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Understanding the social geographies of urban regions through the socio-economic and cultural dimension of class

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Abstract
Economic restructuring and changing demographic and migration patterns have significantly altered the population compositions of urban regions. Whereas there is evidence that employees in various sectors of the economy have different residential preferences, there exists much less insight into the social geography of various class fractions at the level of urban regions. The aims of this paper are (1) to describe the spatial orientations of various employment groups in the largest urban regions in the Netherlands and (2) to understand the extent to which spatial orientations towards various residential urban and suburban milieus can be explained by belonging to a specific class fraction. We draw on individual-level register data for the whole population of urban regions, applying a multidimensional and detailed perspective on social class that takes into account both economic and cultural capital. We demonstrate a strong urban orientation among the cultural classes, who are often working in the new economies—irrespective of their income status—and an over-representation in suburban areas of more economically orientated class fractions. Despite the differences in terms of economic structure of the researched urban regions, these variegated residential orientations are remarkably consistent.

KEYWORDS
gentrification, post-industrial economy, social class, social geography, suburbs

1 INTRODUCTION

Many studies on the social geography of cities have identified socio-economic status, demography, and ethnicity as key dimensions that predict residential patterns in urban regions across various contexts (Michelson, 1977; Murdie, 1969; Robson, 1975; White, 1988; Herbert & Johnston, 1978). Many of these studies implicitly or explicitly rely on descriptive models originating from the Chicago School of Social Ecology, which were concerned with describing and explaining the match of household characteristics and residential areas (natural areas; Burgess, 1925; Hoyt, 1939). Although the original studies from social ecology fell into disuse, discarded as descriptive, naively positivist, and too reductionist, current urban studies are still inspired by this work as they draw on demographic, ethnic, and socio-economic dimensions to describe how the social geography of urban regions unfolds (Bourne, 1993; Maloutas, 2007; Ostendorf & Musterd, 2012; Walks, 2001).

Economic restructuring and changing demographic and migration patterns have significantly altered the population compositions of urban regions. Several attempts have been made to replace social ecological models with new models for the social geography of cities, which better fit the realities of post-industrial urban regions. Much contemporary theorising about the transformation of urban space and the new emerging urban economic and social geographies is related to the economic transformations associated with welfare state restructuring, globalisation, and financialisation (Brenner, Peck, & Theodore, 2010; Moretti, 2012; Sassen, 1991, 2014). Although international migration is also among the key processes discussed (Tai, 2006), most accounts focus on issues of capital and class (Lees, Shin, & López-Morales, 2016). Numerous studies, particularly those revolving around processes of gentrification, have made clear that the social geography of large cities is fundamentally altered by the structural changes in how the economy is organised (Burgers & Musterd, 2002; Butler, 1997; Hamnett, 2003; Manley & Johnston, 2014).

The newly emerging social geography of cities has been linked to the different residential preferences of new types of employees, referred to as the "new middle class" (Butler, 1997; Ley, 1996) or the "creative class" (Florida, 2002). Urban scholars who often adopt neo-Weberian or Bourdieusian perspectives on class argue that the middle classes consist of several fractions, which have different preferences and display different residential practices. In short, many scholars...
argue that new service workers, particularly in the public sector and creative industries, but also in financial and other private sector services, have a relatively strong urban orientation (Bridge, 2006; Butler & Robson, 2003a; Florida, 2002; May, 1996).

Whereas there is a lot of evidence that gentrification is indeed carried out by specific parts of the middle class, there exists much less insight into the social geography of various class fractions at the level of urban regions. Studies of class-based urban change, for example, London (Butler, Hamnett, & Ramsden, 2008; Hamnett, 2003), Paris (Preteceille, 2003), and Toronto (Walks, 2001), do distinguish between different status groups (professional workers, new service workers, “old” working classes, etc.) but do not investigate the intersections of employment sector and income. A recent study on the Amsterdam region (Boterman & Musterd, 2017) suggests that the sector in which one is employed is a good predictor for where one lives and serves as a proxy for cultural and economic capital. The specificity of the Amsterdam region, in terms of both housing market and economic structure, however, makes it hard to tease out whether these findings do indeed demonstrate a general relationship between class fraction and residential orientation.

The aims of this paper are to describe the social geographies of urban regions and to investigate whether we can understand them better by applying a detailed perspective on social class that takes into account both economic and cultural capital. In order to test whether the relationship between class fraction and residential orientation holds in contrasting urban regions, we examine the six largest urban regions in the Netherlands, which differ quite strongly in terms of economic structure and corresponding labour markets, as well as the supply of residential milieus.

We apply a large dataset with individual-level register data for the working population of the urban regions, for which we construct class fractions. The class fractions are constructed with information on the precise employment sector, combined with individual-level information on hourly wages. We distinguish class fractions using three wage categories (low, middle, and high wages) and selected employment sectors. In order to understand how the residential patterns of different employment classes vary with residential milieu, six milieus were constructed: (1) pre-war urban core, (2) post-war urban core, (3) new-build locations (since 1990) within cities, (4) pre-war suburbs, (5) post-war suburbs, and (6) new-build suburbs, including most new towns.

We address the following questions:

1. What is the spatial distribution of various employment groups over six residential milieus in the six largest urban regions in the Netherlands?
2. To what extent can spatial orientation towards various residential urban and suburban milieus be explained by belonging to a specific class fraction?

### 1.1 Contemporary social geographies of urban regions

Models describing and explaining the contemporary social geographies of cities emphasise the changing structure of the labour market and the effects on the social composition of urban populations. According to Moretti (2012) and Sassen (1991, 2014), post-industrial economies are characterised by a rise in high-paid and low-paid work at the expense of middle incomes, especially in global cities. This process, referred to as social polarisation, has been one of the central themes in explaining spatial patterns in cities (Hamnett, 1994; Tai, 2006; Van der Waal & Burgers, 2009; Walks, 2001). Social polarisation is not, however, the only way in which social class change has been understood. Several scholars rather point to a general trend of professionalisation of the labour market, and consequently of the social class structure of cities (Butler, 1997; Hamnett, 1994, 2003). Nonetheless, most scholars agree that the transition from a manufacturing-based economy via a service-based to knowledge-based economy has important repercussions for the structure of the labour market and the composition of the employed population (Burgers & Musterd, 2002; Butler, 1997; Florida, 2002; Hamnett, 2003; Van der Waal & Burgers, 2009).

In post-industrial economies, employment has flourished in all kinds of face-to-face-driven economic activities, such as the financial, creative, and public sectors, whereas employment in other sectors, such as labour-intensive manufacturing, has declined. This changing economic structure runs parallel to a changing labour market and has important implications for class structure, and subsequently for the transformation of urban space. Some economic sectors have predominantly increased in the urban cores (e.g., smaller firms in the creative sector), whereas other economic activities (such as those requiring a lot of space) have migrated outwards towards highways and new business centres at the peripheries of cities. This new economic geography of cities in turn seems to translate into a different social make-up.

Class has emerged as the central theme in urban studies once again, with recent studies explicitly focusing on the residential practices of the upper and middle classes. Where segregation studies tend to focus on the housing market position of lower income and migrant groups (Massey & Denton, 1993; Musterd, 2005; Van Kempen & Şule Öüzüekren, 1998), much of the contemporary literature on urban transformation focuses on the residential practices of upper- and middle-class groups (Atkinson, 2006; Boterman & Musterd, 2017; Musterd & van Gent, 2016). The most evident body of literature that revolves around the residential practices of relatively affluent groups is that on gentrification. Gentrification represents the flipping of the urban social geography of western cities that is characterised by an increasingly poor inner city and various rings of affluent suburbs. Successive waves of gentrification, which have affected many inner cities across the globe, have caused an inversion of this characterisation (Ehrenhalt, 2012), or at least a blurring of the dichotomy between the poor inner city and affluent suburbs that used to be the dominant model of the late industrial urban region.

There is much scholarly debate about how current residential milieus fit the new forms of demand brought about by structural changes in the labour market and class structure of the city. This debate is very important for understanding the relationship between residential orientation on the one hand and more structural inequalities and constraints in the housing market on the other. It is evident that the contemporary social geography of cities is related to the residential orientations of new types of employees, often referred to as the new
middle class (Butler, 1997; Ley, 1996). Service workers, particularly in the public sector and creative industries, but also in the financial and other private sectors, are argued to have a relatively strong urban orientation (Bridge, 2006; Butler & Robson, 2003; Florida, 2002; May, 1996). This has led scholars to argue that there is not a single middle class but several middle classes who are increasingly differentiated.

Many Bourdieusian scholars argue that middle-class professionals living in urban areas constitute a specific new fraction of the middle classes who are distinct from the traditional middle classes in the suburbs (Bridge, 2001; Butler & Robson, 2001, 2003; May, 1996; Watt, 2005). What sets these various groups—or fractions—within the middle classes apart is the orientation of their capital. Although capital orientation is not the same as occupational position, Bourdieu (1984) and many of those who were inspired by his work do treat occupation as a proxy for the orientation of capital (Boterman, 2012; Butler & Robson, 2003a; Crompton, 2010; Savage, 2010). People with different sums of cultural and economic capital are argued to occupy different positions in social space. The interaction of what Bourdieu calls habitus and the fields, that is, the social worlds in which people engage with each other, produces specific practices (Bourdieu, 1990). Butler and Robson (2001, 2003a, 2003b), for instance, argue that specific orientations of capital are associated with different residential preferences. Savage et al. (2005, 2010) also point to this spatial relationship between habitus and the fields. In a study of London and Paris (Benson, 2014; Benson & Jackson, 2013), the residential practices of the middle classes were studied in five different residential milieus (gated communities, exurban, suburban, gentrified, and gentrifying neighbourhoods). The study demonstrates that the various residential milieus are indeed inhabited by various fractions of the middle class. In addition, studies in other urban contexts point to an association of residential milieu and differentiation within the middle classes (Andreotti, LeGales, & Moreno Fuentes, 2014; Brun & Fagnani, 1994).

One of the most recent examples of the differentiation within the professional middle classes is presented in a study of highly educated employees working in advertising and high-tech firms in the metropolitan regions of Amsterdam and Eindhoven (Boterman & Bontje, 2016). This study concludes that although Florida’s (2002) thesis that “the creative class” prefers to live in the inner city does apply to employees in advertising and other cultural industries, it does not apply to high-tech workers (who are also argued to be part of the creative class), who are rather overwhelmingly suburban in their orientation. In another recent study, Boterman and Musterd (2017) demonstrate that the creative and cultural middle classes are over-represented in the inner city of Amsterdam, whereas other parts of the middle classes are over-represented in the city’s suburbs. Accountants, for instance, live more often in the pre-war suburbs, whereas employees in the construction sector with similar incomes are over-represented in the peripheries of the Amsterdam region.

This scattered evidence on the relationship between class fractions and residential orientation merits a large-scale quantitative approach that describes and explains the contemporary social geography of urban regions in a way that assumes a multidimensional perspective on social class. In this paper, we investigate the residential orientations of people living in the metropolitan areas of six large Dutch cities, combining—at the individual level—economic capital (wage level) with employment sector, which we treat as a proxy for cultural capital.

2 | DEFINING KEY CONCEPTS

2.1 | Residential milieus

Residential milieus have been constructed based on two indicators: the location of a milieu within the region and the construction period (a minimum of 50% of houses belonging to a certain period). The central core of an urban region is an area with many different functions and services, whereas the outer areas of urban regions are generally more homogeneously residential. Small municipalities nearby the central core generally have a somewhat more one-sided economic structure and do not have a wide variety of cultural facilities. This might lead to differences in the spatial residential patterns of professions because of differences in terms of appreciation of such facilities. In addition, we have distinguished new-build areas as a special category (in and near cities vs. suburban) and make a distinction between pre- and post-war residential milieus. New suburban centres often started as multifunctional residential areas for middle-income households. Some—such as the large new town of Almere near Amsterdam, for instance—have been transformed into multifunctional areas with office parks, retail, cultural facilities, and an extensive transport infrastructure. Our typology of residential milieus distinguishes between the core municipality and the suburbs. Because residential and daily mobility are strongly interdependent, these urban regions can be regarded as daily urban systems (PBL, 2006). Eventually, we constructed six residential milieus: the pre-war urban core, the post-war urban core, the new-build areas (since 1990) within cities, the pre-war suburbs, the post-war suburbs, and the new-build areas in the suburbs.

2.2 | Urban regions

To study the relationship between class fractions and residential orientation, we focus on six large urban regions in the Netherlands with quite variegated labour and housing markets: Amsterdam, Rotterdam, the Hague, Utrecht, Eindhoven, and Groningen. The first four are situated in close proximity to each other (less than a 1-hr drive), and together with smaller urban cores, they constitute the Randstad conurbation (approximately 8.5 million inhabitants). Amsterdam and Utrecht have an economic structure with a large share of high-skilled service jobs, many in private businesses, and a large pool of lower service jobs, but Amsterdam is more internationally oriented than Utrecht. Rotterdam still has a slightly stronger industrial profile, although transport and logistics are also key services in this harbour city. The Hague, the administrative and political capital of the Netherlands, has a wide range of public sector jobs and international non-governmental organisations, especially in international law and justice. Eindhoven is situated in the south of the country and has an economic structure that relies heavily on high-tech industries such as Philips and ASML. Finally, Groningen is the regional capital of the north and has a relatively weak, yet
mixed, economic structure, relying relatively heavily on the public sector (health care, university, and government institutions; PBL, 2016).

These urban regions differ not only in terms of economic structure but also in terms of the housing market. Amsterdam and Rotterdam have quite similar tenure compositions, yet very different price levels due to different demand–supply balances (Amsterdam being much more expensive). In both of the cities’ cores, social housing is the largest sector, whereas in the suburban regions owner-occupied housing tends to take centre stage. Utrecht and Eindhoven have a housing market dominated by the owner-occupied sector, but the housing market pressure on Utrecht is much larger than on Eindhoven. Housing in Groningen is relatively inexpensive, except for some suburbs. The Hague has a segregated housing market with expensive owner-occupied housing in one part of the city and surrounding suburbs, and inexpensive private rental and social rental housing in other parts of the central city.

2.3 From employment sector to class fractions

We selected all people in the above urban regions who were employed or self-employed and aged 25–65 years. As such, we eliminated students, pensioners, and unemployed from our database in order to get a better grip on the effect of the professions on residential patterns. We focused on two dimensions that primarily serve as proxies for social and cultural positions: hourly wages in three categories (economic capital) combined with the employment sector. We started with a broad selection of employment sectors covering the whole economy (Appendix A). Some of these sectors were defined rather broadly (such as agriculture or the manufacturing industry), whereas others were more detailed, using standardised five-digit Standaard Bedrijfsindeling (SBI) codes (corresponding with the International Industrial Classification of All Economic Activities). This detail was used especially in the spheres of the creative industries and information and communication technology and was driven by the expectation that employees in these specific sectors would have specific residential orientations.

We applied the broad selection to describe the economic profiles of the six residential milieus and the six urban regions. For the detailed multivariate analysis, we reduced the broad selection to a more limited version (five categories), with a selection of the creative sector (arts and other creative services, advertising, architecture, journalism, and publishing), secondary education staff, hospital staff, accountants, and employees in the construction sector (plumbers, painters, welders, and carpenters). This selection aims to produce proxies for different social and cultural positions: hourly wages in three categories (economic capital) combined with the employment sector. We also controlled for the average level of house prices in the neighbourhood in three categories—low (up to €200,000), middle, and high (higher than €300,000)—based on real estate values in 2012 (Waardering Onroerende Zaken).

3 DATA AND METHODS

For this study, we draw on individual-level register data from the system of Social Statistical Databases from Statistics Netherlands. The sets from different registers are merged for the year 2012, applying unique identification codes at the individual level. This enables us to research entire populations, not samples, while analysis can be performed at individual and other levels, avoiding ecological fallacies. Our analysis is conducted in two steps.

First, to describe the social geography of employees in different employment sectors, we calculated location quotients of all employees first across the six urban regions (1) and then across the residential milieus (2). Of these location quotients, we present the natural logarithms; this facilitates a quick interpretation of under- and over-representation of the different sectors in the urban regions and specific residential milieus.

Second, we perform several multinomial logistic regression models, while controlling for other factors (e.g., age, gender, household composition, housing price, and level of education) that explain residential orientation. The models serve as the basis for calculating predicted probabilities for living in a specific residential milieu, which we show for the 15 main class fractions and three fractions of self-employed. We run the models for all urban regions together, but also separately for each of the six urban regions. We have chosen to present the analysis for the six urban regions together (in which we
control for region via dummies). In Appendix B, the separate results for each of the urban regions can be found.

4 | RESULTS

4.1 | Descriptive analysis

We first describe the composition of the working population of six urban regions in terms of their employment sector. Second, we describe how these sectors are distributed across the residential milieu, ranging from pre-war urban to new-build suburbs. This we show for all regions together, rather than for each separately.

Figure 1 presents the over- or under-representation of employees in the various economic sectors in the urban regions. Amsterdam and Utrecht have an over-representation of employees in the creative and high-skilled service sectors. Groningen stands out in terms of the relatively strong position of public services (health care and education); and the Hague for its large public, construction, and agricultural sectors (Westland). Rotterdam stands out for its logistics services and transport. Eindhoven has relatively many employees in manufacturing and research and development.

Perhaps even more interesting is the under-representation of particular sectors. Amsterdam has, for instance, relatively few people working in education, the public sector, and manufacturing and construction. In the Utrecht region, only few people work in lower level service jobs such as cleaning and private security. In the Rotterdam, Hague, and Eindhoven regions, relatively few people work in creative cultural services. Groningen has relatively few people employed in most private service sectors, including lower and higher status work. It is clear that the urban regions differ quite strongly in terms of the employment profile of their working populations.

If we change the focus to the different milieux within the urban regions, we again see quite a lot of spatial variation of people working in different economic sectors (Figure 2). People living in the central pre-war city, the urban core, are over-represented in the creative cultural sectors, in higher education, and in law. Employees in manufacturing, the construction industry, and staff of primary education are under-represented in this milieu. In the post-war city, employees in consumer services, employment services, security, and the cleaning sector are over-represented, whereas most other sectors are (marginally) under-represented. In the newest neighbourhoods of the city (built after 1990), employees working in the media, information technology, accountancy, and financial services are over-represented, whereas fewer creative sector employees live in these areas.

In suburban areas, the over-representation of specific groups is less clear. People living in the pre-war suburbs are more likely to work in education and construction. Inhabitants of the post-war suburbs often work in manufacturing and construction and are clearly relatively rarely employed in the creative industries.

What appears first from this descriptive analysis is that the milieus do indeed have different residential profiles. Within the urban core and to a lesser extent within the suburban areas, areas with different building periods are inhabited by people who work in quite different employment sectors. The post-war suburbs and pre-war urban areas in particular have almost opposite compositions. Second, there is more variation in residential orientation in some sectors than in others.
For instance, the creative sector, the media, manufacturing, and agriculture in particular show large over- and under-representation in specific residential milieus, whereas people working in health care and primary education display much less distinct residential orientations.

As this is just a descriptive overview, however, these observations are also influenced by a range of other potential factors that determine who lives where. Age, level of education, household composition, and particularly wage level may be responsible for the observed variations in residential profiles. We expect that introducing a combination of wage level and employment sector will lay bare even more clearly the different residential orientations. We expect that such an analysis will be able to demonstrate the extent to which residential orientation is a function of class position, as measured through income and employment sector, when controlling for other factors. From studies on the gentrification of inner cities, the suburbanisation of poverty, and the polarisation of class structure within post-industrial urban contexts (Florida, 2002; Hamnett, 1994; Sassen, 1991), we expect that employees in new emerging services such as the creative industries, with both higher and lower wages, will live in the pre-war urban core of the region. Employees with lower wages in health care and education are expected to reside close to the economic core, but not necessarily within the central (pre-war) city. Particularly well-connected suburban areas (often newly built) are hypothesised to be their primary domain (see also de Wijs-Mulkens, 1999).

4.2 Multinomial logistic regression

In order to test whether the over- and under-representation demonstrated by the location quotients also hold for the selected class fractions, we ran a multinomial logistic regression model. The model (see Table 1) describes the coefficients of the class fractions for living in one of the residential milieus compared to the reference category: post-war suburbs. These analyses control for important factors affecting residential location. Furthermore, we inserted dummies for each of the urban regions, with the exception of the Hague (which is the reference category), to control for the differences in the occurrence (the supply) of the residential milieus in the urban regions. In order to present the results in an easily interpretable way, we calculated the predicted probability of the class fractions of living in each of the six residential milieus. The total of these probabilities for each class fraction amounts to 100%. The reported probabilities show the expected distribution based on the model, corrected for individual characteristics as well as urban region. For how these probabilities work out across the different urban regions, see Appendix B.

The horizontal line in Figure 3 represents the mean probability of living in a specific residential milieu for all employees. The findings demonstrate strong under- and over-representation of class fractions in some residential milieus and weaker (more average) under- and
over-representation in others. Variations between class fractions are high in the new-build locations in the urban core, the pre-war urban core, the pre-war suburbs, and the post-war suburbs, but small in the post-war urban core and the new-build suburbs.

4.2.1 Urban milieus

If we examine the pre-war urban milieu (Figure 3, top left), we find a strong over-representation of employees in the creative sector, irrespective of their wage level. In particular, self-employed creatives have a high probability of living in the pre-war urban areas. Relatively high predicted probabilities for living in pre-war urban areas are also visible among hospital staff and accountants, but only for higher wage employees. Generally, having a low wage level gives a lower probability of living in the pre-war urban core. As such, it appears that both wage level and profession are important for understanding the urban pre-war orientation of employees in the emerging economic sectors. The construction sector (all income categories) is under-represented in this milieu, which may be related to the relatively extensive need for working space for employees in this sector.

In the post-war urban areas, all middle- and high-wage class fractions are under-represented, whereas all low-wage fractions are slightly over-represented. Here, the variation between sectors is thus limited, whereas wage level seems to matter more for the likelihood of living in the post-war neighbourhoods of these six large Dutch cities. This may be related to the high share of social rental housing and the relatively low status of several of these areas.

In the new-build locations within the cities, there is also more variation in wage level than in sector. This type of area does, however, tend to attract employees with a high-paid job, irrespective of their economic sector. That is, high-wage employees in the creative sector, accountancy, hospitals, and the construction sector are over-represented in these areas.
4.2.2 Suburban milieus

In the pre-war suburbs, most class fractions are neither under- nor over-represented. Only self-employed construction workers stand out: They have the largest probability of living in the older parts of suburbia in large urban regions of the Netherlands. Interestingly, accountants, who are over-represented in the new suburbs, do not live so often in older suburbs. This supports earlier studies into the residential preferences of accountants (de Wijs-Mulkens, 1999).

In the post-war suburbs, which is the largest milieu, the construction sector is clearly over-represented, whereas the creative sector is heavily under-represented, both irrespective of wage. It seems that post-war suburban milieus, of which many are located in new towns such as Almere or Zoetermeer, represent the opposite residential milieu of the pre-war city: Although highly successful in the late industrial economy at the expense of the pre-war urban neighbourhoods, these areas are now less successful in attracting employees in emerging economic sectors.

To the new-build suburbs, which include parts of the large new towns, some employees are more attracted than others. In particular, accountants and construction workers with a high wage and self-employed accountants are over-represented in these new suburbs. The first employees are representative of the old economy, whereas the employees in the creative sector are seen as representative of the new economy. Wage level seems less important than sector, albeit higher wage employees seem to be better represented than those with low wages.

We were interested in the question of whether some class fractions are more urban oriented than others. The analysis shows that some professions are indeed more often found in city centres, whereas other professions are more often found in suburban environments. In the case of the creative sector, which tends to live in the core city, this orientation is irrespective of wage, suggesting that the cultural dimension of class is more important than the economic dimension. Employees in the construction industry at all wage levels (low, middle, and high incomes) are generally antiurban and can frequently be found in suburban milieus (both post-war and new-build suburbs). For accountants, medical staff, and to a much lesser extent educational personnel, wage does matter. From the viewpoint of the different milieus, we conclude that urban cores house various socio-economic classes, whereas new-build areas (constructed after 1990) tend to be more homogeneous in terms of socio-economic profile, some being more homogeneous in terms of wage.

Our conclusions support earlier studies (Boterman & Musterd, 2017; de Wijs-Mulkens, 1999) but also provoke new debate. Although we use other residential typologies, other regions (six regions instead of Amsterdam only), and other selections of professions as well as other class fractions, we can partly support the conclusion that “it is not the income position or economic status that makes the difference...
here, but the type of work one is involved in, which is likely more connected to cultural values and related preferences" (Boterman & Musterd, 2017, p. 19). However, given that in two of the six milieus in the six investigated regions, wage level seems to trump employment sector, we also have to acknowledge that in some of the residential milieus, earnings appear to be more directive than other factors such as work sector.

5 | CONCLUSION AND DISCUSSION

There is much scholarly debate about the social changes of cities in the context of a rapidly transformed and further transforming economic structure. Social polarisation, professionalisation, and other key models all link the transition from industrial to post-industrial cities to a change in the labour market and hence in the social class make-up of cities across the globe (Burgers & Musterd, 2002; Hamnett, 2003; Sassen, 1991). Although the literature on gentrification, the suburbanisation of poverty, and other class-based transformations in urban regions has also explicitly investigated the spatial manifestations of these economic and social changes (Butler et al., 2008), studies of the contemporary social geography of urban regions fall short in some respects. Most of the proposed models use a rather singular conceptualisation of social class. Moreover, lack of sophisticated data hinders the quantitative operationalisation of more refined, multidimensional conceptualisations of social class.

Drawing on Bourdieuian perspectives on social class (Boterman & Musterd, 2017; Bourdieu, 1984; Butler & Robson, 2003a), we use a combination of being employed in a certain sector and wage level as indicators of social position. Enabled by the use of individual-level register data for the whole population, this paper reveals that contemporary social geographies of urban regions are not just a matter of professional status (as, e.g., in Butler et al., 2008, or Manley & Johnston, 2014) or a combination of income and demographic characteristics (Ostendorf & Musterd, 2012). Rather, we demonstrate that the combination of wage level (economic capital) and very detailed definitions for sector of work (a proxy for cultural capital) is a very strong predictor for where people live. The economic and employment structure of urban regions determines to a large extent the composition of the population. The six urban regions of this study differ significantly in terms of employment structure. Also, the distribution type of residential milieu within those regions differs. The pre-war urban milieu that is characterised by processes of gentrification, particularly in Amsterdam and Utrecht, is much larger there than for instance in Eindhoven. It is evident that the supply of residential milieus determines to a large extent what kind of employees can be accommodated. Nonetheless, our individual-level model in which we controlled for individual and regional effects demonstrates that regardless of the differences of economic structure and housing market between the urban regions, the same type of employees is attracted to the same kind of residential milieu. The mechanism that influences the residential preferences seems rather similar across urban regions. Of course, we have only studied this cross-sectionally, and we have no information of stated preferences, which means that we cannot say much about choice and constraint. Nonetheless, our conclusions that within the same wage groups different employment groups display very different residential locations point to a neglected yet important dimension that could help explain the way in which the social geography of urban regions develops.

In more detail, our study confirms earlier claims that the creative and cultural classes prefer to live in the core city of the regions (Boterman & Musterd, 2017; Florida, 2002; Ley, 1996). Employees in cultural sectors, aged 25 to 65 years old, indeed tend to cluster in the pre-war urban milieus of the six city regions in the Netherlands we included in our research. Remarkably, their wage level did not seem to play an important distinctive role. We also expected that employees in the construction industry sector, as typically low on cultural capital, would be over-represented in the affordable suburbs. This hypothesis could be supported as well. They are over-represented in post-war suburban areas and not much within the cities. It should be repeated here that those findings are quite consistent across the urban regions. Interestingly, again the wage level does not seem to matter much: High-earning and low-earning employees in construction have similar residential (revealed) preferences. Among other professional groups, however, wage does seem to matter more. Accountants and medical and hospital staff in particular can be found in different areas according to their wage level. Those with a high wage appear to cluster in the pre-war suburbs and new-build locations in and nearby cities. In this latter area, wage seems to be more important than profession. It can therefore be concluded that some of the spatial orientations are dominated by employment in a specific economic sector, whereas other orientations seem to be primarily steered by individuals’ wage levels.

Class fractions in which cultural capital plays an important part of social position, such as in the creative cultural sector, seem to have quite distinct urban orientations, regardless of income. Class fractions in which both economic and cultural capital are high seem to orientate towards (expensive) older districts in the core of the city and in pre-war (high status) suburbs. Social groups well endowed with economic capital but in which cultural capital plays a lesser role tend to prefer new suburbs and new affluent residential milieus within the municipality of the urban core. Finally, if people command both limited cultural and economic capital, the remaining inexpensive and culturally poor neighbourhoods seem to be the primary residential outcome.

These findings confirm the idea that the types of capital rooted in the habits of different class fractions are associated with specific residential orientations. This pattern seems to be fairly consistent across the six Dutch urban regions, despite large differences between these contexts in both economic structure and housing market structure. Although clearly the social geography of the urban regions is rather different, the analyses demonstrate that, in all contexts, both cultural and economic capital play a role in residential orientation. The contemporary social geography of urban regions is therefore influenced by spatial sorting mechanisms that rely on a complex combination of factors in which not only age, demography, and income play a key role but also other dimensions of class (notably cultural capital).

There are, however, also some alternative explanations. The new economic structure of cities may also tie into social geography in more direct ways: Especially when professions are firmly connected to the geographical location of the firm—which may be the case in particular for small firms in which employees and economic activity are mutually
linked—we might see a lesser role played by the economic and cultural capital of the individual (and her household). This may hold for both new economic activities, such as in the creative industries that have to be located in specific (central) parts of the city, and the old economic activities, which have similarly strong preferences for specific locations from where customers can be served. Where professions are not so firmly connected to the locational logic of the firm, the preferences informed by class position might play a larger role. Differences between and within regions also play a key role. The economic structure of an urban region and the price level and supply of residential milieus are still major factors. What our research demonstrates, however, is that spatial sorting mechanisms are similar in different urban regions.

What are the implications of the findings presented here for urban planning and policy? It seems that professions and wage categories have to be considered as "explanations" for certain residential orientations. Because economic restructuring processes are faster than the physical transformation of the built environment, a series of mismatches may develop: mismatches between the changing demand for, yet the more static supply of, residential milieus. The supply may have fit the old economy well but may no longer be adequate for the new economic era. This will require innovative adaptations, through directions set for new developments, but also through urban restructuring and renovation. This appears as an important challenge for policy development in the decades to come.

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**REFERENCES**


APPENDIX A.

EMPLOYMENT SECTORS

<table>
<thead>
<tr>
<th>Employment sector</th>
<th>Five-digit SBI code</th>
<th>Class fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agriculture</td>
<td>1000–2999; 5000–5999</td>
<td></td>
</tr>
<tr>
<td>2. Manufacturing industries</td>
<td>10000–21999; 23000–41999</td>
<td></td>
</tr>
<tr>
<td>3. Publishing</td>
<td>22000–22999</td>
<td>Creative workers</td>
</tr>
<tr>
<td>5. Retail and wholesale</td>
<td>50000–52999</td>
<td></td>
</tr>
<tr>
<td>6. Catering/hospitality</td>
<td>55000–55999</td>
<td></td>
</tr>
<tr>
<td>7. Transport</td>
<td>60000–62999</td>
<td></td>
</tr>
<tr>
<td>8. Communications</td>
<td>64000–64999</td>
<td></td>
</tr>
<tr>
<td>10. Information technology</td>
<td>72000–72999</td>
<td></td>
</tr>
<tr>
<td>11. Research and development</td>
<td>73000–73999</td>
<td></td>
</tr>
<tr>
<td>12. Law</td>
<td>74000–74113</td>
<td></td>
</tr>
<tr>
<td>15. Advertising</td>
<td>74400–74499</td>
<td>Creative workers</td>
</tr>
<tr>
<td>16. Public administration</td>
<td>75000–75999</td>
<td></td>
</tr>
<tr>
<td>17. Primary education</td>
<td>80100–80199</td>
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(Continues)
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<tr>
<th>Employment sector</th>
<th>Five-digit SBI code</th>
<th>Class fraction</th>
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<tbody>
<tr>
<td>19. Tertiary education</td>
<td>80300–80399</td>
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</tr>
<tr>
<td>20. Health care</td>
<td>85000–85999</td>
<td>Hospital staff (85111–85112)</td>
</tr>
<tr>
<td>21. Film and video</td>
<td>92100–92199</td>
<td>Creative workers</td>
</tr>
<tr>
<td>22. Radio and television</td>
<td>92200–92299</td>
<td>Creative workers</td>
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<tr>
<td>23. Amusement and arts</td>
<td>92300–92399</td>
<td>Creative workers</td>
</tr>
<tr>
<td>24. Journalism</td>
<td>92400–92499</td>
<td>Creative workers</td>
</tr>
<tr>
<td>25. Museums</td>
<td>92500–92599</td>
<td>Creative workers</td>
</tr>
<tr>
<td>26. Sports</td>
<td>92600–92699</td>
<td></td>
</tr>
<tr>
<td>27. Varied services</td>
<td>93000–93999</td>
<td></td>
</tr>
<tr>
<td>28. Other</td>
<td>All nonclassified codes</td>
<td></td>
</tr>
<tr>
<td>29. Transport support services</td>
<td>63111–63112; 63400–63402</td>
<td></td>
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<tr>
<td>30. Real estate</td>
<td>70000–70399</td>
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</tr>
<tr>
<td>31. Employment agencies</td>
<td>74500–74501</td>
<td></td>
</tr>
<tr>
<td>32. Security</td>
<td>75600</td>
<td></td>
</tr>
<tr>
<td>33. Cleaning sector</td>
<td>74700–74702</td>
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</tbody>
</table>
APPENDIX B.
LOCATION QUOTIENTS (LN) OF PREDICTED PROBABILITIES FOR LIVING IN A SPECIFIC RESIDENTIAL MILIEU, BY CLASS FRACTION (PER URBAN REGION)

Pre-War Urban

Post-War Urban

New-Build Urban