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Farm Size and Marital Status: County and Provincial Differences in Arensberg and Kimball's Ireland*

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Précis: Recent debate concerning the validity of Arensberg and Kimball's ethnography has centred on the question of whether or not the rural west of Ireland demonstrated class stratification during the period of Arensberg and Kimball's study. Hannan has used figures from the 1926 census relating farm size to the proportion of older unmarried farmers as one measure of class differences. In this article, these measures are re-examined and Hannan's conclusion – that farm size affected marital status in the east of Ireland but not in the west – is rejected. It appears that farm size was of only minor importance throughout the country in this respect, and showed very little inter-provincial variation. Some alternative explanatory variables are hypothesised which account for the proportion single in each farm size category with a high level of accuracy.

The question of the validity and generalisability of the model of Irish rural communities in the pre-Second World War period advanced by Arensberg and Kimball (Arensberg 1937; Arensberg and Kimball 1940) has become a central topic of debate within Irish sociology over the past decade (see, for example, Gibbon 1973, Hannan 1972, 1979, Varley 1981). This debate has largely been focused on the critique of Arensberg and Kimball (and of Brody (1973), who, for the most part accepted the accuracy of Arensberg and Kimball's picture of rural Ireland) put forward by Gibbon (1973). Gibbon's central criticism, though by no means his only one, is that Arensberg and Kimball depicted Irish rural communities as unduly homo-

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genous, stable and, above all, classless entities. Gibbon's critique attempts to demonstrate that this was not the case and to show that class relations within local communities were, in fact, of major significance.

The main defender of Arensberg and Kimball has been Hannan. In his 1979 publication he argues the following:

(1) that the west of Ireland (by which he means not only Connaught but also Clare, Kerry and West Cork) in the pre-1950 period was a distinctive area in "social, cultural . . . (and) . . . demographic terms" (Hannan 1979, p. 24);
(2) that Arensberg and Kimball's ethnography accurately depicted the communities of this area. A corollary of this is that this area displayed only "very limited local class differences" (Hannan, op. cit. p. 196).

With some exceptions the data Hannan presents in his study support the first proposition more strongly than the second. Hannan's presentation of statistics showing that fewer farm labourers were found in Connaught (op. cit, pp. 35-6) than in Leinster, and that a smaller proportion of farm produce was marketed in this area (op. cit, pp. 32-3) than in the rest of Ireland, does indeed support proposition (2). However, some of his other measures only support this proposition indirectly (for example, that Connaught farms were generally smaller and less mechanised; pp. 33-35) while others do not bear upon it at all (for example, that overall farm replacement rates were higher in Connaught than in Leinster; pp. 40-42). All these measures, however, lend relatively strong support to the first proposition.

In this paper I want to discuss one measure of class differentiation that Hannan adopts. This is what one might call the likelihood of marriage measure. Hannan examines the differences in the proportion of single male farmers in either the age group 45-64 or over 55 (he uses both groups at different points in his study) according to farm size. He shows that, in 1926 (the census year preceding Arensberg and Kimball's fieldwork), the differences in the percentage single at age 55 or above between the smallest (< 15 acres) and largest (over 100 acres) farm sizes was less in Connaught than in Leinster, as Table 1 shows.

Hannan concludes that class differentiation, at least as measured in this way, was less marked in Connaught than in Leinster. He also contrasts pre-Second World War Connaught with the same province in more recent times; here again the difference in percentages unmarried between the largest and smallest farm groupings is far greater.

In this article I want to examine the usefulness and the method of application of this measure and to suggest

(1) that in the use of these statistics, Hannan does not address himself to Gibbon's central criticism of Arensberg and Kimball;
(2) that differences in the rates of never married farmers were not particularly strongly related within either counties or provinces to the size of holding in 1926;
(3) that the strength of this relationship was relatively invariant both between counties and between provinces.

Table 1: *Percentages of single males aged 55 or above in two farm size categories, Connaught and Leinster, 1926*

Farm size (acres)	*<15*	*>100*
Connaught	5.8	5.9
Leinster	13.2	8.3

Source: Hannan (1979, p. 209).

Intra-County Differences in Proportions Single

To conclude, from the use of provincial statistics, that Connaught was, in 1926, a region in which class differences in the likelihood of marriage were not significant, is to overlook the possibility that provincial rates do not straightforwardly reflect the situation in local communities. Rather, the provincial statistics may be the result of the balancing out of wide variability that occurred within each province. Gibbon's critique does, after all, claim the existence of local class differences, and these Hannan makes no attempt to measure. It would seem appropriate, therefore, to measure the difference in the proportions never married in the different farm size groups within smaller areas that more nearly correspond to local communities.

The method adopted here is an attempt to measure this difference within each county, using the 1926 census data. Farmers are classified into six groups; those with <10 acres, 10-15, 15-30, 30-50, 50-100 and greater than 100 acres. The total number of male farmers aged 45-64 in each group in each county was dichotomised into those never married and those married or widowed. Using chi-square, tests were made of the independence of marital status (never married/married or widowed) and farm size for each of the counties of Ireland. In effect this held constant inter-county differences and concentrated on intra-county differences. The results are shown in Table 2. Cramer's V reported there is a measure of the strength of association between two variables in a cross-tabulation (in this case farm size and marital status), and it has the desirable property of varying between 0 (no

association) and 1 (complete association)[1] Since V is distorted by skewed marginal distributions of the independent variable (Reynolds 1977, p. 45)

Table 2: *Cramer's V for the relationship between farm size category and marital status by county, 1926*

County	*V (unstandardised)*	*V (standardised)*
Carlow	0.154	0.196
Dublin	0.126	0.127
Kildare	0.077	0.076
Kilkenny	0.123	0.158
Laois	0.125	0.149
Longford	0.096	0.115
Louth	0.076	0.079
Meath	0.114	0.131
Offaly	0.140	0.157
Westmeath	0.104	0.126
Wexford	0.059	0.057
Wicklow	0.142	0.177
Cavan	0.089	0.106
Donegal	0.064	0.063
Monaghan	0.072	0.084
Clare	0.122	0.151
Cork	0.171	0.097
Kerry	0.138	0.152
Limerick	0.113	0.160
Tipperary NR	0.114	0.135
Tipperary SR	0.107	0.138
Waterford	0.098	0.093
Galway	0.053	0.064
Leitrim	0.087	0.118
Mayo	0.031	0.053
Roscommon	0.070	0.080
Sligo	0.043	0.067

1 Cramer's V is calculated directly from the χ^2 statistic according to the formula

$$V = \frac{\chi^2}{Nm}$$

where N = number of cases

m = the smaller of (Rows – 1) or (Columns – 1)

– in this case farm size – Table 2 also reports V for the equivalent standarised tables.[2]

Cramer's V, like many other measures of association in contingency tables, is notoriously difficult to interpret (Blalock 1979, p. 306, Reynolds 1977, p. 32) except in very general terms. However, two features of Table 2 are immediately evident. First, the overall level of V is low, indicating a weak relationship in all counties between farm size and marital status within this age group. Secondly, V allows us to compare the strength of this relationship between the counties. Table 2 shows clearly that in the Connaught counties, the Ulster counties, Cork, Waterford, Wexford, Louth, Longford and Kildare the relationship was particularly weak ($V < 0.1$), while in Carlow, Dublin, Kilkenny, Laois, Offaly, Wicklow, Clare and Kerry the relationship was, in relative terms, strongest ($V > 0.12$). The absolute difference between these two groups, however, is very slight. The inescapable conclusion, then, on the basis of this evidence, must be that the differences in the numbers of single male farmers aged between 45 and 64 owed very little to differences in farm size in any part of the country in 1926.

If farm size was not a particularly important source of variation within counties in the number single in this age group, it might be of interest to try to determine which variables were of some significance. To do this effectively, however, the level of analysis must move from the county to the province. This will permit the use of more powerful statistical methods in assessing the importance of farm size in determining the numbers single.[3]

Provincial Variation in the Proportion Single

Given that there were class restrictions on the selection of a spouse in rural Ireland – manifested most clearly in the dowry system – we would expect most farmers to have married within the same or a similar class to their own. This being so, the size of the marriage pool of potential partners available to any farmer would have been largely determined by the number of farms in the farm size category of which he himself was a member. Taking

2 Standardising in this case means transforming the entries in the tables into percentages of each category of the independent variable. That is, rather than having a different total of farmers, (married + single), in the different farm size categories, we adjust the table so that the totals in all six categories are the same. We do this to ensure that the effect of farm size independent of marital status (as reflected in the uneven distribution of all farmers across the six categories) is not conflated with the interaction between farm size and marital status, which is our real concern.

3 Although we are, as a result, no longer addressing Gibbon's critique directly, an examination of Table 2 shows that, with the possible exception of Leinster and perhaps Cork and Kerry in Munster, the importance of farm size as a determinant of marital status was roughly constant between counties of the same province. This gives grounds, first, for rejecting, in the main, the earlier suggestions that there may have been wide variation within provinces (variation at the county level, that is) and, secondly, for assuming that county rates are reasonably well reflected in provincial rates.

the total number of farmers in a farm size category to represent this figure, then the number of single farmers could be expected to depend very heavily upon the total number of farmers in a category. Furthermore, it was hypothesised that the proportion single in a farm size category would decrease as the absolute numbers in that category increased. Since these categories were measured within counties, a numerically small category can be taken to indicate a sparse pool of potential marriage partners; such was the case, for example, for large farmers in Connaught and small farmers in some of the Leinster counties. One may assume that such farmers would have found it relatively difficult to acquire suitable spouses. Conversely, a large category – which was particularly the case for very small farmers in Connaught – should have led to a greater degree of ease in finding marriage partners within that category.

A regression of the number of single males aged 45-64 on the total number of males in this age group in each category in each county (that is, six categories in 27 county units, giving 162 cases) gave a very good fit ($R^2 = .73$). However, a transformation of the data to accord with the hypothesis that the greater the total number in the category the smaller the proportion single, resulted in an even better fit ($R^2 = .84$). The double natural log transformation was employed to give the regression equation:

$$\text{LN single} = -0.2867 + 0.7483 \text{ LN total}$$

An equation of this general form ($LNY = \alpha + \beta LNX$) may also be written (Johnston 1972 p. 51):

$$Y = AX^{\beta}$$

where $\log A = \alpha$

Differentiating gives $\frac{dY}{dX} = A\beta X^{\beta - 1}$

so that, in this case, where $\beta < 1$, the slope is continually decreasing. In other words, the proportion single is continually declining as the overall number increases.

Removing four marked outliers from the regression[4] gives a further improvement in fit ($R^2 = .884$) and the equation:

$$\text{LN single} = -0.1864 + 0.7782 \text{ LN total}$$

The high correlation between the two variables ($R = .94$) at once suggests that other explanatory variables will play at best only a minor role.

4 These outliers all occurred in Kerry. In the farm categories 15-30, 30-50, 50-100, >100 acres the proportions of single farmers as reported in the census (Census of Population 1926 pp. 245, 247, 249, 251) were extremely small. The results reported in the rest of the paper were based on the data excluding these cases.

Table 3: *Regressions for provinces*

Province	*No. of cases*	*Regression*	*R*	R^2	*Slope*	*Intercept*
Ulster	18	(1)	0.988	0.976	1.028	-1.597
		(2)	0.991	0.982	—	—
		(3)	0.996	0.991	—	—
Munster	38	(1)	0.955	0.912	0.686	0.242
		(2)	0.982	0.965	—	—
		(3)	0.985	0.970	—	—
Connaught	30	(1)	0.983	0.967	0.845	-0.823
		(2)	0.992	0.983	—	—
		(3)	0.992	0.984	—	—
Leinster	72	(1)	0.926	0.857	0.855	-0.499
		(2)	0.952	0.907	—	—
		(3)	0.955	0.912	—	—

In order to examine the effect of farm size category on the dependent variable in the different provinces, separate regressions were run for the four provinces. The results are shown in Table 3. For each province the regression of LN single on LN total alone (1) is compared with a regression of LN single on LN total and five dummy variables representing farm sizes <10, 10-15, 15-30, 30-50 and 50-100 acres (regression 2) and with a regression of LN single on LN total, the dummy variables for farm size, and terms representing the interaction between farm size and LN total (regression 3).

It is noticeable that there are differences in both slope and intercept among the provinces in the simple regression of LN single on LN total, but this is not our main concern. These differences tell us that the relationship between the total number and the number single in a category differed between provinces: our real interest, however, lies in differences between provinces in the relative effect of being in one farm size category rather than another, irrespective of its total size.

Turning to regressions (2) and (3); only in Ulster did the inclusion of interaction variables lead to a significant increase in R^2.[5] Elsewhere, regression

5 The formula employed here was

$$\frac{R^2 \text{ model } 1 - R^2 \text{ model } 2/m}{1 - R^2 \text{ model } 1/(n - k - 1)}$$

where model 1 includes the block of variables to be tested and model 2 excludes them, m is the differ-

(3) provided no significant improvement over regression (2). However, in regression (2), in all four provinces, some or all of the variables representing farm size category proved to be significant. In other words, farm size appears to have had an effect within each province on the number single. That this effect was relatively slight, however, may be seen by comparing R^2 for regression (1) with that for (2). Furthermore, it is not apparent that these effects differed significantly between provinces. To test this, a single regression was performed on all the data. The independent variables represented

(1) LN total

(2) (a) main effects for province
(b) main effects for farm size

(3) First order interactions
(a) LN total and province
(b) LN total and farm size
(c) province and farm size

The main effect variables (1, 2a, 2b) were entered first, followed by the interaction variables in the order shown above. The results of tests of the significance of the increment to R^2 accruing from the addition of these interaction variables is shown in Table 4.

Regression (1) incorporates terms representing the effect of LN total, of farm size and of province. Subsequent regressions test for interactions between these variables. So, regression (2) tests the hypothesis that the effect of LN total on LN single was not constant between provinces. Regression (3) tests the additional hypothesis that the effect of LN single varied according to farm size category. Finally, and crucially, regression (4) examines whether or not, in addition to the interactions included in regression (3) the effect on LN single of being in a particular farm size category varied between provinces. If the F-value of the increment to R^2 resulting from the addition of the variables representing the farm size/province interaction were significant, then we would have strong grounds for saying that, although the effect of these interactions was relatively small, the differences in the effect of farm size on marital status were significantly different between provinces.

It can be seen, however, from an inspection of Table 4, that only the

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ence in the number of explanatory variables included in the two models, while n = n. of cases, k = n. of independent variables in model 1. (Nie *et al.* 1975, p. 339).

Strictly speaking, significance tests are not appropriate here, since the data do not constitute a sample; they are the population. However, such tests provide a means of, heuristically, demonstrating the importance of variables.

Table 4: *National model with main effects and interactions*

Variables in model	R^2	*Increment to R^2 over previous model*	*F-value of increment*	*Significance*
(1) All main effects	.95102	–	–	–
(2) (1) plus interaction LN total and province	.95839	.00737	8.56	.05
(3) (2) plus interaction LN total and farm size	.95912	.00073	0.493	NS
(4) (3) plus interaction farm size and province	.96365	.00453	1.039	NS

addition of interactions 3a, between LN total and province, led to any significant improvement in R^2 over a model containing only main effects.

Our final model specifies coefficients for province, for farm size and for the LN total/province interaction as well as for LN total. The relationship between the number single and the overall number in each farm category differed according to province in terms of slope and intercept: to this extent the larger model supports the earlier assertions based on the separate provincial models. The relationship between the number single and farm size category itself was, however, invariant across the country when province and total category size were held constant. Nationally, farm size category affected the number single, and so did province; there was, however, no effect of farm size category particular to any province. Of far greater importance was the simple effect of the total number of farmers in any particular category.

The final model is as follows:

$$\begin{aligned}\text{LN Single} = {} & .89\ \text{LN total} + 0.39D1 + 0.21D2 + 0.29D3 + 0.15D4 \\ & + 0.10D5 - 0.37P1 + 0.61P2 + 0.40P3 + 0.06B1 \\ & - 0.15B2 - 0.13B3 - 0.88\end{aligned}$$

where D1 to D5 represents farm size categories <10, 10-15, 15-30, 30-50 and 50-100 acres; P1 represents Ulster, P2 Munster, P3 Connaught, and B1 to B3 represent interactions between LN total and these three provinces respectively. The omitted category is thus >100 acres and the omitted province is Leinster.

This equation shows that, by comparison with the largest farm size category (>100 acres) all others tended to have a higher number of single males, while, compared with Leinster, the other provinces, in the relationship between the number single and the total number in each category, had different intercepts (P1 to P3) and slopes (B1 to B3).

Table 5: *Farmers aged 45-64 in each farm size category, Leinster, Munster Connaught, 1926*

Farm Size (acres)	*Leinster*	*Munster*	*Connaught*
<10	2131	2196	5850
10-15	2001	2045	6351
15-30	5261	6889	13474
30-50	6809	8050	6027
50-100	4538	8844	2327
>100	3387	4644	798

Source: Census of Population, 1926, Volume V, Part II, pp. 60-64.

Conclusions

Using this model one can explain some other findings of Hannan's work. For example, Hannan (1979, pp. 42-45) presents figures showing that the west of Ireland – Connaught and west Munster – had higher overall marriage rates than the east of Ireland. We have already seen – in the separate regressions for province (Table 3) and in the final model – that the relationship between LN single and LN total varied, in terms of slope and intercept, between provinces. These differences are such that we would have expected marriage rates in Munster and Connaught to exceed those in Leinster. The differences in marriage rates are accentuated, however, by the differences in the populations of the farm size categories between these provinces. These are shown in Table 5.

In general the population of each farm size category in Leinster was smaller than that in Munster or Connaught or both. Since we have shown that the proportion of single farmers in a farm size category declines as the population of that category increases, then we should expect the proportion single to be higher in Leinster than in the other two provinces. This argument, if extended to counties, also explains the differences in the rates of non-marriage here, as shown by Hannan (1979, p. 42). Taking the four counties with the highest rates of marriage, (Kerry, Mayo, Cork, Galway) and comparing them with those with the lowest rates (Westmeath, Louth, Kildare and Meath) we see (in Table 6) that the former had, in most cases much larger populations in each farm size category.

Earlier, in Table 1, it was shown that the differences in the percentages single between the smallest and largest farm size categories were greater in Leinster than in Connaught. However, rather than assuming that this indicates different relative effects of being in one category rather than another as between provinces, we can explain this in terms of two sets of variables

Table 6: *Male farmers in the different farm size categories, 8 counties, 1926*

	High marrying				*Low marrying*			
Farm size category (acres)	*Kerry*	*Mayo*	*Cork*	*Galway*	*Westmeath*	*Louth*	*Kildare*	*Meath*
<10	1539	5476	1116	3753	515	623	390	515
10-15	1031	4767	828	2853	423	417	197	456
15-30	2954	8158	3333	6464	1328	716	844	1107
30-50	3198	2846	2820	4255	933	403	392	800
50-100	3242	903	6167	1835	717	307	1486	627
>100	1431	376	3541	666	545	242	639	746

Source: Census of Population, 1926, Volume V, Part II, pp. 240-251.

operating nationally. In Leinster in 1926, 2131 farmers aged 45-64 had less than 10 acres while 3387 had over 100. In this case the effects of farm size (the intercept for the under 10 acres category being greater than that for the over 100 acres category) were magnified by the effects of overall absolute numbers in a category (the smaller the absolute number the greater the proportion single). In Connaught, on the other hand, 5850 farmers in this age group had under 10 acres and only 798 had over 100, thus the effect of farm size was counterbalanced by the effect of overall absolute numbers.

Finally, let us turn to the relevance of these findings to the debate between Hannan and Gibbon. I have shown that farm size did have an effect on marital status in 1926; however, this effect was both slight – when compared with the effect of total number in a farm size category – and the differences between categories were uniform throughout the country. Hence, this measure does not provide evidence for the hypothesis that the effects of farm size on marital status were less in Connaught than elsewhere. This conclusion weakens Hannan's case regarding the class nature of farm society in western Ireland. On the other hand, given the differences between the provincial models (Table 3) and the different coefficients involving province in the final model, Hannan's proposition regarding the distinctiveness of Connaught would seem to be supported.

Nevertheless, it is on the issue of the extent of class differentiation in western Ireland that the Hannan-Gibbon debate turns. Any attempted resolution of this debate must, I suggest, focus on local class differences and must concentrate more heavily on social reproduction. This would thus involve examining differences in the distribution of wealth and capital in local communities; differences in the provision made for non-inheriting children in terms of settlements, education and dowries; differences in access

to sought-after positions (perhaps through kinship links or membership of elite groupings); the extent of local farm labouring and servitude, and similar indices. Some of these will, of course, prove difficult to measure,[6] but I hope to present some initial attempts at such an analysis in a subsequent paper.

The findings of the present paper also point to the need for a detailed analysis over time of the relationships between the variables discussed here. The evidence (see, for example, Hannan 1979, p. 209) suggests a growing importance for farm size as a determinant of marital status in the post-war period. Analysis along the lines presented here of figures from post-war censuses would enable us both to test this hypothesis and, if it proved accurate, measure the growth of the importance of farm size as a determinant of marital status in the country as a whole and in the separate regions.

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6 It seems unlikely that generally available statistics will provide us with the necessary evidence. A more valuable potential source of evidence lies in historical reconstructions of communities or regions using locally available sources such as oral histories, parish registers, local newspapers and so on.