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*EDUCATION AND AGRICULTURE: A NOTE BASED ON IRISH CENSUS OF  
POPULATION STATISTICS*

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Education and Agriculture; A Note Based on Irish Census of  
Population Statistics

The statistics used are derived mainly from the Education -  
Volume VII of the 1966 Census of Population. The corresponding figures for  
1971 are not yet published but were kindly made available; see later.

**Table 1.** Number of males who finished their education at primary level  
as percentage of total gainfully occupied in various agricultural  
occupations, classified by farm size, 1966

Size of farm in acres	Farmers	Sons etc	Brothers	Other relatives	Agricultural labourers living	
					In	Out
1	2	3	4	5	6	7
0 - 5	93.4	91.8	94.3	90.2	92.9	82.4
5 - 10	93.8	87.0	94.1	91.3	93.0	95.4
10 - 15	93.6	86.4	93.6	91.2	93.1	92.5
15 - 30	92.8	81.9	93.0	88.2	87.2	92.1
30 - 50	90.2	76.8	91.1	84.4	92.3	92.3
50 - 100	84.5	67.9	85.0	81.8	90.2	91.4
100 - 200	69.7	54.2	79.1	69.1	89.4	91.3
200 -	51.0	42.8	71.5	53.2	85.8	90.2
<b>All sizes.</b>	86.8	71.7	88.0	82.3	89.7	90.5
<b>No G.O. (000)</b>	177.4	54.3	15.0	4.6	5.3	41.0

Basic source: Census of Population 1966, Volume VII, Table 16A

Notes

Col. 1: "under 5" etc to "200 or over"

" 3: Farmers' sons and sons-in-law assisting on farm

Cols. 4, 5: Assisting on farm

The statistic used in Table 1 is the number of males who finished  
their education at the primary level as a percentage of number of males gainfully  
occupied on farms of different sizes. Hence the higher the percentage the lower  
the level of education. The national average level for males was 66.3 per cent;  
the second last row of the table shows that, except for sons etc assisting,

percentages in agriculture were substantially in excess of this latter figure. Column 2 shows that it is only at the 100 - 200 acre class that male farmers approach the national average. The farmer and relative percentage improve with farm size but appreciably only at the large farm sizes. Percentages for agricultural labourers decline only slightly with farm size; of course, employees are numerous only on large farms. It can scarcely be said that the larger farmers have better educated workers, though there seems to be a slight effect. Educationally the male farming class make a poor showing, by the simple test used. About the most cheerful prospect in the lower percentage for sons compared with farmers; but the improvement will take a generation for full effect. That the table shows such regularity is statistically satisfactory. One can draw inferences from it without much qualification.

In these comparisons, however, present (i.e. 1966) age is of the essence, as numbers with post-primary experience are increasing all the time we expect sons' percentages to be lower than fathers'. To make valid comparisons, corrections must be made for differences in present age.

Table 2. National total number of males who finished their education at primary level as percentage of males who had finished their full-time education, classified by present age, 1966

Age (f)	% (p <sub>f</sub> )	Age (s)	% (p <sub>s</sub> )
14-19	56.90	50-54	73.67
20-24	46.80	55-59	76-18
25-29	50.25	60-64	77.93
30-34	55.74	65-69	81.13
35-39	62.59	70-74	83.49
40-44	65.94	75-	84.73
45-49	69.28	All ages	<hr/>
		14-	66.27

Basic source: Census of Population 1966, Volume VII, Table 3A

The Table 2 percentages, relating to the whole male population aged 14 or over, increase in almost unbroken sequence with age, from about 50 to 85 from youngest to oldest; in the present application, young farmers, compared with something like their grandfathers' generation may have improved their post primary full-time education percentage to 50 compared with 15.

Table 3. Ratio of national average percentage primary corrected for age to corresponding actual percentage in Table 1 for family agricultural occupations on certain farm sizes, 1966.

Size of farm in acres	Farmers	Sons etc.	Brothers	Other relatives
15-30	0.794	0.686	0.772	0.765
50-100	0.850	0.807	0.820	0.833
100-200	1.026	1.002	0.876	0.990
200-	1.400	1.264	0.968	1.242
All sizes	0.839	0.771	0.803	0.814

Basic sources: Tables 1 and 2; Census of Population 1966, Volume V, Table 2A

Note

The numerator of the ratio is given by the formula

$$\frac{\sum n_i p_i}{n}$$

where  $n_i$  is the number of gainfully occupied males in age group  $i$  (Table 2) total  $n$ , so that  $n = \sum n_i$ ,  $p_i$  is the percentage for age group  $i$  in Table 2. The denominator is the appropriate percentage from Table 1.

The last row includes farm sizes missing from the table, i.e. as given in Table 1.

The object of Table 3 is to correct the percentages of Table 1 for age; as to how this was done see the note to the table. A ratio of unity would mean that the particular group was equal educationally to the national average for males having corrected for different age distributions, and using a very simple criterion for level of education; the higher the ratio (in contrast with the percentages in Table 1) the higher the level of education of the group. It has not been considered necessary to show the figures for all farm size groups as in Table 1. The point is that the percentages in

Table 3 are comparable which was not the case with those of Table 1. The Table 3 ratios may be completed by those for labourers: living in 0.744, living out 0.719, on farms of all sizes.

The ratios in Table 3 display absolute regularity. What is disturbing is that the ratios for sons etc are now uniformly lower than for existing farmers. Though not so important, the ratios for brothers are substantially lower than those for farmers on the larger farms.

The percentages for primary, as shown in Table 1 are so large that those for post-primary leavers must be small. Nevertheless they are important, if in a negative way. In Table 4 attention is confined to male farmers and sons etc assisting.

Table 4. Percentage of male farmers and sons etc assisting in each highest class at which full-time education ceased, classified by farm size, 1961

Size of farm in acres	P	S	V	S & V	U	NS
0 - 15						
Farmers	93.7	1.8	1.1	0.1	0.2	3.1
Sons etc	87.0	2.9	6.1	0.3	0.0	3.6
15 - 30						
Farmers	92.8	2.6	1.5	0.3	0.1	2.7
Sons etc	81.9	5.1	8.7	0.7	0.0	3.6
30 - 50						
Farmers	90.2	4.3	2.3	0.4	0.2	2.6
Sons etc.	76.8	7.6	11.1	1.2	0.1	3.3
50 - 100						
Farmers	84.5	9.2	2.6	0.9	0.5	2.3
Sons etc	67.9	14.5	12.0	2.2	0.4	3.0
100 - 200						
Farmers	69.7	21.4	3.4	2.1	1.7	1.8
Sons etc	54.2	26.1	12.4	4.1	0.7	2.5
200 -						
Farmers	51.0	33.2	2.8	3.5	7.6	1.8
Sons etc	42.8	37.3	10.1	6.1	1.7	2.0
All sizes						
Farmers	86.8	7.1	2.1	0.7	0.6	2.6
Sons etc	71.7	12.3	10.6	1.9	0.3	3.2
All males aged 14 -	66.3	13.8	8.1	3.5	4.6	3.8

Basic sources: Census of Population 1966, Volume VII, Tables 3A and 16A.

Notes

"Sons etc" are farmers' sons and sons-in-law assisting on farm. Last row of table based on total number of males aged 14 or over whose full-time education has ceased. Notation for highest type of educational establishment attended is:- P: primary; S: secondary; V: vocational; S & V: secondary and vocational; U: university; NS: not stated.

Again one is impressed by the regularity of the figures in relation to farm size. One notes the steep increases for both farmers and sons etc in the percentages for secondary leavers. As regards vocational, the percentage for sons etc is about five times that for farmers on all farm sizes. The contrast with secondary in this matter will be observed: the improvement for secondary was less than double. We comment below on yet another contrast: from farm size 30 -50 acres on for both farmers and sons etc, there was little or no change in the vocational percentage while increase for secondary was manifold.

The most marked contrast is at university level. Except for the surprising observation of 7.6 per cent for farmers at farm size 200 acres or over, percentages are negligible, curiously with those for farmers always greater than those for sons etc. The last row of percentages in Table 4 include those for agricultural occupations. To point the contrast: the percentage for males aged 14 or over, who reached university level, excluding those gainfully occupied in agriculture, was 6.6, compared to 0.5 per cent for the latter.

#### Comment

In the enormous volume of public discussion on education and training in Ireland, agriculture, the country's most important economic activity, has not had its due share of attention.

It could scarcely be claimed that at 1966 levels the Irish farmer is on average adequately educated, in general or in the techniques of his craft. Of course good husbandry and level of education are not necessarily equatable. But farming, like everything else, is becoming more technically complicated every day. It is hard to see how agriculturists

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\* Were most of these third level people on State farms, i. e. teaching or learning to teach?

can acquire a practising knowledge of technique, new and not so new, without reading, good understanding and judgment, in fact requiring post-primary education. With primary education only, there must be a tendency towards adherence to traditional method, to what their fathers taught them.

Lack of education of agriculturists in Ireland and elsewhere may be partly the cause of preference for price as distinct from quantum output to achieve income, in turn a reason for shedding manpower to improve the income of those who remain on farms.

Lack of formal education may be a contributory cause of the recent ACC statement that Irish farmers take up only 5 per cent of capital available for them. Of course high interest charges are another cause.

The analysis here relates to formal full-time education. In farming, as in every walk of life, the good practitioner is learning all the time.

We hesitate to enter into the famous educational issue of the general v. preparation for job issue. This issue does not arise at the primary level where children learn to read and write, overwhelmingly the most important function of education. At the post-primary levels, there seems no good reason why technical subjects, properly taught, should not incorporate elements of general education, especially speaking, reading, writing and figuring. Hence, in particular regard to agriculture, we have no hesitation in welcoming the increased proportion for sons etc in vocational compared to secondary as shown in Table 4, in comparison with farmers. Correspondingly the stability in the vocational percentage with increasing farm size while the secondary percentage greatly increased (true of sons etc as well as farmers), is, to say the least, notable. There is hierarchy

in farming as in everything else. In recent popular language, secondary is U, vocational, if not quite non -, is positively less -, U. At the existing state of Irish agriculture, a preference for the technical at all levels is surely to be hoped for.

The very low proportion of men reaching university level who are practising agriculturists is remarkable. At the Census of Population in 1971 the number of third level students of agriculture was over 700: one surmises that most of these were farmers' sons. Over the years the number of graduates must have been large. One would very much like to know what became of such graduates. In all agricultural occupations in 1966 the number of males who attended university full-time was about 1,600. It cannot be assumed that even the majority of these followed courses in agriculture and we have no idea how many were graduates.

The latter comments are not very pointed. We can only surmise that greater employment of graduates in agriculture, on larger farms or in cooperatives of smaller farms would be good for the industry. The farm unit in Ireland is so isolated and professional services so expensive that the skilful farmer has himself to be something of an agronomist, a farm manager, an engineer, a veterinarian and other things besides. One imagines that the agricultural graduate is qualified in all of these skills (if not necessarily a professional in any). His skills, it would seem, would most profitably be deployed in practice of agriculture, as well as in teaching and training.

This problem of the education of agriculturists plumbs the depths of national demographic and economic policy. At the 1966 level, farmers generally cannot have been competent to assimilate modern farming technique,



restricting them so largely to store cattle raising, and that at a not very intensive rate. Store cattle raising is sparing in manpower and we have made the point elsewhere that, unless manpower can be maintained on the land, there is no hope of attaining full employment in Ireland, if little hope in the most favourable circumstances, but let us do our best.

Now, from the last row of Table 1 we observe that in 1966 farmers' sons etc assisting numbered less than one-third of male farmers and all farmers' relatives assisting less than one-half. Where are the next generation of farmers to come from? Consolidation of smaller farms into so-called "economic" sizes is lessening the number of farmers all the time, but slowly. Unfortunately such a tendency must lower manpower, at a given level of husbandry. The latter qualification also attaches to the alleged "economic" size of farm. Improved husbandry would reduce the size considerably.

Few of the population of Ireland are generationally far from the land. Why should not young people, graduates and other post primary leavers in town not aspire, with proper preparation, to return to the land of their ancestors? They would bring to agricultural practice an educated level of competence which, as shown here, it is evident the industry needs. We resume consideration of these aspects in the next section.

#### 1966 and 1971

The foregoing had been written when CSO kindly made available in manuscript the corresponding results of the 1971 Census. One fact, which may or may not be connected with the poor level of education, became at once apparent, namely the disastrous decline in manpower in the five year intercensal period:-

<u>Males</u>	Number (000)		
	1966	1971	% change
Farmers	177.4	163.0	-8.1
Farmers relatives assisting	73.9	47.0	-36.4
Agricultural labourers	46.3	35.4	-23.5
<b>Total</b>	<b>297.6</b>	<b>245.4</b>	<b>-17.5</b>

The appalling showing of these figures, pointing to the rapid decline in manpower in agriculture, already available in broad lines from non-Census sources, did not have the impact on the public mind it should have had. It marks the end of any hope of full employment without elaborate recourse to emigration (almost impossible at the moment) as adding to non-agricultural labour pools in Ireland. It is true that the slide diminished during the subsequent five years, i. e. 1971-1976, when the percentage decline in numbers at work in agriculture, forestry and fishing was 11.0 per cent. (The difference in content in the latter figures - containing females as well as males, extending to forestry and fishing but excluding out-of-work - probably could not materially affect the comparison between the latter figure and the above decline of 17.5 per cent).

The prospect of male relatives inheriting farms worsened considerably in the five years. The ratio in 1966 of male relatives assisting to male farmers was 0.42, in 1971 it was 0.29. For the next generation the succession cannot come entirely from the "old stock", which, from the viewpoint of education and technical competence, may be no bad thing.

Table 5. Number of males who finished their education at primary level as percentage of total gainfully occupied in various agricultural occupations, classified by farm size, 1966 and 1971

Size of farm in acres	Farmers		Sons		Other relatives	
	'66	'77	'66	'71	'66	'71
0 - 10	97.0	96.3	87.7	87.7	98.4	97.8
10 - 15	96.6	96.1	89.9	85.0	96.8	96.7
15 - 30	95.5	94.7	85.5	79.4	95.6	95.1
30 - 50	92.8	91.6	80.1	73.5	93.4	93.0
50 - 100	86.8	84.7	71.0	62.0	87.7	88.0
100 - 200	71.5	70.2	56.7	49.3	79.5	80.2
200	52.8	51.9	44.9	37.6	70.9	72.8
All sizes	89.4	87.6	74.9	65.8	90.5	89.9

Notes

The 1966 percentages differ in content from those in Table 1 in that they include the "not stated" education category as do the 1971 figures. "Sons" in 1966 include sons-in-law assisting, assigned to "Other relatives" assisting in 1971. It is not known to what extent this difference may affect the percentages.

While, as indicated in the Notes to Table 5, the content of the column "Sons" was changed between 1966 and 1971, there is no reason why this change should affect the comparability of the primary education percentages. As regards farmers in all farm size classes there was a small improvement in the post-primary educated, as a result of course, of the disappearance of some old and less well educated and the appearance of younger farmers in the five years.

The improvement in so short a term as five years for sons assisting is striking. At 9 per cent overall, it was more marked amongst the larger size farms. Amongst other male relatives assisting, changes were negligible. Again one remarks the statistical consistency of the whole table.

In 1971 agricultural labourers were not classified by farm size not by whether living in or out. The percentage who finished education at primary (including "not stated") was 94.6 in 1966 and 92.2 in 1971, an improvement of 2.4 per cent.

Table 6. Percentage of male farmers and relatives assisting in each highest class at which full-time education ceased, all farm sizes, 1966 and 1971.

	P + NS	S	V	S + V	U	T
Farmers						
1966	89.4	7.1	2.1	0.7	0.6	100
1971	87.6	8.1	2.9	0.8	0.6	100
Farmers relatives assisting						
1966	79.0	10.7	8.5	1.5	0.3	100
1971	73.7	13.3	10.7	1.9	0.4	100
All males aged 14+						
1966	70.0	13.8	8.1	3.5	4.6	100
1971	65.8	15.4	10.8	3.5	5.2	100

\* Full-time education ceased

Again one notes the consistency of the percentages, this time in Table 6. The changes between 1966 and 1971 were all in the right direction, smallest in the case of farmers, as we might expect. Intercensal changes for farmers and relatives assisting in direction and degree were similar to those for all males; in vocational education, both level and trend in the percentages were closely similar.

### Conclusion

In Irish agriculture the level of education is low and improving too slowly, output volume is smaller than it should be, manpower is declining at an alarming rate, the industry is under-capitalised, farmers seek income through high prices and low volume output rather than the other way about, the consequent shedding of manpower being part of the strategy of

keeping more profit for those who remain on the land. Some of these unhealthy phenomena are obviously related. Less obvious but reasonable is the relation between level and trend in education and the other phenomena mentioned.

In view of the weakness of familistic succession, in future the Land Commission must have a considerable say in the allocation of Irish farms. This influence should be exercised towards ensuring that new farmers are young, competent in the practice of agriculture and adequately educated in a formal way.

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