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Residential mobility in divided societies: How individual religion and geographical context influenced housing moves in Northern Ireland 2001–2011

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Abstract

Residential segregation is pervasive in many societies. People making residential moves in these divided contexts may increase or decrease segregation levels. In this paper, the divided society of Northern Ireland is used as an example to explore how residential mobility relates to residential segregation by religion. Survey evidence for this country consistently shows a preference for mixed neighbourhoods, yet actual patterns of geographical mobility suggest people move to same-religion areas. The paper uses the Northern Ireland Longitudinal Study (NILS) to explore the individual and contextual factors that influence the destinations of internal migrants by religion between 2001 and 2011. How they move up or down the contextual 'religion ladder' of localities is modelled with reference to both their individual socio-demographic and neighbourhood characteristics in 2001. It is found that there are still individual religious differentials in people's destinations. Catholics, for instance, are more likely than Protestants to move to more Catholic areas, suggesting that individual religion remains important despite the Peace Process. Some possible reasons for this are considered with a partial explanation being found in the geographical patterning of the population. Existing patterns of residential segregation constrain moves in religious space for the majority of people. It is concluded, nevertheless, that an individual's religion remains a considerable factor contrary to expectations.

KEYWORDS
longitudinal data, Northern Ireland, religion, residential mobility, spatial autocorrelation

1 | INTRODUCTION

Residential segregation is often viewed statically as geographical patterning at one moment in time. It is, however, the product of dynamic population processes in the past, such as residential mobility, and it constantly changes as population patterns alter (Simpson, 2004). The current geography of segregation sets the spatial context in which future processes in turn will operate. To the constraints of income,

social class, race and religion (see Clark & Morrison, 2012; Clark, van Ham, & Coulter, 2014), therefore, can be added the structural limitations set by existing geographies which shape the spatial possibilities for future change. To paraphrase Marx, people are free to make their own histories but not in geographies of their own choosing. The dynamics of residential mobility, and its relationship with existing residential geographies, have received comparatively little attention. Residential segregation, of course, is complicated. It has many different

dimensions, such as isolation, exposure and unevenness (Massey & Denton, 1988; Peach, 2009). Furthermore, it can be conceptualised and measured as a global statistic for an entire area or as a local statistic for different places (see Lloyd, Shuttleworth, & Wong, 2014). This paper uses the example of Northern Ireland to investigate how individual sociodemographic and neighbourhood characteristics shape residential moves through religiously segregated space; and the latter is conceptualised as the religious composition of an area measured in terms of the proportionate preponderance of either Catholics or Protestants.

Northern Ireland is an interesting case because in most respects, it is similar to many other western societies; the housing market today operates without overt discrimination although social class and income are constraints on accessing housing opportunities. It differs, however, in being a divided society with a history of political territorialisation. The major divide is religion. This is invisible at an individual level (unless someone wants to make their identity clear) unlike the often-visible marker of race, as in the United States or the remainder of the United Kingdom, although territories, schools, churches and places are very clearly associated with religious communities and identities (e.g., flags, curb markings and murals). Northern Ireland remains residentially segregated by religion and is therefore a country in which residential mobility occurs in an already highly structured geographical context (Shuttleworth & Lloyd, 2009). On the other hand, the level of overt sectarian violence diminished noticeably during the 1990s, a process that was reinforced by the signing of the Belfast/Good Friday agreement in 1998. Moreover, as we will show below, subsequent surveys in Northern Ireland indicate that the vast majority of the Northern Ireland population support the idea of mixed communities, whereas nonsectarian factors like house size and affordability seem to be just as important in migration decision making there as in other countries.

The main aim of this paper, therefore, is to examine whether, in the post-Troubles environment of Northern Ireland, religion is still playing a major role in influencing people's residential-mobility behaviour. Specifically, it addresses three related questions: (1) Is there still any difference between Catholics and Protestants in the geography of their residential mobility? (2) Is residential mobility acting to increase or decrease segregation by religion? (3) How important is geographical context in shaping the residential mobility of these two religious groups? These questions are addressed using the Northern Ireland Longitudinal Study (NILS) which provides individual-level data on change of address between the 2001 and 2011 Population Censuses (Dibben, Shuttleworth, Shelton, & Duke-Williams, 2018), allowing us to measure the net effects of 10 years of address changing on the distribution of these two groups and relate people's home moves to the structuration of religious space at neighbourhood level.

The paper starts by considering the general relationship between residential segregation and residential mobility and how religion might influence residential choice. It then outlines the Northern Ireland context, discussing the Peace Process, the policy background, the path followed from conflict and the likely implications for residential segregation. After defining specific research questions, the paper then describes our NILS dataset and the methods used for the primary analysis. The results are then presented and discussed, with a focus on the individual and geographical factors that shape moves through religiously segregated residential space and the consequences for better understanding society and assessing the relevance of policies designed to reduce segregation.

2 | RESIDENTIAL SEGREGATION AND RESIDENTIAL MOBILITY: SOME WIDER CONSIDERATIONS

The wider literature is useful in considering how religion influences where people live and their destinations when they change address. This allocation is nonrandom. People tend to move to neighbourhoods which share their personal characteristics. Migration, whether in terms of social deprivation or ethnicity, puts people in their place (Bailey, 2012). There are a number of contrasting ways in which the allocation of individuals and households to different places can be conceptualised and explained, with different levels of individual agency.

The first of these interpretations is self-segregation, which tends to stress individual agency, where groups voluntarily live apart. This has been a dominant political explanation, especially of the segregation of South Asian populations in Britain, although it has been subject to robust challenge (Coulter & Clark, 2019). This raises the question of why self-segregation takes place and why ethnic enclaves (Lersch, 2012) exist. One reason might be externalities that arise from segregation, such as strong mutual support networks and the availability of community resources and facilities (such as religious buildings and schools). Another, less benign, interpretation is in terms of defensive space and fear. This has been one interpretation of residential segregation in Northern Ireland in the context of the political significance of territory (Anderson & Shuttleworth, 1998; Boal, 2002). This can be elaborated by the spatially limited perceptual maps of residents (Green, Shuttleworth, & Lavery, 2005) which mean that individuals are unaware of the full range of employment and housing opportunities. This might be most severe in politically divided societies like Northern Ireland but is typical of even 'normal societies'.

Other interpretations tend to place less emphasis on individual agency and more on structural constraints. Although individuals may be theoretically free to choose where they live, there are limitations imposed by their access to resources. Thus, in the spatial assimilation model, individuals have preferences to locate in places alongside the same type of people with two or more population groups having the same preferences (Lersch, 2012). This might be in terms of lifecycle, ethnicity or income. However, some people or groups may be unable to realise their preferences given wealth and income constraints (South & Crowder, 1997), especially given the structural inequalities that lead to group differences. Moving further on the road to structural constraints is that of place stratification (Lersch, 2012). In this approach, dominant groups try to impose structural constraints on the access of others to neighbourhoods. This might be done through control of social housing (Clark et al., 2014), with bureaucratic gatekeepers, or through less

obvious discrimination in the private sector. Which of these approaches, if any, apply to contemporary Northern Ireland?

Current patterns of residential segregation are not the result of large-scale ongoing discrimination (although this does not rule out past practice in shaping the present), and there is consociational power sharing between British Unionists and Irish Nationalists. There is a declining social housing sector and, as is the case of the rest of the United Kingdom (and Ireland), the majority of housing is privately owned, either owner occupied (by far the largest sector) or privately rented.1 This leaves little scope for the exercise of exclusionary power by the state and equality legislation now rules out discriminatory practices. Considering the spatial allocation concept, Northern Ireland has a free-market economy with formal equal rights for all citizens. As elsewhere, the main constraints on access to housing in the private sector are income and availability. Because legislation and political change have led to greater economic equality between Catholics and Protestants, discrimination in the allocation of housing and work, as was the case in the past, (Barritt & Carter, 1962; Smith & Chambers, 1991) has been prohibited. The Catholic proportion of the population has also grown steadily since 1971, and it is unlikely that there are economic and demographic inequalities between these two religious groups that constrain housing choice differentially. This leaves self-segregation and residential preferences by religion. In this case, the evidence is not conclusive. There have been few studies of housing choice in Northern Ireland, but what there is suggests that religion and fear of violence are not dominant factors in deciding where to live. McPeake (1998), for instance, suggests that access to services, lifecycle considerations and housing type are the main issues as in many other places. Of course, this does not rule out individual preference to be near a school or church of a certain denomination or to remain within touch of family networks. These may result in segregated residential outcomes and may reflect locational inertia and the fact that most people move only short distances.

Northern Ireland thus differs from other segregated societies in a number of important ways, limiting the current applicability of some of the concepts used elsewhere (although they may have had more explanatory power in Northern Ireland's more unequal past). It differs in that its main social divide is not characterised by visible physical difference as is the case in the racialised housing market of the United States (Crowder & South, 2008). Settlement patterns are not currently shaped by deliberate acts of policy as in Israel/Palestine, although communal violence in the past, and state policing and planning responses to this, have doubtlessly shaped residential patterns historically (Sheehan & Tomlinson, 2018). It cannot be described either as a society of recent immigration into which newcomers are assimilated as in societies which saw immigration in the late 20th and early 21st Centuries: The religious settlement geography of Northern Ireland dates back to the 17th Century (Gregory, Cunningham, Lloyd, Ell, & Shuttleworth, 2013). Finally, it is not now a society which has major demographic and power asymmetries, where one group is a visible minority, has far fewer economic prospects, and which faces continued discrimination and political exclusion, although it might so have been described in the past. More information on the peculiarities of Northern Ireland are therefore provided in the next section.

3 | THE NORTHERN IRELAND CONTEXT

The prime sociodemographic division in Northern Ireland as a marker of national/political preference is religion rather than race, language or social class. In this, Northern Ireland falls into the same class as some other divided countries, for example, the successor states of the former Yugoslavia. The two communities that dominate political discourse are Irish Nationalists/Republicans (most often Roman Catholics) and British Unionists/Loyalists (who are mostly Protestant) but identities can be more complex than this and may differ between cultural and political domains with, for example, a Northern Irish identity (Tonge & Gomez, 2015). Nevertheless, the durability of the Protestant/Catholic dichotomy points both to its historical relevance and its current importance in political and public discourse even after the Peace Process. Because the division between people in Northern Ireland is invisible, it needs considerable knowledge to 'tell' (or make an informed guess) about someone's identity (Brewer, 1992). It also requires considerable effort to maintain group boundaries because they are otherwise so small—Freud's narcissism of minor differences. One way in which boundaries are produced and reproduced is through politicised and sectarianized territories which are associated with each community (Anderson & Shuttleworth, 1998); knowing where someone lives is one of the main diagnostics in 'telling'. The emphasis on territory and residential segregation is not surprising because Northern Ireland was delineated in 1921 in a partition of the island of Ireland that was designed to give it a 'safe' Protestant majority. Population balance and its distribution have been a pressing concern at the level of the state since then but has also cascaded down to smaller territories and places.

The territory of Northern Ireland experienced civil unrest and violence before, during and after partition, with residential segregation increasing through time (Smith & Chambers, 1991). Violence has mainly been episodic with the most recent major outbreak being 'The Troubles' that began in 1969 and ended in 1994 with the start of the Peace Process (although community tension heightened temporarily during the Drumcree and Flags Protests in 2001 and 2012 respectively). The onset of The Troubles saw large-scale communal violence, with residents being forced to flee from areas where they were in the minority, thereby increasing segregation. Coincident with the height of The Troubles in the 1970s and the 1980s were labour market and social changes which saw large population changes, notably with the population of Belfast falling by some 200,000 between 1971 and 1991 (Gregory et al., 2013; Power & Shuttleworth, 1997). These developments also acted to increase residential segregation. This reached its peak and plateaued in the 1991 and 2001 Censuses (Shuttleworth & Lloyd, 2009), with the 2011 Census showing a reversal in this trend (Shuttleworth & Lloyd, 2013).

What is clear is that government policy has seen desegregation as desirable. The 1998 Belfast/Good Friday Agreement legally enshrined

equality between the two major Northern Ireland communities and was underpinned by power sharing and the Section 75 provision of the Belfast Agreement to place equal opportunity and good relations centrally in the design, delivery and assessment of public policy (ECNI, 2010). Besides achieving greater equality, the intention was to break down segregation in various domains of life such as the labour market and housing (OFMDFM, 2005). The promotion of mixed and shared communities therefore is important as a policy issue.

The most recent round of policy is "Together Building a United Community" (TBUC). This was launched in 2013 as a way to deliver on previous commitments to good relations (TEO, 2013). It has a multifaceted approach aiming to work across a wide remit which includes education, culture, the labour market and housing. In housing, it aims to improve community relations, reduce segregation and encourage mixing, and it recognises that government intervention in partnership with housing associations and the Housing Executive is required. It aims to preserve neighbourhoods that are already mixed, but in addition, it seeks to build 10 new shared estates, half of which had already been completed by 2017 (The Executive Office, 2017).

Moreover, public opinion seems supportive of the idea of mixed neighbourhoods. According to the Northern Ireland Life and Times Survey (NILT), support for mixed residential spaces stood at around 80% each year between 2005 and 2010, with only around one-in-five respondents stating a preference to live with their own community. Even in 2013, after the Flags Protest about the flying of the Union Flag on Belfast City Hall which led to street protests and a worsening of community relationships, support for mixed neighbourhoods fell by only a relatively modest amount, down to around 70%, still a substantial majority.

This provides the context for our study which addresses the question of whether religion has continued to play a significant role in Northern Ireland's residential mobility behaviour in the post-Troubles era. As outlined in the introductory section of this paper, its focus is on comparing Catholics and Protestants with respect to where they were living at the time of the 2001 Population Census and where they were 10 years later according to the 2011 Census, using records linked between both Censuses. The reference period thus starts 3 years after the signing of the Good Friday Agreement and helpfully ends before the Flags Protests raised tensions again. The next section attempts to tie the Northern Ireland experience into the wider literature.

4 | DATA AND METHODS

For the purposes of this study, it is necessary to have longitudinal data that captures information on address changes between two points in time, as well as data on individual social and demographic characteristics and on the geographical context of places that movers leave and to which they move. All these data are available in the NILS and, indeed, also in the other UK Census Longitudinal Studies—the Scottish Longitudinal Study (SLS) and the Office for National Statistics Longitudinal Study (ONS LS), see Dibben et al. (2018). Accordingly, data were extracted from the NILS in an 'approved project' for this research.

The NILS is built on a spine of health card registration data to which censuses are linked and is based on a sample of around 28% of the Northern Ireland population (drawn from 104 out 365 birthdates) and links data from the 2001 and 2011 Censuses. NILS is well suited to detailed internal migration study because its high sampling fraction allows the use of Super Output Areas (SOAs) as a unit for geographical analysis, areas with around 2,000 individuals and 500 households (Reid, Crone, & Hayes, 2018). Additionally, it is possible to identify all address changes and not just those that cross SOA boundaries. Another strength is the high census-to-census linkage rate (it has very low attrition unlike survey-based longitudinal studies), but a weakness is the lack of intercensal attribute information. The analytical dataset did not include the entire NILS sample but was restricted to those aged 25–74 in 2001 (and by implication 35–84 in 2011) with 2001 and 2011 Census records. The reason for this was to limit the analysis to the prime age group adult population by excluding moves to/from higher education for younger adults and care-related address changes for the very old. There were 71,707 address changers in total but excluding those with missing data for distance of address change cut the number for analysis to 55,877. The inclusion or exclusion of this variable did not alter the results or the conclusions drawn from them so we present the models with this variable to use as much as possible of the available information.

For the purposes of the construction of the outcome variable in this paper, a mover is defined as somebody who was at a different address point in 2011 than in 2001. This is a transition-based measurement of migration. A mover could therefore have moved within an SOA but equally might have moved between SOAs between 2001 and 2011. There might also have been multiple address changes between 2001 and 2011. The NILS has data on these and the places moved to and from, but only has data on individual attributes from the census. The key data needed were the percentage Catholic of the SOA of residence in 2011 as a ratio of the percentage Catholic of the SOA of residence in 2001 (see also the approach of Clark & Morrison, 2012). A ratio was used rather than the absolute difference between 2001 and 2011 which could only possibly lie within the range of +100 and −100 whereas a ratio is theoretically open ended. This ratio was then log transformed (to the base 10) to give it desirable statistical (i.e., normally distributed) properties for analysis and was modelled as a continuous outcome variable. When anti-logged, values greater than one mean that the mover was in a more Catholic SOA in 2011 than in 2001, and less than one moving to a less Catholic area in 2011 compared to 2001. A ratio of 1.8, for instance, could therefore represent a move from an area 10% Catholic in 2001 to one that was 18% Catholic in 2011 or from one that was 20% to 36%. Between 2001 and 2011, the Catholic share of the population of Northern Ireland rose from 43.8% to 45.1% (NISRA 2013). On average, in theory, all SOAs should thus have become more Catholic. This should bias upwards transitions to more Catholic SOAs. However, this is a contextual change that affects Catholics and Protestants together: The key factor thus is the group difference between Catholic and Protestant behaviour.

The covariates were all drawn from the 2001 Census. The reasoning behind this choice was that conditions at the beginning of the reference period could act as antecedent predictors of behaviour during the decade. The choice was informed by the geographical literature on the known correlates of migration but necessarily restricted to those variables captured by the census. They thus mirror those used in other studies (see Green, 2018; Clark et al., 2014; McCollum, Ernsten, Feng, & Everington, 2020). Individual religion was naturally selected because this was the focus of the analysis and the community background variable—which asked for information on 'religion brought up in'—was used to minimise nonresponse to the voluntary religion question. Age was chosen because of its importance as a life-stage variable, along with housing tenure, gender, the NS-Sec socio-economic classification, limiting long-term illness and educational qualifications—all factors related to migration propensities (Social Mobility Commission, 2020). From the health card data spine, it was also known how many moves were made between 2001 and 2011 (see Clark et al., 2014) and over what distances.

Neighbourhood type and geographical context were specified in two contrasting ways. The first, and simplest, was to take the percentage Catholic of the SOA in which a person was living at the start of the reference period in 2001. Secondly, Local Indicators of Spatial Association (LISA) clusters were calculated, using GeoDa™ (Anselin, 1995, 2003) with the percentage Catholic per SOA as input. The clusters were created using the default 12 km distance threshold. This placed each SOA into five spatial classes—random (with *no significant* local spatial autocorrelation at the 5% level), *low, low* (a low Catholic SOA surrounded by other low Catholic SOAs), *high, low* (a highly Catholic SOA surrounded by low Catholic SOAs), *low, high* (a low percentage Catholic SOA surrounded by highly Catholic SOAs), and *high, high* (high percentage Catholic SOAs surrounded by highly Catholic SOAs).

Given the inherently hierarchical structure of the data, with NILS members nested in SOAs in 2001, the most appropriate method was multilevel modelling (Goldstein, 2010). This allowed individual characteristics to be included as fixed effects in our models but random variation across all SOAs to be measured and, most importantly, the cross-level interaction between Level 1 individual variables (such as religion) and Level 2 (SOA variables) such as SOA religious composition (together with a second-order polynomials for the latter) to be evaluated. A hierarchical two-level individuals-in-neighbourhoods model which includes both individual (Level 1) and area specific (Level 2) predictors and their cross-level interaction (Gould, 2010), with random 'intercepts' (i.e., means) allowed to vary between SOAs can be written thus:

$$y_{ij} = \beta_0 x_{0ij} + \beta_1 x_{1ij} + \beta_n x_{nij} + \alpha_1 w_{1j} x_{0ij} + \alpha_2 w_{1j}^2 x_{0ij} + \alpha_3 w_{1j} x_{1ij} + \alpha_4 w_{1j}^2 x_{1ij}$$
$$+ \left(\mu_{0j} x_{0ij} + \varepsilon_{0i} x_{0i} \right)$$
$$(1)$$

where y is the response variable and included here as the percentage Catholic SOA residence in 2011 as a logged ratio of the percentage Catholic SOA residence in 2001;

i A subscript denoting individuals (Level 1 units);

j A subscript denoting Level 2 SOA of residence in 2001;

n A subscript denoting the last nth variable;

x_0 the constant;

x_1 a predictor variable measured at Level 1 (e.g., religion);

w_1 A predictor variable measured at Level 2 (e.g., religion of the SOA of origin in 2011);

$\beta 0$ the estimated intercept term;

$\beta_1 - \beta_n$ the estimated slope terms associated with Level 1 predictor variables;

$\alpha_1 - \alpha_n$ A number of estimated slope terms associated with the Level 2 predictor variable and its cross-level interaction with the Level 1 predictor;

ε_0 the Level 1 individual random terms;

μ_0 the Level 2 SOA random terms.

All the Level 1 predictors are binary categorical variables (e.g., a dummy variable is used to distinguish Catholics from the reference category Protestant), in the analysis presented below, and that contrast coding is used for model specification (Jones, 1991). The two sets of random terms in Equation 1 can be summarised by two estimated variances $\sigma^2 \varepsilon_0$ and $\sigma^2 \mu_0$ and are associated with the constant that has been allowed to vary at both Level 1 and Level 2. Additional to the three research questions identified earlier in the paper, this multilevel analytical framework also permits two related overarching questions to be investigated. Has religion ceased to be important as a factor in determining people changing address changers move from and to, and are there any differences between Protestants and Catholics with respect to how likely they are to move to more or less Catholic contexts?

5 | RESULTS

In Table 1, we begin to consider these questions by showing the distribution of the population by Catholic quintile in 2001 and 2011, using a wider definition than used in the multivariate analysis, those movers and nonmovers aged 16–74 in 2001, with census records in 2001 and 2011, to assess general patterns. Quintiles are used to minimise disclosure risks and to ensure adequate numbers in each group for our later exploratory statistical analysis. Quintile 1 represents the least Catholic class of area and Quintile 5 the most. In one important way, Catholics and Protestants are very similar with the majority still in the same religion quintile in 2011 as in 2001 with very few moving between very different quintiles. They are 'sticky' in place. For instance, the 77% of Catholics in 2011 who were in the same top Catholic Quintile 5 as in 2001. These 77% have not changed address, have changed address but remained in the same SOA or changed address and SOA but moved to one in the same quintile. This corroborates earlier findings in Northern Ireland (Shuttleworth, Barr, & Gould, 2013) that comparatively few people move far through religious space, finishing in areas quite similar to where they started, and also studies of other countries (Clark & Morrison, 2012) where similar patterns are observed. This is not surprising given the short median distance of address changes

TABLE 1 Percentage distribution (rounded to 0 d.p.) Catholics and Protestants—movers and nonmovers—2001 and 2011 (Quintile 1 least Catholic, Quintile 5 is most)

Quintile in 2001	Quintile in 2011					Row Count
	1	2	3	4	5	
Catholic						
1	61%	22%	8%	7%	2%	2,206
2	12%	62%	15%	8%	3%	7,341
3	2%	8%	69%	16%	5%	19,001
4	1%	2%	10%	74%	13%	35,592
5	1%	2%	4%	16%	77%	39,406
Grand total	3,029	8,084	19,541	36,696	36,196	103,546
Protestant						
1	73%	20%	5%	2%	<1%	49,203
2	22%	65%	10%	3%	<1%	46,287
3	6%	16%	70%	7%	1%	34,231
4	4%	6%	16%	70%	4%	18,124
5	3%	7%	9&	21%	61%	2,421
Grand total	49,154	46,770	33,866	17,742	2,734	150,266

Source: NILS

and a rapid distance decay in the count of movers that has been observed in Northern Ireland and elsewhere.

The commonality in the majority of NILS members who remain 'on the diagonal' should not disguise, however, some clear differences between Catholics and Protestants. In areas where they are the religious minority (e.g., Catholics who were in Quintile 1 in 2001 and 2011, and Protestants in Quintile 5), the proportion of stayers is far less than in the quintiles where they were in the majority (e.g., Quintile 5 for Catholics). Moreover, there are higher proportions of transitions to quintiles where a community is the majority rather than where it is the minority. This is shown in Figure 1 which presents by religion the profile of movers who make the transition to more
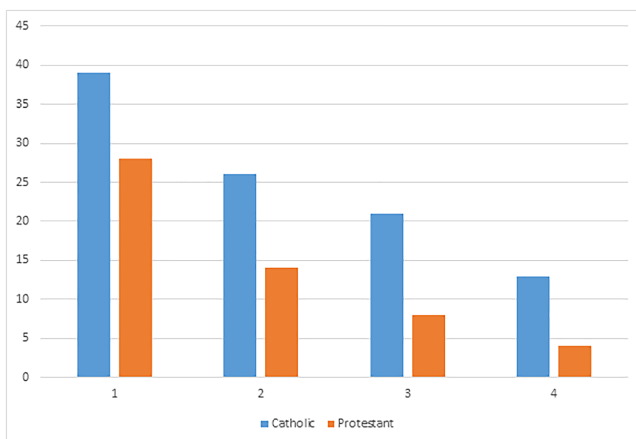

FIGURE 1 Percentage of Catholics and Protestants (total population base) moving to a more Catholic quintile by origin quintile (1 is least Catholic, 4 is the most). In Quintile 5, it is impossible to move to a more Catholic quintile; hence, it is excluded. Source: NILS

Catholic quintiles by quintile of origin. This demonstrates that Catholic migrants consistently have higher rates than their Protestant counterparts from the same quintile of origin.

Table 2 takes the analysis further by modelling the individual and geographical factors that influence moves up and down the religion ladder, to and from more Catholic places. In line with earlier research questions about the impact of geographical context, alternative specifications of this are explored. The table presents the results of three multilevel models which summarise the relationships within the data, controlling for neighbourhood and individual characteristics (Models 1 and 2), also providing variance-components for random parts of all three models (Goldstein, 2010). There are individual-level fixed effects and cross-level interactions between individual religion and SOA of residence in 2001 with the outcome variable taking a positive sign when moving to a more Catholic area and negative to a less. A null 'empty' model is presented as Model 0. Models 1 and 2 are similar in their individual-level specification but differ in their Level 2 neighbourhood variables. Here, Model 1 uses the religion of the SOA of origin in 2011 grouped into quintiles, whereas Model 2 deals with spatial context by grouping SOAs into LISA classes.

Beginning interpretation with Model 0, the null variance-components model, the constant is 0.071 and when anti-logged provides a global mean ratio 1.18 for the percentage Catholic SOA residence in 2011 as a ratio of the percentage Catholic SOA residence in 2001. This means on average across the whole of Northern Ireland individuals are more likely to have moved to a more Catholic SOA in 2011 compared to 2001. The variances for the random effects for both individuals and SOAs are almost equal, and added together sum to 0.196 units of variation, suggesting that 50.5% of the variation is at the level of individuals, with 49.5% of the variation associated with SOAs. These variances provide benchmarks to compare Models 1 and

TABLE 2 Model Coefficients used to calculate Figure 2—coefficients marked in bold are significant at the 5% level

Variable		Model 0 Coefficient	p	Model 1 Coefficient	p	Model 2 Coefficient	p
Constant		0.071	0.000	0.589	0.000	0.014	0.473
Level 1 variables							
Age	25–34 (ref)	-	-	-	-	-	-
	35–44	-	-	−0.005	0.164	−0.004	0.225
	45–54	-	-	−0.006	0.185	−0.005	0.232
	55–64	-	-	**−0.015**	**0.005**	**−0.013**	**0.010**
	65–74	-	-	0.012	0.062	**0.014**	**0.037**
Sex	**Female (ref)**	-	-	-	-	-	-
	Male	-	-	0.005	0.069	0.005	0.063
Marital status	**Married (ref)**	-	-	-	-	-	-
	Single	-	-	**−0.007**	**0.034**	**−0.007**	**0.037**
	Separated/divorced/widowed	-	-	0.005	0.188	0.005	0.169
Educational qualifications	**Yes (ref)**	-	-	-	-	-	
	No	-	-	−0.002	0.574	−0.003	0.379
Religion	**Protestant (ref)**	-	-	-	-	-	-
	Catholic	-	-	**0.210**	**0.000**	**0.210**	**0.000**
	Other/None	-	-	**0.078**	**0.000**	**0.057**	**0.005**
LLTI	**No (ref)**	-	-	-	-	-	-
	Yes	-	-	0.001	0.855	0.001	0.856
NSSEC	**Professional (ref)**	-	-	-	-	-	-
	Intermediate	-	-	−0.007	0.095	−0.007	0.091
	Self-employed	-	-	−0.001	0.799	−0.003	0.615
	Lower supervisory	-	-	0.003	0.550	0.003	0.613
	Routine	-	-	−0.005	0.210	−0.006	0.135
	Not working	-	-	**0.021**	**0.001**	**0.019**	**0.003**
	Student	-	-	0.024	0.115	0.025	0.113
Tenure	**Owned (ref)**	-	-	-	-	-	-
	Social rented	-	-	0.005	0.228	0.005	0.235
	Private rented	-	-	**0.009**	**0.039**	0.008	0.067
	Communal/Other	-	-	−0.011	0.602	−0.005	0.802
Address changes in HCRS (2001–2011)	**1–2 (ref)**	-	-	-	-	-	-
	3–5	-	-	0.007	0.089	0.007	0.073
	6+	-	-	0.020	0.148	0.020	0.140
Maximum address change distance (2001–2011)	**<2 km (ref)—Model 2**	-	-	0.027	0.000	-	-
	>2 km and <10 km (ref)— Model 1	-	-	-	-	**−0.026**	**0.000**
	>10 km and <50 km	-	-	**0.009**	**0.011**	**−0.017**	**0.000**
	>50 km	-	-	**0.054**	**0.000**	**0.024**	**0.000**
Level 2 variables							
2001 origin SOA % Catholic quintile	**1 (ref)**	-	-	-	-	-	-
	2	-	-	**−0.468**	**0.000**	-	-
	3	-	-	**−0.678**	**0.000**	-	-
	4	-	-	**−0.781**	**0.000**	-	-
	5	-	-	**−0.716**	**0.000**	-	-
		-	-	**0.000**	**0.000**	-	-

(Continues)

TABLE 2 (Continued)

|		Model 0		Model 1		Model 2	
2001 origin SOA % Catholic composition, squared							
Religion*SOA % Catholic quantile interaction	Catholic*2	-	-	−0.012	0.454	-	-
	Catholic*3	-	-	0.017	0.259	-	-
	Catholic*4	-	-	**0.031**	**0.032**	-	-
	Catholic*5	-	-	0.016	0.361	-	-
	Other/none*2	-	-	−0.032	0.176	-	-
	Other/none*3	-	-	−0.042	0.099	-	-
	Other/none*4	-	-	0.033	0.245	-	-
	Other/None*5	-	-	0.014	0.720	-	-
LISA cluster—SOA % Catholic composition (2001 Census)	**Not significant (Reference)**	-	-	-	-	-	-
	High-high	-	-	-	-	**−0.182**	**0.000**
	Low-low	-	-	-	-	**0.236**	**0.000**
	Low-high	-	-	-	-	**0.185**	**0.000**
	High-low	-	-	-	-	**−0.415**	**0.000**
Religion × LISA cluster by % Catholic interaction	**Protestant × not significant (Reference)**	-	-	-	-	-	-
	Catholic × High-high	-	-	-	-	**−0.042**	**0.000**
	Catholic × Low-low	-	-	-	-	0.008	0.390
	Catholic × Low-high	-	-	-	-	−0.012	0.472
	Catholic × High-low	-	-	-	-	**0.105**	**0.000**
	Other/none × High-high	-	-	-	-	0.027	0.506
	Other/none × Low-low	-	-	-	-	0.008	0.730
	Other/none × Low high	-	-	-	-	−0.044	0.266
	Other/none × High-low	-	-	-	-	**0.078**	**0.019**
Level 2 variance		0.097	0.000	0.024	0.000	0.086	0.000
Level 1 variance		0.099	0.000	0.092	0.000	0.092	0.000
Likelihood ratio		36,785	0.000	11,112	0.000	32,261	0.000

Source: NILS
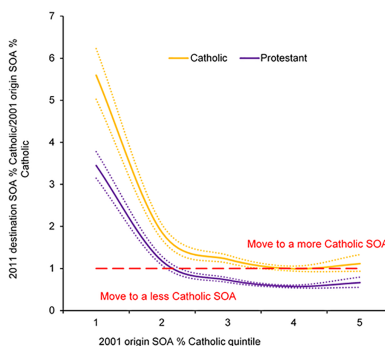
FIGURE 2 Odds of moving to a more Catholic location by individual religion and starting position with 95% confidence limits—Model 1— *dotted line indicates the origin is same as the destination. Source: NILS*

2 and gauge how much variation is explained by the covariates in the parts of these models.

Inspection of the statistically significant2individual-level fixed effects in Model 1 suggests that few of the socio-economic covariates are important in driving housing moves up or down the ranking of SOAs by percentage Catholic. The same applies for Model 2. Earlier, it was suggested that if sectarian factors had ceased to be important in structuring the housing market and in determining internal migration

patterns, then individual religion would have no influence on moving behaviour so this finding is important. In both models, however, individual-level religion is statistically significant; Catholics and the Other/None category differ markedly in their behaviour from the Protestant reference category, Catholics the most so, and Other/None lying between Catholics and Protestants. The few socio-economic variables that are statistically significant include not working and private renting, both positively associated with an address change to a more Catholic area, and being single (negatively related to moving to a more Catholic area). The movement variables in Model 1 are notable—distance moved during the decade appears to be positively related to residential moves to more Catholic SOAs—but the largest effects come from quintile of residence which is important in both models. The negative signs of the neighbourhood coefficients, which increase as the quintiles become more Catholic relative to the reference can be interpreted as a ceiling effect with less and less chance of moving to a more Catholic SOA, the more Catholic the origin SOA; if someone is resident in an SOA in 2001 that is 95% Catholic they have very little chance of moving to a more Catholic SOA by 2011 than someone living, for example, in an SOA which was 30% Catholic.

The exploratory analysis of the cross-level interaction between individual-level religion and quintile of origin (in 2001) by percentage Catholic is most interesting, as this shows how different people by religion behaved in different types of place. These Model 1 results are presented graphically in Figure 2. There are two important features in Figure 2. First, Catholics and Protestants originating in the least Catholic classes of SOAs—Quintiles 1 and 2—are more prone to move to more Catholic locations than those in the most Catholic quintiles—Quintiles 4 and 5. The second point to note is that there is always a difference between Catholics and Protestants (and indeed between Nones/Others and Protestants, but these are excluded from the charts for simplicity) with Catholics being more likely to move to more Catholic places from the least Catholic quintiles than Protestants in the same places.

The next step of the geographical analysis explores the question of spatial population structures from a different perspective using LISA clusters as an explanatory contextual Level 2 variable. This changes the focus from just the class—by religion—of SOA origins to a consideration of each SOA in 2001 and its wider geographical
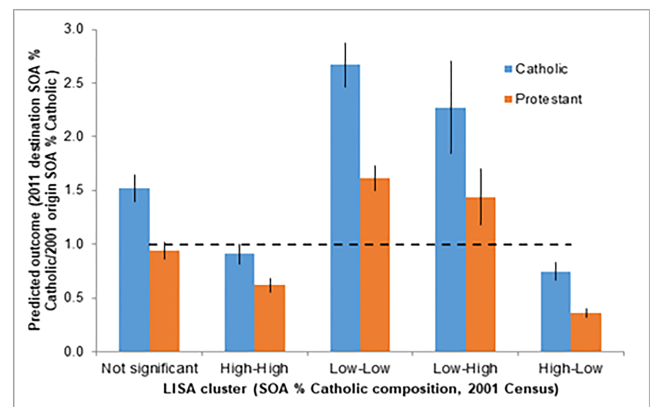

FIGURE 4 Moving to a more/less Catholic area by LISA cluster. Source: NILS. Note: The dashed horizontal line at 1 on the Y-axis marks the threshold value; above this represents a move to a more Catholic SOA, whereas below this signifies a move to a less Catholic SOA

context. The residents of SOAs in the *low, high* category (a low percentage of Catholics in 2001 surrounded by SOAs which are highly Catholic) whether Catholic or Protestant, for instance, should have a far greater chance of moving to a more Catholic place than those in the *high, low* class (its opposite), if moving behaviour in terms of distance, choice and direction is equal between Catholics and Protestants. Figures 3 and 4 investigate the extent to which everything else is in fact equal, once controls are made for individual religion and other individual/household characteristics, for residents of different LISA classes.

Figure 3 is descriptive and simply compares moves to more/less Catholic areas by individual religion and LISA cluster of origin. The main interest is in comparing the directionality of moves by Protestants and Catholics in each of the clusters. Moving from left to right, and starting with the *non-significant* class (with random spatial surrounds), a greater proportion of Catholics moves to more Catholic areas than their Protestant equivalents in this context. This suggests that individual-level factors play a role in shaping flows. Moving to the next category, *high, high*, Protestants are more likely to move to less Catholic areas than Catholics. It is however, for the next two groups, *low, low* and *low, high*, that there are the greatest differences between

FIGURE 3 Catholic and Protestant moves (percentages) to a more/less Catholic area by cluster membership, orange more Catholic, blue less Catholic. Source: NILS Total numbers in each cluster: not significant = 19,131; high-high = 10,709; low-low = 26,909; low-high = 3,623; high-low = 9,572
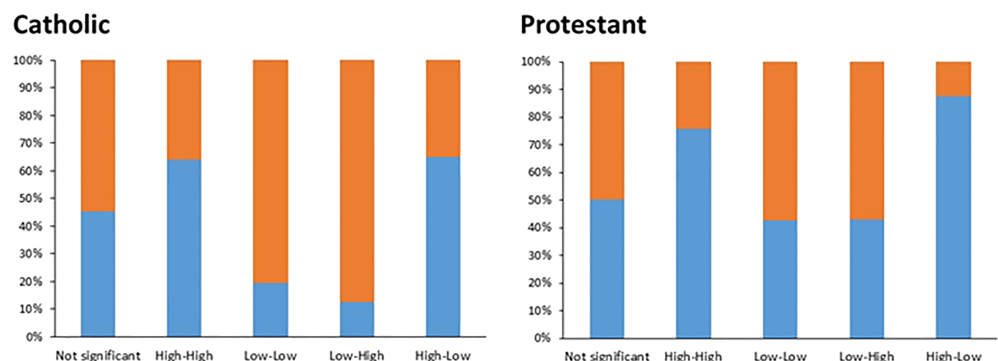
Catholics and Protestants in the direction of moves through religious space with Catholics being far more likely to move to more Catholic places. The same applies for the final category, *high, low*. Looking at Figure 3, it is plain that geographical context matters; there are differences in the proportion of moves to and from Catholic areas according the local religious geography. However, once more, it appears that individual religion is also important.

Figure 4 presents predicted outcomes for Catholics and Protestants by LISA cluster after controlling for all the individual and household variables shown in Model 2. The Level 1 coefficients in Model 2 are very close to those in Model 1 and the LISA cluster main effects are also statistically significant. The interactions between individual religion (being Catholic) are also significant for the *high/high* and *high/low* classes. The complex results of Model 2 are summarised in Figure 4; if moving to an SOA with exactly the same starting religion as the origin, then the log-ten transformed ratio is one but if the destination is more Catholic the ratio is greater than one. Looking across the cluster types on the x-axis, it is apparent once again that geographical context is important in determining the level of individual moves to more Catholic SOAs for Catholics and Protestants but that individual religion also retains its effect.

The final task is to compare Models 1 and 2 with the initial null model. Models 1 and Model 2 result in a statically significant improvement in overall goodness of fit using the likelihood ratios3 and both reduce Level 1 and Level 2 variances. The amount of reduction in Level 1 variance is similar in Models 1 and 2 but where they differ is in how they reduce between-SOA variation. In Model 1 SOAs now account for 20.7% of the total variance in the response whereas in Model 2, the equivalent figure is 48.3%. This shows that the simpler specification of Model 1 is superior to that of Model 2 and suggests that very local contextual measures of religion are more important rather than the wider neighbourhood.

6 | DISCUSSION

The analysis set out to examine whether the geography of residential mobility of Catholics and Protestants still differed during 2001–2011 intercensal period. It also sought to explore whether there was evidence that internal migration was leading the two communities to integrate residentially. Finally, it aimed to investigate how far already-segregated residential geographies limited the possibilities for cross-community moves given the short distances over which people normally move in Northern Ireland (Shuttleworth et al., 2013; Shuttleworth, Foley, & Champion, 2020) and, indeed, elsewhere (McCollum et al., 2020). The answers provided by the analysis to all these questions are clear: Individual religion remained statistically and substantively important in influencing the destinations to which people moved when changing address between 2001 and 2011. Furthermore, geographical context was important in determining the types of place to which movers went.

In considering whether Catholics and Protestants differ in their migration behaviour, the evidence of Table 2 shows that Catholics—

and indeed those with other or no religions—were more likely to move to more Catholic places than Protestants. It is important to note that this is so even after controlling for age, housing tenure, highest qualification, economic status and health. In the past differentials between Catholics and Protestants along these dimensions were high (see Osborne & Shuttleworth, 2004; Sheehan & Tomlinson, 2018; Smith & Chambers, 1991) and, even though since the 1990s they have very much lessened (Rowland, 2019), some still remain, with social deprivation on average being higher for Catholics. It is therefore essential to make controls for a wide range of social and demographic statistics so as to isolate, as far as possible, the independent effects of religion on mobility.

For the demographic group studied here in the multivariate analysis—those aged 25 to 74 in the 2001 Census and with records in both the 2001 and the 2011 Censuses—it is concluded that internal migration on its own will not bring Catholics and Protestants closer together residentially. This, of course, begs a fundamental question about public opinion and policy. Despite seeing earlier that the preference for mixed neighbourhoods remains high, the actual behaviour of people 'on the ground' shown by our study reveals a very different picture.

How could this be the case? We suggest three potential explanations. One is that people are 'shy sectarians', in that being questioned about a potentially sensitive topic like this they do not admit to preferring neighbourhoods of their own religion. Another is that people may be subject to 'unconscious bias' that influences their locational choices when it comes to considering where to live. A third possibility is that people may want to have mixed neighbourhoods but, without making this the prime factor in the decision making, inevitably end up in roughly the same type of place as the one in which they started because of population structures and the 'normal' spatiality of internal migration. Given that the population geography of Northern Ireland is strongly structured by religion (Lloyd, 2010) and also that most internal migration in Northern Ireland—as elsewhere—are short-distance in nature (Shuttleworth et al., 2020), it is likely that many movers start and end in the same type of place by religion. As such, they could be considered 'prisoners of spatial structure'. This adds to the evidence base that many address changes start and end in the same general type of place (Clark et al., 2014; Clark & Morrison, 2012), with few individuals spanning the whole area hierarchy.

No doubt a combination of all these conditions is responsible for the wide discrepancy between the NILT survey results and people's actual behaviour. Certainly, our study provides no evidence that supports absolutely one of the three alternative explanations as opposed to the others. What we have found is that an individual's religion remains important in determining the type of area that members of our sample had moved to during the decade leading up to the 2011 Census. Equally, our analyses rule out geographical context as being the only full explanation of the migration patterns observed; there are between-place differences but individual religion remains important. Overall, therefore, it is the combination of individual and neighbourhood characteristics that shapes movement through religious space.

7 | IMPLICATIONS

The analysis reported in the paper has wider implications. For social and housing policy in Northern Ireland, it suggests that aspirations for greater residential social mixing are unlikely to be met in the near future by the *status quo*. As in other parts of the UK, owner occupation is the leading housing sector, followed by private renting (an increasing share since 2001) and then social housing. Most, but not all, housing moves therefore take place in the owner-occupied and private-rented sectors. These operate as a free market, and it thus seems that market-directed moves in these sectors alone are insufficient to change population distributions enough to diminish religious segregation. As regards the socially rented sector, here, there is scope for state intervention to provide new housing stock for mixed-religion tenancy. This can be successful in some circumstances in developing mixed estates (Stevenson et al., 2019) but can also face significant challenges related to geographical context—inner-city locations, often with histories of sectarianism, are unfavourable locations for mixed-housing interventions, for instance—and to paramilitary threats (Belfast Telegraph, 2019). In this regard, it is intriguing that individual religion still seems to be a strong factor, at least up to 2011. This is some 17 years after the first paramilitary ceasefires of 1994, and 13 years after the Belfast/Good Friday Agreement, so considerable time has elapsed but arguably perhaps not enough. The 2021 Census results, when available, will reveal more.

In terms of possible applicability elsewhere besides Northern Ireland, this paper has elaborated a method (Clark & Morrison, 2012) that can be used to examine the interaction between people, places, and internal migration in divided societies, irrespective of whether the main dimension of division is religion, ethnicity or social class. The use of LISA clusters takes the analysis further by considering the role of local population structure in shaping the opportunities and barriers for moves between socially different, or similar, places. Model parameters such as those presented above might also be useful as empirical parameters for use in agent-based models in the tradition of Schelling (1971). Their strength in this case is based not on what people answer in surveys but on what they actually do and, as we have seen, these can be quite different things.

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NOTES

[1] https://www.communities-ni.gov.uk/system/files/publications/communities/ni-housing-stats-18-19-full-copy.PDF.

[2] At the 5% significance level.

[3] For Models 1 compared to Model 0 the change in deviance is 25,673 ($p < 0.05$, 38 df); and for Models 2 compared to Model 0 the change is 4,524 and statistically significant ($p < 0.05$, 37 df).

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