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Gentrification and the suburbanization of poverty: changing urban geographies through boom and bust periods

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ABSTRACT

Many postindustrial cities across Europe and other contexts are marked by growing social–spatial inequalities, housing liberalization, and gentrification, which limit the housing options of low-income households. We investigated changes in the residential moves of different low-income households (working poor, low-to-middle income, and unemployed) in the Amsterdam and Rotterdam urban regions for the time period 2004–2013. We found an overarching trend for the suburbanization of poverty toward the urban peripheries and surrounding regions. While this trend appears to be relatively crisis resistant in the tight Amsterdam housing context, it is more cyclical in Rotterdam and has slowed following the global financial crisis. Low-to-middle income and unemployed households are increasingly moving to the urban regions surrounding cities, particularly to higher density satellite towns. Nevertheless, a growing number of working poor households remain highly urbanized, employing various coping strategies to acquire housing. This paper reveals how the suburbanization of poverty is both a direct process of poor households moving from city to suburb, and a broader indirect process caused by exclusionary mechanisms such as the decreasing accessibility and affordability of inner-urban neighborhoods, which reflect broader changes in the geography and socioeconomic patterning of urban regions.

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Introduction

Over the course of the past few decades, many cities have experienced profound changes regarding the class composition of the population. Overall, major postindustrial cities have become not only more middle class—“professionalized” (Butler, Hamnett, & Ramsden, 2008; Hamnett, 1994)—but also more divided along socioeconomic and class lines (“polarized”), as is reflected, for example, in rising levels of socioeconomic segregation in many European capital cities (Tamaru, Marcinczak, Van Ham, & Musterd, 2016). As cities’ class maps are redrawn, urban poverty also shifts; it may, for example, move away from the inner city milieu and “suburbanize” or “decentralize” (Cooke & Denton, 2015; Hedin, Clark, Lundholm, & Malmberg, 2012;

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Hulchanski, 2010; Kavanagh, Lee, & Pryce, 2016; Randolph & Tice, 2014). Although these changing divisions are the product of various drivers, welfare state retrenchment and accompanying economic liberalization play an important role. These policy shifts are *inter alia* reflected in the sale of social rental housing and the gradual reduction in rent controls and tenant protections, ultimately making economic resources more important in determining housing and neighborhood outcomes. In many cases, expanding gentrification and the associated (direct or exclusionary) displacement of low-income residents are the spatial expressions of these tendencies toward liberalization. Indeed, state-led gentrification has become emblematic of neoliberal urban and housing policies that seek to remake the city according to the preferences of the middle class and capital (Harvey, 1989; Peck & Tickell, 2002; Smith, 2002).

In this paper, we investigate changes in the social–spatial layout of cities by focusing on one crucial element: the spatial dimensions of (urban) poverty. We examine the changes in Amsterdam and Rotterdam (the Netherlands) during the period 2004–2013. Rather than elaborating on more static existing poverty concentrations, we target the residential moves of low-income residents and the changes therein. We consider residential moves particularly important because this is where displacement, exclusion, and issues of housing accessibility or affordability become most apparent. Furthermore, what “happens” to urban poverty and where it goes are especially pertinent questions in the face of gentrification becoming the *modus operandi* in many (inner) cities.

We illuminate these issues by addressing the extent to which structural urban conditions as well as cyclical conditions impact urban social processes. We start with the question of what the overarching trends are in terms of the residential mobility of low-income residents (RQ1). In the face of ongoing urban gentrification, we expect that a focus on residential moves will reveal the growing suburbanization of poverty; a trend that may still appear to be only a minor undercurrent when looking at the total population, where trends among movers might be obscured by those among non-movers. Importantly, we argue that the suburbanization of poverty is not only produced by low-income households directly moving from the central city to the suburbs, but also by exclusionary mechanisms that prevent low-income households from moving into central urban areas.

RQ1: *How and to what extent are the moving patterns of (different groups of) low income residents subject to changes over time?*

The onset of the 2008 global financial crisis was a crucial event that has played a key role in rearticulating existing inequalities and forging new ones. Yet, it is so far unclear how this has played out in urban space, specifically in relation to urban poverty. Various patterns are possible. The boom and bust periods—both preceding and following the onset of the crisis—may be marked by substantial shifts in urban poverty; these changes may, however, either be accelerating or slowing down. Alternatively, trends occurring during the boom period may see a reversal or annihilation during the bust period. More specifically, the boom period preceding the crisis was in the Dutch context—as in many other settings—marked by substantial housing liberalization and the formation of a housing bubble, which had already placed constraints on housing affordability and accessibility, producing increasingly divided social–spatial outcomes

(Musterd & Van Gent 2016). During boom periods, gentrification generally progresses the most vigorously, while the process slows during busts (Hackworth & Smith, 2001; Hedin et al., 2012). The global financial crisis exacerbated inequalities and had a profoundly negative effect on the housing position of various population groups, particularly the growing group of those hit by unemployment, precarious employment situations, and growing household debt. This group faces decreasing access to homeownership (Forrest & Hirayama, 2015) and depends on a shrinking affordable social rental sector.

At the level of the neighborhood, this may have several consequences. The most affordable neighborhoods in an urban-regional system may increasingly serve relatively low-income residents, thus amplifying already existing trajectories of neighborhood decline (Zwiers, Bolt, Van Ham, & Van Kempen, 2016a). Neighborhood upgrading may also be reversed, contributing to de-gentrification (Lees & Bondi, 1995) as overall poverty levels increase during crises. We expect these consequences to depend on housing and urban context. We formulated the following sub-question regarding cyclical economic trends:

RQ2: *How do (changes in) patterns of low income residential moves differ between boom and bust periods, both preceding and following the onset of the global financial crisis?*

Amsterdam and Rotterdam represent two cities with rather different historical pathways that have contributed to their different economic profiles. While Amsterdam represents a city that has successfully made the transition to a postindustrial economy, Rotterdam is still struggling to leave its industrial legacy behind (Burgers & Musterd, 2002). Rotterdam's housing market is considerably more relaxed than the tight and expensive situation in Amsterdam, and gentrification remains a more marginal and scattered phenomenon in Rotterdam (Hochstenbach & Van Gent, 2015). As a result, we would expect there to be more stability regarding low-income residents' moving patterns in Rotterdam, while changes are likely to be more prominent in Amsterdam. Yet, despite substantial differences regarding housing demand and prices, the housing tenure composition is roughly the same in both cities, with almost half belonging to the social rental stock. We address the differences between the cities with the following sub-question:

RQ3: *How do (changes in) patterns of low income residential moves differ between a relatively successful and a relatively struggling city?*

In short, this paper aims to investigate how low-income residential moving patterns in urban space have changed over time—through different boom and bust periods—and how these patterns and changes differ between structurally different cities.

Spatial dimensions to urban inequality

To gauge how and to what extent low-income residential moving patterns change over time, it is imperative to situate these changes within broader debates regarding the

economic structure and global connectedness of cities, as well as debates regarding shifting social–spatial urban inequalities.

It has been influentially argued that global economic restructuring has a profound effect on the socioeconomic population composition of major cities (Sassen, 1991). As finance and highly specialized service industries concentrate in these cities, so do their highly paid managers and workers. Concomitant to this shift, Sassen posits, is an increase in the number of low skilled and low paid jobs, often in industries serving a higher income clientele (e.g. domestic workers and jobs related to leisure and consumption). The outcome is a polarization of the social and economic structure of a city's population, as both the high-end and low-end jobs increase. Alternatively, Hamnett (1994) has argued that the occupational structure of major cities is professionalizing rather than polarizing, which entails that these cities are becoming more middle class overall through a gradual replacement of the traditional working classes by an expanding middle class (Butler et al., 2008; Hamnett, 2003). Professionalization is an outcome of the shift toward a postindustrial society, which leads to many traditional (semiskilled or unskilled) working class occupations becoming less important or obsolete, and contributes to the growth of middle class professions. Professionalization is coupled with an overarching trend of replacement of one class by another, for example following the ageing of the traditional working classes.

Others have argued that this is a rather static perspective regarding class structures and inequalities, equating a decline in traditional working class occupations to an overall replacement of the working class by middle-class fractions (Davidson & Wyly, 2012, 2015; Watt, 2008). The overall shift toward more middle-class occupations may, however, ignore the emergence of new inequalities and class oppositions. One trend is the growth in precariously employed workers in sectors that are traditionally considered middle class. Furthermore, new social–spatial dividing lines are being forged, for example through the intergenerational transmission of wealth (Hochstenbach & Boterman, 2015). Recent evidence suggests that major cities such as Amsterdam are currently experiencing a trend toward greater socioeconomic polarization (Maloutas, 2007; Musterd & Van Gent 2016; Van der Waal, 2010).

On top of these structure-related changes, the 2008 global financial crisis and housing market downturn have had a disruptive impact on the housing trajectories of many population groups. Notably, the financial crisis and consequent institutional reforms have made access to owner occupancy more uneven and restricted (Forrest & Hirayama, 2015), and the overall number of sales and sale prices have plummeted in the postcrisis years (Ronald & Dol, 2011; Van der Heijden, Dol, & Oxley, 2011). Particularly for low-income households, those in a precarious employment situation, and younger age cohorts, access to homeownership has dwindled and rent burdens in rental sectors have increased. Yet, many of these trends toward increasing inequalities regarding housing position were already in place before the financial crisis set in and should be seen as a consequence of the commodification and financialization of housing and real estate, and the flexibilization of employment (Dewilde & De Decker, 2016; Forrest & Hirayama, 2015).

Structural processes such as social polarization and professionalization, as well as the disruptive impact of the global financial crisis, have a profound impact on the socioeconomic composition of cities, and as such also have a spatial expression. A recent

study of various European capital cities shows that as inequalities are on the rise in the early twenty-first century, most cities are also showing growing segregation levels, further fueled by government retrenchment in specific domains and liberalization (Tammaru et al., 2016). Despite an overall positive correlation between socioeconomic disparities and social–spatial divisions, the actual spatial outcomes differ between contexts. Increasing polarization and inequalities may also coexist with decreasing levels of segregation or social–spatial divisions (Hamnett, 2001; Maloutas, 2007). Through, among other things, neighborhood gentrification and the introduction of more expensive owner-occupied housing in previously low status areas, actual segregation levels may (initially) decrease. This can create more fine-grained maps of class fractions and class inequalities. While this temporarily suppresses spatial divisions, it does exert a negative influence on housing options and affordability for lower income residents, for example through rent increases or the sale of social rental housing. It is to be expected that the relationship between socioeconomic and spatial divisions is more robust in more liberal societal and housing contexts (Reardon & Bischoff, 2011), while stronger welfare state arrangements suppress spatial inequalities to a greater extent through a range of policies, including tenure mixing at low spatial scales (Musterd & Ostendorf, 1998).

Gentrification, displacement, and the suburbanization of poverty

One of the main ways through which socioeconomic inequalities are expressed in urban space is gentrification, even if this is not directly visible in greater social–spatial divisions. While individual neighborhoods may become or remain more mixed due to gentrification, the aggregate effects at a higher scale may instead be the opposite. As gentrification has morphed into a mainstream process that extends far from the urban core into neighborhoods previously deemed unlikely candidates for gentrification (Hackworth & Smith, 2001), low-income residents are increasingly confined to, and concentrate in, those areas left untouched by such processes (Musterd & Van Gent 2016).

An important way in which gentrification contributes to deepening social–spatial divisions is displacement. Yet, the extent to which displacement occurs as a consequence of gentrification has been subject to substantial academic debate in recent years. Proponents of the professionalization thesis argue that neighborhood gentrification is primarily the result of class replacement, suggesting that displacement—though it may still occur—is not the dominant phenomenon (Butler et al., 2008; Hamnett, 2003). Other academic debates have been primarily concerned with the distinction between direct and indirect forms of displacement. While gentrification may not necessarily lead to heightened levels of out migration among low-income households (a proxy for displacement) (Freeman & Braconi, 2004; Freeman, Cassola, & Cai, 2016), it does still exclude low-income newcomers from moving in (Newman & Wyly, 2006; Slater, 2009). Low-income households may overcome affordability and accessibility barriers by taking on higher rent burdens or employing different coping strategies when moving in order to find affordable housing, for instance, by doubling up with relatives, friends, or others (Wiemers, 2014) or by accepting precarious housing arrangements (Huisman, 2016). While this might lend access to neighborhoods that would otherwise be unattainable—for example due to gentrification—it could in turn be used as evidence for a lack of (exclusionary) displacement despite the potentially destabilizing impacts of precarious

housing arrangements on housing and life course trajectories (cf. Davidson, 2009; Newman & Wyly, 2006).

In Rotterdam and Amsterdam, as a consequence of the large social rental stock, extensive tenant protection, and rent regulation (e.g. sitting residents' rents can only be increased incrementally and within limits set by the state), direct displacement is limited. On the other hand, indirect exclusionary displacement is relatively common due to the state orchestrated sale and liberalization of social rental dwellings and steep price increases in the private rental and owner-occupied sectors (Van Gent, 2013). While insiders enjoy security of tenure and are able to retain relatively low housing costs, outsiders face decreasing options and rising rent burdens (Kadi & Musterd, 2015).

The outward expansion of gentrification away from the inner city into other neighborhoods may be accompanied by parallel outward shifts of poverty into the suburbs of the urban periphery. The suburbanization of poverty (Cooke & Denton, 2015; Hulchanski, 2010; Randolph & Holloway, 2005; Randolph & Tice, 2014) represents a significant break from previous periods, where poverty was first and foremost an inner city feature and reflects the growing cleavage between a gentrifying urban core and a disadvantaged "filtering" periphery (Hedin et al., 2012; Skaburskis & Nelson, 2014). These shifts are generally gradual and take place over a longer period of time, as many areas are also marked by high levels of stability (Zwiers, Kleinhans, & Van Ham, 2016b) due to non-moving residents and selective mobility patterns that tend to reproduce neighborhood status (Hedman, Van Ham, & Manley, 2011; Musterd, Van Gent, Das, & Latten, 2016). Yet when looking specifically at low-income residents' moves, we expect a starker picture because here issues of affordability and accessibility are at the forefront.

Welfare state restructuring, housing liberalization, and state-led gentrification

Welfare state arrangements exert a considerable influence on residential mobility patterns, particularly through housing. Housing policies concerning tenure mix, access to homeownership, and acceptable rent levels can play a key role in determining the magnitude of social-spatial divisions. Strong welfare regimes like that of the Netherlands have typically invested heavily in housing policies to reduce the socioeconomic disparities produced by market forces and to minimize social-spatial divisions through the provision of regulated social rental housing (Musterd & Ostendorf, 1998). Yet, in many contexts, such policies have in the last few decades made way for policies promoting homeownership as part of an ideological project privileging private property and private accumulation (Aalbers & Christophers, 2014; Forrest & Hirayama, 2015; Ronald, 2008). This has enabled a growing number of households, including those on a lower income, to buy. However, strong state support, financial subsidies for homeownership (e.g. mortgage tax deductibility), and expanding mortgage credit all contributed to house prices increasing sharply. As a consequence, access to owner occupancy once again became increasingly confined to financially well-off and secure households able to overcome the barrier of high prices (Forrest & Hirayama, 2015). The global financial crisis and the subsequent response to tighten mortgage lending criteria have amplified this trend. Less privileged households are increasingly unable to enter an owner-occupied sector that has vastly expanded over the past decades, while the social rental sector has declined due to these same policies.

The dominant logic of promoting homeownership has, in many contexts, notable urban dimensions. Cities are the sites where house price increases have generally been steepest and affordable rental housing has disappeared at the fastest rate. In Western urban contexts, the ideology of homeownership materializes particularly in urban policies that expand homeownership to alter the population composition in an attempt to improve the livability, safety, manageability, and overall quality of neighborhoods (Uitermark, 2003). These policies are built on the assumption that homeownership creates responsible citizens, or at the very least leads to manageable neighborhoods by dissolving urban problems. Because these housing policies work toward creating more middle-class neighborhoods, gentrification is essentially their intended spatial outcome (Uitermark, Duyvendak, & Kleinhans, 2007). Through tenure conversions from rent to owner occupation and large urban renewal projects, such policies also result in a direct loss of affordable social rental housing. Although state-led gentrification commonly includes a range of policies that focus on, among other things, policing, public space, and commercial property (Atkinson, 2003; Uitermark et al., 2007; Zukin et al., 2009), housing policies are a core component because they influence the population composition in the most direct way. This is always an integral part of state-led gentrification, whether it is to manage and control neighborhoods (Uitermark et al., 2007) or to attract capital investment and the middle classes (Hackworth & Smith, 2001; Peck, 2005; Smith, 2002) as part of more entrepreneurial state strategies (Harvey, 1989; Peck & Tickell, 2002).

Data and methods

This paper focuses on (changing) patterns of low-income moves and economic boom-bust patterns in two structurally different cities. We use long-term secondary data on both cities' housing markets in combination with highly detailed longitudinal register data from the Social Statistics Database (provided by Statistics Netherlands). Register data allow us to define different low-income groups in a very precise way and to monitor their moving patterns for the 2004–2013 period. We define a move as a change in address that takes place during a given year and we focus on the post-move destination as of the 1 January of the following year.¹ Although we investigated all individual years, we focus specifically on the neighborhood outcomes for 2004, 2008, and 2013, which are, respectively, the earliest time point in our data, the last precrisis year with peaking house prices, and the most recent time point, still a crisis year.

In our study, we distinguish between three types of low-income households: unemployed households, working poor households, and low-to-middle income households. Because a household may consist of employed and unemployed members, we define household employment status on the basis of the most important source of income (in Euros). We term employed households with a total gross annual income below €19,095 as “working poor” and those with an income between €19,095 and €34,085 as “low-to-middle income”.² We use gross income and these specific classifications to reflect existing policies: the €34,085 threshold corresponds to the maximum income for eligibility for social rental housing.³ The €19,095 threshold corresponds to 110% of the minimum wage for full-time employment.⁴

We only include the population aged 25–65, in order to focus on the working age population (thus excluding retired households and young people whose income may

not reflect their socioeconomic status). Households are only included when the oldest member falls within this age bracket and is not a student. Because household composition changes over time, we define a household as moving when at least one of its working age members has moved. Institutional households and households moving to an address where more than 10 households are registered are excluded, as these groups generally reflect special household types.

Regarding the destination area, we focus on Amsterdam, Rotterdam, and both cities urban regions. We construe a broad typology based on the geographical distinction between the urban center, the urban periphery, and the surrounding region. For Amsterdam, the border between central and peripheral neighborhoods roughly corresponds to the city's ring road and IJ river. In Rotterdam, the central neighborhoods are mostly bounded by the New Meuse river (although parts of the south bank are also included), the ring motorway to the north and east, and the municipal border to the west. For both cities, the municipal border marks the distinction between the urban periphery and the surrounding region. This broad definition suffices to chart general shifts in low-income households' moving patterns.

The center-periphery divide closely approximates an upgrading-downgrading divide in both cities, as most gentrification neighborhoods can be found in the cities' inner rings (Hochstenbach & Van Gent, 2015). Such a crude typology will, however, necessarily obscure more fine-grained spatial variations. Therefore, this paper also maps the (percentage point) changes in moving patterns between 2004 and 2013.⁵ We calculate per year the share of moving⁶ households belonging to one of the three abovementioned low-income groups. We also investigate the tenure outcomes of the different low-income groups per neighborhood type. We not only distinguish between social rent, private rent, and owner occupancy, but also use "home sharing" as an additional category, which entails multiple households registered at one address. Although this is not a form of tenure in itself—sharing occurs in all tenures—we suggest that identifying sharing as a coping strategy provides greater insight than measuring the underlying tenure. Due to data availability, we can only investigate tenure outcomes for the most recent years; we therefore focus on the tenure outcomes for 2013. In both cities, for about 6% of the addresses, no information on tenure is available, and this percentage is higher in inner city neighborhoods where the older housing stock is less well registered (around 10%).

Results

Urban housing policies and boom-bust patterns

It is important to situate low-income households' moving patterns within their specific urban and regional housing contexts. Both Amsterdam and Rotterdam are currently focusing on expanding homeownership, a policy focus that has gained traction since the mid-1990s and that stands in sharp contrast to both cities' longstanding legacy of providing affordable social rental housing (Aalbers, 2004; Uitermark, 2009). The expansion of homeownership is integral to municipal gentrification strategies as an attempt to attract and keep hold of middle and higher income residents (Doucet, 2013; Van den Berg, 2012; Van Gent, 2013) and has led to a substantial change in tenure composition.⁷ At the turn of the century,

owner occupancy made up 15% of the Amsterdam housing stock, while by 2013, this share had increased to 28% (Table 1). During the same period, homeownership increased from 22% to 35% in Rotterdam. On the other hand, the social rental sector in both cities has gradually decreased in size through tenure conversions and urban renewal projects where rental dwellings are demolished to make way for owner-occupied dwellings. The size of the social rental sector is being reduced in order to cut spending, but it also serves as a strategy to change the population mix of specific neighborhoods. Since access to social housing is limited to lower income residents, conversion to free market housing is considered a prerequisite to align the housing stock with the actual as well as desired middle-class population (Van Gent, 2013).

Despite these trends, social rental housing remains the largest tenure in both cities (Table 1). Yet, the decreasing accessibility of this form of tenure may be better judged by looking at allocations by housing associations. In Amsterdam, the number of social housing allocations via the official allocation system decreased by more than 36% between 2007 and 2014 (Hochstenbach, 2016)⁸ as a consequence of social housing sales, rent liberalization, and tenants staying put. Looking at spatial patterns and trends, we see that in both Amsterdam and Rotterdam, the share of social rental dwellings has decreased in both central and peripheral areas. This reflects governmental strategies to facilitate gentrification processes through tenure conversions in central neighborhoods in order to accommodate the new middle classes, as well as the simultaneous aim of establishing a new social mix in disadvantaged neighborhoods through urban restructuring (Teernstra, 2015; Uitermark & Bosker, 2014). Table 1 only covers both cities. When looking at the surrounding Amsterdam region, the owner-occupied sector represents 57% of the regional stock (in 2013), while social rental and private rental housing makes up 30% and 13%, respectively.

Table 1. Tenure composition of Amsterdam and Rotterdam 2000–2013.

City	Area	Year	Social rental	Private rental	Owner occupied
Amsterdam	Total	2000	54.4	30.7	14.8
		2004	53.4	26.9	19.7
		2008	50.2	23.9	25.9
		2013	46.2	25.6	28.1
	Central	2000	45.4	41.4	13.2
		2004	45.1	36.5	18.7
		2008	42.8	32.4	24.8
		2013	39.9	33.3	26.9
	Peripheral	2000	69.4	13.2	17.4
		2004	68.3	11.0	21.3
		2008	62.6	9.9	27.5
		2013	56.6	13.4	30.0
Rotterdam	Total	2000	57.3	21.2	21.5
		2004	54.6	20.8	24.6
		2008	49.9	18.9	31.1
		2013	46.9	18.5	34.7
	Central	2000	57.8	26.8	15.4
		2004	55.1	26.5	18.4
		2008	51.1	23.6	25.3
		2013	48.3	23.7	27.9
	Peripheral	2000	57.2	17.8	25.0
		2004	54.3	17.4	28.3
		2008	49.1	16.2	34.6
		2013	46.6	15.2	38.2

Source: Data provided by OIS Amsterdam and OBI Rotterdam; own adaptation, available upon request.

In the region surrounding Rotterdam, the share of owner-occupied dwellings stands at 55%, with social and private rent at 35% and 10%, respectively (CBS 2013). Social rent thus remains a relatively large share of the housing stock in both cities when compared to the surrounding regions, but liberalization trends are strong in both urban contexts.

Amsterdam housing associations sold a total of 23,824 dwellings between 1998, when they started selling, and 2015. After a slow start, yearly sales increased substantially during this period, reaching a peak in 2014 with a total of 2,682 sales. These sales increasingly concentrate in Amsterdam's central neighborhoods, accelerating gentrification in already burgeoning areas (Hochstenbach, 2016). In Rotterdam, the sale of social housing dwellings has followed a somewhat different trend, as it stood at around 1,400 sales per year during the precrisis years, but since the crisis the number of sales has decreased in line with an overall stagnation in housing sales to around 1,000 social housing sales during 2013 (Pellenburg, Tillema, Brugman, & Van Marwijk, 2014). In addition, in both cities, especially since the crisis, housing associations and local states have turned to rent liberalization, which entails formerly rent-regulated social rental dwellings being moved into the free market sector in an attempt to expand the housing opportunities of middle income groups and upwardly mobile young households.

As an increasing share of both cities' housing stock is being commodified, the housing stock in general becomes more susceptible to economic patterns of boom and bust. [Figure 1](#) charts the longer term average sale prices in Amsterdam and Rotterdam, showing remarkable boom–bust patterns in Amsterdam and more stability

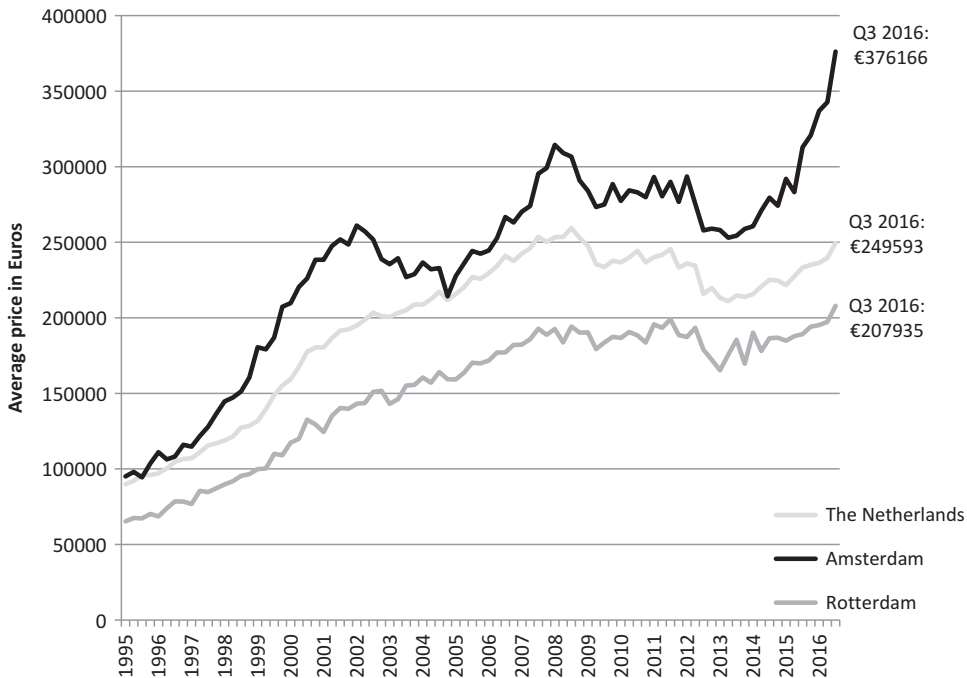


Figure 1. Average sale price of dwellings per quarter 1995–2016 (up to third quarter of 2016) in Amsterdam, Rotterdam (cities), and the Netherlands. Source: Statistics Netherlands, CBS Statline (2016); own adaptation.

in Rotterdam. Between 2004 and 2008, average sale prices rose by 33% in Amsterdam, from €237,000 to a high of €314,000. During the same period, average sale prices in Rotterdam increased some 20%, from €160,000 to €193,000. Price increases during this period were the product of relatively favorable mortgage lending conditions, including high loan-to-value ratios and low interest rates, and the structural tax deductibility of mortgage interest as part of a wider governmental strategy to push homeownership (see Aalbers, 2011). High prices in Amsterdam reflect the city's increasingly tight housing context due to considerable population growth, and demand from middle classes moving to the city for employment or remaining after graduation (Boterman, Karsten, & Musterd, 2010). Yet, in the wake of the global financial crisis, house prices dropped steeply: by 18% in Amsterdam and 14% in Rotterdam between the first quarters of 2008 and 2013, though they have subsequently increased again.

It is important to consider the extent to which housing sales and sale prices influence the residential moving patterns of low-income households. Particularly in central Amsterdam, prices are generally high, thus pricing out low and middle income residents from the owner-occupied sector. Yet, it should also be taken into consideration that in both cities, large groups of lower income residents cannot and will not enter homeownership, also due to the existence of a large social rental stock in urban areas. In postcrisis times, price drops may enable some households to buy, but the dominant development is that decreasing sales and more restricted mortgage lending practices that privilege "prime" households (see Forrest & Hirayama, 2015) are reducing postcrisis access to homeownership.

Changing population compositions

So how have low-income households' residential moving patterns changed during the pre- and postcrisis periods in Amsterdam and Rotterdam? Before turning to residential moves, Table 2 shows the three different low-income categories as a percentage of the total population living in the central city, urban periphery, and surrounding region. The table shows that both cities host a larger percentage of low-income households than the regions, although this percentage decreased between 2004 and 2013—with only working poor households increasing their share. In contrast, the shares of all low-income categories increased in the cities' surrounding regions.

Differences between Amsterdam and Rotterdam, and differences between the cities and their regions, can be linked to the occupational structure of the local populations. Not only are unemployment levels structurally higher in Rotterdam, but a larger share of the employed population is active in lower skilled sectors (CBS, 2015).⁹ These are specifically the sectors where employees have been most hit by the crisis: during the 2008–2013 period, the number of residents in lower skilled jobs decreased by roughly 15,000 in Rotterdam (25,000 in the surrounding Rotterdam region) and by 7,000 in Amsterdam (and 19,000 in the surrounding Amsterdam region). In contrast, in both cities, the number of residents in high skilled jobs is high and grew consistently during the 2004–2013 period despite the crisis, although this occurred at a faster rate in Amsterdam. These general employment data highlight how Amsterdam's occupational structure is to a larger extent professionalized and continues to professionalize and grow, while Rotterdam has been hit by the decreasing demand for lower skilled jobs, which contributes to greater increases in unemployment.

Table 2. The three low-income population groups as percentage of the total population (and their aggregated total share) per area for 2004 and 2013 and percentage point change.

Area	Year	Working poor	Low-to-middle	Unemployed	Total low
Central Amsterdam	2004	7.0	12.4	15.8	35.2
	2013	7.9	11.0	13.5	32.4
	Change (pp)	+0.9	-1.4	-2.3	-2.7
Peripheral Amsterdam	2004	3.7	11.0	18.1	32.8
	2013	5.5	11.0	17.2	33.7
	Change (pp)	+1.8	-0.1	-0.9	+0.9
Surrounding Amsterdam region	2004	2.2	7.0	6.5	15.7
	2013	3.1	7.7	7.1	18.0
	Change (pp)	+0.9	+0.8	+0.5	+2.2
Central Rotterdam	2004	4.4	12.4	22.1	38.9
	2013	5.8	11.1	19.9	36.7
	Change (pp)	+1.4	-1.3	-2.2	-2.1
Peripheral Rotterdam	2004	2.6	10.0	17.5	30.1
	2013	3.8	10.2	17.3	31.4
	Change (pp)	+1.2	+0.3	-0.2	+1.3
Surrounding Rotterdam region	2004	1.9	6.9	7.8	16.6
	2013	2.6	7.7	8.5	18.9
	Change (pp)	+0.7	+0.8	+0.8	+2.3

Data: Social Statistics Database, own adaptation.

Low-income households' changing moving patterns

Changes become most visible when we shift our focus toward residential moves, when households are directly faced with housing constraints. At this point, it is important to note that while these figures show the share of different low-income groups among the total number of movers, increasing or decreasing shares are in almost all cases matched by similar increases or decreases in absolute numbers. [Figure 2](#) shows what percentage of all movers to or within different destination areas (central Amsterdam, peripheral Amsterdam, and surrounding region) belongs to any of the low-income household categories. This is done per year for the 2004–2013 period.¹⁰ All shares and percentages discussed in this section thus pertain to the share of low-income households among movers to or within the different areas of destination.

In a general sense, these data highlight the importance of analyzing these different low-income groups separately, rather than as one broad low-income category. It shows that working poor households (earning less than 110% of the minimum full-time wage) mainly move to/within the city, as opposed to the region. In the precrisis period, their share among movers slightly decreased in central Amsterdam, contrasting trends in the urban periphery and surrounding region where this share slightly increased. After the onset of the crisis, however, the share of working poor residents among movers increased in all areas, though most substantially in the urban periphery (from 6.4% in 2008 to 10.6% in 2013). Notably, also in central Amsterdam, their share increased during the postcrisis period (from 7.6% to 10%). It should be taken into account that the working poor is a rather diverse group, encompassing those who are structurally low paid as well as self-employed people and recent labor market entrants. The financial crisis and related austerity measures have contributed to an increase in persons in temporary and precarious employment, particularly among younger cohorts (Aassve, Cottini, & Vitali, 2013).

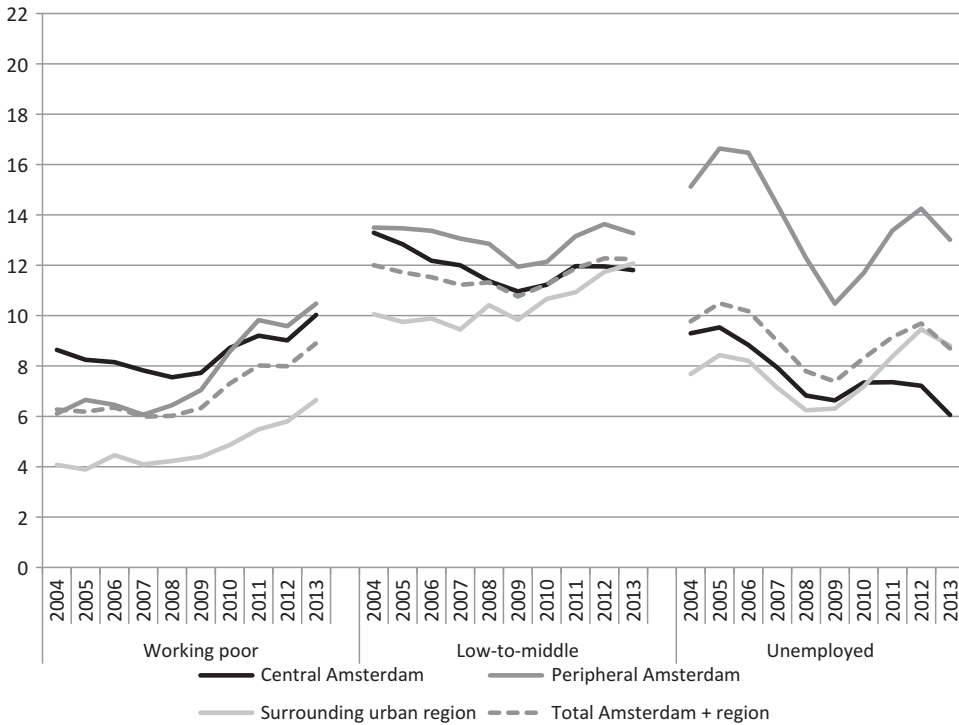


Figure 2. Share of low-income residents as percentage of total movers per destination area 2004–2013 in the Amsterdam region. Source: Social Statistics Database, own adaptation.

The other low-income working households—those earning more than 110% of the minimum full-time wage, but less than the social rental cap—show different moving patterns. In the boom period, their share among movers decreased most substantially in central Amsterdam (from 13.3% to 11.4%) and also decreased somewhat in the periphery (from 13.5% to 12.9%). In contrast, already during the boom period, their share among movers increased in the region—although this increase accelerated after the beginning of the crisis—while remaining relatively stable in the city’s central and peripheral neighborhoods. Consequently, as of 2013, the share of low-to-middle income employed households among movers is higher in the surrounding region than in central Amsterdam.

The share of unemployed households among movers is by far the largest for the urban periphery, reaching 16.6% in 2005. Yet, also due to large scale restructuring, there was a steep decrease in unemployed households in the periphery during the boom period, as well as in the first 2 years after the financial crisis began. Interestingly, during the bust period, the share of unemployed households among movers showed a strong increase in the region, and from 2009 also in the urban periphery. In contrast to cyclical trends, their share among movers more or less stabilized in central Amsterdam, before again decreasing between 2012 and 2013.

Overall, these data highlight a gradual shift of poverty away from the city, particularly the center, toward the regions. An overarching suburbanization of poverty comes to the fore, which is progressing despite being influenced by boom–bust rhythms. In central Amsterdam,

the share of all low-income categories among movers decreased during the precrisis boom period. Particularly, the number of unemployed households moving to central Amsterdam decreased, likely due to the diminishing accessibility and availability of social rental housing. The subsequent economic downturn did not lead to a postcrisis increase in lower income households, except for the growing group of working poor households. The suburbanizing trend itself is multi-faceted, with the region experiencing the strongest relative increase in low-income households. Furthermore, already in precrisis times, the region experienced increases in working poor and low-to-middle income households moving in, while the decrease in unemployed movers was below average. In contrast, Amsterdam's urban periphery shows more variegated patterns, depending on the time period and particular low-income group. Interestingly, the share of moving low-to-middle income households increased especially in the urban region, while in the urban periphery, the share of working poor households grew disproportionately, signaling a different residential orientation among these different groups.

In Rotterdam, we see similar patterns regarding the direction of changes, although they are not as marked as in Amsterdam (Figure 3). Here, the share of working poor households among the total number of movers stayed relatively stable during the precrisis period, before increasing for all areas after the crisis began: in central Rotterdam, this share increased from 6.5% in 2008 to 8.6% in 2013. In the other areas, the percentage point increases were more or less similar. Consequently, throughout the 2004–2013 period, the share of working poor households remained highest in central Rotterdam. Regarding the other low-to-middle income households, there was a slight move away from central Rotterdam, which mainly occurred during the precrisis boom period and remained stable throughout the postcrisis period. In 2013, the share of low-to-middle income households moving to central Rotterdam dropped below the regional average. The biggest increase of low-to-middle income households was in the region, from 10.7% in 2004 to 12.3% in 2013, bringing it up to almost match the share among movers to or within the central city. Interestingly, this increase mainly occurred during the postcrisis bust period, contrasting a trend of relative stability during the precrisis period. In peripheral Rotterdam, the share of lower income employed households moving there remained rather stable over time, with boom and bust trends more or less cancelling each other out. As a consequence, already during the boom period, the share of low-to-middle income households among movers in Rotterdam's peripheral neighborhoods surpassed the share in the central city due to decreases in the center.

The share of unemployed residents among movers is structurally higher in Rotterdam and its surrounding region than in Amsterdam. While this share quickly decreased during the precrisis boom, the postcrisis years saw a return to 2004 levels, although variation between areas exists: the region experienced an increase between 2004 and 2013 from 9.4% to 11.9%, while the central city saw an overall decrease from 16.4% to 15.4%. These different trajectories mainly formed during the boom period, when unemployment shares decreased most substantially in the central city (−4.7 percentage points between 2004 and 2008) and least in the region (−1.3). In the postcrisis period, all three areas show highly similar increases of 3.7–3.9 percentage points. This suggests that the precrisis upgrading patterns in the central city have not been as robust as in Amsterdam and are to a greater extent subject to cyclical trends.

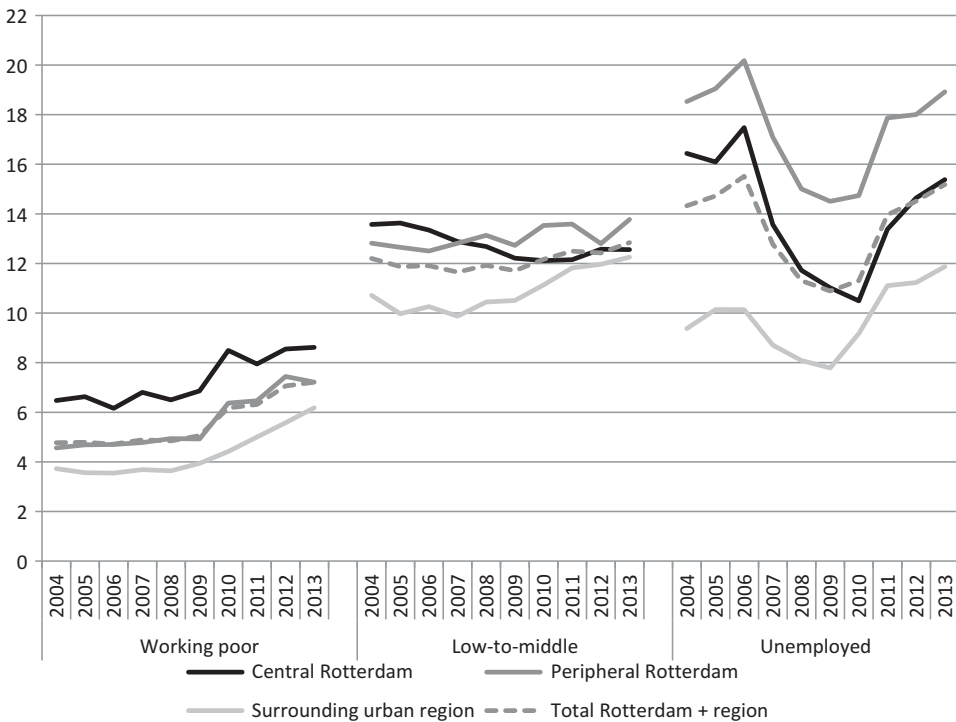
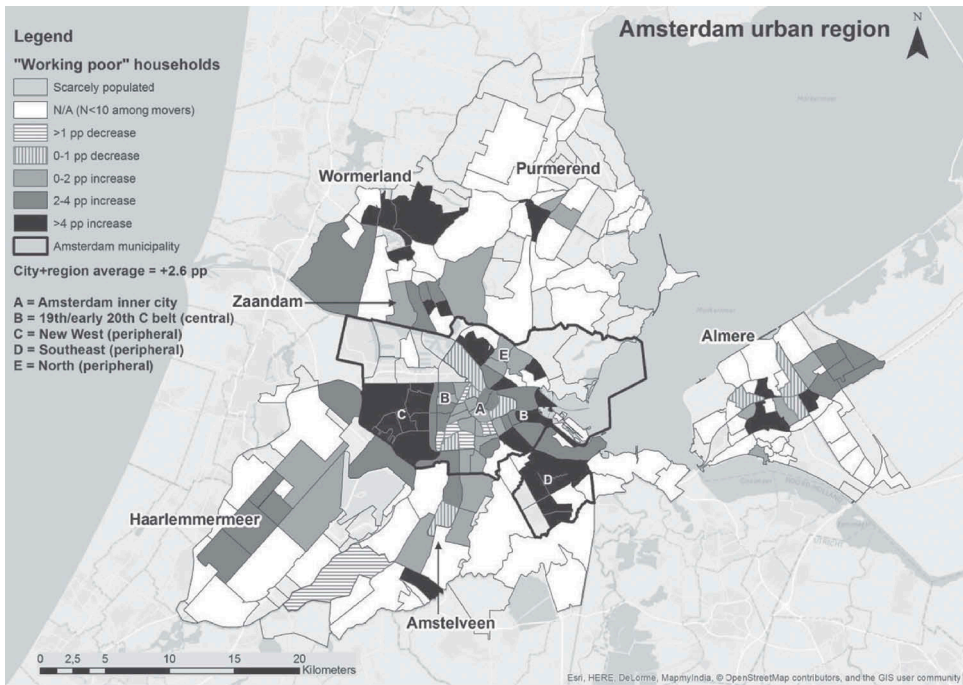


Figure 3. Share of low-income residents as percentage of total movers per destination area 2004–2013 in the Rotterdam region. Source: Social Statistics Database, own adaptation.

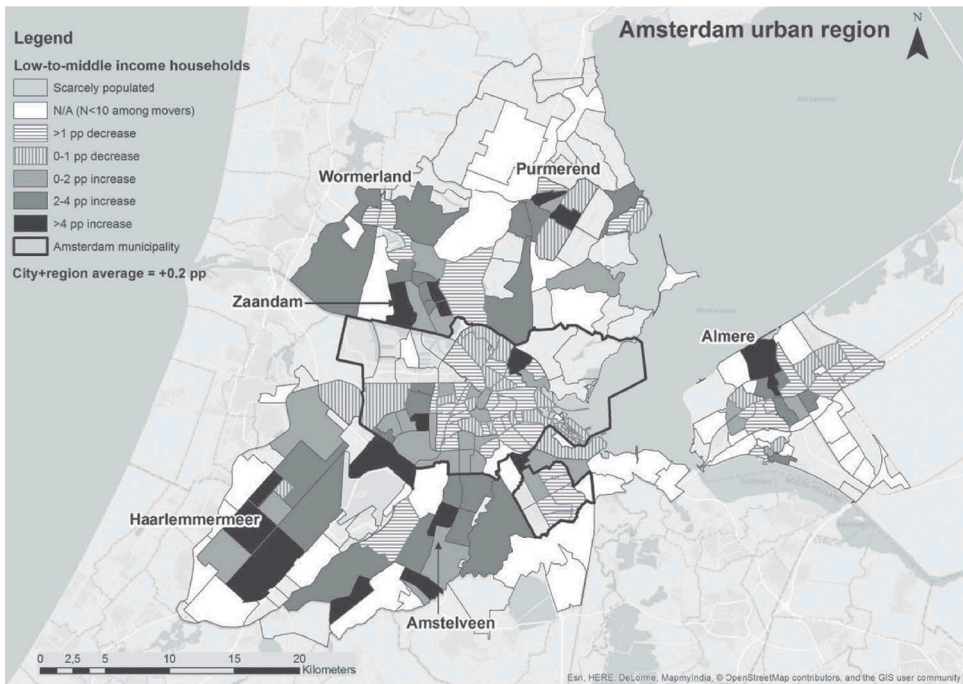
Generally speaking, for both Amsterdam and Rotterdam, these analyses highlight a suburbanization of poverty toward the surrounding regions. Compared to the total population, the low-income groups are overrepresented among movers to/within the region for the 2004–2013 period, and increasingly so (compare Figures 2 and 3 with Table 2).¹¹ Both cities' surrounding regions still host relatively few low-income residents, with a large body of non-moving middle-class residents obscuring the emerging patterns of change. The share of unemployed residents among movers in particular has remained relatively low among the total population of both regions but has been relatively high among movers.

Mapping changing patterns

These trends have been mapped onto both urban regions to further highlight spatial variations and nuances between postcode tracts (Figure 4a–f). For each of the three low-income groups, these maps compare their share among movers in 2013 with their share among movers in 2004—showing percentage point changes. The maps illuminate how patterns of change differ across neighborhoods, but most specifically how they differ between working poor, low-to-middle income, and unemployed households. By comparing 2004 and 2013, these maps combine precrisis and post-crisis trends.

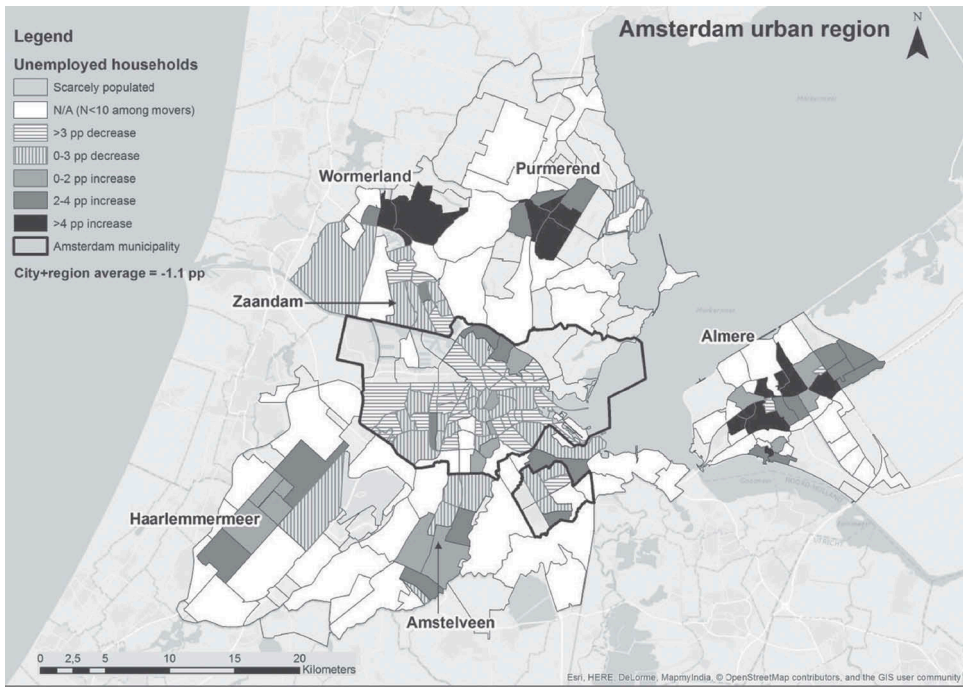


a

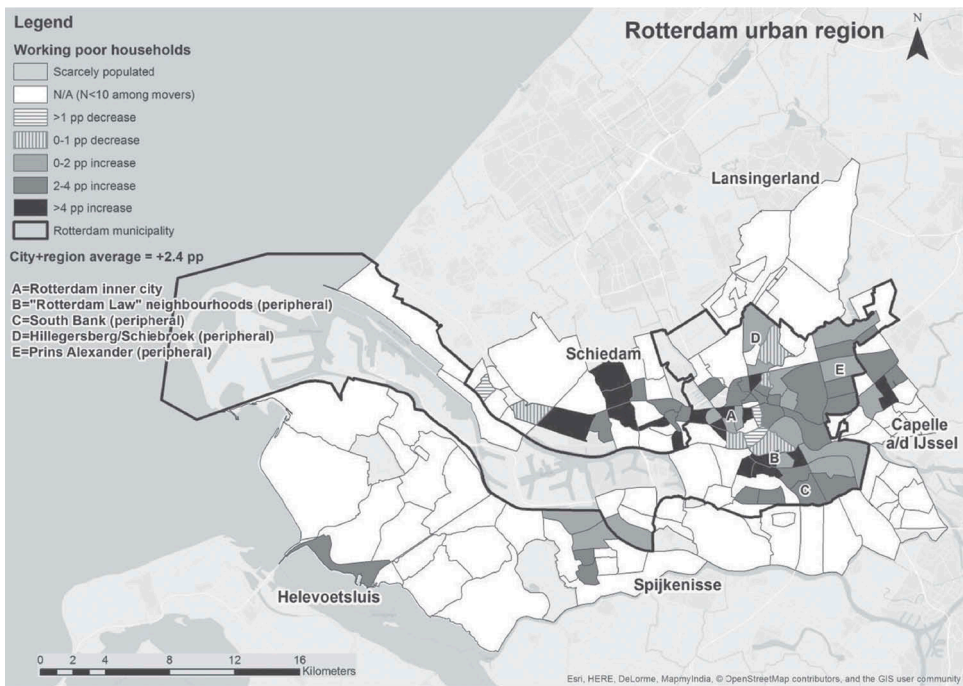


b

Figure 4. (a–f) Percentage point (pp) change in the share of working poor (a and d), low-to-middle (b and e), and unemployed (c and f) households among (in-)movers per postcode tract between 2004 and 2013. Data: Social Statistics Database, own adaptation; base map: IRIS international.

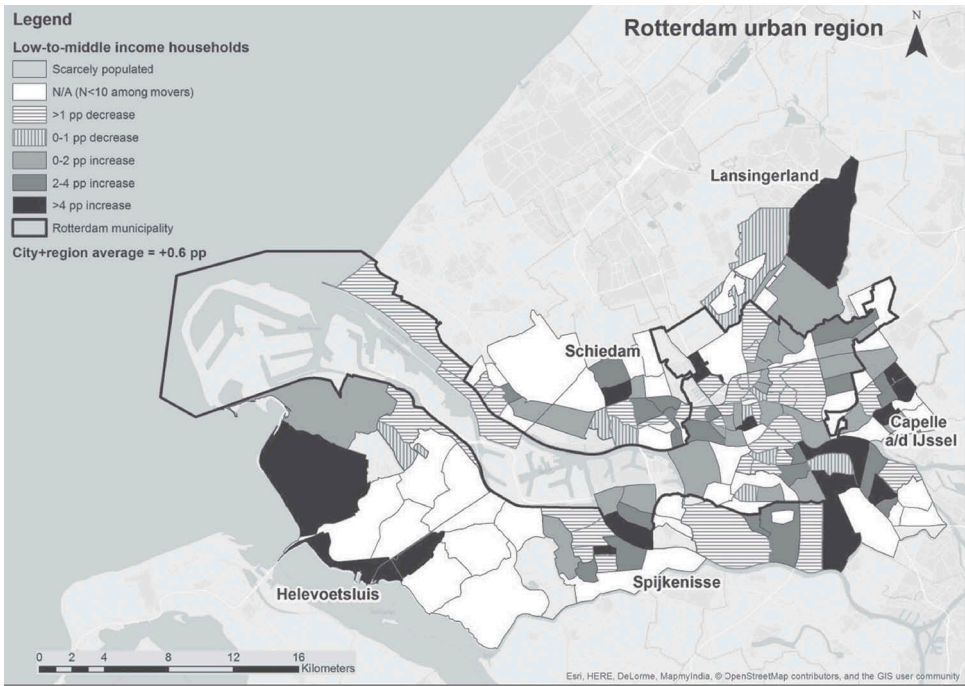


c

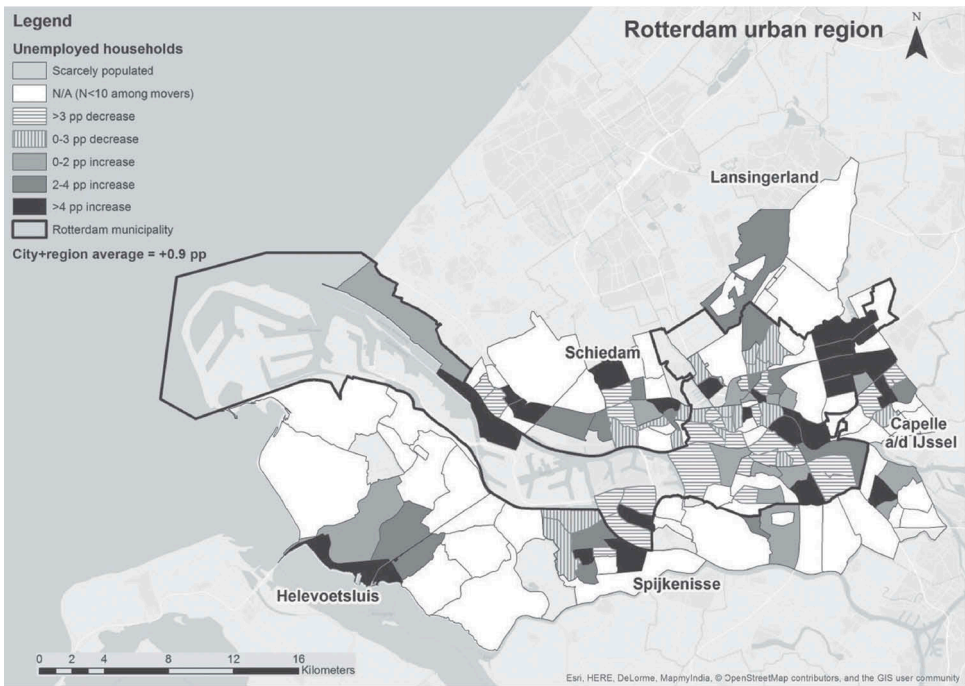


d

Figure 4. (Continued).



e



f

Figure 4. (Continued).

For the Amsterdam urban region, it clearly shows that in all tracts in the urban periphery, the share of working poor households among movers increased (Figure 4a). In addition, in the inner-ring neighborhoods various tracts also saw an increase, particularly in the (often gentrifying) nineteenth and early-twentieth century belts surrounding the city center. Even in the region, the share of working poor households among movers increased for most tracts, although often at a slower pace and mostly in higher density satellite towns such as Almere, Zaandam, and Haarlemmermeer. In contrast, the share of low-to-middle income households among the movers decreased in most tracts in Amsterdam's central city, with trends in the urban periphery variegated across different tracts (Figure 4b). While increases also occurred in the satellite towns, there was a more general increase in the region, including lower density suburban tracts and Amstelveen, a relatively middle-class city bordering Amsterdam. The starkest shifts were, however, among the unemployed households (Figure 4c), as their share among movers decreased across Amsterdam, barring some exceptions. Instead, particularly the new town of Almere, as well as Purmerend and Wormerland, has seen a strong increase in unemployed households among movers. While such satellite towns were for a long time typical (lower) middle-class milieus, these maps show that they are increasingly catering to different low-income groups.

In the Rotterdam region, the working poor can be seen as strongly urbanized: Figure 4d shows that the actual number of working poor households moving to tracts outside the city was often very low (<10 per year). An exception is Schiedam, a city directly bordering Rotterdam to the west that saw substantial increases in working poor residents, especially in prewar neighborhoods with a large percentage of often low-quality private rental dwellings. Within Rotterdam, increases generally concentrated in neighborhoods in the west (Delfshaven), where the housing stock is dominated by cheap rental dwellings. Strong increases were also found in low status neighborhoods on the city's south bank, particularly in those neighborhoods where the controversial "Rotterdam Act" has been in force since 2006. This act forbids unemployed newcomers from settling in these neighborhoods. Consequently, the cheap rental stock mainly attracts households that are employed but have a (very) low income. Regarding the moving patterns of low-to-middle income households, we can see generally decreasing shares among movers in Rotterdam's central city and gentrification hotspots (Katendrecht), as well as its higher status peripheral tracts (Hillegersberg). Increases can be found in filtering peripheral tracts of the city (e.g. Prins Alexander) and bordering higher density areas (e.g. Capelle aan den IJssel). For unemployed households, we see similar patterns, with the strongest increases in Prins Alexander as well as in tracts in the surrounding region (e.g. Hellevoetsluis, Lansingerland).

Direct and indirect suburbanization of poverty

To gain a better grip on the overarching trend of poverty suburbanization, and how it comes about, it is imperative to look at where these moves originated from. Table 3 shows the percentage point change in the share of the different low-income household types among movers between 2004 and 2013, differentiating according to area of origin (i.e. address in the previous year). For Amsterdam, we find a clear *direct*

Table 3. Percentage point change in the share of working poor, low-to-middle, and unemployed households among (in-)movers per destination area between 2004 and 2013, divided according to area of origin

Amsterdam and region				Rotterdam and region			
Origin ↓	Destination →			Origin ↓	Destination →		
	Central	Peripheral	Region		Central	Peripheral	Region
Working poor				Working poor			
Central city	0.7	2.7	2.8	Central city	2.3	2.1	2.4
Peripheral city	3.6	4.5	3.7	Peripheral city	2.8	2.3	2.3
Region	3.8	5.9	1.8	Region	1.1	3.5	2.4
Outside region	1.5	3.8	3.4	Outside region	1.5	2.7	2.6
Total	1.4	4.4	2.6	Total	2.1	2.7	2.5
Low-to-middle				Low-to-middle			
Central city	-1.7	-1.1	1.5	Central city	-1.4	-0.5	0.9
Peripheral city	-2.6	1.2	5.0	Peripheral city	-1.6	1.6	3.3
Region	-3.1	-0.2	2.0	Region	-0.7	3.3	2.1
Outside region	-0.5	-0.3	2.3	Outside region	0.2	1.1	1.6
Total	-1.5	-0.2	2.0	Total	-1.0	1.0	1.5
Unemployed				Unemployed			
Central city	-3.8	-0.8	3.5	Central city	0.1	6.5	3.2
Peripheral city	-4.8	-0.5	2.7	Peripheral city	2.3	1.2	7.5
Region	1.6	0.5	1.6	Region	-0.1	5.6	1.7
Outside region	-2.0	-3.4	-0.2	Outside region	-1.8	-2.9	2.5
Total	-3.2	-2.1	1.1	Total	-1.0	1.0	1.5

(1) Destination areas are in columns; origin areas in rows. (2) Origin is the place of residence in the previous year. "Outside region" is in-movers from elsewhere in the Netherlands or abroad. Data: Social Statistics Database, own adaptation.

suburbanization of poverty. Low-income households move less within the central city, and more from the central city to the region. While the share of low-to-middle income and unemployed households moving within the central city decreased between 2004 and 2013 (-1.7 and -3.8 percentage point, respectively), their share did increase among the total number of moves from the central city to the surrounding region (+1.5 and +3.5, respectively). The share of working poor households among movers within the central city did increase (+0.7), but the increase was substantially stronger among movers from the central city to the periphery or region (+2.7 and +2.8, respectively). However, crucially, we also see a suburbanization of poverty through indirect exclusionary mechanisms. Generally speaking, the share of low-income households among movers into the central city—whether they come from the urban periphery, the surrounding region, or outside the region—also decreased (or in the case of working poor households, increased at a relatively slow rate for the central city). In contrast, their share increased among movers to the surrounding urban region. A direct suburbanization of poverty is thus being complemented by an indirect suburbanizing trend that functions through exclusionary measures.

For Rotterdam, we find similar trends as in Amsterdam, but both the direct and indirect exclusionary suburbanization of poverty are more subdued. For instance, the share of unemployed households among movers within the central city even slightly increased (+0.1 percentage point), though it increased at a much stronger rate in both the urban periphery (+6.5) and surrounding region (+3.2). Nevertheless, here too, we find a relative increase in low-income households moving from the central city to the periphery and region, as well as increasing shares of those moving from elsewhere settling outside the central city.

Housing outcomes

Despite clear overall trends of a suburbanization of poverty and the decreasing accessibility and affordability of inner city environments, the findings also highlight important differences regarding the moving patterns of the three different low-income groups, for example regarding destination housing tenure (Figure 5). Tenure mixing and the provision of social housing can lend an important counterweight to the structural and cyclical trends that are impacting housing affordability and can sustain housing accessibility for lower incomes despite gentrification. Tenure outcomes are the result of the spatially variegated housing market structure but also reflect households' housing position, opportunities, preferences, and constraints.

In both cities, but more so in Amsterdam, working poor households move comparatively more often to dwellings that they share with at least one other household. For the Amsterdam periphery, this is as high as 61%. This is likely the consequence of coping strategies that allow such households to find housing and also forms a tentative explanation as to why a relatively large share of working poor households is able to move into gentrifying inner city neighborhoods. A considerable portion of the low-to-middle income households is moving into owner occupation—although this share is relatively low in central Amsterdam (9%), reflecting generally high house prices. The more affordable owner-occupied stock in Amsterdam's surrounding region and in Rotterdam overall continues to offer a larger group of low-to-middle income households the opportunity to buy. Unemployed households generally depend on social rental housing and only very rarely move into homeownership (2% or 3% per area). The fact that they are heavily overrepresented in the social rental sector indicates that

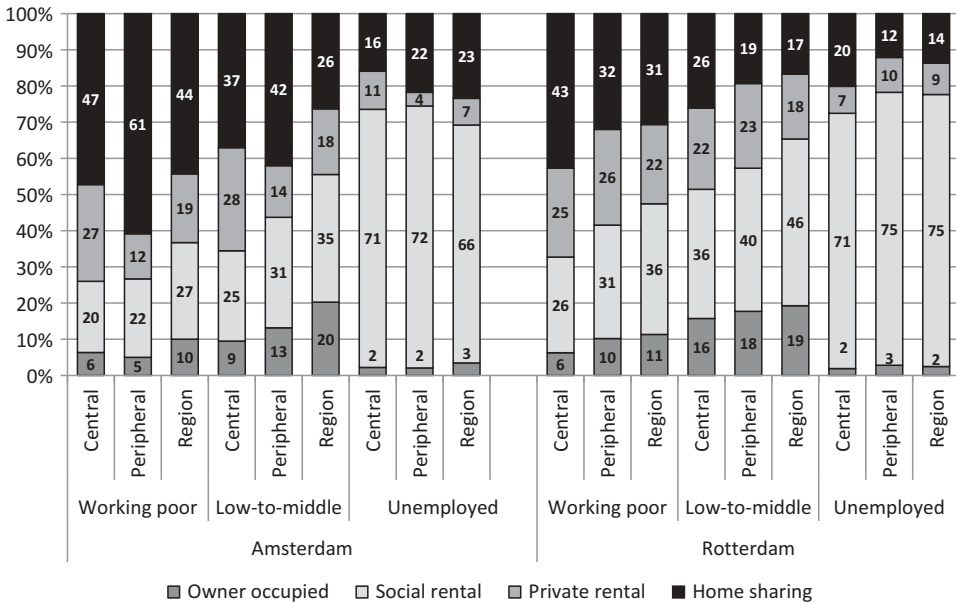


Figure 5. Tenure outcomes per low-income group per area in Amsterdam and Rotterdam, in 2013. Data: Social Statistics Database, own adaptation.

these households may generally be in a more structurally low-income position compared to the other groups that may be more socially mobile.

Although these data do not give insight into preferences, they do generally point to the importance of social rental housing in allowing low-income households to continue to move to areas that would otherwise be unaffordable. Sharing as a coping strategy to overcome issues of affordability and accessibility also plays an important role in facilitating low-income households' access to housing and neighborhoods. Long average waiting times for social rental housing in Amsterdam (over nine years, but longer in popular areas) make such coping strategies important for outsiders (cf. Kadi & Musterd, 2015). Comparing the two cities, it is interesting to note that a larger share of low-income households moves into owner occupancy or social rental housing in Rotterdam. This reflects Rotterdam's lower house prices in the owner-occupied sector and shorter waiting times for social rental housing (average 3.5 years).

Discussion and conclusion

Many major cities across Europe and other contexts are being marked by growing social-spatial inequalities as a consequence of, among other things, economic restructuring, policies of housing commodification, and governmental strategies pushing gentrification. The onset of the global financial crisis and related austerity measures have further amplified already existing trends toward greater inequalities (Tammaru et al., 2016). This paper investigated a key aspect of changing social-spatial inequalities, namely the residential moving patterns of low-income households, focusing specifically on gentrification and the suburbanization of poverty. It is important to note that our findings do not point to one uniform trend in both cities and in both precrisis and postcrisis times, nor is there one uniform trend for the different types of low-income households. This conclusion will therefore not answer the main research questions on moving patterns (RQ1), boom-bust differences (RQ2), and between-city differences (RQ3) separately but will rather integrate the answers into a cohesive overview.

Gentrification and the suburbanization of poverty in many ways represent a long-term reversal of fortunes for inner city areas, and these patterns have survived several economic boom and bust cycles. Although this paper only investigated one boom and one bust period, it may be expected that as housing is liberalized and social rental dwellings converted into owner occupancy, the impacts of financial crises and housing market fluctuations will become greater. It is important to consider the changing role of urban politics in relation to these housing market shifts. As more market-oriented urban policies are rolled out, not least state-led gentrification (Peck & Tickell, 2002; Smith, 2002), older policies aimed at mitigating socioeconomic divisions are being gradually eroded. Urban policies cast inner cities as the "natural" location to accommodate the actual and desired growth of new middle-class residents flocking to the city (Uitermark, 2009; Van Gent, 2013). Central neighborhoods are selectively targeted for state-led gentrification, for example through tenure conversions from rent to owner occupancy (Hochstenbach, 2016). Lower income households are increasingly confined to a shrinking social rental sector or affordable segments of the owner-occupied sector, and to low status or declining neighborhoods. As these policies progress, the suburbanization of poverty is likely to take on ever more prominent forms.

Although in both cities, gentrification constitutes an essential tool in the policy-makers' toolkit (see Uitermark, 2009; Uitermark et al., 2007; Van den Berg, 2012; Van Gent, 2013), the process itself is much more pervasive in Amsterdam than in Rotterdam. Amsterdam is more integrated in global capital circuits and labor markets (Engelen & Musterd, 2010; Tammaru et al., 2016). In combination with the presence of multiple large universities and polytechnics, this ensures the city of a yearly batch of students moving to the city and graduates starting a career in it, pushing demand for housing in an already tight housing context. This also goes for Rotterdam, but to a lesser extent.

A key finding of this paper is that when specifically focusing on low-income residential moves, the stronger pervasiveness of gentrification in Amsterdam has much to do with its structural character in Amsterdam compared to its more cyclical trending in Rotterdam. While we can see that the 2008 crisis influenced gentrification processes in both cities, it did not simply lead to de-gentrification (cf. Hackworth & Smith, 2001; Hedin et al., 2012; Lees & Bondi, 1995). Gentrification is more prone to cyclical trends in Rotterdam: during the boom period, gentrification led to substantial decreases in the influx of low-income households (similar to Amsterdam), but these were almost cancelled out during the subsequent bust. In Rotterdam's more relaxed housing context, gentrification processes tend to wax and wane during boom and bust times. In Amsterdam, the share of all low-income household types decreased substantially in the central city during boom times, and this did not increase again during the postcrisis period, running counter to overarching trends of increasing poverty and unemployment. Thus, during boom periods, gentrification can be seen to progress in both cities, but bust periods in particular lay bare the extent to which gentrification actually has a firm foothold in the city, and to which the process is structurally embedded in the city's economic development.

Focusing on the moving patterns of different types of low-income households, we see different patterns. In general, the existing social rental sector continues to mitigate the exclusionary effects of gentrification. Notably, although the cities' inner urban zones have become more gentrified and housing less affordable and accessible, we also note an increase in urban working poor households. These findings suggest that a large and growing group of working poor residents remain integral to the two cities' economic structures, despite overarching patterns of professionalization (Hamnett, 1994; Sassen, 1991). Although their incomes are very low, these households appear able to negotiate access to otherwise unaffordable or inaccessible housing through different coping strategies. Multiple households sharing one dwelling may be an important strategy that has received little attention in gentrification research. It does not represent direct or exclusionary displacement but should rather be seen as a struggle to stay put, to gain access to housing, or to remain in certain neighborhoods (also Newman & Wyly, 2006). Among working poor households are included precariously (self-)employed—often relatively young—households. This could hint at new inequalities that cut through traditional class boundaries as a consequence of current labor market restructuring, but also of intergenerational disparities and the growing importance of intergenerational support in acquiring housing (Forrest & Hirayama, 2015), especially in tight housing contexts and upmarket neighborhoods (Hochstenbach & Boterman, 2015).

A particularly large difference between Amsterdam and Rotterdam exists regarding unemployed movers. While postcrisis trends in Amsterdam show relative stability and even a further decrease in unemployed in-movers in the central neighborhoods, Rotterdam's crisis trends show substantial increases across the board. These differences need to be viewed in the light of both cities' different economic structures (Burgers & Musterd, 2002). Employment in lower skilled manual labor shows long-term decreases in both Amsterdam and Rotterdam, but in Rotterdam, these jobs remain relatively more important. Such jobs are, however, facing structural decline through workforce professionalization (Butler et al., 2008; Hamnett, 1994) and are also heavily impacted by economic cycles, which contributes to further decreases during periods of recession.

Inner city gentrification is mirrored by a parallel suburbanization of poverty in both investigated city regions. The question of where displaced groups move to has been a central concern—but difficult to answer question—in gentrification research (Slater, 2009). We find that the changing residential moving patterns of low-income groups are variegated. Apart from employing coping strategies, they are also increasingly moving to both the urban peripheries (the working poor) and the surrounding regions (the low-to-middle income and unemployed). Particularly those areas that already showed relatively negative trends before the crisis were the ones hardest hit by its onset. The higher density satellite and new towns originally built for the middle classes in particular have become the destinations for lower income households (also Tzaninis & Boterman, 2014). Thus, we see a rather “bundled” suburbanization of poverty, as lower incomes concentrate in these areas.

Research on gentrification generally acknowledges the existence of different forms of direct and indirect (exclusionary) displacement (Slater, 2009). Similarly, this paper stresses that the suburbanization of poverty is not only the product of low-income residents being displaced from the central city, but can also be the result of low-income residents moving into suburban locations from elsewhere because they are no longer able to acquire housing in the city center. As such, gentrification also has a marked influence on residential moves within or to urban regions through exclusionary effects. In fact, it may be expected that as central cities continue to gentrify, the well of potential low-income residents who could move directly from city to suburb will gradually dry up, making the suburbanization of poverty through exclusionary displacement all the more prominent. This paper has found both a *direct* suburbanization of poor households moving from city to suburb, and a *broader* suburbanization of poverty caused not only by direct moves but also by broader indirect and exclusionary processes attributable to the increasing unaffordability and inaccessibility of central city locations. This broader process reflects the changing geography of urban regions marked by shifting socioeconomic divides.

Finally, in this paper, we primarily focused on changing residential moving patterns rather than overall population change. Although residential moves do not necessarily drive neighborhood change (see Hochstenbach & Van Gent, 2015), they do form the nexus where issues of displacement, exclusion, housing affordability, and housing accessibility come to the fore and have their biggest impact. This is especially the case in contexts like the Netherlands, where tenant rights are relatively strong, protecting tenants *in situ* and providing an incentive to stay put. The focus on residential moves illuminates growing and important undercurrents that would otherwise have remained obscured or appeared relatively minor. Particularly trends that mark a reversal in the direction of development for

neighborhoods or areas are obscured by the large body of non-moving residents. When focusing on residential moves, it becomes apparent that gentrification and the suburbanization of poverty are forceful processes that both drive and reflect changes in the geography of urban regions.

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Disclosure statement

No potential conflict of interest was reported by the author.

Notes

1. To give an example, movers' neighborhood outcomes for 2004 are the outcome of a residential move taking place anytime during 2003. It is possible that households move several times, in which case we only measure the last outcome/destination.
2. All incomes are corrected for inflation to the 2013 level.
3. Since 2011, 90% of rent-regulated social rental housing has to be allocated to households with an income below the official threshold. For some household types, this threshold stands at approximately €38,000 (subject to yearly fluctuation), but for the sake of clarity, we stick to a single threshold.
4. We also ran additional analyses using different income classifications, for example equivalized household income. These analyses returned similar results to those presented here (and are available from the corresponding author upon request).
5. We use stable four-digit postcode tracts to map changes. The average number of included households per postcode area is roughly 2,400. Postcode areas with less than 10 observations for a specific income category are excluded from these specific analyses to meet privacy requirements.
6. We define moving as changing address, which may also occur within a neighborhood.
7. In this paper, we distinguish between social and private rent. Social rental dwellings are owned by housing associations, while private rental dwellings are owned by private landlords. This in itself does not imply that a dwelling is either rent-controlled (with a monthly rent below €700, subject to yearly changes) or liberalized. Dwellings owned by housing associations are mostly rent-controlled, although a small but increasing share has been liberalized. Similarly, a large share of the private rental stock is rent-controlled, although this share is shrinking fast.
8. These are allocations of "affordable" dwellings eligible for tenant subsidies. Although the allocation system is the dominant way through which social rental dwellings are allocated, some dwellings are allocated in other ways (e.g. directly by the housing association).
9. Statistics Netherlands groups job types into four categories regarding skill level (ISCO classification). We colloquially refer to the lowest two sectors as lower skilled jobs (see CBS, 2015).
10. Note that the year represents the address on the 1 January in the year following the move.
11. All analyses have also been conducted for the total as well as non-moving population. The direction of changes among these groups is highly similar to the changes among movers but is not as marked. These analyses are therefore not presented but are available from the corresponding author upon request.

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