Residential patterns by religion and ethnicity in Vienna

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Introduction

International immigration is a key driver of population growth in many large Western European cities. Figures from Statistics Austria show that in 2011, almost a third of Vienna's population was foreign-born. The influx of people of different social, ethnic, cultural and religious background affects the composition of urban populations in ways that go beyond the conventional disaggregation by age, sex and ethnicity. However, the literature on urban segregation and diversity is dominated by the ethnic dimension, with scant attention paid to the changing religious landscapes of cities. This paper focuses on residential patterns by religion and ethnicity in Vienna. We draw on data from decennial census rounds 1971 to 2011 to apply a typology of segregation and residential diversity that captures the mix of different groups in small-scale urban areas. This allows us to examine similarities and differences of Vienna's neighbourhood profiles by religion and ethnicity.

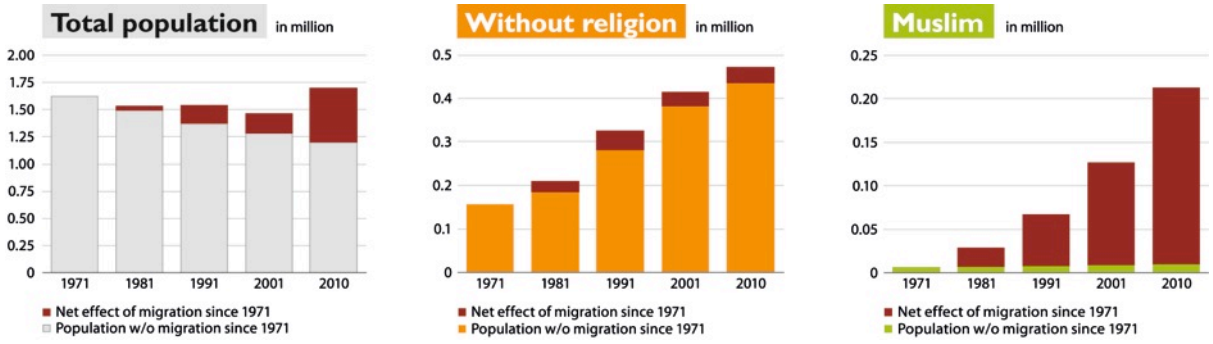
Background

The work presented in this paper is part of the WIREL project (WI for Wien/Vienna and REL for Religion) – funded by the Vienna Science and Technology Fund (WWTF) – and is based on a project working paper (Bauer and Speringer 2013). WIREL aims to determine the role that religion plays in shaping the social and demographic structure of the population of Vienna in the past, present and future. The project investigates changes in the religious stratification and distribution of the population of Vienna by studying various forces that affect religious composition at the city level, namely migration, religious mobility/secularisation, fertility differentials and partnership formation. The findings will be used in the evaluation of the potential for the future demographic impact on the religious landscape of Vienna over the coming decades (Goujon and Bauer 2013a).

The overarching goal of WIREL is the realization of a round of projections forecasting the future population size and religious composition of Vienna. Evidence for the demographic influence of religion is not lacking (Voas 2007). In order to project the future religious composition of any urban population, it is necessary to consider not solely demographic processes (fertility, mortality and migration), but also religious mobility (i.e. secularisation and religious transition) as well as contacts within and between different religious groups (i.e. social cohesion). The analysis of residential patterns by religion and ethnicity will contribute new evidence to the storyline of the WIREL projection scenarios by identifying patterns and trends of residential segregation and mixing by religion. Such patterns affect social cohesion by fostering the potential for either within or between group contacts. In turn, residential segregation and mixing have an impact on partnership and family formation and, hence, also on demographic behaviour. Consequently, residential ethnic concentrations suggest persistent demographic differentials of minority groups, while mixed neighbourhoods indicate a demographic convergence towards the host society.

International migration and secularization have been the main forces shaping Vienna's changing religious landscape over the past several decades. As a result of on-going secularisation, the share of Roman Catholics in the city decreased from almost 80 per cent in 1971 to less than 50 per cent in 2001, when religion was surveyed for the last time in the Austrian census. The increasing influx of international migrants further diversified the religious composition of Vienna by adding new religions (e.g. Muslims) and increasing the share of other religions (e.g. Christian Orthodox). Figure 1 shows the net effect of migration on the population size of Vienna between 1971 and 2010, as well as on the size of selected groups (unaffiliated and Muslim populations).

Figure 1: Net effect of migration, 1971-2010: (a) Catholic, (b) Without religion, and (c) Muslim (taken from Goujon and Bauer 2013b)



There is generally a strong relationship between religion and ethnicity. As with ethnicity, religion provides a significant foundation for self-identity, meaning and community, which is especially true for immigrants arriving in a new and unfamiliar environment (Kim 2011, Polak 2011). This is particularly true regarding the second generation of immigrants, because subsequent generations do not have the same emotional, linguistic and cultural ties to their place of origin (Baumann 2002; Voas 2007). However, religion does not necessarily correspond with ethnicity (Allan J. Brimicombe 2007). Because of these mutual relationships and differences, we consider both religion and ethnicity for our analysis of residential

patterns over time in order to investigate similarities and differences between these two dimensions of urban diversity under a spatial perspective.

Data and methods

We use data from the decennial census rounds 1971 to 2011 provided by Statistics Austria to develop a set of indicators of segregation and residential diversity that capture the mix of different groups in small-scale urban areas at the level of 243 census districts (with a median population size of roughly 5,800 people in 2001). For religion, we use six consistent categories surveyed in the Austrian census between 1971 and 2001, namely: Catholic, Protestant, Muslim, Other (including Christian Orthodox), Without Religion, as well as Not Stated). In 2011, when the Austrian census changed to a register-based system, information on religion was no longer collected. Because the Austrian census does not explicitly survey ethnicity, we draw on other indicators that capture the migrant characteristics of Vienna's population, i.e. citizenship and country of birth by ten country groups: Austria, Germany, Former Yugoslavia, Turkey, Hungary, Poland, Czech and Slovak Republic, Romania and Bulgaria, Other European Countries (including former Soviet Republics) and Rest of the World (Bauer and Speringer 2013).

While citizenship was included in all census rounds between 1971 and 2011, the information on country of birth was not collected before 2001. In order to investigate similarities and differences of residential patterns over time by religion and ethnicity, we compare population by religion and citizenship over the period 1971 to 2001. However, the temporal scope of this paper is 2001, which is the only point in time when all three characteristics studied (religion, citizenship and country of birth) were at hand. For the extension of the time series of residential patterns from 2001 to 2011, we took a closer look on trends in the two remaining indicators in 2011 (citizenship and country of birth).

Aiming to assess the spatial patterns of these variables in terms of segregation and mixing, we applied commonly used single number indicators that capture various dimensions of residential segregation such as evenness (e.g. index of dissimilarity, location quotient) or exposure (e.g. index of isolation, diversity index). (Massey and Denton 1988; Peach 1996; Simpson 2007;) However, these global indicators either measure segregation or diversity, but fail to capture the intensity and particularities of different types of neighbourhoods with respect to residential mixing. Hence, we considered new classification methods to assess both residential segregation and diversity by allocating small-scaled areas to different types of neighbourhoods. One intensively discussed approach was elaborated by Poulsen et al. (2001) and further developed by Brimicombe. (Allen J. Brimicombe 2000; Allan J. Brimicombe 2007; Johnston, Poulsen, and Forrest 2010; Peach 2009; Poulsen, Johnston, and Forrest 2001; Poulsen, Johnston, and Forrest 2009; Wright, Holloway, and Ellis 2011) Both classification methods have in common that they are based on a (to be defined) "host group" – in case of this analysis we used the majority group, i.e. Catholics for religion and Austrians for ethnicity.

For the assessment of residential segregation and mixing in Vienna, we apply Brimicombe's typology that considers three relative dimensions: (a) over and under-representation of host and minority groups in an area, (b) the intensity of deviation of robust normalised values, and (c) the share of the host group (more or less than 50 per cent) as well as the share of the largest minority group with respect to other minorities (Allan J. Brimicombe 2007; Allen J. Brimicombe 2000). Brimicombe's approach provides not only spatial but also temporal comparability, which is key for our analysis of neighbourhood profiles by religion and ethnicity in Vienna since 1971.

The classification is based on eight categories describing different types of urban neighbourhoods (see Figure 2). Type 1 (dominant) reflects an urban residential area with a

concentration of the host group. Type 2 (mild inclusion) and Type 3 (strong inclusion) can be already considered as mixed types, although the host group is still over-represented. Mixed types with under-represented host groups are Type 4 (pluralist), Type 5 (focused), as well as Type 6 (rainbow). In contrast to Type 4 and 5, the share of the host group is less than 50 per cent in Type 6. Neighbourhoods that feature significant concentrations of minority groups (i.e. more than one and two standard deviations respectively) are depicted by Type 7 (polarised) and Type 8 (concentrated). (Bauer and Speringer 2013; Allan J. Brimicombe 2007; Allen J. Brimicombe 2000)

Figure 2 – Brimicombe's typology of residential diversity (Allan J. Brimicombe 2007; adapted by the authors)

	Type	Description			Characteristic
Host	(1)"dominant"	host over-representation		no minority overrepresented	Host concentration
	(2)"mild inclusion"			largest minority with negative intensity of deviation (from median)	Mixing – host over-representation
	(3)"strong inclusion"			largest minority with positive intensity of deviation (from median)	
Enclave	(4)"pluralist"	host under-representation	host > 50%	largest minority smaller than 2x sum of other minorities **OR** negative intensity of deviation (from median)	Mixing – host under-representation
	(5)"focused"			largest minority bigger than 2x sum of other minorities **AND** positive intensity of deviation (from median)	
	(6)"rainbow"		host ≤ 50%	largest minority smaller than 2x sum of other minorities **OR** intensity of deviation (from median) smaller standard deviation (SD)	
	(7)"polarised"			largest minority bigger than 2x sum of other minorities **AND** largest minority ***"possible"*** positive outlier (> 1x SD)	Minority concentration
	(8)"concentrated"			largest minority bigger than 2x sum of other minorities **AND** largest minority ***"probable"*** positive outlier (> 2x SD)	

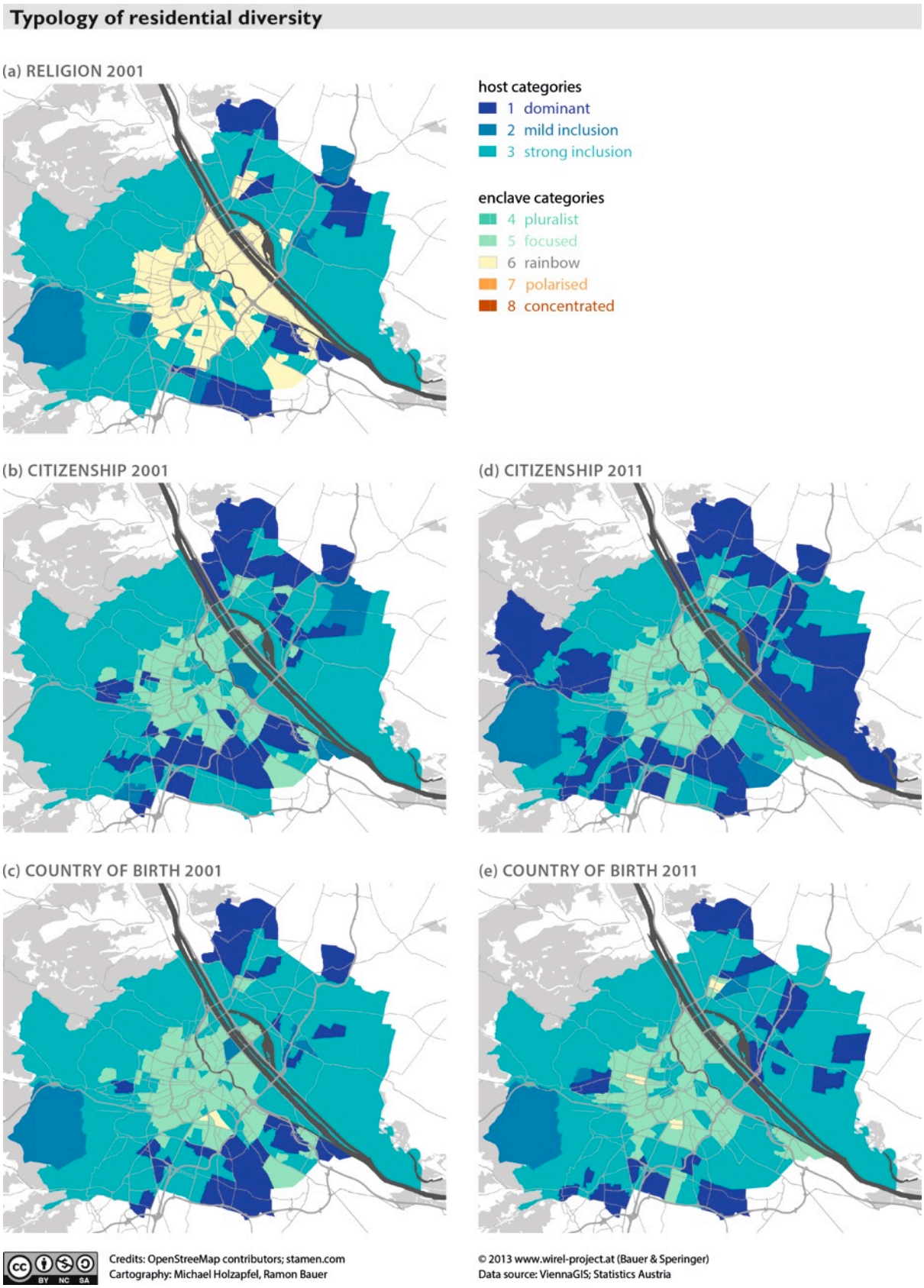
Results

A valuable contribution of geographical studies in religion is in describing patterns, because patterns often suggest processes and causes (Park 2004). Since both religious and ethnic

groups are commonly connected by a shared heritage and a sense of people-hood (Kim 2011), this paper investigates the similarities and differences in small-scale urban residential patterns by religion and ethnicity. First, we looked on global measures of residential segregation and diversity. However, these measures provide information on either residential concentration or mixing, but do not capture different types of mixed neighbourhoods. In order to locate both segregation and mixing in Vienna, we applied a typology developed by Brimicombe (2007) to Vienna for both religion and ethnicity. Figure 3 shows the typology of residential diversity for 243 census districts of Vienna in 2001, which was the only point in time when all three characteristics studied (religion, citizenship and country of birth) were available, as well as in 2011 for the two remaining indicators in 2011 (citizenship and country of birth).

The similarities between religion and ethnicity (citizenship and country of birth) are striking. This becomes apparent when comparing the three maps for 2001 (on the left side of Figure 3), revealing a distinct geographical pattern: Areas with host concentrations (Type 1) and over-represented host populations (Type 2 and 3) are predominately located in the outer districts, while mixed neighbourhoods with under-represented host populations (Type 4 to 6) are prevalent in the more densely populated inner districts of Vienna. In general, there are no neighbourhoods with significant minority concentrations (Type 7 and 8) in Vienna, neither by religion nor by ethnicity. During the preceding period between 1971 and 2001 (which is not captured by Figure 3), the geographical patterns of residential areas in Vienna by religion and citizenship changed from a rather dispersed distribution of different types of neighbourhoods across the city, to the more distinct spatial pattern of 2001 with inner city diversity and outer district areas with over-represented host populations.

Figure 3 – Residential patterns by religion in 2001, citizenship and country of birth in 2001 and 2011



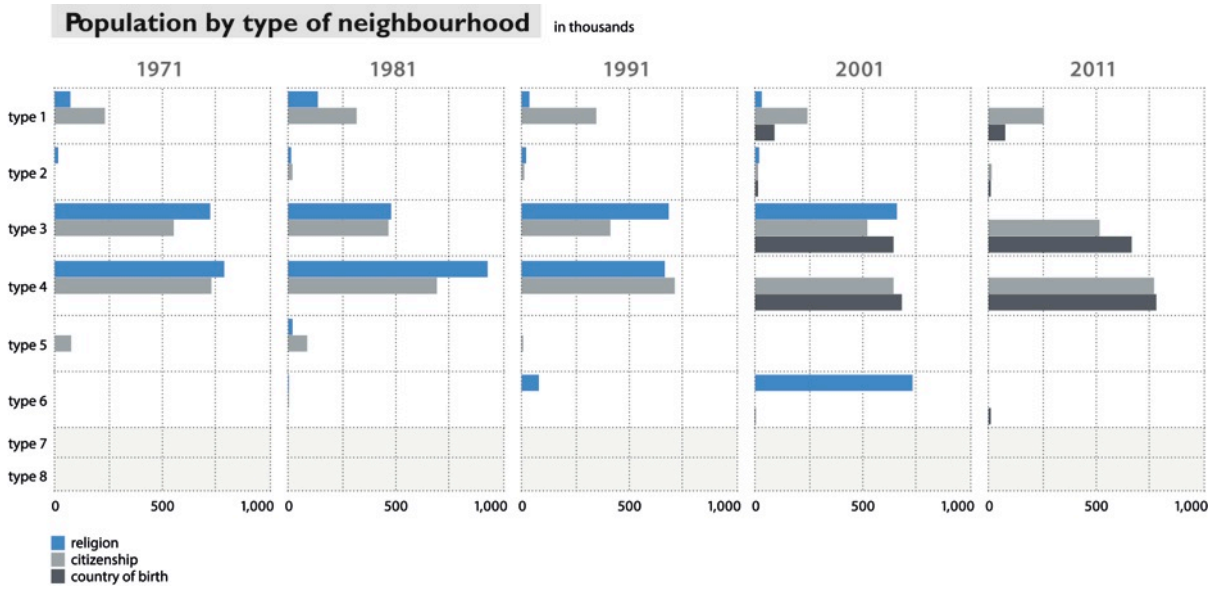
The main difference in 2001 between both dimensions of urban diversity is the distinction between Type 6, which is prevalent in the case of religion (Fig. 3a), and Type 4 in the case of ethnicity (Fig. 3b and c). Both types characterise mixed neighbourhoods with under-represented host populations, whereas in Type 6 (rainbow) the host group represents less than 50 per cent, while it is still a majority in Type 4 (pluralist). This distinction must be attributed to differences in the number of groups by religion (6) and ethnicity (10), as well as to the share of majority (host) and minority populations. By 2001, the defined host group by religion (i.e. Catholic) were already a minority-majority with a share of 49 per cent, while the proportion of the host group by ethnicity (i.e. Austria) was much higher with 84 per cent for citizenship and 76 per cent for country of birth.

The prevailing neighbourhood patterns of 2001 were also obvious in 2011. However, since religion was not surveyed after 2001, the consolidation of the trends in residential patterns by 2011 could only be assessed with respect to the two remaining indicators characterising the ethnic dimension, i.e. citizenship (Fig. 3d) and country of birth (Fig. 3e). At first glance, the persistence of residential patterns by ethnicity between 2001 and 2011 seems astonishing. This is particularly so when we take into account that Vienna experienced the strongest decennial population growth for almost a century during this decade and that the recent increase in population size was driven mainly by international migration. In contrast to previous periods, the geographical stratification of countries of origin of immigrants in Vienna diversified during the first decade of the new millennium. In 2001, more than 60 per cent of Vienna's migrant population had its origin in either the Former Yugoslavia or Turkey, which was a consequence of distinct immigration flows from these two regions since the 1960s. Between 2002 and 2011, when the influx of other nationalities further increased, the share of these two largest groups among non-Austrian citizens in Vienna decreased by almost 20 percentage points to 43 per cent. The in-flows from the Former Yugoslavia and Turkey

dropped by 22 per cent and 60 per cent respectively, while the number of new arrivals in Vienna from Germany, Poland, Hungary, Romania and Bulgaria more than doubled. The increased diversification of recent international in-flows did not lead to a further concentration of particular minority groups in 2011, but rather resulted in a persistence of ethnical neighbourhood patterns already observed in 2001 (Bauer and Speringer 2013). By implication, the trend in residential patterns by ethnicity between 2001 and 2011 also suggests a perpetuation of neighbourhood profiles by religion in 2011.

Figure 4 depicts the trends in residential patterns by population size between 1971 and 2011 for all three variables in play: religion (1971 to 2001), ethnicity (1971 to 2011) and country of birth (2001 and 2011). Two distinct trends become apparent when comparing the distribution of Vienna's population by type of neighbourhood for religion and ethnicity over time. Although not further explained in this paper, it must be noted that the typology and, hence, all findings are sensitive to fluctuations in the size of groups as well as total population – for more details, see Bauer and Speringer (2013).

Figure 4 – Typology by religion, citizenship, and country of birth 1971–2011



The first trend concerns the development of Type 1 that features concentrations of host groups. After 1971, when host populations – be it by citizenship (Austria) or by religion (Catholic) – still constituted the vast majority in Vienna, the population in neighbourhoods with a concentration of the dominant host group (Type 1) slightly increased by number (see Fig. 4). While this trend reversed in the case of religion, the population of Type 1 by citizenship further increased until 1991, before decreasing during the 1990s. Between 2001 and 2011, the population number in Type 1 by citizenship as well as country of birth remained almost constant, but slightly decreased in relative terms. Nevertheless, only a small minority of the population of Vienna lives in Type 1 neighbourhoods (less than five per cent by religion and about 15 per cent by ethnicity respectively).

The second trend concerns changes between the rather mixed neighbourhoods (Type 2 to 6). The population in neighbourhoods with an over-represented host group (Type 2 and 3) by religion as well as by ethnicity decreased after 1971, but increased between 1981 and 2001. The number and share of population in mixed neighbourhoods with under-represented host groups (Type 4 to 6) remained almost constant over time. However, in the case of residential patterns by religion there was a distinct shift between 1991 and 2001, when all Type 4 neighbourhoods shifted to Type 6, which is characterised by a host population of less than 50 per cent – i.e. where Catholics are a minority-majority. Because of the relative high share of Austrian nationals in Vienna, no Type 6 neighbourhood by citizenship was observed over the entire period, besides one appearance in 1981. However, there was one Type 6 neighbourhood by country of birth in 2001 with a population of 236. By 2011, more than 30,000 people – which is still less than two per cent of Vienna's entire population – lived in neighbourhoods where Austrian-born residents account for less than half of the local population.

Conclusions and future work

While the population of Vienna was relatively homogenous in terms of religious and ethnic composition in 1971, it became increasingly diverse by the turn of the new millennium. The application of a rule-based spatial classification method, developed by Poulsen et al. (2001) and further developed by Brimicombe (2007), allowed us to assess the phenomenon of residential segregation and diversity by religion and ethnicity over time in relative terms with respect to the overall religious and ethnic composition of the population of Vienna. Our analyses of both dimensions of urban diversity revealed strong analogies between residential patterns and trends by religion and ethnicity.

According to the typology applied, neighbourhoods with significant minority concentrations (Type 7 and 8) do not currently exist in Vienna and have not existed for the last two decades – neither by religion nor ethnicity. In 2001, only a small share of the population of Vienna lived in host dominant neighbourhoods (Type 1), while the vast majority was spread across different types of mixed neighbourhoods (Type 2 to 6). International immigration and secularisation increasingly diversified the population of Vienna since the 1970s. However, the city's residential patterns remained rather mixed, besides some tendencies towards more concentration in host dominant neighbourhoods (Type 1) during the 1970s and early 1980s. Since then, Vienna's neighbourhoods became more mixed again for both religion and ethnicity. This rather diverse profile of residential patterns by ethnicity remained stable between 2001 and 2011, when Vienna experienced a population increase of more than ten per cent.

The geographical distribution of different types of neighbourhoods by religion and ethnicity show similar patterns in 2001 (as shown in Figure 3), as well as similar trends over time: from a rather equal dispersion of different types of neighbourhoods across the city in 1971 to a more distinct spatial pattern in 2001/2011 with mixed neighbourhoods in the inner districts

and host dominant neighbourhoods in the outer districts. Although there is no data on population by religious denomination in 2011, the constancy of trends by citizenship and nationality between 2001 and 2011 suggests a similar development for neighbourhood patterns by religion in 2011.

The analysis of residential patterns by religion and ethnicity in Vienna, as presented here, is work in progress. With the objective of contributing more evidence to the WIREL project on how these two dimensions of urban diversity affect each other in a spatial perspective, we will also consider population changes on the level of neighbourhoods by religion and ethnicity, changes in the absolute and relative size of particular groups, group-specific mobility and transitions between different types of neighbourhoods. Based on extant findings as well as new evidence on religious change in Vienna after 2001, we aim to approximate neighbourhood profiles by religion in 2011. Since religion is no longer surveyed by the Austrian census, this could be the last endeavour of a small-scale spatial assessment of this important dimension of urban diversity in Vienna.

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