into owner occupancy. However, these households (often families) are mainly buying in lower-demand post-war areas, where the (elder) native-Dutch population is moving away. The reverse trend is visible for pre-war urban neighbourhoods close to the city centre. Here, young native-Dutch middle-class households seize the opportunity to buy a former-rental dwelling, sometimes at a discount. Overall, trends in the converted section of the housing market are not just mirroring income developments but also seem to reflect trends in ethnic segregation, as well as demographic trends such as a renewed interest among families to live in the inner city (Boterman, 2012). Hence, shifting ownership does not only fit with upgrading, it also interacts with the way in which the housing market functions as a whole. Our findings suggest that future studies in housing policy and gentrification should focus more on how demography and gentrification interact in and through housing dynamics.

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Notes

[1] The transfer of state rental stock to private landlords may also be referred to as privatisation, but we limit our discussion to the conversion from rental to owner occupancy.

[2] In 2011, an agreement to ensure a 'level playing field' in the housing market between the European Commission and the Dutch government took effect. To remain eligible for state aid, housing associations have to allocate at least 90 per cent of their social rental dwellings to households with an income of less than €3,000 (see Priemus and Gruis, 2011).

[3] In the period 2002-2004 approximately 30% of all dwellings were sold to sitting tenants; after that the number has significantly decreased to about 10% in 2008 (AFWC, 2012).

[4] To be precise, 54.3% still lives in Amsterdam municipality, 22.4% lives in the Amsterdam region, and 23.3% live outside the region.

[5] As the structure of our data-set is based on individuals, it is not possible to provide a reliable percentage of the dwellings in the neighbourhoods.

References

- AALBERS, M.B. (2010), *Place, exclusion, and mortgage Markets*. Oxford: Wiley-Blackwell.
- AALBERS, M.B. (2011), The Revanchist Renewal of Yesterday's City of Tomorrow. *Antipode*, 43, pp. 1696-1724.
- AFWC (2012), <http://www.afwc.nl/publicaties/jaarboeken.html>.
- ALLEN, C. (2008), *Housing Market Renewal and Social Class*. London, New York: Routledge.
- ANDERSSON, R. & MUSTERD, S. (2005), Area-Based Policies: A Critical Appraisal. *Tijdschrift voor Economische en Social Geografie*, 96, pp. 377- 389.
- ARBACI, S. (2007), Ethnic Segregation, Housing Systems and Welfare Regimes in Europe. *European Journal of Housing Policy*, 7, pp. 401- 433.
- ATTERHOG, M. (2006), The effect of government policies on home ownership rates; an international survey. In J. DOLING & M. ELSINGA, eds., *Home ownership: getting in, getting from, getting out; Part 2*. pp. 7- 34. Amsterdam: IOS Press.
- BOELHOUWER, P. & PRIEMUS, H. (1990), Dutch housing policy realigned. *Journal of Housing and the Built Environment*, 5, pp. 105-119.
- BOLT, G. (2009), Combating residential segregation of ethnic minorities in European cities. *Journal of Housing and the Built Environment*, 24, pp. 397-405.
- BONDI, L. (1991), Gender Divisions and Gentrification: A Critique. *Transactions of the Institute of British Geographers*, 16, pp. 190-198.
- BOTERMAN, W.R., KARSTEN, L. & MUSTERD, S. (2010), Gentrifiers Settling Down? Patterns and Trends of residential location of middle-class families in Amsterdam. *Housing Studies*, 25, pp. 693-714.
- BOTERMAN, W.R. (2012), Residential Mobility of Urban Middle Classes in the Field of Parenthood, *Environment & Planning A*, 44, pp. 2397-2412.
- BUTLER, T. & ROBSON, G. (2001), Social Capital, Gentrification and Neighbourhood Change in London: A Comparison of Three South London Neighbourhoods. *Urban Studies*, 38, pp. 2145-2162.
- BUZAR, S., HALL, R. & OGDEN, P.E. (2007), Beyond gentrification: the demographic reurbanisation of Bologna. *Environment and Planning A*, 39, pp. 64-85.
- CAMERON, S. (2006), From Low Demand to Rising Aspirations: Housing Market Renewal within Regional and Neighbourhood Regeneration Policy. *Housing Studies*, 21, pp. 3-16.
- CBS (2012), *Statline, the statistical database on The Netherlands*. CBS, Statistics Netherlands.
- CHEN, C. & LIN, H. (2011), Decomposing residential self-selection via a life-course perspective. *Environment and Planning A*, 43, pp. 2608 -2625.
- CLARK, E. (1992), On gaps in gentrification theory. *Housing Studies*, 7, pp. 16-26.
- CLARK, W.A.V. & DIELEMAN, F.M. (1996), *Households and Housing: choice and outcomes in the housing market*. New Brunswick (NJ): Center for Urban Policy Research.
- COCHRANE, A. (2007), *Understanding Urban Policy*. Oxford: Blackwell.
- CONIJN, J. & SCHILDER, F. (2011), How housing associations lose their value: the value gap in The Netherlands. *Property Management*, 29, pp. 103- 119.
- DAVIDSON, M. & LEES, L. (2005), New-build 'gentrification' and London's riverside renaissance. *Environment and Planning A*, 37, pp. 1165- 1190.
- DOLING, J. & RONALD, R. (2010), Home ownership and asset-based welfare. *Journal of Housing and the Built Environment*, 25, pp. 165- 173.
- ELSINGA, M., DE DECKER, P., TELLER, N. & TOUSSAINT, J. (2007), Home ownership Beyond asset and security; Perceptions of housing related security and insecurity in eight European countries. *Housing and Urban Policy Studies* 32. Amsterdam: IOS Press, DUP Science.
- ENGELS, B. (1999), Property ownership, tenure, and displacement: in search of the process of gentrification. *Environment and Planning A*, 31, pp. 1473-1495.

- FORREST, R. & MURIE, A. (1995), From Privatization to Commodification: Tenure Conversion and New Zones of Transition in the City. *International Journal of Urban and Regional Research*, 19, pp. 407-422.
- FORREST, R., GORDON, D. & MURIE, A. (1996), The Position of Former Council Homes in the Housing Market. *Urban Studies*, 33, pp 125-136.
- FREEMAN, L. (2006), *There goes the 'hood : views of gentrification from the ground up*. Philadelphia: Temple University Press.
- GALSTER, G. (2007), Should Policy Makers Strive for Neighborhood Social Mix? An Analysis of the Western European Evidence Base. *Housing Studies*, 22, pp. 523- 545.
- GEMEENTE AMSTERDAM (2001), *Convenant Splitsing en Verkoop Sociale Huurwoningen 2002-2007*. Amsterdam: Gemeente Amsterdam.
- GEMEENTE AMSTERDAM (2008), *Wonen in een Metropool, Woonvisie Amsterdam tot 2020*. Amsterdam: Dienst Wonen.
- GEMEENTE AMSTERDAM (2011), *Evaluatie Splittingsbeleid; Markdifferentiatie en kwaliteitsverbetering door verkoop van particuliere huurwoningen in Amsterdam 2002-2010*. Amsterdam: Dienst Wonen, Zorg en Samenleven.
- GROVES, R., MURIE, A. & WATSON, C. (2007), Housing and the New Welfare State; Perspectives from East Asia and Europe. Aldershot: Ashgate.
- GRUIS, V., NIEBOER, N. & THOMAS, A. (2004), Strategic Asset Management in the Social Rented Sector: Approaches of Dutch and English Housing Associations. *Urban Studies*, 41, pp. 1229-1248.
- HAMNETT, C. (1999), *Winners and Losers; Home Ownership in Modern Britain*. London: UCL Press.
- HAMNETT, C. & BUTLER, T. (2010), The Changing Ethnic Structure of Housing Tenures in London, 1991-2001. *Urban Studies*, 47, pp. 55-74.
- HAMNETT, C. & RANDOLPH, W. (1984), The Role of Landlord Disinvestment in Housing Market Transformation: An Analysis of the Flat Break-up Market in Central London. *Transactions of the Institute of British Geographers*, 9, pp. 259-279.
- HARLOE, M. (1995), *The people's home? Social Rented Housing in Europe and America*. Oxford and Cambridge: Basil Blackwell.
- JONES, C. & MURIE, A. (2006), *The Right to Buy; Analysis & Evaluation of a Housing Policy*. Oxford: Blackwell.
- KEMENY, J. (2001), Comparative housing and welfare: Theorising the relationship. *Journal of Housing and the Built Environment*, 16, pp. 53-70.
- KEMENY, J. (2005), "The Really Big Trade-Off" between Home Ownership and Welfare: Castles' Evaluation of the 1980 Thesis, and a Reformulation 25 Years on. *Housing, Theory and Society*, 22, pp. 59-75.
- KENNETT, P. & FORREST, R. (2003), From Planned Communities to Deregulated Spaces: Social and Tenurial Change in High Quality State Housing. *Housing Studies*, 18, pp. 47-63.
- KLEINHANS, R. (2004), Social implications of housing diversification in urban renewal: A review of recent literature. *Journal of Housing and the Built Environment*, 19, pp. 367-390.
- LEES, L. (2008), Gentrification and Social Mixing: Towards an Inclusive Urban Renaissance? *Urban Studies*, 45, pp. 2449-2470.
- LEES, L., SLATER, T. & WYLY, E.K. (2008), *Gentrification*. New York, London: Routledge.
- LUND HANSEN, A. (2003), Urban space wars in 'wonderful' Copenhagen - uneven development in the age vagabond capitalism. In B. PETERSSON & E. CLARK, eds., *Identity dynamics and the construction of boundaries*. Stockholm: Nordic Academic Press.
- MALPASS, P. (2008), Housing and the New Welfare State: Wobbly Pillar or Cornerstone. *Housing Studies*, 23, pp. 1- 19.
- MARCUSE, P. (1986), Abandonment, gentrification, and displacement: the linkages in New York City. In N. SMITH & P. WILLIAMS, eds., *Gentrification of the city*. pp. 153- 177. Boston: Allen & Unwin Inc.
- MICHELSON, W. (1977), *Environmental choice , human behavior and residential satisfaction*. New York: Oxford University Press.

- MILLARD-BALL, A. (2000), Moving Beyond the Gentrification Gaps: Social Change, Tenure Change and Gap Theories in Stockholm. *Urban Studies*, 37, pp. 1673-1693.
- MILLARD-BALL, A. (2002), Gentrification in a Residential Mobility Framework: Social Change, Tenure Change and Chains of Moves in Stockholm. *Housing Studies*, 17, pp. 833-856.
- MULDER, C.H. (2006a), Home-ownership and family formation. *Journal of Housing and the Built Environment*, 21, pp. 281-198.
- MULDER, C.H. (2006b), Population and housing: a two-sided relationship. *Demographic Research*, 15, pp. 402- 412.
- MURIE, A. (1991), Tenure Conversions and Social Change: New Elements in British Cities. In J. VAN WEESEP & S. MUSTERD, eds., *Urban housing for the better-off: gentrification in Europe*. pp. 137- 148. Utrecht: Stedelijke Netwerken.
- MURIE, A. & MUSTERD, S. (1996), Social Segregation, Housing Tenure and Social Change in Dutch Cities in the Late 1980s. *Urban Studies*, 33, pp. 495-516.
- MUSTERD, S. (2005), Social and Ethnic Segregation in Europe: Levels, Causes, and Effects. *Journal of Urban Affairs*, 27, pp. 331-348.
- MUSTERD, S. & VAN GENT, W.P.C. (2012), Residential Location and Housing Moves of Immigrants and Natives in the Amsterdam Metropolitan Context. in: N. FINNEY & G. CATNEY, eds., *Minority Internal Migration in Europe*. pp. 89-110. Farnham: Ashgate Publishing.
- MUSTERD, S., DE VOS, S., DAS, M. & LATTEN, J. (2012), Neighbourhood composition and economic prospects: a longitudinal study in The Netherlands. *Tijdschrift voor Economische en Sociale Geografie*, 103, pp. 85-100.
- ÖZÜEKREN, A.S. & VAN KEMPEN, R. (2002), Housing careers of minority ethnic groups: experiences, explanations and prospects. *Housing Studies*, 17, pp. 365- 379.
- PHILLIPS, D. (2007), Ethnic and Racial Segregation: A Critical Perspective. *Geography Compass*, 1, pp. 1138- 1159.
- PINKSTER, F.M. (2012), Neighbourhood Effects as Indirect Effects: Evidence from a Dutch Case Study on the Significance of Neighbourhood for Employment Trajectories. *International Journal for Urban and Regional Research*, article published online: 28 dec 2012 doi: 10.1111/j.1468-2427.2012.01197.x. . PRIEMUS, H. & GRUIS, V. (2011), Social Housing and Illegal State Aid: The Agreement between European Commission and Dutch Government. *International Journal of Housing Policy*, 11, pp. 89- 104.
- RONALD, R. (2008), *The ideology of home ownership; Homeowner societies and the role of housing*. Basingstoke: Palgrave Macmillan.
- ROSSI, P.H. (1955), *Why do families move? A study in the social psychology of urban residential mobility*. Glencoe: Free Press.
- SAMPSON, R.J. & SHARKEY, P. (2008), Neighborhood selection and the social reproduction of concentrated racial inequality. *Demography*, 45, pp. 1- 29.
- SLATER, T. (2009), Missing Marcuse: On gentrification and displacement. *City*, 13, pp. 292-311.
- SMITH, N. (1987), Gentrification and the Rent Gap. *Annals of the Association of American Geographers*, 77, pp. 462- 465.
- TEERNSTRA, A.B. & VAN GENT, W.P.C. (2012), Puzzling Patterns in Neighborhood Change: Upgrading and Downgrading in Highly Regulated Urban Housing Markets. *Urban Geography*, 33, pp. 91-119.
- UITERMARK, J. (2009), An in memoriam for the just city of Amsterdam. *City*, 13, pp. 347-361.
- UITERMARK, J., DUYVENDAK, J.W. & KLEINHANS, R. (2007), Gentrification as a governmental strategy: social control and social cohesion in Hoogvliet, Rotterdam. *Environment and Planning A*, 39, pp. 125-141.
- VAN EIJK, G. (2010), *Unequal networks; Spatial segregation, relationships and inequality in the city (PhD Thesis)*. TU Delft: Delft.
- VAN GENT, W.P.C. (2010), Housing policy as a lever for change? The politics of welfare, assets and tenure. *Housing Studies*, 25, pp. 735- 753.
- VAN GENT, W.P.C. (2013), Neo-liberalization, Housing Institutions and Variegated Gentrification; How the ‘Third Wave’ Broke in Amsterdam. *International Journal for Urban and Regional Research*, 37, pp. 503- 522.

- VAN HAM, M., MANLEY, D., BAILEY, N., SIMPSON, L. & MACLENNAN, D. (2011), Neighbourhood effects research: new perspectives. Dordrecht: Springer.
- WATSON, M. (2009), Planning for a future of asset-based welfare? New Labour, financialized economic agency and the housing market. *Planning Practice and Research*, 24, pp. 41- 56.
- WATT, P. (2009), Housing Stock Transfers, Regeneration and State-Led Gentrification in London. *Urban policy and research*, 27, pp. 229-242.
- WYLY, E.K. & HAMMEL, D.J. (1999), Islands of decay in seas of renewal: Housing policy and the resurgence of gentrification. *Housing Policy Debate*, 10, pp. 711- 771.

Table1. Descriptive statistics for four tested models

Variables		Model 1a	Model 1b	Model 2	Model 3
Reference category		Other inhabitants 2006	Other owners 2006	Former tenants 1999	Former tenants 2006
valid N		557696	128873	42703	39218
Dependent variable = new buyers		0.04	0.18	0.55	0.54
Gender					
	Male	48.2	51.1	49.7	50.8
	Female	51.8	48.9	50.3	49.2
Age in categories					
	16-24	7.9	4.6	8.7	X
	25-34	23.0	24.5	47.2	40.0
	35-64	54.8	63.2	40.2	60.0
	65+	14.3	7.7	3.8	X
Ethnicity					
	Native Dutch	56.2	67.3	69.1	68.7
	Moroccan	6.6	1.2	2.0	1.9
	Turkish	4.3	2.2	2.4	2.2
	Surinamese	8.1	5.7	5.4	5.5
	Caribbean	1.4	0.8	1.0	1.0
	Other non-Western	8.3	5.4	5.2	5.3
	Western	15.2	17.5	15.0	15.3
Annual gross household income					
	Middle income (€30,000-60,000)	30.3	34.5	X	35.9
	Low income (<€30,000)	49.8	19.4	X	21.1
	Upper-middle income (€60,000-90,000)	17.8	39.9	X	36.6
	High income (>€90,000)	2.2	6.2	X	6.4
Annual gross household income (relative to city's mean in 1999 or 2006)					
	Middle income (0.75-1.25 z-score of mean income)	X	X	26.3	X
	Low income (<0.75 z-score of mean income)	X	X	26.9	X
	Upper-middle income (1.25-2 z-score of mean income)	X	X	28.5	X
	High income (>2 z-score of mean income)	X	X	18.3	X
Household composition					
	Single person household	40.3	30.7	38.3	29.7
	Unmarried couple without children	12.0	15.6	23.1	17.9
	Married couple without children	15.4	17.5	10.9	10.0
	Unmarried couple with children	5.1	8.2	6.7	11.8
	Married couple with children	17.7	23.0	14.9	24.8
	Single parent household	7.2	3.4	3.5	4.5
	Other	2.3	1.6	2.7	1.3

Standardised income development
1999-2006

5.6

6.4

X

7.3

Table 2. Estimates for models 1a and b

Model 1: buyers of former rental dwellings (=1)				
Model A ref cat = other inhabitants of Amsterdam in 2006				
Model B: ref cat = other owner occupants in Amsterdam in 2006				
	Model A	sig.	Model B	sig.
	Exp(B)		Exp(B)	
Male				
Female	0.95	***	0.92	***
Age 16-24				
25-34	1.20	***	1.37	***
35-64	0.39	***	0.37	***
65+	0.06	***	0.08	***
Native Dutch				
Moroccan	0.25	***	1.19	**
Turkish	0.68	***	1.18	***
Surinamese	0.63	***	0.83	***
Caribbean	0.73	***	1.21	**
Other non-Western	0.81	***	1.23	***
Western	0.98		1.04	
Middle income (€30.000-60.000)				
Low income (<€30.000)	0.35	***	0.95	*
Upper-middle income (€60.000-90.000)	1.47	***	0.78	***
High income(>€90.000)	2.29	***	0.94	
Single person household				
Unmarried couple without children	1.02		1.04	*
Married couple without children	0.64	***	0.58	***
Unmarried couple with children	1.14	***	1.04	
Married couple with children	0.76	***	0.64	***
Single parent household	0.55	***	0.92	
Other	0.72	***	0.94	
Household Income development 99-06	1.00		1.00	**
Constant	0.14	***	0.56	***

* p<0.1; ** p <0.05. *** p< 0.01

Table 3. Estimates for model 2

Model 2: buyers of former rental dwellings in 2006 (=1)³ compared to former tenants in 1999	
	Exp(B)
Male	0.00
Female	0.95 **
35-64	0.00
16-24	1.35 ***
25-34	1.02
65+ers	0.21 ***
Native Dutch	0.00
Moroccan	0.88 *
Turkish	2.11 ***
Surinamese	0.97
Caribbean	1.22 *
Other non-Western	1.51 ***
Western	1.25 ***
Middle income (0.75-1.25 z-score of mean income)	0.00
Low income (<0.75 z-score of mean income)	0.64 ***
Upper-middle income (1.25-2 z-score of mean income)	1.16 ***
High income (>2 z-score of mean income)	1.51 ***
Single person household	0.00
Unmarried couple without children	0.91 ***
Married couple without children	0.77 ***
Unmarried couple with children	1.84 ***
Married couple with children	1.04
Single parent household	0.79 ***
Other	0.79 ***
Constant	1.21 ***
* p<0.1; ** p <0.05. *** p< 0.01	

³ As there is an overlap between former tenants and new buyers, we have run the models also with former tenants as dependent variable. The results are almost an exact mirror of the findings presented here.

Table 4. Estimates for model 3

Model 3: buyers of former rental dwellings (=1)⁴ compared to former tenants in 2006	
	Exp(B)
Male	
Female	0.87 ***
35-64	
25-34	2.51 ***
Native Dutch	
Moroccan	0.74 ***
Turkish	2.03 ***
Surinamese	0.97
Caribbean	1.18
Other non-Western	1.41 ***
Western	1.08 **
Middle income (€30.000-60.000)	
Low income (<€30.000)	0.41 ***
Upper-middle income (€60.000-90.000)	1.02
High income (>€90.000)	1.05
Single person household	
Unmarried couple without children	0.78 ***
Married couple without children	0.47 ***
Unmarried couple with children	0.40 ***
Married couple with children	0.28 ***
Single parent household	0.45 ***
Other	0.84
Household income development 99-06	1.01 ***
Constant	1.55
* p<0.1; ** p<0.05. *** p< 0.01	

⁴ As there is an overlap between former tenants and new buyers, we have run the models also with former tenants as dependent variable. The results are almost an exact mirror of the findings presented here.

Figure 1. The share of adults occupying converted dwellings (converted between 1999 and 2006) in adult neighbourhood population in 2006.



Figure 2. Difference average equivalised household income of tenants in 1999 and owners in 2006, in converted dwellings in Amsterdam. Incomes were related to municipal mean in respective years.



Figure 3. Difference average equivalised household income of former tenants and new owners in converted dwellings in Amsterdam in 2006 (aggregated by neighbourhood of converted dwelling).



Figure 4. Change in share of households with children in converted dwellings in Amsterdam between 1999 and 2006. Difference in percentage points.



Figure 5. Change in share of couples without children in converted dwellings in Amsterdam between 1999 and 2006. Difference in percentage points.

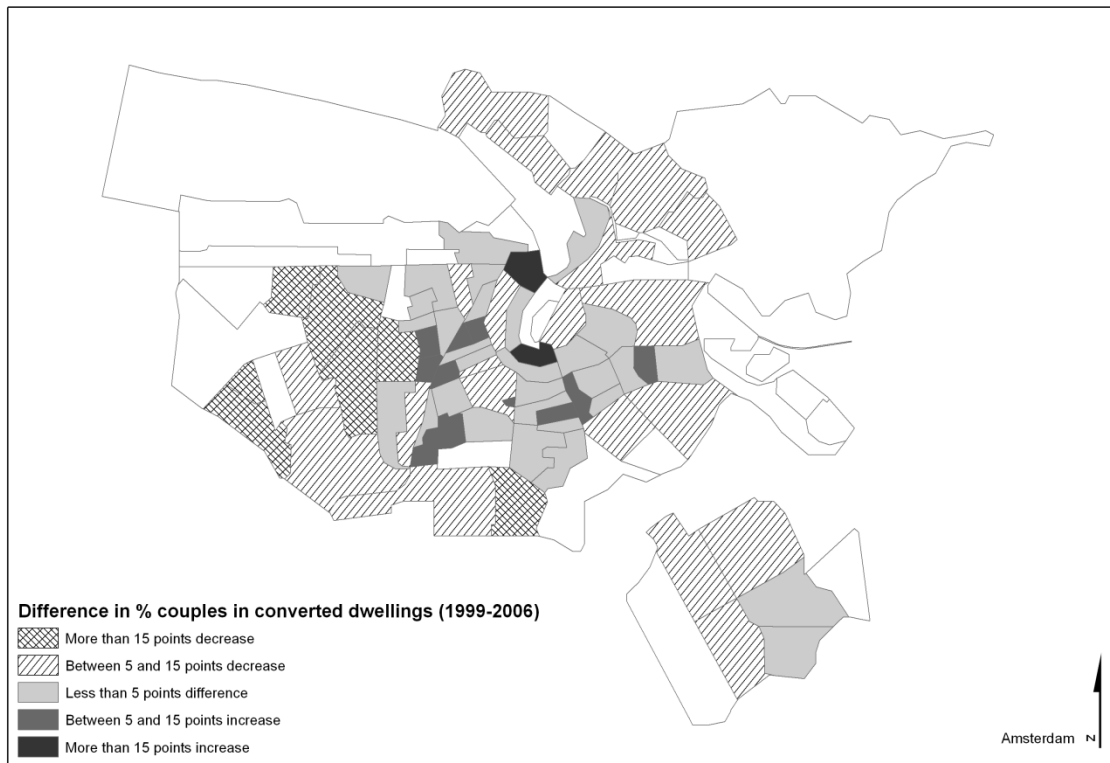


Figure 6. Change in share of native Dutch in converted dwellings in Amsterdam between 1999 and 2006. Difference in percentage points.

