

OFF-FARM EMPLOYMENT AND AGRICULTURAL EDUCATION IN IRELAND

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Abstract

Developments in modern agriculture have led to doubts regarding the long-term viability of current production systems. The changing structure of the Irish farming sector is part of a European wide trend where the emerging model of agriculture is one comprised of a small number of highly developed commercial farmers and a larger number of rural households who obtain income both on and off the farm. Early studies viewed the take up of off-farm employment as a temporary adjustment process- a way of supplementing farm income when it was low, but that view has been replaced over the last decade by research that notes its persistence over time. The importance of assessing the effect of this trend is manifold. Off-farm employment among farm households affects farm organisation, the future structure of agriculture, public policies to aid farming families, public policies to maintain rural communities, and the delivery of educational and training services to the farming sector.

Introduction

The contribution of agriculture to national wealth and viability of rural areas in the Republic of Ireland is immense. Ireland continues to be predominantly rural, with 58% of those living outside the greater Dublin area living in rural communities with populations of less than 1500.¹ When adjustment is made to official statistics for export refunds and import content of agricultural products, Irish agricultural exports account for approximately 30% of all net exports.² The agri-food sector, however, is in a state of change. Its contribution to the national economy, while still of considerable importance, continues to decline. In 1999, the agri-food sector employed over 8% of the Irish workforce, down from 11% in 1995 and accounted for £2,322m in terms of Gross Agricultural Product at factor cost down from £2,616m in 1995.³ External pressures on the farm household are expected to persevere. Commins (1999) explains that “in the long run structural adjustments in the Irish farm economy are dictated by macroeconomic and technological forces, given the physical and demographic resources, and the mix of policy measures.”⁴ Policy issues such as the further reform of the CAP, enlargement of the EU and trade agreements, will figure prominently in coming years, forcing continued adjustments. The socio-economic development of rural areas is central to policy design in the EU. This movement is wider than the farm sector and includes improvement of economic opportunities in rural areas, the sustainability of the natural environment and the enhancement of the amenity value of the countryside.

At production level, many factors shape the future of the Irish agricultural sector. The most fundamental of these is the narrowing of the margin between costs and prices in production- otherwise known as the price-cost squeeze. Numerous other factors also have come to have a profound influence on the production practices of the farm household- including concerns for animal welfare, labour shortages, and more recently the BSE crises.

Total economic growth in Ireland has increased substantially in recent years. As this occurs farm labour and management are confronted continually with the necessity to adjust resource use in response to the squeeze between the inelastic demand for the product and rising labour opportunity costs. Part of the adjustment takes the form of migration of labour out of agriculture and part emerges as dual employment. The push for such adjustments from the farm labour supply side is affected by the nature of the farming while the pull from the labour demand side is affected by the nature of the general industrial economy.

It is not surprising, therefore, that farmers are relying less on their farm incomes. The Household Budget Survey, last conducted in 1994/95 by the Central Statistics Office, shows that 53% of farm household income came from farming, 31% from other employment, 12% from transfers and the remaining 4% from other sources. Looking at National Farm Survey data over the last few years, and the increasing percentages of farm households with off-farm employment (up to 47% of households where operator or spouse had off-farm employment in 1998, from 36% in 1995), leads us to believe that the relative income from farming continues to decline.

¹ Downey, L.,(1998). *Teagasc 2000- A Strategy for Teagasc Services to the Food and Agriculture Industry in Ireland*, pp.20.

² Sheey, S.J. & O’Connon D.(1999). *The Future of Irish Agriculture*, report to the Houses of the Oireachtas, pp1.

³ Dept. of Agriculture, Food and Rural Development(2000). *Annual Review and Outlook for Agriculture, Food and Rural Development*, pp3.

⁴ Commins, P.(1999). *Structural Change in the Agricultural and Rural Economy*, pp.12.

Purpose

The purpose of this paper is to outline trends in off-farm employment in Ireland. It will examine various factors that are associated with the presence of off-farm work activities. Analysis will also be carried out to discover if participation in dual employment impacts negatively on farm performance.

An approach to describe categories of farm household and their viability status is taken. It will show that categories of farm household and the relative importance of farm and non-farm income can vary greatly. The implications of this diversity for the provision of agricultural education and training services will be assessed.

Methodology & Data Sources

The emerging model of agriculture in Ireland necessitates a broad definition of what constitutes a 'farm'. In the unique case of farming, the household, its activities and the farm business are inextricably entwined. Consequently, this paper will use the 'farm household' as the unit of analysis. It will examine how the farm business combines with off-farm employment of both operator and spouse to produce a viable farm household unit.

Teagasc (Ireland's Agriculture and Food Development Authority) collects the most comprehensive source of farm level information in the Republic of Ireland in the National Farm Survey (NFS). It collects detailed information on approximately 1000 farm households annually. It is well recognised as a valuable source of information on farm income. It also collects data pertaining to numbers of operators and spouses with off-farm employment and the nature of that employment. This paper presents results, weighted to national parameters, obtained from analysis of NFS (1995-1998) data that enhances existing knowledge currently available on off-farm employment activities of farm households in Ireland.

Exact details on off-farm income levels are not available from the survey, but in 1998 details on off-farm occupation, hours and weeks worked were collected. This was sufficient to allow estimation of off-farm income using wage and salary scales. Off-farm income was estimated for both operator and spouse. This process enabled the computation of a figure for household income as the sum of family farm income and income earned off the farm.

The method of categorisation employed was a cluster analysis. The K-means procedure was used to identify relatively homogeneous groups of cases based on selected characteristics, using an algorithm that can handle large numbers of cases.⁵

Finally, farm household income in each cluster was assessed in terms of viability. For the purpose of this analysis, viability was defined in economic terms as earning a farm household income equivalent to or above average industrial earnings in 1998 (£15,550). Unfortunately, the latest information available on earnings of rural non-farm households dates back to 1995, which would have been an unsuitable comparison for this analysis. Comparisons were not made in relation to the minimum wage because a farm income should ideally support a farm household.

⁵ Aldenerfer, M.S. & Blashfield R.K. (1984) *Cluster Analysis*, Sage, pp.37-46.

Results

Off-farm employment

Looking at recent trends it is clear that part-time farming⁶ is a stable and persistent feature of Irish agriculture (Figure 1). For farm operators, the level of off-farm employment was 26% in 1995 and rose to 30% over the four years to 1998. For the spouse off-farm employment growth has been even more dramatic going from 15% in 1995 to 23% in 1998. Looking at the percentage of households with at least one off-farm income source- there has been a rise from 36% in 1995 to 47% in 1998.

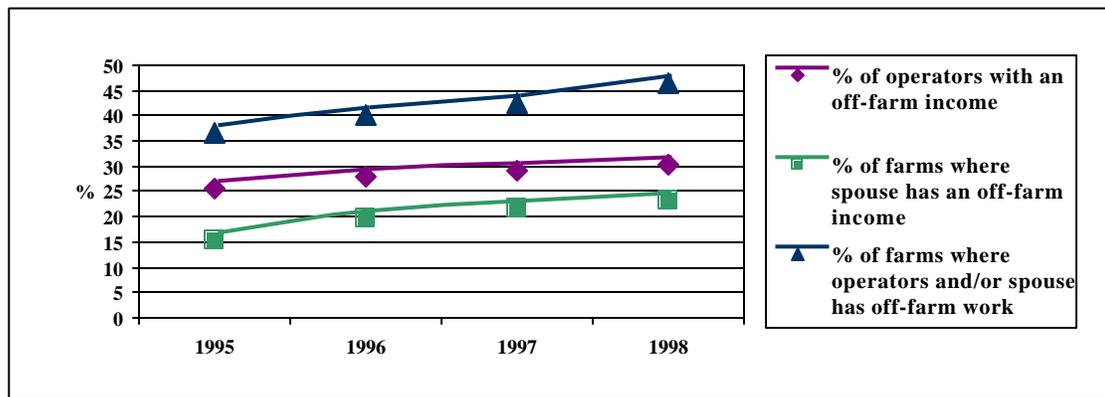


Figure 1. Off-farm employment status (1995-1998).

The type of employment opportunities taken up by the operator and spouse in 1998 were examined. The majority of farm operators with off-farm employment were in the agriculture / primary sector (22%), the building / construction industry (28%), while 14% were professionals. The average number of weeks worked off the farm was 38 and the average number of hours worked per week was 34. Average estimated off-farm earnings were £9,900. The occupational profile of the spouse differed to that of the operator where 38% of farm households had a spouse working as a professional (mainly teaching and nursing), 26% of farm households had a spouse who worked on a clerical capacity and 13% of farm households had a spouse involved in the service / food industry. The average number of weeks worked off the farm was 41 and the average number of hours worked per week was 32. Average estimated off-farm earnings (£10,200) were slightly higher than for operators.

On examination of the literature surrounding the topic of 'part-time farming' four factors can be extrapolated as the main influences on the adoption of off-farm employment- namely, personal reasons, household characteristics, farm factors and general economic conditions.⁷ We know that over the last few years the economic climate has provided better opportunities for those wanting to participate in employment outside of the farm. The following analysis presents the farm and household details from the NFS that characterise farm households with off-farm employment.

⁶ Part-time farming, according to the NFS, is defined as having four or more weeks of off-farm work in any given year.

⁷ For example see van der Bor et al (1995). *Rethinking higher agricultural education in a time of globalisation and rural restructuring*, *Journal of Intl Agricultural and Extension Education*, Vol. 2 pp.29-40. , Herrmann & Shucksmith (1994). *Habitus and Practice of Farmers in Areas of Scotland and West Germany*, proceedings of EAAE Seminar.

Farm and household characteristics

From Table 1 it can be seen that the average farm size of operators with off-farm employment is significantly ($p < 0.01$) smaller than those without. In 1998, the average farm size for an operator with off-farm employment was 24 hectares⁸, while for an operator without off-farm employment this figure was much larger- 37 hectares. A significant difference ($p < 0.01$) between operators with off-farm employment and those without is the system of farming they are involved in. In 1998 over 50% of those involved in cattle rearing had off-farm employment. This is significantly more than the 9% of dairy farmers with an off-farm job. The level of off-farm employment has also been high where operators are mainly sheep farmers (40% in 1998) and where they are in mixed drystock (cattle & other) systems (37% in 1998). As expected, there is less of a relationship between farm variables and spouse with off-farm employment; however, the farm size where a spouse has an off-farm income source had been consistently larger over the four-year period. In 1998, average farm size where spouse had off-farm work was 36 hectares and where they did not the average was 32 hectares.

From analysis of variables such as age, marital status and number of household members, a profile of a household with an off-farm income source can be outlined. It can be seen that operators engaged in off-farm work activities were on average younger, most likely married, and have a greater number of household members.

Table 1: Farm and household characteristics of operators with and without off-farm employment (1998)

	Operator with off-farm income	Operator with no off-farm income
Average age	46 years	54 years
Marital status	76% married	70% married
Number of household members	4.2	3.6
Average farm size	23.9 ha	36.8 ha
Dairy	9%	91%
Dairy & other	8.6%	91.4%
Cattle rearing	50.8%	49.2%
Cattle & other	36.7%	63.3%
Sheep	39.5%	60.5%
Tillage	16.7%	83.3%

Performance indicators

It is also important to look at variations in performance between those with and without off-farm work activities. As was found in many previous studies this is a complex issue. From the point of view of the provision of education and training services to the sector, it is essential to discover if the focus should be on improving performance levels on farms where off-farm employment is present. Bollman (1993) poses the question “If we observe part-time farmers to be inefficient (however defined), which is the chicken and which is the egg? Which came first, the inefficiency or the part-time farming? Do inefficient farmers adjust

⁸ Hectares in this refer to Utilisable Agricultural Area.

part of their labour to off-farm work because they recognise their farming activity to be inefficient?'.⁹ There is little recent work available in Ireland regarding the level of performance on farms where the household has or has not an additional off farm income source. Work by Lucey and Kaldor¹⁰ (1969) and Mannion¹¹ (1981) suggest that there is little difference between the level of performance between the two situations while Cawley¹² (1983) highlighted the fact that farmers with off-farm employment had lower levels of investment in the farm when compared to those with no off-farm employment. This she contributed to the variation in farm size between the two groups.

In this analysis, three measures of performance were used- output per hectare, family farm income per hectare and total investment in fixed assets per hectare (machinery, buildings, livestock and land improvements). Tests were carried out to examine if there was a significant relationship between operators with and without off-farm employment in terms of the three measures. The results showed that for all performance indicators used, the level of performance was significantly ($p < 0.01$) better on farms where the operator had no off-farm employment. However, when additional analysis was carried out for the indicators within the different farming systems no significant differences between the two groups were observed for any system. For example, when operators engaged in cattle rearing full time were compared with operators who were engaged in cattle rearing and off-farm employment, no significant difference was found between the two.

As a result of this analysis, we know the household and farm level variables that contribute to the participation in off-farm work activities. We also know that farm households participating in off-farm work activities are no less efficient than those who do not participate. Therefore, it would be useful to categorise the data based on this knowledge. Such categories would enable those providing agricultural education services to move away from a blanket approach to provide a set of distinct services for different categories of farm household.

Categories of farm household

Using a cluster analysis methodology, it was hypothesised that the data set would 'break' naturally as a result of farm-level data, household-level data and off-farm income levels. The procedure was carried out on the 1998 NFS data set, which contains 1111 cases. Fourteen variables were used in this analysis and they are presented in Appendix 1. This procedure resulted in six distinct clusters being identified. These clusters differ greatly in terms of farm and household characteristics and in the percentage of the population that they represent.

Table 2 shows the most notable characteristics of each cluster. Cluster 1 is a category of dairy farm households with average holdings of 97 hectares, containing 3% of the farming population. Cluster 2, representing 1% of farm households, are mainly involved in tillage and rent-in large amounts of land. Cluster 3 contains 23% of the farming populace, the majority of whom operate large/medium (average holdings of 44ha) dairy and cattle enterprises. Another notable characteristic of this cluster is that operators have an average age of 41, younger than those in any other cluster. Cluster 4, a category of large drystock

⁹ Bollman, R. D., (1993) in Hallberg et al, *Multiple Job-holding among Farm Families*, p.115

¹⁰ Lucey & Kaldor (1969). *Rural Industrialization*, Chapman: London.

¹¹ Mannion, J., (1981). *Part-time Farming in Ireland*, paper for the Agricultural Science Association Conference 1981, Waterford, September 17 and 18.

¹² Cawley, M., (1983). *Part-time Farming in Rural Development- Evidence from Western Ireland*, University College Galway.

farm households with average holdings of 78 hectares, and representing 6% of the population. Cluster 5 is the largest category representing 66% of the population. This is a category of farm households with average holdings of 21 hectares involved mainly in drystock enterprises. Operators in this group have an average age of 57- older than those in other clusters. Finally, cluster 6 is a group of farm households whose main enterprise is forestry. This is a small cluster representing 1% of the population.

Table 2: Cluster representation and characteristics

Cluster	1	2	3	4	5	6
% of population represented by cluster¹³	1	2	23	6	66	1
% of dairy farms in cluster	89.9	19.7	62.4	16.2	20.5	36.8
% of cattle farms in cluster	5.6	24.7	26.8	12.6	61.8	26.8
% of sheep farms in cluster	-	-	5.6	56.9	13.8	30.1
% of tillage farms in cluster	4.5	55.6	5.2	14.3	3.9	6.3
Average acres of forestry	0.9	-	0.7	0.8	0.4	55.7
Average age	50.6	48	40.5	50.6	56.1	47.8
Average area of land rented	36.3	311.8	20.7	22.8	5.7	8.9
% of cluster with viable farm income	93	84	52	50	6	38
% of cluster with viable household income	93	84	76	63	26	65

Farm household viability

From Table 2, it can be seen that, on average, farm income created a viable farm household for 4 clusters- large dairy (1), large tillage (2), large/medium dairy and cattle (3) and large drystock (4). These clusters account for 33% of the population. Off-farm income attributable to the operator or spouse significantly increased the overall level of household income for those with large/medium dairy (3) and cattle farms and those with large drystock (4) farms.

The large cluster representing 66% of the farming population did not have a viable farm or household income. A second stage cluster analysis on this category, using a sub-group of the variables used for the previous analysis¹⁴, produced three sub-clusters. The analysis highlighted how a further sub-cluster (14% of the population) was viable as a result of combining farm and non-farm income. This entire sub-cluster had an off-farm income source. The remaining sub-clusters representing 52% of the population, contained only 5% of viable farm households.

Educational Response

“The conflicts brought about by a rapidly changing world and the rigidities of established and cherished institutions are nowhere more apparent than the dilemmas facing educational institutions”.¹⁵ The changing structure of the sector necessitates a re-evaluation of the services provided as a result of the changes occurring in the target population. In recognising these developments, Teagasc will now implement a new programme- Rural Viability Programme- aimed at 60,000 farm families who are currently earning less than the average industrial wage from farming. “The programme will promote the concept of a multifunctional agriculture and the generation of part of the household income from non-

¹³ These are indicative estimates only due to small numbers in some clusters

¹⁴ Shown by * in appendix

¹⁵ Van den Bor et al. (1995). *Rethinking higher agricultural education in a time of globalisation and rural restructuring*, Journal of Intl Agricultural and Extension Education, Vol. 2 pp.29-40.

farm activities will be promoted as a positive development for farming”.¹⁶ Education will be a vital component in managing this change. “Upskilling and capacity building will be achieved through a combination of adult training courses and one-to-one consultations”.¹⁷ It is believed that given the necessary training farmers and their partners will be in an excellent position to avail or continue to avail of the opportunities in the growing economy.

Teagasc has taken a step toward a differentiated programme. The analysis shows that categories of farm households can be viewed as target groups in terms of the provision of training and educational services. These categories are distinguishable on the basis of farm household characteristics and off-farm earnings. By recognition of this diversity, more specific services could be provided.

Conclusion

The root of the decision to combine farming and off-farm employment is often interpreted as a farm’s failure to “make it” in an unfavourable economic climate. However, there is little empirical evidence to prove/ disprove this explanation. Bryden et al (1992) explain that “pluriactivity may be part of a process of entering farming, it may also be part of a process of adjusting out of farming and it is also a characteristic of a broad category of stability”.¹⁸ Whatever the motivation, the existence of off-farm income sources has certainly been established as has its significance in supplementing family farm income.

From the results, it is clear that distinct categories of farm household have different educational and training needs. It was found that farm households vary greatly in terms of household, farm and off-farm income variables. It has also been shown that these differences are not related to levels of farm performance. As a result, they have different requirements for educational, training and advisory services. It is hoped that the results of this analysis can contribute to further refinement of the services provided.

Appendix 1

- **Off-farm income:**
 - Estimated off-farm income of operator*
 - Estimated off-farm income of spouse*
- **Farm level characteristics:**
 - Family farm income*
 - Size of farm (UAA- hectares)
 - Total borrowings
 - Land rented minus land let
 - Area of forestry
 - Dairy livestock units
 - Cattle livestock units
 - Sheep livestock units
 - Acres of tillage
- **Household characteristics:**
 - Age of holder*
 - Number of household members
 - Number of household members on farm full-time

¹⁶ Carey, D (2000). *Advisory Training Service- Leading Change*, paper presented to ASA/NIIAS Millennium Conference, proceedings pp.38.

¹⁷ *ibid*, pp.39

¹⁸ Bryden, J.M., Bell, C., Gillant, J., Hawkins, E., and Mackinnon, N., (1992), *Farm Household Adjustment in Western Europe 1987-1991*, Final report on the research programme on farm structures and pluriactivity, Commission of the European Communities.