

Educational homogamy in Ireland and Britain: trends and patterns*

ABSTRACT

This paper examines the pattern of educational homogamy in Ireland and Britain. Using contemporary data on recent marriages from the early 1970s through to the mid-1990s, we show that these two countries share a broadly similar pattern of educational homogamy, which is quasi-symmetric in character, with no tendency for women to marry up over and above that which can be attributed to the gender difference in educational attainment. In the 1970s, the strength of homogamy was much weaker in Ireland than in Britain. But we discern a clear inter-country difference in how the net strength of homogamy has changed over time. While it has declined in Britain since the 1970s, in Ireland the strength of homogamy has first increased and then levelled off. Our findings are inconsistent with the inverted U-shaped relationship between economic development and homogamy reported by Smits, Ultee and Lammers (1998) – an argument premised on secular change in the criteria of spouse selection. Instead, our results are better understood in terms of Mare's (1991) life course argument that homogamy is inversely related to the time-gap between school departure and first marriage.

KEYWORDS: Education; marriage; lifecourse; assortative mating

1. EDUCATIONAL HOMOLOGY AND SOCIAL STRATIFICATION

Educational qualifications are a key determinant of life chances in industrial societies. They are also a strong correlate of lifestyle and cultural tastes. Furthermore, schools and universities provide a context in which young people meet each other. For these reasons, education has always been a factor in the choice of mate in modern societies. Specifically, there is a strong tendency for educational homogamy, i.e. for people with the same or similar educational qualifications to marry each other.¹

But the pattern and the degree of educational homogamy might be changing. First, there has been substantial educational expansion in

western societies over the twentieth century, especially over the last twenty five years. Secondly, the gender gap in educational attainment has drastically narrowed or, in some cases, even disappeared. This changes the opportunity structure of the marriage market. For example, while women tended to marry better qualified men in the past, the narrowing of the gender gap would limit the opportunity for women to marry up.

Thirdly, recent changes in women's role in the labour market and the family might also affect mate choice. If married women now expect, and are expected, to work in the labour market and contribute to the family income, other things being equal, women with high earning potential (for which education is a good predictor) would become more desirable as marriage partners. Highly qualified men would be in a stronger position to attract highly qualified women. While men with fewer qualifications might also want to attract highly qualified women, they would have to settle for a less qualified match. Such processes might lead to a greater degree of educational homogamy.

Fourthly, as Mare (1991) demonstrates, life course pattern, especially the time-gap between leaving school and getting married, affects educational homogamy. Those who get married shortly after leaving school are more likely to marry a classmate, and classmates tend to have the same qualifications.² More generally than marriage of actual classmates, one's social group is more likely to be educationally homogeneous at shorter durations after leaving school. Occupations often recruit educationally similar young people, extending this homogeneity somewhat.³ In most industrial societies, the mean school leaving age has been rising over the postwar period, while the mean age of first marriage has first fallen and then risen sharply (see Figure I below). This means that the time-gap between school and marriage has been narrowing up to the early to mid-1970s, and then the time-gap has stabilized or perhaps widened slightly. The corresponding effect of this would be a rise and then a fall in educational homogamy.

This paper takes two countries, the Republic of Ireland and Great Britain, which display both considerable cultural commonality and quite dramatic differences in their social structures, and examines the educational patterning of marriage from the early 1970s to the mid-1990s, using contemporary data on recent marriages.

2. RECENT RESEARCH AND NATIONAL CONTEXTS

A comparison of Ireland and Britain is useful because it allows us to compare and contrast two sets of arguments on educational homogamy. The first is the life course argument of Mare (1991), which we summarize above. Note that this argument is premised on the timing of two life course transitions (leaving school and getting married), and their trends over historical time. No matter what social, demographic, or technical factors, or public policies are behind these trends, the argument here is that these

trends lead to variation in the time-gap between school departure and marriage, and the changing time-gap explains the trend in the strength of homogamy over time. We do not think that Mare's argument is incompatible with individuals' preferences as an explanation of educational homogamy. However, it should be clear that what does the explanatory work in his argument is demographic trends, and the opportunity structure of meeting potential spouses with various educational qualifications that the trends create.

In contrast, the second set of arguments puts changing preferences or criteria in spouse selection in the foreground of its explanation. This comes from recent cross-national research on educational homogamy. Analysing data from 65 countries, Smits et al. (1998) report an inverted U-shaped relationship between level of economic development and educational homogamy: as a country becomes economically more developed, educational homogamy first increases, then peaks and eventually declines. They believe this inverted U-curve is the composite result of two social forces which dominate at different phases of economic development. On the one hand, as the effect of education on future socio-economic status increases, qualifications become progressively more important in mate choice. This means a positive relationship between economic development and educational homogamy. Smits et al. call this the *status attainment hypothesis*. However, after a certain level of economic development has been reached, Smits et al. argue, people would be able to afford the luxury of 'romantic love', and are more likely to interact with people from other social groups. Thus the cold efficiency of life-chance calculation that is associated with educational homogamy would become less important. They call this the *romantic love or general openness hypothesis*.

Smits et al. also report religious-cultural variation in educational homogamy, claiming that Catholic, Muslim and Confucian countries have higher levels of educational homogamy than Protestant countries. They attribute the higher level of educational homogamy among Catholics to their cultural conservatism: because Catholics tend to hold more traditional values over marriage and family issues, status consideration would be more important in mate choice.

Raymo and Xie (2000) point out that, although Smits et al. are really interested in over time trend within country, because trend data is not available to them, Smits et al. have used cross-sectional data from countries at different levels of economic development. The implicit assumption is that the time path followed by today's industrializing countries is essentially the same as that taken by the industrialized countries in the past. Since this might not be a reasonable assumption, Raymo and Xie argue that the findings of Smits et al. need to be tested with true trend data. Having examined data from four countries (China, Japan, Taiwan and the USA) and two periods (roughly the early 1970s and the mid-1980s), Raymo and Xie partially confirm the findings of Smits et al.: a clear trend towards less homogamy in all four countries,⁴ but no evidence of the Confucian

countries in their sample having a higher level of homogamy than their Protestant country (i.e. the USA).

In response to Raymo and Xie, Smits, Ultee and Lammers (2000) examine cross-cohort differences, and largely validate their main finding: on average, changes over time in homogamy follow the inverted-U.⁵ Further modernization generally leads to lower homogamy in industrialized societies. Importantly, however, there is a lot of variation around this empirical regularity, with five of the industrialized countries in their sample showing significant increases in homogamy and only six showing the predicted decline. Thus, though their hard-won finding of the inverted-U stands as an empirical regularity, they accept that the later decline may well change into convergence to a universal low level. Moreover, it also becomes clear that their finding cannot constitute a general theory of assortative mating. If we are to properly understand the process we need to focus on country-specific patterns of homogamy in greater detail, while recognizing the value of the overall association they have established.

In this paper, we examine the claims of Smits et al. and ask to what extent their inverted-U relationship helps us predict and understand patterns of homogamy in modern societies, particularly in competition with the essentially structural, demographic argument of Mare (1991). How plausible is the general argument that modernization should lead to more openness when we consider specific countries in detail? While the relationship may hold true in the aggregate, and the work of Smits et al. is of significant value for establishing that, we ask whether other relevant factors have been ignored, to the extent that developments in any particular country are poorly predicted. Mare's time-gap is one such potential factor, which has been shown to have substantial effects at the individual level (e.g. Blossfeld and Timm, forthcoming).

As we shall show in section 2.4, these two perspectives lead to quite different predictions of the level of educational homogamy in the two countries and how they change over time. Let us first describe a few background features of Ireland and Britain that are relevant to the issue under consideration.

2.1 Religion and Cultural Values

Ireland and Britain have a shared history and a shared language, and are the only completely insular EU states. Many of the institutions of state, and to some extent view of the rest of the world, are consequently similar. However, there are deep cultural differences, and the best part of a century of separate development has meant that institutions such as the education system bear incomplete resemblances.

To focus on the similarities and differences, we can characterize Britain as a relatively secular/protestant society with a very long history of urbanized industrialism. The Republic of Ireland, in contrast, is a late-industrializing society with a substantial rural sector, and has a high (though

declining) level of religious participation which is very predominantly Catholic.⁶ Britain, though formally (but not in practice) a theocracy, has a strong tradition of liberal-secular politics and very low levels of active religiosity in the general population, while Ireland, with formal separation of church and state, has a tradition of religious conservatism informing both politics and people such that the law has tended to embody a great deal of Catholic conservative values. Tellingly, for instance, the divorce rate in Britain is among the highest in Europe (Haskey 1996), while in Ireland divorce became legal only in 1997.

2.2 The Educational System

The overall structure of the educational systems in both countries has not been dramatically different. One respect in which the common institutional history does make for similarities is in the university systems. The Irish system was established before independence and is modelled on the English system, and thus we can treat university education as meaning 'the same thing' in both countries. The primary systems also have common roots in the nineteenth century, but Ireland's system has been from the beginning more clearly denominational and under effective church control.

There is a greater difference at the second level. In Britain, secondary education became free and universal with the 1944 Education Act. Under the provision of this Act, pupils were assigned to one of three types of secondary schools (grammar, technical, and secondary modern) according to the results of an exam which they took at the age of eleven. The '11-plus' exam was abolished in 1965, and the tripartite system was replaced by a single type, the comprehensive school. Along with these reforms, the minimum school-leaving age was raised to 15 in 1947, and then to 16 in 1973/4. In Ireland, free secondary education was not introduced until 1967. Thus before the 1960s the great majority of people in Ireland would have had primary education only. Second level education in Ireland consists of two cycles. Pupils typically enter the junior cycle at the age of 12, and they take the Intermediate or Junior Certificate examinations at the age of 15 or 16. Some students would leave the educational system at this point, but those who go on to the senior cycle, which lasts two years, will take the Leaving Certificate examinations at the age of 17 or 18. In short, the structure of the educational system as well as the timing of the various transition points is broadly similar in the two countries.

Educational attainment has progressed rapidly in both countries. Using Irish census data we calculate that the proportion of the population having left school at age 17 or older has gone from, for males, 20.4 per cent in 1971 to 38.9 per cent in 1991, and for females from 26.6 per cent to 45.9 per cent. Cohort data for Britain gives estimates of 21 per cent of males and 22 per cent of females in the 1940–9 cohort leaving school at age 17 or older, rising to 32 per cent for males and females of the 1960–9 cohort

TABLE I: *Trends in educational participation, UK and Ireland*
 (a) *Educational participation rates by year of age, UK and Ireland, 1992*

Country	Age							
	17	18	19	20	21	22	23	24
Ireland	76.5	57.5	39.1	29.6	19.4	11.1	6.1	4.0
UK	56.7	33.6	23.9	19.5	13.7	8.1	5.2	3.7

Source: National Center for Educational Statistics (1996), Table 6.

(b) *Participation in education as a percentage of the population aged 5–29, OECD estimates*

	1975	1985	1990	1994
All education except early years				
Ireland	51.1	52.4	55.9	57.0
UK	n/a	52.2	49.8	50.5
<i>Tertiary education</i>				
Ireland	2.4	3.3	4.4	6.2
UK	2.5	2.9	3.4	5.3

Source: Centre for Educational Research and Innovation (1996: Table P1t).

(authors' calculations using 1991 British Household Panel Survey data). Using OECD data for 1992 (National Center for Educational Statistics 1996: Table 6), we see that Irish educational participation rates for 17 to 21 year-olds exceed British rates substantially (see Table I, panel A). Panel B of the same table reports change in participation over time. Although it is very difficult to get long series of comparable data, it suggests that participation, both overall and in the tertiary sector, has grown more strongly in Ireland than in Britain.

2.3 Age of Marriage

Similar to other industrial countries, we see in both countries a sharp decline in the age of first marriage after the Second World War, which is followed by an equally sharp rise. But, compared with the British, the Irish have always married late. In 1960, the mean age of marriage of Irish bachelors was almost 31, while that of British bachelors was under 26 (see Figure I). The corresponding figures for Irish and British women were 27 and 23 respectively. Because, as noted above, free and universal secondary education was introduced to Ireland some two decades later than in Britain, the Irish had traditionally left school earlier. This means that the time-gap between leaving school and getting married was traditionally much longer in Ireland. Another notable feature of Figure I is that the turn around in the trend occurred much earlier in Britain (late 1960s to early 1970s) compared with Ireland (late 1970s). This implies that the time gap between

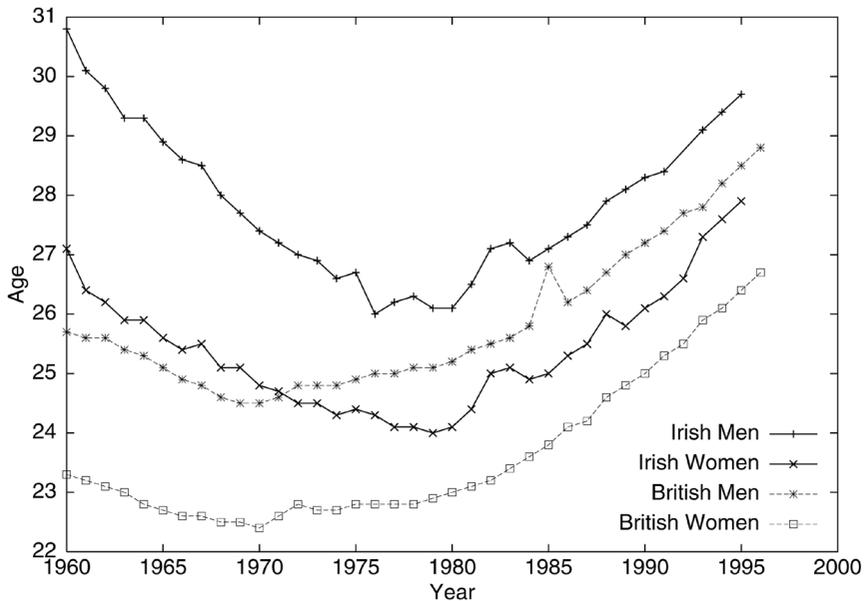


FIGURE 1: *Mean age of first marriage by sex, Ireland and Britain*

Source: Statistical Office of the European Union (1989, 1999)

school departure and marriage had continued to narrow for almost a decade longer in Ireland.

2.4 Summary and Expectation

How might Ireland and Britain differ in educational homogamy? Smits et al. and Mare give us contrasting predictions on both the initial difference in the level of educational homogamy in the 1970s (the first time point of our analysis), and the time path of change in the two countries.

The religious-cultural argument of Smits et al. suggests that Ireland should have a higher level of educational homogamy, because of the considerable influence still exerted by the Catholic church in Ireland. In terms of changes over time, the posited inverted U-curve implies that educational homogamy should decline for both Ireland and Britain. This is because, although Ireland is a late developer amongst industrial countries, it was already on the right-hand side of the inverted U-curve in the 1970s. These predictions are captured schematically on the left-hand panel of Figure II. Our reading of the theory is that it is agnostic on whether the two countries are converging or diverging over time in educational homogamy, at least in the limited time frame considered in this paper.

In contrast, Mare's argument leads us to expect Ireland to have a *lower* level of educational homogamy initially, because in the 1970s the time-gap

between leaving school and first marriage was much wider in Ireland than in Britain. His argument also suggests quite different time paths of how educational homogamy would evolve in the two countries. Over the 1970s, the time-gap in Ireland was still narrowing, but it had already begun to widen in Britain, due to the rapid rise in age of first marriage. This implies that the level of educational homogamy in Britain has been declining since the 1970s. But in Ireland we should see an increase in educational homogamy during the 1970s, and then a decline afterwards. In other words, the decline in educational homogamy in Ireland should happen about a decade later than in Britain. These predictions are depicted on the right-hand panel of Figure II. Note that the key predictions here are the initial difference and the different shape of the time paths. These should lead to a narrowing in the difference in the level of educational homogamy between the two countries over time. But, strictly speaking, we are agnostic as to whether and, if so, when the two paths would cross each other.

3. DATA AND METHOD

In this paper we use loglinear models to analyse cross-classifications of husbands' and wives' education. Because we take our data from prevailing marriages, this approach is susceptible to a potential bias: that heterogamous and homogamous marriages are likely to have different breakup rates. To minimize the bias, we follow Mare (1991) in using contemporary data and restricting ourselves to recent marriages, defined as those formed within five years of the survey date.⁷

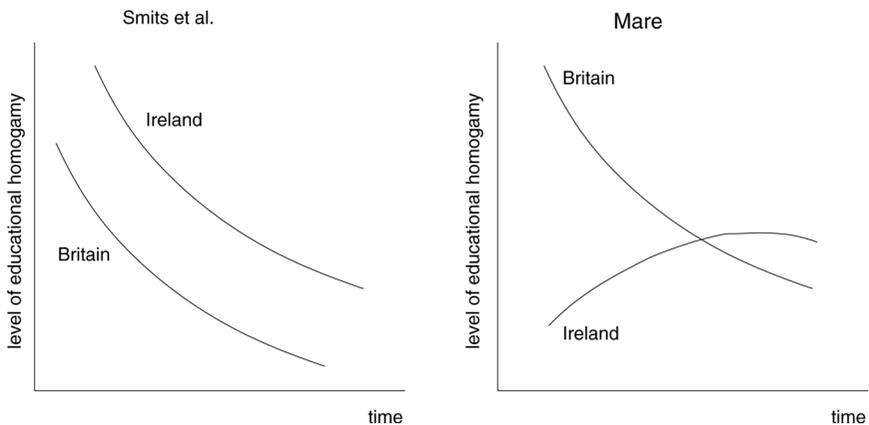


FIGURE II: *Two sets of predictions on how the level of educational homogamy in Ireland and Britain should change over time*

For Britain we use data from the General Household Survey (GHS) which has been running approximately annually since 1971. For Ireland we have to combine information from three separate surveys: the Irish Mobility Survey of 1973 (IMS), the Survey of Poverty, Income Distribution and Usage of State Services (SPIDUSS) of 1987, and the Irish section of the European Community Household Panel (ECHP) from which we use data from 1994 and 1995. All but the IMS, whose sample is adult males, are household samples, and the IMS has detailed information on spouse. We choose the years 1973, 1986 and 1995 from the GHS to match the years available for Ireland.

3.1 *Absolute or Relative Rates?*

As noted above, we use loglinear models in our empirical analysis. As with loglinear analysis of occupational mobility tables, our main focus is on what could be called the relative rates of homogamy, as expressed in odds ratios. To put it differently, we shall focus on the association between husbands' and wives' qualifications, net of the confounding effects of the marginal distributions. Kalmijn (1998) makes a clear case for the use of the odds ratio as an index of endogamy or homogamy, and notes that most relevant loglinear models of homogamy have straightforward interpretations in terms of odds ratios.

But why should the ideas of Mare or Smits et al. be tested at the relative rather than the absolute level? The time-gap argument suggests greater homogamy at shorter durations after leaving school, because the qualification homogeneity of your social circle will be higher. This is an argument about opportunity, i.e. you are more likely to marry homogamously because there are more potential spouses with similar levels of education. Is this therefore an argument for testing Mare's hypothesis at the absolute level? We think not: the time-gap has a relative effect, such that the homogeneity of your social group is higher than an 'average' given by the population distributions, and will decline over time towards that average. That is, at short durations there is an extra chance of marrying homogamously, *over and above* that given by the population distribution of available spouses, and thus modelling relative rates of homogamy is the appropriate method.

In contrast to the time-gap argument, which is really a structural argument, marriage market or cultural theories of homogamy implicitly involve preferences and competition. You are competing with your cohort for the 'best' spouse from the pool of available partners, and this process is inherently relative: your outcome depends on the distribution of your cohort, and your position in it, and that of the partner's cohort. For a given configuration of social forces, different patterns of absolute homogamy will emerge from different distributions, but for any set of distributions, stronger social forces will lead to more association between husbands' and wives' qualifications.

Arguments such as those laid out by Hakim (2000: ch. 7) that women

systematically tend to marry up need also to be addressed at the relative level, if we are to understand them as bearing on mate selection as a process affected by preferences and constrained choice, rather than as an outcome which forms a social context within which other processes (such as labour market participation) unfold. Hakim addresses in some detail the issue of the 'education gap' between men and women, and the question of whether as it closes we should expect the tendency for women to marry better educated husbands to also fall. Her assessment of the published evidence is that it does not, reflecting systematically asymmetric preferences. However, to properly disentangle the distributional effect from the asymmetric effect it is essential to examine relative rates – only when we can show that women marry up to a greater degree than that which would be expected from the marginals can we claim to have evidence of asymmetric social forces rather than just asymmetric social outcomes.

4. MODELLING AND RESULTS

We address four questions in the following analysis. (1) How do the educational distributions of recent spouses change in the two nations? (2) What is the general form of the association between wives' and husbands' qualifications? (3) Are there differences between countries in this association? (4) Are there changes over time, within countries, in this association? If so, what are the differences between countries in the evolution of the association over time?

4.1 Changing Educational Distributions

We use a four-fold educational classification. The highest category is the third level, consisting of university degrees and some sub-degree qualifications such as teaching diplomas. The next category is complete second level education, that is, A-levels in Britain and Leaving Certificate in Ireland. Grouped with these are some post-secondary qualifications that are not third level, such as nursing qualifications. Incomplete second level is the third category, with British O-levels/GCSEs and Irish Group, Junior or Intermediate Certificate being typical examples. Where possible, apprenticeships are included in this category. The residual category consists of lesser qualifications, second level experience without achieving any qualifications and, for older sample members in earlier years, primary education only.

Table II presents the educational distributions of men and women by survey year. Readers can see that both countries have experienced a large increase in qualification level over time. In 1973, only one in eight of recent husbands in Ireland had complete secondary education or above, compared with about one in four in Britain. By 1995, 55 per cent of Irish husbands and 60 per cent of British husbands had this level. At the other

TABLE II: *Educational distributions of 'recent' spouses, by country, sex and survey years, column percentages*

		Men			Women		
		1973	1986/7	1994/5	1973	1986/7	1994/5
Ireland	University	6.9	28.2	25.1	0.8	25.5	21.8
	2nd level	5.7	30.9	29.4	4.5	26.2	48.3
	Part 2nd	41.6	32.2	31.8	33.1	40.3	16.6
	Primary	45.7	8.7	13.7	61.6	8.1	13.3
	N	245	149	211	245	149	211
Britain	University	11.2	25.9	19.4	8.4	12.0	23.0
	2nd level	15.8	15.2	40.3	5.3	15.7	18.0
	Part 2nd	17.3	29.9	31.2	25.2	34.7	38.2
	Primary	55.8	29.0	9.1	61.1	37.6	20.8
	N	678	683	427	678	683	427

extreme, proportions with primary qualifications drop from 46 per cent to 14 per cent in Ireland, and from 66 per cent to 9 per cent in Britain.

The changes for women are even more dramatic. In the Irish sample for 1973, only one in twenty wives had complete second level or greater, rising to 70 per cent in 1995. In Britain the corresponding rates are 14 per cent and 41 per cent. Both countries show rates around 61 per cent for primary qualifications in 1973, falling to 13 per cent (Ireland) and 21 per cent (Britain) by 1995. This last difference may well be due to the availability of sub-GCSE vocational qualifications in Britain rather than a widespread failure to achieve any.

To summarize, in both countries there is a large shift, particularly between 1973 and 1986/7. To some degree the shift is greater in Ireland, where free secondary education was introduced in the late 1960s, two decades later than Britain. The transformation is especially dramatic for Irish women, reflecting a transition from a very traditional society to a rather more modern one in the last thirty or forty years.

4.2 *The General Pattern of Association*

We present the cross-classifications of husbands' and wives' education graphically in Figure III. Within each country and year specific sub-panel the size of the squares is proportional to the observed cell counts.⁸ By this means we immediately see that for both countries in 1973 the vast majority of couples both have partial second-level education or less. We can also see the dramatic changes by 1986/7, but also how 1994/5 is different. Comparing countries we can see that Ireland tends to have a more lumpy bivariate distribution, particularly in 1973, while Britain has a more even one. On the whole, Figure III suggests that the biggest differences are

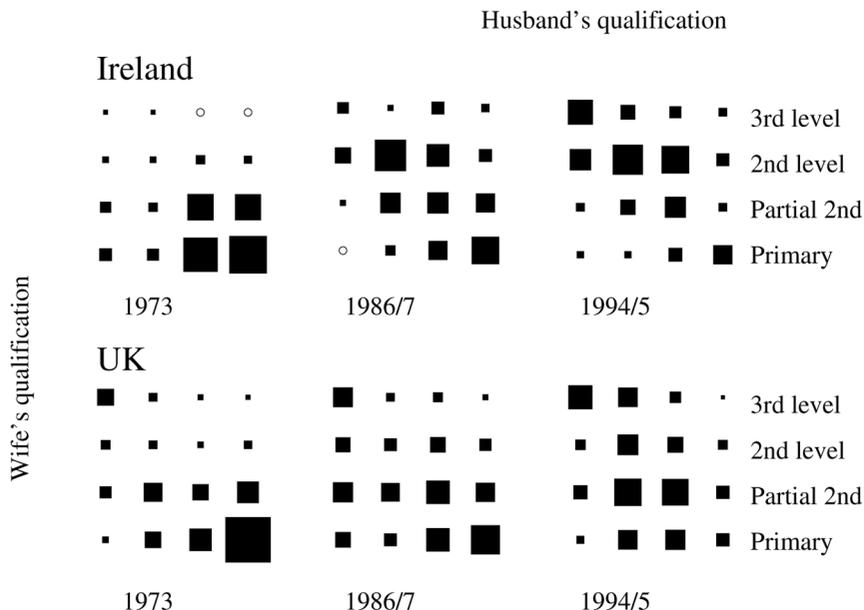


FIGURE III: *Cross-classification visualized, Ireland and Britain*

temporal, rather than cross-national. This is certainly true of the margins, but there may be systematic differences in the association between the two countries.⁹

As a crude measure of educational homogamy, we note that 46.1 per cent of the couples in the 1973 Irish sample were on the main diagonal of the table, compared with 49.0 per cent and 49.3 per cent for 1986/7 and 1994/5 respectively. The corresponding figures for Britain were 57.1 per cent, 40.7 per cent and 39.6 per cent. Thus, in *absolute* terms, the level of educational homogamy has been remarkably stable in Ireland, while in Britain it has declined quite sharply, such that, although the British level was 11 per cent higher than the Irish level in 1973, it is now 10 per cent below.¹⁰

As is well known, this absolute measure confounds the effects of the marginals with the underlying *relative* association between husbands' qualifications (H) and wives' qualifications (W). To study the *relative* association, we fit a set of loglinear models that explore the two-way [WH] association, ignoring temporal change (Y), and initially ignoring inter-country difference (C) in this association. We begin with a baseline model of the pooled data, fitting all the three-way terms except those relating to the [WH] association:

$$\text{conditional independence: } [WY C][HY C] \quad (1)$$

There are various ways to model the [WH] association, the least parsimonious of which is to add the [$WHY C$] term, to give the saturated model. If we ignore year and country for the moment, we can fit the [WH] term:

$$\text{common association: } [WY C][HY C][WH] \tag{2}$$

Model 2 restricts the $[WH]$ association to be exactly the same for both countries and for all years. There are a variety of more parsimonious, and thus informative, ways of describing the $[WH]$ association, in the range between conditional independence (model 1) and common association (model 2). We consider three here, namely the distance model, the crossings model, and the quasi-symmetry model.

To elaborate, the distance model postulates that the difficulty of matching two persons n ‘steps’ apart is the same, regardless of their *absolute* positions; it is the *relative* distance which counts. So, for example, under the distance model, net of the effect of the margins, the difficulty of marriage between categories 1 and 2 is the same as that between categories 2 and 3 (both being 1 ‘step’ apart). Similarly, the difficulty of marriage between categories 1 and 3 is the same as that between categories 2 and 4 (both being 2 ‘steps’ apart). However, the difficulty of marriage between categories 1 and 3 is not necessarily twice that between categories 1 and 2. Effectively, the association pattern is assumed to be banded along the minor diagonals and symmetric.¹¹ Panel A of Figure IV shows the arrangement of the parameters, where a distinct parameter applies to cells of each colour.

The crossings model is parameterized in terms of barriers rather than distance. For n categories, there are $n - 1$ barriers. For a distant match there are more barriers to cross than for a near one, but the barriers you have to cross now depend on your own category. That is, if W is at category 4 and H is at category 2, the two barriers crossed are $b_{4 \rightarrow 3}$ and $b_{3 \rightarrow 2}$, while a match between W_3 and H_1 crosses $b_{3 \rightarrow 2}$ and $b_{2 \rightarrow 1}$. The crossings model is fitted using a dummy variable for each barrier or crossing, which partitions the table into cells which involve crossing that barrier and cells which don’t. Panel B of Figure IV demonstrates this in the 4-category case.

The quasi-symmetry model postulates that, controlling for marginal distributions, the tendency for matches between W_i and H_j is equal to that for matches between W_j and H_i . That is, the association has a symmetrical pattern in so far as the margins allow (see panel C of Figure IV). The quasi-symmetry model is less restrictive (thus less parsimonious) than either of the foregoing, and they can be considered as constrained forms of it. We represent the three models as follows:

$$\text{distance: } [WY C][HY C][\delta] \tag{3}$$

$$\text{crossings: } [WY C][HY C][\lambda] \tag{4}$$

$$\text{quasi-symmetry: } [WY C][HY C][\sigma] \tag{5}$$

where $\delta = |i - j|$ marks the absolute difference between W_i and H_j , λ represents the crossings parameters, and σ represents the symmetry parameters.

By way of comparison, panel D of Figure IV shows the model of unconstrained association (i.e. model 2) in a typical parameterization (with row 1 and column 1 being the reference categories).

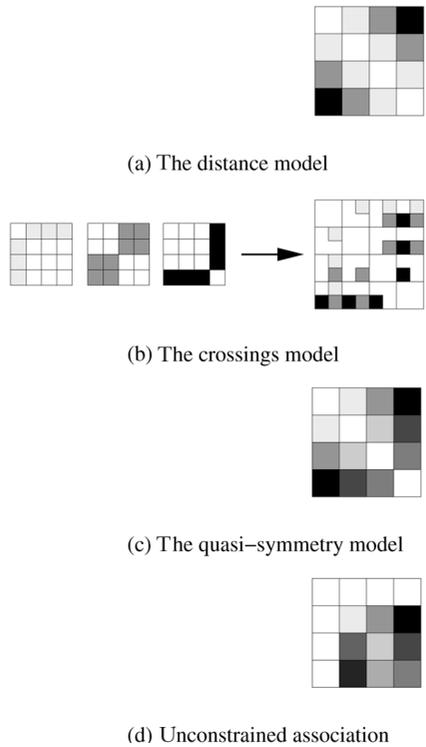


FIGURE IV: *Different ways of modelling association*

TABLE III: *Modelling the general pattern of association*

Model		G^2	df	Model comparison	ΔG^2	Δdf	p
1	$[WCY][HCY]$	663.219	54				
2	$[WCY][HCY][WH]$	83.887	45				
3	$[WCY][HCY][\delta]$	116.101	51	1-3	547.119	3	0.00
4	$[WCY][HCY][\lambda]$	113.528	51	1-4	549.691	3	0.00
5	$[WCY][HCY][\sigma]$	85.800	48	3-5	30.301	3	0.00
				4-5	27.728	3	0.00
				5-2	1.913	3	0.59
5a	$[WCY][HCY][\sigma][\pi]$	84.780	47	5-5a	1.020	1	0.31
6	$[WCY][HCY][\phi^c \sigma]$	84.107	47	6-5	1.693	1	0.19
7	$[WCY][HCY][\sigma C]$	73.229	42	7-5	12.571	6	0.05

Notes:

δ indicates the distance parameters, λ the crossings parameters, σ the quasi-symmetry parameters, π is the hypergamy parameter, and ϕ^c the uniform difference parameter.

From Table III, we see that the distance and the crossings models account for a large part of the overall $[WH]$ association. They are not nested, but have the same degrees of freedom. The quasi-symmetry model fits the data

significantly better than both the distance and the crossings models. Indeed, it fits better than the model with the full $[WH]$ term, if we take parsimony into account. (For 3 degrees of freedom, model 2 reduces the deviance of model 5 by 2.4, which is not significant.) That quasi-symmetry improves on the full association model makes one wonder whether there is no tendency to women's marrying up (hypergamy) over and above that arising from the different marginal distributions of education. We test this in model 5a. As readers can see, the addition of the hypergamy parameter hardly affects the G^2 , suggesting that quasi-symmetry is a good description of the overall association and that any absolute hypergamy is explained by differences in the marginal distributions of education.

Panel A of Table IV reports the net effect of the quasi-symmetry parameters. As expected, the greater the difference in qualifications, the less likely the marriage. For example, net of the effect of the margins, the probability of a match between a university graduate and a person with second level qualifications is less than half ($e^{-0.854} = .43$) of that between two graduates. This drops to about 30 per cent ($e^{-1.242} = .29$) if the graduate were to marry someone with partial second level education, and to one-tenth ($e^{-2.366} = .09$) for a match with someone with primary qualifications.

This qualification gradient is flatter for marriages not involving university graduates. For example, the probability of marriage between two persons with complete and partial second level qualifications is only slightly less ($e^{0.211} = 0.81$) than that of homogamy at the complete second level. Thus, it would seem that the barrier between complete and partial second level is relatively permeable.

4.3 Inter-country Differences in General Association

Does the two-way association differ between the two countries, in a way that is consistent across time? We examine this possibility in two ways. First, we test model 5 against a uniform difference model (also called log-multiplicative layer effect model, see Erikson and Goldthorpe 1992, and Xie 1992).¹² This model postulates that Ireland and Britain share a common pattern of quasi-symmetric association, but the strength of this association differs between the two countries by a multiplicative factor ϕ^c . This model provides a parsimonious one-degree-of-freedom test for between-country difference. But, as readers can see from Table III, the uniform difference model (model 6) does not lead to a significantly better fit with the data. If there are inter-country differences, they are more complex than can be captured by a single parameter.

$$\text{uniform difference quasi-symmetry: } [WYC][HYC][\phi^c \sigma] \quad (6)$$

$$\text{country-specific quasi-symmetry: } [WYC][HYC][\sigma C] \quad (7)$$

Model 7 allows the quasi-symmetry parameters to vary freely between countries, and here we see some marginal evidence of inter-country difference (see the last line of Table III). Inspecting the parameter estimates of

TABLE IV: *Net association parameters – quasi-symmetry model*

		University	2nd level	part 2nd	primary
<i>(a) Ireland and Britain</i>	University		-0.854**	-1.242**	-2.366**
	2nd level			-0.211*	-1.128**
	Part 2nd				-0.416**
	Primary				
<i>(b) Ireland</i>	University		-0.912**	-1.429**	-2.003**
	2nd level			-0.438**	-1.584**
	Part 2nd				-0.336**
	Primary				
<i>(c) Britain</i>	University		-0.790**	-1.204**	-2.444**
	2nd level			-0.097**	-0.956**
	Part 2nd				-0.446**
	Primary				

Notes:

Net parameter estimates, only upper triangle shown.

** indicates significance at 1%.

* indicates significance at 5%.

model 7 (see panels (b) and (c) of Table IV), it becomes clear why the uniform difference model fails to improve on model 5. It would not be appropriate to say that one country is generally more open than the other, as each is closer to the neutral fluidity level in terms of three of the six parameters. Overall, only one of these differences is statistically significant at the conventional 5 per cent level.¹³ So our general conclusion is that the basic pattern of educational homogamy is broadly similar in the two countries, as long as we do not consider differences year by year.

4.3.1 Between-country within-year differences While there is no overall difference between Ireland and Britain if data from all three years are considered together, the two countries might still differ at each time point. To investigate this possibility, we fit a unidiff model over country for 1973, 1986/87, and 1994/95 separately. This model includes the $[WH]$ term, and so it does not constrain educational homogamy to any specific pattern. However, it does constrain such pattern to be the same for Ireland and Britain. The difference between the two countries in the strength of homogamy is measured by the parameter ϕ^c . Given the way we set up the analysis, $\phi^c > 1$ would imply that the association is stronger in Britain, while $\phi^c < 1$ would imply the opposite.

$$\begin{aligned} &\text{between-country, within-year} \\ &\text{uniform difference: } [WC][HC][\phi^c WH] \end{aligned} \quad (8)$$

Table V reports, for each year, the goodness of fit statistics along with the key parameter estimate, ϕ^c , and its standard error. It turns out that the uniform difference model is only marginally acceptable for the 1994/95 data,

TABLE V: *Inter-country difference in the level of educational homogamy at three time points*

	G^2	df	p	ϕ^c	$s.e$
1973	6.824	8	0.556	2.743	1.116
1986/87	11.787	8	0.161	0.617	0.118
1994/95	15.469	8	0.051	0.780	0.135

and so the parameter estimate for that year should be interpreted with caution. However, taken together the three ϕ^c reveal an interesting pattern of inter-country difference over time. While Britain had a much higher level of relative educational homogamy in the 1970s, the pattern has since reversed. It is Ireland which shows a stronger association between husbands' and wives' qualifications in the 1990s. In other words, the overall similarity that we document in the last section is in fact an artefact, a sum of quite opposite differences over time. What is also important is that this pattern is consistent with the argument of Mare, and inconsistent with that of Smits et al. (cf. Figure II). To understand the changing pattern of the inter-country difference, we now turn to examine of time path of change within country.

4.4 Change in Association Over Time

Here we consider the two countries separately and model two three-way ($W \times H \times Y$) tables. Similar to the contrast among models 5, 6 and 7 in the previous section, here we compare models 10 and 11 against model 9:

$$\text{constant association: } [W Y][HY][\sigma] \quad (9)$$

$$\text{uniform difference: } [W Y][HY][\phi^y \sigma] \quad (10)$$

$$\text{full interaction: } [W Y][HY][\sigma Y] \quad (11)$$

Model 9 postulates complete constancy in the quasi-symmetric association, while models 10 and 11 allow some over-time change. Model 10 is the more restrictive of the two because, although it allows the strength of association to vary over time, the basic pattern of association is set to be constant within country. We use two ϕ^y parameters to capture the difference between three time points. Model 11 allows the quasi-symmetry association to vary freely over time.

We see from Table VI that the constant association model actually gives a satisfactory fit to the Irish data at the conventional 5 per cent level. We also see that the uniform difference model improves the fit of model 9 significantly, and that the less parsimonious model 11 does not fit the data better than does model 10. Thus the uniform difference model is our preferred model for Ireland. Roughly the same result can be seen for Britain.

Inspecting the uniform difference parameters ϕ^y (Table VII), we see that the strength of the quasi-symmetric association in Ireland increased by a factor of 2.7 between 1973 and 1986/7, and then it levelled off. In sharp

TABLE VI: *Changing association over time*

	Model	G^2	df	p	Model comparison	ΔG^2	Δdf	p
Ireland	9 [WY][HY][σ]	31.234	21	.070				
	10 [WY][HY][$\phi^y \sigma$]	21.263	19	.323	10-9	9.971	2	.007
	11 [WY][HY][σY]	13.427	9	.144	11-10	7.836	10	.645
Britain	9 [WY][HY][σ]	42.947	21	.003				
	10 [WY][HY][$\phi^y \sigma$]	24.405	19	.181	10-9	18.542	2	.000
	11 [WY][HY][σY]	11.115	9	.268	10-11	13.290	10	.208

Note.

σ are the quasi-symmetry parameters, ϕ^y are the uniform difference parameters.

TABLE VII: *Uniform difference parameters for Ireland and Britain*

	Ireland		Britain	
1973	1		1	
1986/7	2.725	(1.275)	0.586	(0.074)
1994/5	2.964	(1.384)	0.750	(0.107)

Note.

ϕ^y for 1973 is set to 1. Standard errors are in parentheses.

contrast, the trend for Britain since 1973 has mainly been a downward one, although there seems to be a rebound in the association since the mid-1980s. It is these very different time paths which produce the changing pattern of inter-country difference that we saw in the last section.

5. SUMMARY AND DISCUSSION

How does educational homogamy vary over time and between countries? Smits et al. argue that there is an inverted-U shaped relationship between level of economic development and the net association between husbands' and wives' qualifications. They also report that the strength of the association is stronger in Catholic countries than in Protestant countries.

Our findings are, for the most part, inconsistent with these claims. We find that in the last quarter of the twentieth century, Ireland and Britain share a broadly similar pattern of educational homogamy, which is quasi-symmetric in character, with no tendency for women to marry up over and above that which can be attributed to the marginals.

In the 1970s, the strength of homogamy was stronger in Britain than in Ireland. This is inconsistent with the religious-cultural claim of Smits et al. Moreover, while we see a decline in the association between husbands' and wives' qualifications in Britain over the next twenty years, in Ireland, the association first increased between the 1970s and the 1980s, and then levelled off. Since, by all reasonable measures of economic development,

both countries are on the right-hand side of the inverted-U curve, the time path we observe for Ireland is inconsistent with the prediction of Smits et al.

These results urge us to reconsider the reasoning behind the inverted-U curve argument. While it is plausible that increased structural openness in a society brings people in contact with a wider range of people, and that as traditional family authority declines, individuals are given more freedom to make purely personal choice, it is not necessary that this should lead to weaker tendencies to educational homogamy. It is equally plausible that with the declining importance of ascribed characteristics (such as religion or cultural origin) the salience of achieved characteristics such as education may continue to rise. Though there may well be an element of the sociologically inexplicable in sexual attraction, romantic feelings, and personal choice in general, are structured by social forces including the timing and the social context in which individuals come into contact with each other, the roles of men and women at home and in the society at large, and macro factors such as relative group size.

What, then, are the social processes that might account for the divergent time paths of Ireland and Britain? Without further analysis, we can only offer some speculative comments here. We believe that our results are consistent with Mare's argument of the effect on homogamy of the timing of school departure and first marriage. As we report in section 2.3, this time-gap used to be much wider in Ireland than in Britain, but, because of the immediate postwar trend towards early marriage and that of rising school-leaving age, it has been narrowing in both countries for at least two decades after the Second World War. This should have led to a higher level of homogamy. However, while the time-gap has stopped narrowing, and perhaps even begun to widen, in Britain from the early 1970s, in Ireland it continued to narrow over much of the 1970s. This difference in the timing of one of the most important changes in demographic behaviour might account for the divergent time paths reported here. And if, indeed, this is the main social force driving the change in the strength of educational homogamy, because of Ireland's recent convergence to the European average in terms of age of marriage, educational attainment, and so on, we expect to see a decline in homogamy in Ireland in the future.

There are other social changes which might be relevant. For example, compared with Britain, Ireland has seen a much more dramatic change in women's educational attainment and economic activity over the last few decades. This might also heighten the strength of homogamy in Ireland to a greater degree, as the additional economic importance of the wife's role means her educational level becomes far more salient in the marriage market.

We have obtained results that are inconsistent with recent comparative educational homogamy research. We agree that educational homogamy is a key indicator of social openness, but it seems to us that the dynamics of educational homogamy must be more profitably modelled and understood in the framework of demographic and other social processes rather than in terms of cultural changes defined in a rather abstract way. Smits et al. have

addressed their question very effectively, and demonstrated a general tendency to increasing openness with modernization, but their approach does not constitute a general theory of homogamy: too much is left out, and reality has more variance than the predictions suggest. To properly understand what underlies the patterns of assortative marriage we need to consider other factors, structural ones such as Mare's time gap, but also issues dealing with competition and preferences. While Hakim's expectations about asymmetric preferences are not borne out by our data, the role of preferences cannot be ignored.

By opting to work on tables of recent marriages, this paper is limited in several ways. In particular, we have, in our analysis, ignore cohabitation, which has become very common in Britain. Indeed, cohabiting before marriage has become the majority practice in Britain. We choose to ignore cohabitation partly for data reasons: not all of the data sources we use have sufficient information on the cohabitant's partner or on cohabitation duration. However, we would not be happy to treat cohabiting partnerships simply as marriage by another name, even if we had the data; there may well be different mechanisms in partner selection, and cohabitation certainly has different dissolution characteristics.

Given the importance of the growth of cohabitation, primarily in Britain but also more recently in Ireland, this is a restriction on the generality of this research, and the findings must be interpreted as relating to marriage in a period where the meaning of marriage is changing. To a certain degree it can be argued that marriage is more important and a more absorbing state than is cohabitation, and that cohabitation tends to be of short duration (Ermisch and Francesconi 2000), and thus to exclude cohabitation may be no worse than to conflate the two states. However, as we argue in Chan and Halpin (forthcoming), the fact of cohabitation, especially as a prelude to marriage, might change the characteristics of marriage. In particular, the event of marriage will happen later in the history of a partnership, so perhaps the observed time-gap is effectively biased up. Because of this overestimation of the true delay between leaving school and forming a partnership, we may underestimate the pressure towards homogamy. However, it is also plausible that cohabitation decisions are taken more lightly than marriage decisions, and therefore may be more likely to be heterogamous, leading to the opposite effect.

A second social change with significant effects on the interpretation of our results is the rise in remarriage in Britain. Divorce rate and re-marriage rate grew strongly between the 1970s and the 1990s. This, coupled with the declining rate of first marriage, means that by the mid to late 1990s, approximately 40 per cent of marriages in Britain are re-marriages for one or both partner (Matheson and Summerfield 2000: 37). In the effective absence of divorce in Ireland, there is no similar phenomenon there. The effect of including re-marriages in our sample is to further increase the gap between school-leaving and partnering. This works in the opposite direction to cohabitation. The effects of cohabitation and remarriage on the

pattern and trend of educational homogamy are important questions in their own right. We shall examine these issues in the context of Britain in a subsequent paper.

(Date accepted: August 2003)

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APPENDIX

TABLE AI: *Spouse pairs by education, Ireland and Britain*

Wife's education	Husband's education									
	Ireland					Great Britain				
	Univ	2nd	Part	Prim	Total	Univ	2nd	Part	Prim	Total
<i>1973</i>										
University	1	1	0	0	2	40	10	4	3	57
2nd level	2	2	4	3	11	12	10	5	9	36
Part 2nd	6	4	36	35	81	19	49	37	66	171
Primary	8	7	62	74	151	5	38	71	300	414
Total	17	14	102	112	245	76	107	117	378	678
<i>1986/7</i>										
University	4	1	5	2	12	55	10	13	4	82
2nd level	8	31	16	5	60	31	22	34	20	107
Part 2nd	1	13	14	11	39	57	49	79	52	237
Primary	0	3	11	24	38	34	23	78	122	257
Total	13	48	46	42	149	177	104	204	198	683
<i>1995</i>										
University	28	9	6	3	46	52	34	11	1	98
2nd level	20	41	34	7	102	9	38	22	8	77
Part 2nd	3	10	19	3	35	17	67	64	15	163
Primary	2	2	8	16	28	5	33	36	15	89
Total	53	62	67	29	211	83	172	133	39	427

NOTES

*We thank David Firth for his llama program which was used in part of the analysis, and Richard Layte of the Economic and Social Research Institute,

Dublin, for providing the relevant data from the SPIDUSS survey. An early version of this paper was presented in the 50th anniversary meeting of ISA Research

Committee 28 on Social Stratification and Mobility in Libourne, France in May 2000. The two authors contributed equally to this paper.

1. In this paper, we also use the term educational homogamy in a more general sense to refer to the pattern of association between husbands' and wives' qualifications. We trust readers would be able to tell from the context which sense of the term we are using.

2. This is especially true for spouses who met at the latter stages of their educational career, as the probability of them eventually getting different qualifications would be smaller.

3. We are grateful to an anonymous referee for highlighting this point.

4. All but China can be considered as falling well over to the right-hand side of inverted-U curve.

5. It can be argued that comparing cohorts only approximates trends, as homogamy *may* affect the survival rate of marriages. However, the value of a 60-country two-cohort sample cannot be denied.

6. Census figures for Ireland show the proportion Catholic at 93.9% in 1971, falling to 91.6% in 1991, with modest growth in the no-religion/no-religion-stated category (1.8% in 1971 and 4.2% in 1991). The bulk of non-Catholics are Protestant, predominantly Anglican. Corresponding figures on 'estimated active faith membership' among adults in Britain show approximately 10 million in 1970, falling to 8.2 million in 1990, a fall from about 23% to 17% (Office of National Statistics 2002: table 15.1). Similarly, Greeley (1999) quotes International Social Survey Program data that suggests a 'weekly attendance' rate of 17% in Great Britain, compared with 71% among Catholics in the Republic of Ireland. As self-reported attendance these figures are likely to be over-estimates, perhaps especially for Britain.

7. Mare has carried out two sets of analyses, using data on marriages formed within one year and five years of the survey date. Because our data sets are much smaller, we are restricted to using a five-year window only.

8. More precisely, the area of each

square is proportional to n_{ij}/N , where n_{ij} is the cell count, and $N = \sum_i \sum_j n_{ij}$ is the total number of observations for that sub-panel. Zero values in cells are represented by small circles. Actual numbers can be seen in Table A1.

9. Because we use marriages formed within a five-year window, sample sizes are small, particularly for Ireland. The Irish tables have a relatively high proportion of cells with low values. As a robustness test we have fitted the same models with an eight-year window, approximately doubling the sample size, and the results were very largely identical, suggesting that the sparsity is not causing problems.

10. We see a similar picture if we use a more liberal definition of absolute educational homogamy: that of marrying someone not more than one educational level away. The figures for Ireland are: 90.2% (1973), 89.3% (1986/7) and 89.1% (1994/5), while those for Britain are: 88.5%, 77.9% and 82.4%.

11. There is an additional assumption that difficulty rises with n , though this constraint is not imposed by the model.

12. We fitted the unidiff model using David Firth's llama program (Firth 1998).

13. This refers to matches between people with complete second level and people with no qualifications, which is easier in Britain than in Ireland.

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