Agricultural and Food Economics

Educational Attainment of Farm Operators in Northern Ireland: Results from the AFBI Farm Household Survey 2008

Claire G Jack

Agricultural and Food Economics Division

Agri-Food and Biosciences Institute

Newforge Lane

Belfast

BT9 5PX

Email: claire.jack@afbini.gov.uk

Michael T Wallace

School of Agriculture, Food Science and Veterinary Medicine

University College Dublin

Belfield

Dublin 4

September 2009

Background to results from the AFBI Farm Household Survey 2008

The results presented in this document are drawn from the AFBI Farm Household Survey 2008. The aim of this farm household survey was to explore time-use amongst farm households, in particular, time spent working on-farm, off-farm, in home-production and time spent in caring roles. The sample frame included partnered farm operators between the ages of 25 and 65 years.

The results only represent a particular sub-group of farm operators, (i.e. partnered, between 25 and 65 years of age and operating beef and sheep or dairy farms), and are therefore not representative of all farm operators in Northern Ireland. However the results provide a useful insight into some of the decisions which farm operators who are below retirement age have made in relation to educational attainment, training and accessing off-farm employment.

Summary Findings

- Farm operators of working age in Northern Ireland, (between 25 and 65), in general, have lower levels of educational attainment compared to males in the wider population.

- Younger farm operators, running larger farm businesses, are more likely to have an agricultural based qualification at certificate level or above compared to older farmers and those running smaller farms.

- Younger farm operators, running smaller farm businesses, are the most likely to have off-farm employment of 30 or more hours per week.

- Compared to the equivalent male working population, farm operators with off-farm employment have lower average educational attainment and a lower average hourly wage.

- The majority of farm operators working as employees off-farm are in the construction and transport industries. Self-employment off-farm is concentrated in agriculture, for example, agricultural contracting businesses; and also in construction related activities.

- Farm males with no or low levels of educational attainment seeking off-farm employment face reduced choice and lower pay in the wider labour market. In addition, as economies move towards higher technology industries those with no or limited education or skills could find themselves increasingly excluded from the labour market.

- There is a need to consider how educational attainment for farm males can be improved both at school and in later life. This would include initiatives which aim to positively develop individual and family educational aspirations and attitudes within farm households.

The Educational Attainment of Farm Operators in Northern Ireland

Claire Jack (AFBI) and Michael Wallace (UCD)

Context

This paper was prepared at the request of DARD Policy and Economics Division to:

- establish baseline educational attainment levels for farm operators;
- compare farm operator educational attainment with an equivalent age group in the non-farm economy; and
- contrast farm and non-farm labour performance in non-farm paid employment.

The analysis and results presented draw upon the AFBI survey of Farm Households undertaken in May 2008.

(i) Introduction

Historically education has been viewed as central to the formation of human capital (Schultz, 1960). Previous research evidence shows that better educated individuals earn higher wages and experience less unemployment than their less educated counterparts; providing evidence of strong financial returns to investing in education (Card, 1999). Within the UK, since the early 1970s, there has been a significant increase in the number of people obtaining educational qualifications. In more recent times, government policies, including the White Paper issued in early 2003, have pushed for expansion of the further and higher education sectors in order to meet rising skill needs; this drive being reiterated in the UK government's goal of fifty per cent participation in higher education among the 18-30 age cohort by 2010 (Department of Education and Skills, 2003).

Economists view the decision to invest in human capital through increasing education as a private decision and have typically explored the 'internal' rate of return from this investment decision in terms of the wage gain from investing in more education. Previous evidence shows that farm operators within the UK have tended to acquire few formal qualifications. Generally males from farming backgrounds have fewer secondary and tertiary qualifications compared to the wider male population (Gasson, 1998). However, spouses generally have higher levels of educational attainment compared to their farming partners (Moss *et al*., 2004).

The changing nature of global agriculture, from a market and policy perspective, increasingly requires farm families to have a strong basic education in order to adopt new technologies and integrate them into the farm business (Huffman and Orazam, 2004). In addition, as it becomes increasingly difficult for farm businesses to generate an adequate level of household income, there is an increased trend towards off-farm employment in western agriculture, with the agricultural labour force supplying labour to other sectors of the economy.

As labour markets demand more skilled workers, education levels in rural areas, particularly for farm males, are likely to constrain employment opportunities and this is and will continue to be of increasing concern to policymakers (EU Commission, 2006). To achieve both occupational and sectoral labour mobility in the off-farm labour market, skill levels and educational attainment have a critical role in determining participation by farm household members in the off-farm labour market and ultimately determining wages and farm household incomes.

(ii) Methodology

Scope of questionnaire

The Farm Household Survey was conducted in spring 2008. The survey aimed to explore the decisions made by farm household members regarding how they use their time. It focused on obtaining a detailed assessment of the time allocation of farmers and their spouses/ partners with respect to work activities (farming, off-

farm employment, farm diversification and other self-employment), caring responsibilities and leisure. The survey also explored the future plans and aspirations of farming couples in relation to the farm business, off-farm employment, education/training and the education and future farming involvement of their children. The survey collected detailed information on respondents' education and qualifications, off-farm wages and hours in paid work; (Appendix 1 provides an explanation of how qualifications were classified).

Sample Selection

In order to explore the individual decision-making roles of farming couples, the target sample group focused on farm operators and their spouses (See Appendix 2 for guidelines on how the farm operators were identified). The sample was drawn from the 2007 Farm Structures Survey. As household decision-making in relation to time use was the focus of the study and spouses and dependent children were an important aspect of this study, the target group was those farm operators who were partnered and were likely to have dependent children. The over 65 age group were less likely to have dependent children and were less likely to be working off-farm (as they are eligible for retirement pension). This group was, therefore, excluded from the sample selection and the age limits for farm operators were set at between 25 and 65 years. The sample frame also focused on the main pastoral based enterprises namely; dairying, cattle and sheep. In order to ensure anonymity of all respondents and given the relatively small number of arable and intensive production enterprises in Northern Ireland, these farm households were not included in the final sample selection.
Therefore, the sample selection criteria were as follows:

- Farm operator - married/partnered, aged between 25 and 65 years
- Farm types- Dairy, Beef/Sheep (LFA) , Beef/Sheep (Lowland)
- Farm size, Standard Labour Requirements (SLR) - Greater than or equal to 0.25 SLR

A stratified random sample of businesses by farm-type and farm size provided adequate representation of both 'full-time' and 'part-time' farm operators. The final

sample consisted of 1376 individuals and 688 farm households, fully representative of Northern Ireland farms. The results for farm operators within the sample are presented in Section 1 of the results.

Comparison of farm and non-farm households

A further aspect of the study was to explore how the educational attainment of those who are working as employees' off-farm, compared to those who are working in the wider population. In order to achieve this, a matched sample was drawn from the British Household Panel Survey (BHPS). The BHPS is a representative sample of approximately 5,500 households across the UK, recruited in 1991, containing a total of 10,000 individuals. These same individuals are re-interviewed each year or wave; the sample in this study was drawn from Wave 16 (2006/07) which focused on Northern Ireland as a region. The fieldwork for the BHPS survey was also conducted by the same 'interview team' that undertook the Farm Household Survey, further enhancing consistency and comparability of the data.

The BHPS target group selected matched the farm household group, that is; partnered males and females, aged between 25 and 65, only selecting those who were paid employees. The sample selection criteria for the BHPS database excluded those individuals who indicated that they were involved in agriculture and those designated as self-employed. This ensured that the matched sample was representative of non-farming employees in this age band. In total, once incomplete records were excluded, the final sample dataset for those who were employees consisted of 283 non-farm based males. This was then matched with the farm based employees (164) from the farm household survey. Furthermore, in order to compare off-farm wage rates, an hourly wage rate was computed for both sample groups. Hourly pay is preferable to weekly pay as it mitigates for any changes in earnings due to hours at work e.g. part-time/casual-v-full-time work. The results for the comparison of farm operators with non-farm males are presented in Section 2 of the results.

(iii) Results

Section 1: Results for farm operators

(a) Educational attainment

A summary distribution for the farms in the sample by enterprise and land type is presented in Table 1. Just over a third of the farms in the sample group were dairy farms, the remainder were cattle and sheep farms.

Table 1: Distribution of farms sampled by enterprise and land type for the Farm Household Survey, 2008

Farm type	*Percentage*
Dairy LFA	21.2
Dairy lowland	12.6
Cattle and sheep SDA	29.5
Cattle and sheep DA	14.5
Cattle and sheep lowland	22.2
Total	*100*

N=688

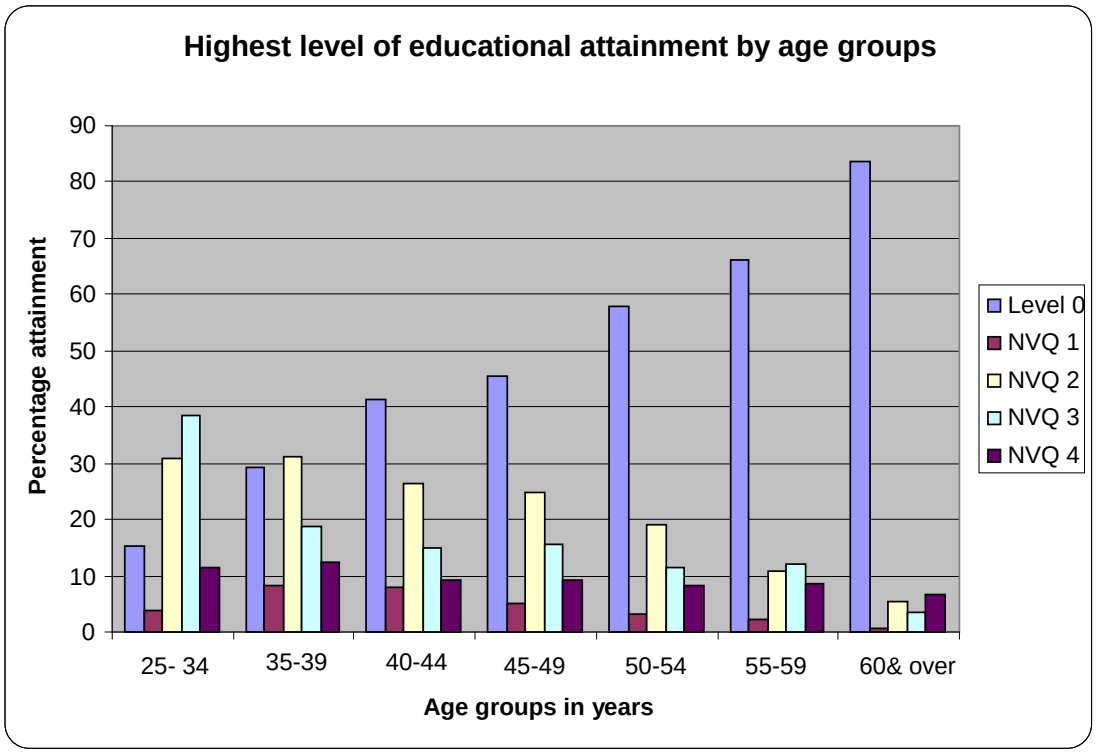
At a UK level, traditionally those involved in farming have had, on average, fewer qualifications than the wider population (Gasson and Errington 1993). One reason for this is that formal education may be viewed as less important for a farmer than for other occupations. For those who plan to farm, returning to the farm after compulsory schooling is often considered as an 'occupational apprenticeship', characterized by on-the-job training and with little emphasis on obtaining formal qualifications. This lack of formal qualifications obtained by farm operators is reflected in the results presented in Table 2, with 57 per cent of farm operators having no formal qualifications.

Table 2: Northern Ireland Dairy, Beef and Sheep farm operator educational attainment by NVQ Level, 2008

Level of educational attainment	Frequency	Percent
No qualifications	393	57.1
NVQ level 1	26	3.8
NVQ level 2	122	17.7
NVQ level 3	87	12.6
NVQ level 4	60	8.7
Total	688	100.0

N=688

Figure 1: Highest level of educational attainment achieved by age

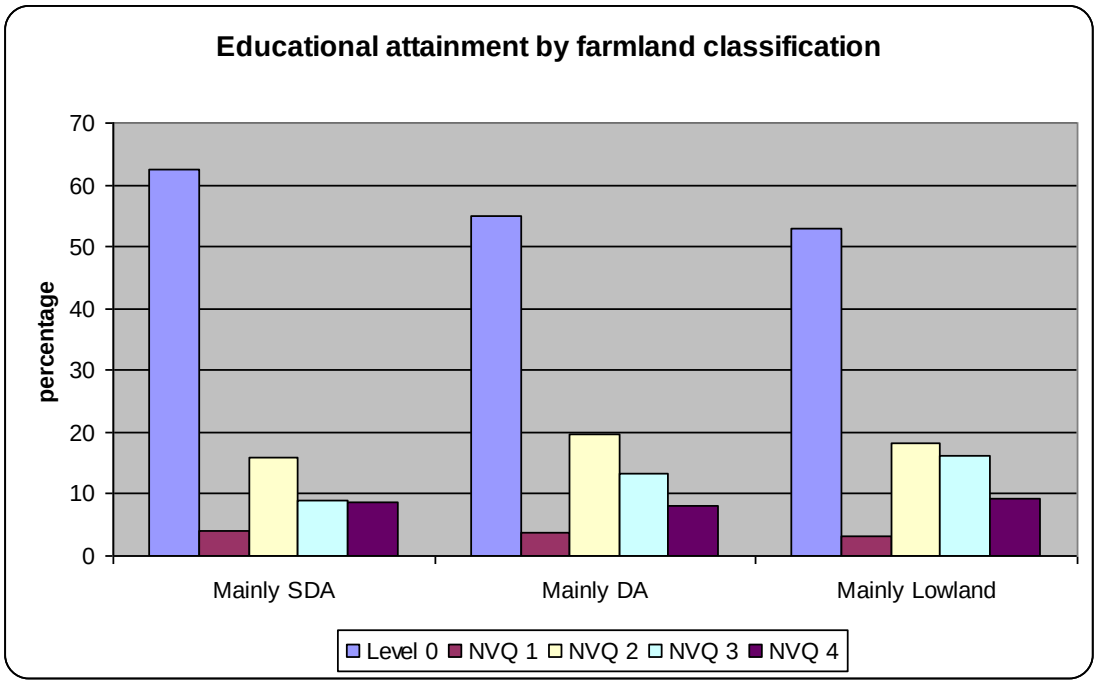


N=688

Figure 1 presents educational attainment for farm operators by age, the results reflecting higher levels of educational achievement amongst the younger age group cohorts. As in other parts of the UK the educational attainment and skills

levels in the general NI workforce have been steadily improving over the past number of years. This partly reflects a generational effect; as older less qualified workers leave the labour-force, younger more qualified people enter the labour force. This trend is also reflected to some degree in the educational attainment of farm operators. There has been a trend, as in the general population, of improved levels of educational attainment. However achievement at tertiary level or equivalent still remains relatively low for farm operators compared to the wider population. There was a slightly higher proportion of operators in those areas classed 'mainly SDA' having no qualifications, see Figure 2.

Figure 2: Northern Ireland Dairy, Beef and Sheep farm operator educational attainment by land classification



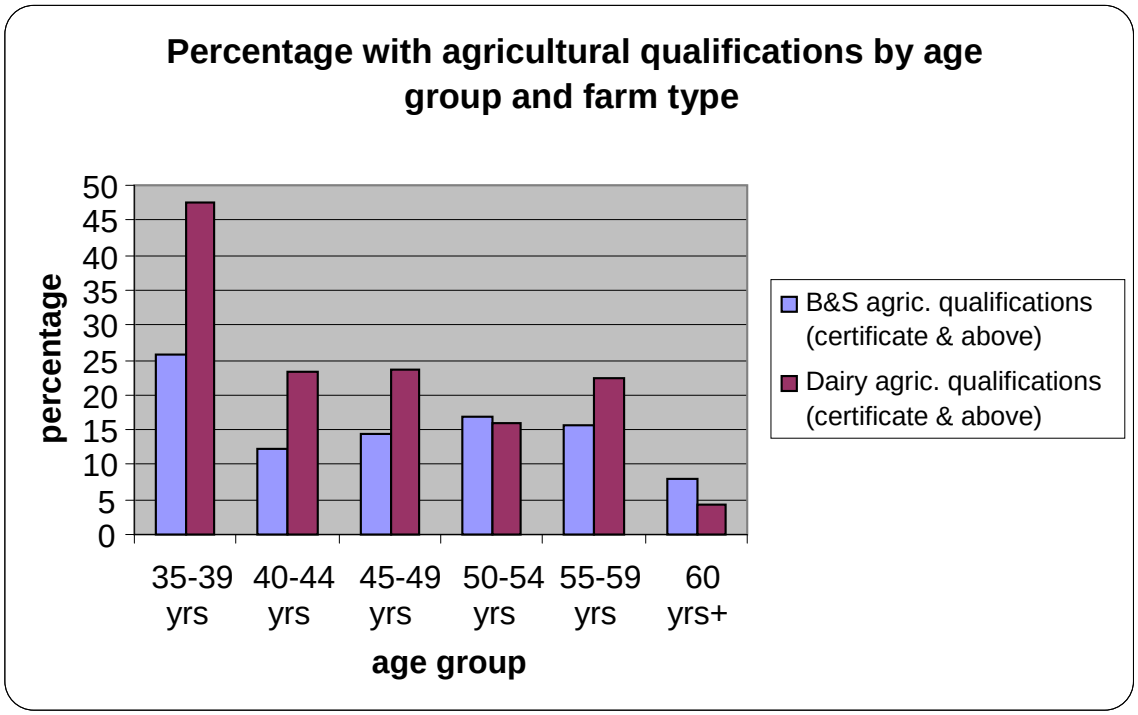
N=688

(b) Agricultural qualifications

As part of the farm household survey, interviewees were asked to indicate whether they had formal qualifications relating to agriculture; 22 percent of those surveyed indicated that they had some form of agricultural qualification. Just over three quarters of these qualifications were at certificate level or above. Findings in the UK for 2005 (Defra 2008), indicate that 23 percent of all managers of holdings had some form of agricultural training. As the Farm Household Survey excludes those

farm operators over 65 years of age and therefore represents a slightly younger farming population compared to the UK sample, the expectation for the farm household survey would be that the number of operators obtaining some form of agricultural qualification would be higher.

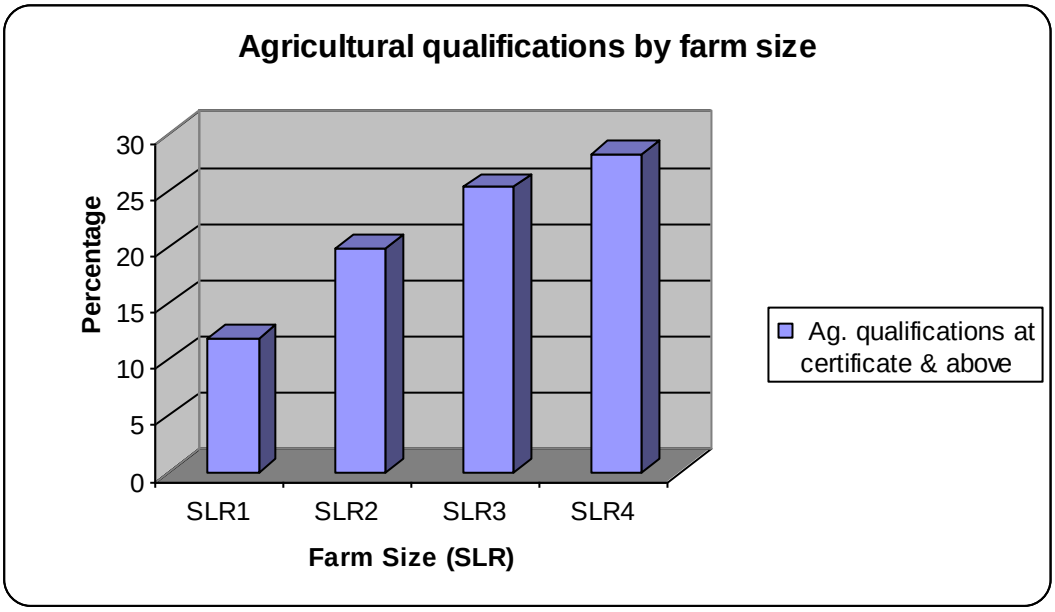
Figure 3: Northern Ireland Dairy, Beef and Sheep farm operator agricultural qualifications by age group and farm type, 2008.



(25-34 age group was excluded from the analysis above due to low count within this category)

When analysed by age and farm type, those in the younger age categories (under 40) are significantly more likely to have an agricultural based qualification at certificate level or above compared to the older age groups. In addition, there is a significantly higher proportion of dairy farmers in comparison to beef and sheep farmers with agricultural specific qualifications at certificate level and above (see Figure 3). Twenty eight percent of operators have agricultural qualifications at certificate level and above on the largest farms compared to 11 percent of those on the smallest farms, as presented in Figure 4.

Figure 4: Northern Ireland Dairy, Beef and Sheep farm operator agricultural qualifications by farm size, 2008



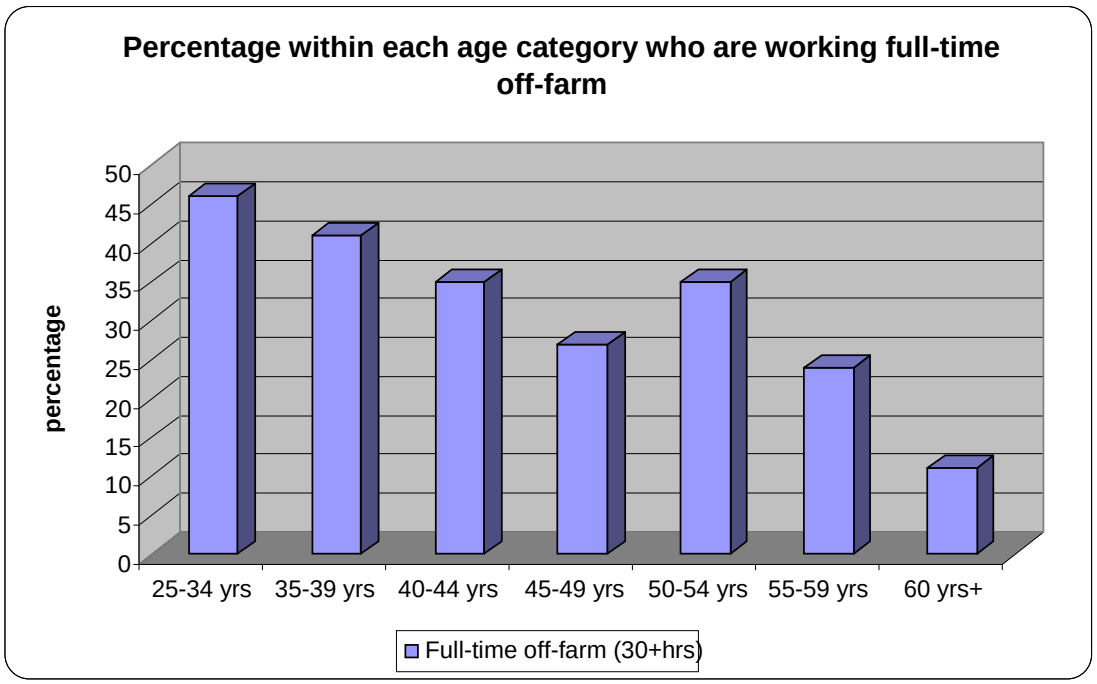
N=688

(c) Employment Status

The increased need for additional sources of income within farm households means that farm operators and their spouses may engage in off-farm work activities, either working for wages/salaries or operating a self-employed business. Particularly on the smaller farms, farm operators and their spouses may both engage in some form of off-farm employment.

Within the farm household sample group, almost 23 per cent of farm operators surveyed worked off-farm as an employee and just over 13 per cent had some form of self-employment. Of those farm operators who had self-employment, 89 per cent were from cattle/sheep farms the majority of which were either small or very small. Proportionally the younger farm operators were more likely to be working off-farm, see Figure 5.

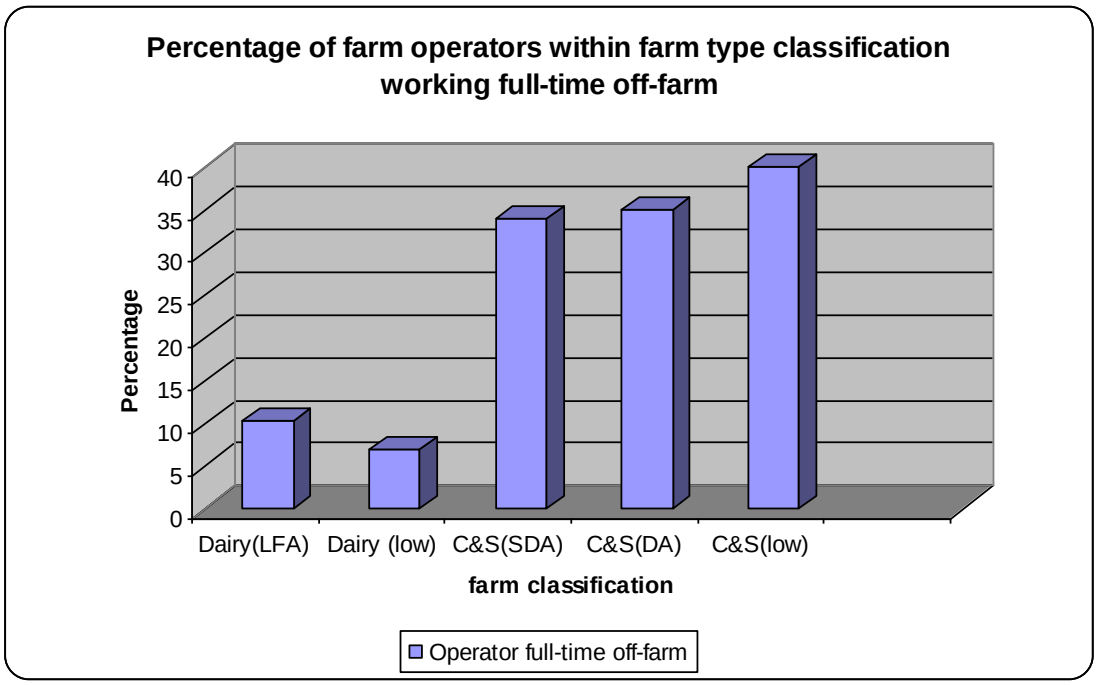
Figure 5: Northern Ireland Dairy, Beef and Sheep farm operator distribution of off-farm employment by age category, 2008



N.B. (Full-time off-farm included those working as either employees or in a self-employed occupation for 30 hours or more per week)

Furthermore, operators of cattle and sheep enterprises are more likely to have some other form of employment other than farming compared to dairy farm operators, see Figure 6. This reflects, in part, the time commitment to being 'on farm' associated with dairy enterprises compared to beef and sheep enterprises. In addition, the highest percentage working off-farm are from cattle and sheep lowland farms.

Figure 6: Northern Ireland Dairy, Beef and Sheep farm operators working full-time off-farm by farm type classification, 2008

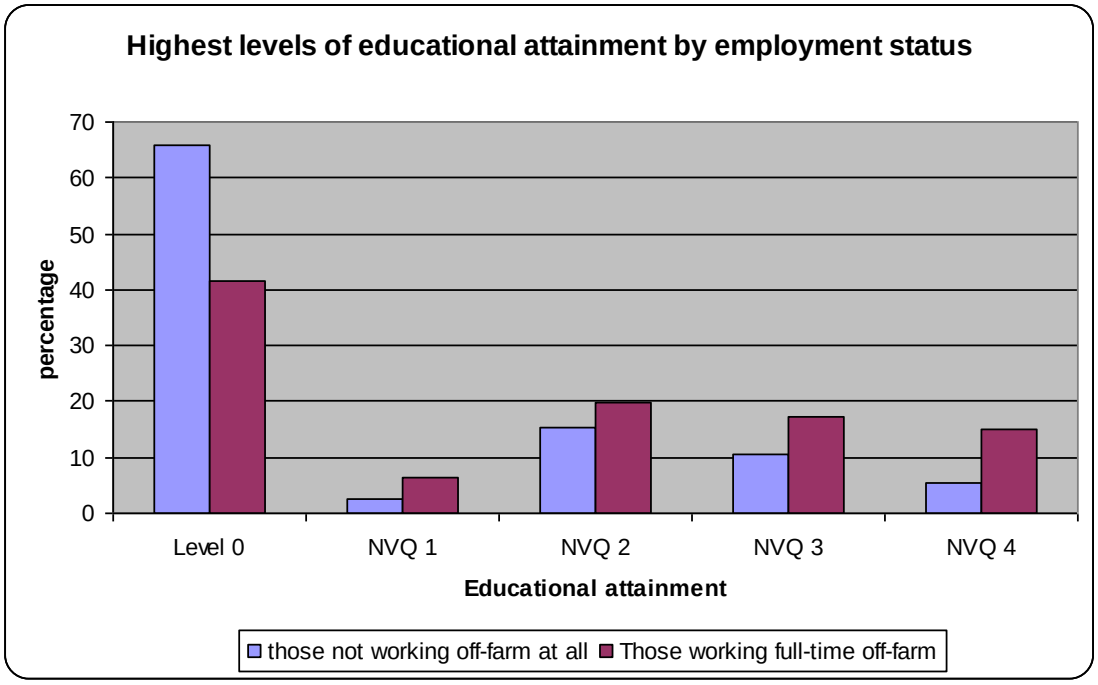


N.B. (Full-time off-farm included those working as either employees or in a self-employed occupation for 30 hours or more per week)

(d) Off-farm employment

The ability of a farm operator to secure off-farm employment depends upon the economic situation in the regional/local labour market and the education and skills level of the farm operator. Figure 7 compares the educational attainment of those working full-time off-farm (30 hours and above per week) with those for whom farming is the sole employment activity. For farm operators who worked off-farm in a wage or salaried job the main sectors of employment tend to be in traditional sectors such as agriculture, manufacturing and construction. The jobs occupied by farm operators are generally at the lower end of the occupation/skill levels. A recent report (Oxford Economics 2009) identifies the agricultural sector, alongside manufacturing and construction as being particularly weak in terms of its graduate concentration levels perhaps suggesting that the returns to education in these sectors may be less; this is supported by findings from recent research (Wallace and Jack 2009).

Figure 7: Northern Ireland Dairy, Beef and Sheep farm operator educational attainment for those with no off-farm employment and those with full-time off-farm employment 2008



As illustrated in Figure 7, at each level of educational qualifications those working off-farm are more likely to have formal qualifications compared to those who only are solely employed in farming. The distribution of educational attainment for both groups is presented in Table 3 below.

Table 3: Northern Ireland Dairy, Beef and Sheep farm operator highest educational attainment by employment status, 2008

Level of educational attainment	Percentage working full-time off-farm	Percentage where farming is the only employment activity
No qualifications	41.4	63
NVQ level 1	6.5	2.8
NVQ level 2	19.9	15.4
NVQ level 3	17.2	11
NVQ level 4	15.0	5.3

Section 2: Results for the comparison of farm operators with non-farm males

The educational attainment of farm operators working off-farm was matched with an equivalent sample of males from the wider Northern Ireland population by using British Household Panel Survey data. This established a database which allowed for comparison between males who were employees, both farm and non-farm, of their educational attainment and hourly wage rate. The wage rate excludes self-employed earnings from farming by farm operators. Compared to the findings presented in Section 1 the results subsequently presented are based on a somewhat smaller sample group (farm operator males 164; non-farm males 283). However the results give an indication of how those who are working as employees off-farm compare to the wider population of male employees in terms of both their average educational attainment and average wage rates.

Table 4: Comparison of farm and non-farm males' educational attainment and non-farm employee wage rates.

	Farm	Non-Farm
Education (Years)	12.85	14.12
Wage rate (£/hour)	10.27	14.54
Labour market hours/week	33.92	38.39
Age (Years)	47.95	41.79
Highest qualification:		
No qualifications	40%	11%
NVQ level 1	7%	3%
NVQ level 2	19%	19%
NVQ level 3	16%	16%
NVQ level 4	18%	51%
Observations	164	283

Table 4 presents a summary comparison of key statistics for the subsample of farm and non-farm males. On average, farm males spent fewer years in education and, on average, achieved a lower level of educational attainment compared to the non-farm males. In addition, as already indicated, there are a large percentage of the farm males (47%) who have no or minimum qualifications (i.e. up to NVQ level 1 and equivalent). The lower level of educational attainment may partly be explained by the 'cohort effect' arising from the slightly higher average age within

the farm sample compared to the non-farm sample (48 years compared to almost 42 years respectively). That is, the data may to some extent be reflecting the generational trend in the wider labour-force were older workers tend to be less qualified compared to younger workers within the labour-force.

Farm males are also shown to have a low level of educational attainment at the higher level i.e. 18% with further and higher education compared to 51% in the non-farm population. This is reflected in the average hourly wage, farm operators receiving £10.27 compared to £14.54 for the non-farm group. However, a large proportion of the farm group will be working in part-time/casual employment within particular sectors where hourly wages would be expected to be lower compared to those in full-time permanent employment. An element of the difference may be recouped by farm operators through their farming activities, as they spend fewer hours per week (34 hours on average) in the labour market compared to the non-farm group (38.4 hours on average). It should be noted that these returns for farm operators are based only on the labour market earnings for those farm operators who have off-farm jobs.

A future development of the research will be to investigate the extent to which education enhances productivity of farm operators in the running of their farm businesses as well as in the off-farm labour market. In addition, returns to education for farm operators will be explored through further econometric analysis of the data.

Table 5 presents the mean wage rate for different levels of qualifications ranging from no formal qualifications to academic/professional qualifications for those farm operators who are also employees. Although the numbers in each category are small, these preliminary results indicate that additional years spent participating in education and attaining qualifications have a positive effect on earnings. For farm operators, educational attainment is heavily concentrated around the minimum school leaving age and this is reflected in the lower average wage rate compared to the non-farm group.

Table 5: Northern Ireland Dairy, Beef and Sheep farm operators average wage rate by level of highest qualification, 2008

Qualification Levels	***Farm operators***
Highest Qualification:	
No qualifications	7.93 (66)
NVQ 1	10.64 (11)
NVQ 2	10.84 (31)
NVQ 3	10.26 (27)
NVQ 4- Below degree & equ.	13.79 (11)
NVQ 4-Degree and above	15.53 (18)

Sample size in each category is shown in brackets ( )

Discussion of Findings

Although younger farm operators have on average a higher level of educational attainment than older age groups, there remains amongst farm operators a generally low educational attainment. This may, in part, reflect perceptions within the industry that farming is an 'on the job' apprenticeship which does not necessitate staying in school beyond the minimum leaving age. However given the changing market and policy environment some operators perhaps do not consider farming as secure as it was for their parents' generation and are looking towards alternative ways of supporting themselves whilst staying in farming. Education is an important investment for individuals in helping them to avoid unemployment and obtain secure and well paid employment. However current education levels amongst farm operators are likely to constrain their off-farm employment participation. Off-farm labour markets are increasingly demanding more skilled workers.

A low level of educational attainment by farm males is not a new phenomenon, but its persistence presents a problem for farm structural adjustment. Average wage rates for farm males appear to be about 30 per cent below those of non-farm males, while the rewards for continuing in education beyond the minimum school leaving age are high. However, farm operators may be restricted in terms of where and how they can work off-farm due to farming and family commitments.

Furthermore, within rural labour markets, the range and diversity of employment opportunities may be more restrictive reducing the options available. Consequently, workers will be rewarded less for their education and training in more restricted labour markets compared to what might occur in a larger urban labour market where individual may more readily find jobs that match their level of training and skills.

Previous research has identified the importance of parental aspirations on young people's educational choices and that it is mothers in particular who influence the educational pathway within households. This perhaps raises further research questions regarding attitudinal differences within farm families towards the educational attainment of males, particularly towards those who have been identified as potential successors on the farm. There is a clear need to increase and improve the overall basic level of educational attainment amongst farm based males. Attaining good basic skills and developing the cognitive ability to pursue a valued qualification allows farm successors to be more adaptable to future initiatives and employment opportunities both on and off-farm. The issue then is how to encourage more positive attitudes to educational attainment particularly among farm-based males while in full-time education and later in life.

References

Card, D. (1999). The causal effect of education on earnings. In O. Ashenfelter and D. Card (eds), *Handbook of Labor Economics,* vol. 3, Amsterdam: Elsevier-North Holland

Commission of the European Communities (2006). Employment in rural areas: closing the jobs gap, SEC (2006) 1772

Department of Education and Skills (2003). *The future of higher education*. London: HMSO

Department of Farming, Food and Rural Affairs (2008) *Agriculture in the UK*. London: HMSO

Gasson, R. (1998). Educational Qualifications of UK Farmers: A Review. *Journal of Rural Studies*, **14** (4) 487-498

Gasson, R. and Errington, A (1993). *The Family Farm Business.* CAB International, Wallingford.

Huffman W and Orazam P (2004). *The Role of Agriculture and Human Capital in Economic Growth: Farmers, Schooling, and Healt*h. Working Paper Series

Moss, J.E., Jack, C.G and Wallace, M.T. (2004). 'Employment location and associated commuting patterns for individuals in disadvantaged rural areas in Northern Ireland'. *Regional Studies*, **38** (2).

Oxford Economics(2009) Forecasting Future Skill Needs in Northern Ireland, Final Report. April 2009.

Schultz T.W. (1960). 'Capital Formation by Education'. *Journal of political economy*, **68,** 571-83.

Wallace, M. T and Jack, C. G. (2009) '*Economic returns to education for farm households*'. Paper presented at the Agricultural Economics society annual conference, Dublin 31st March -1st April 2009.

Appendix 1: Classification of educational qualifications

Northern Ireland Education system: a summary

School progression beyond the minimum leaving age of 16 is based on a series of nationally assessed examinations. For the purposes of this report the wide range of academic and vocational qualifications have been classified into equivalent National Vocational Qualification (NVQ) levels, ranging from level 1 to level 4. Until 1986, students at 16 had to decide whether to go for the lower-level Certificates of Secondary Education (CSE) option or for the more academically demanding Ordinary level (O level) route (the top grade (grade 1) achieved on a CSE was considered equivalent to O level grade C). While most CSE students tended to leave school at the minimum, students who took O levels were much more likely to stay on in school. In 1986 CSE's and O levels were replaced by General Certificates of Secondary Education, GCSEs). Those staying on in school can then take Advanced Levels (A levels) at the end of secondary school (age 18). A levels are still the primary route into higher education.

Classification of qualifications within the study

No qualifications

This includes those with no formal qualifications or were the level was unknown

NVQ1/Level 1

- NVQ or SVQ level 1
- GNVQ Foundation level, GSVQ level 1
- GCSE or O level below grade C, SCE Standard or Ordinary below grade 3
- CSE below grade 1
- BTEC, SCOTVEC first or general certificate
- SCOTVEC modules
- RSA Stage I, II, or III
- City and Guilds part 1
- Junior certificate
- (In future: entry level qualifications, as yet undefined)

NVQ2/Level 2

- NVQ or SVQ level 2
- GNVQ intermediate or GSVQ level 2
- RSA Diploma
- City & Guilds Craft or Part II (& other names)
- BTEC, SCOTVEC first or general diploma et
- O level or GCSE grade A-C, SCE Standard or Ordinary grades 1-3

NVQ3/Level 3

- A level or equivalent
- AS level
- SCE Higher, Scottish Certificate Sixth Year Studies or equivalent
- NVQ or SVQ level 3
- GNVQ Advanced or GSVQ level 3
- OND, ONC, BTEC National, SCOTVEC National Certificate
- City & Guilds advanced craft, Part III (& other names)
- RSA advanced diploma

NVQ4/Level 4

- Higher degree and postgraduate qualifications
- First degree (including B.Ed.)
- Postgraduate Diplomas and Certificates (including PGCE)
- Professional qualifications at degree level e.g. graduate member of professional institute, chartered accountant or surveyor
- NVQ or SVQ level 4 or 5
- Diplomas in higher education & other higher education qualifications
- HNC, HND, Higher level BTEC
- Teaching qualifications for schools or further education (below Degree level standard)
  -Nursing, or other medical qualifications not covered above (below Degree level standard)
- RSA higher diploma

Reference: S1.pdf [http://www.ons.gov.uk/ons/guide-method/harmonisation/secondary-set-of-harmonised-concepts-and-questions/index.html]

Appendix 2

AFBI Farm Survey: Guidelines for identifying farm operators to be interviewed

This is a survey of farming couples. Each completed questionnaire should comprise interviews with both the farm operator and their spouse. The sample has been drawn from the agricultural census register using data from farmers who completed the 2007 Farm Structures Survey. The sample selection uses the criteria that selected farmers are (1) married/partnered and (2) aged between 25 and 65. In the vast majority of cases it will be the individual named on your allocated sample list who will be interviewed along with their spouse. However, there may be exceptions and therefore interviewers should go through a couple of screening questions on the doorstep before proceeding with each interview. In particular, you should ask if the individual named in the sample selection is the main farm operator. If yes, then request to interview that individual and their spouse. Otherwise you need to refer to the decision tree below. This outlines a few further enquires that should be made so that you can identify the appropriate respondent. Where problems might arise:

• The farm family's situation may have changed in the few months between completion of the structures survey, e.g. death of farmer or spouse, separation, etc. In this situation a substitute name and address will be provided from the reserve list.

• A more common situation might be where the named individual to be interviewed is actually not the principal operator of the farm. This may occur where the farm owner (e.g. a parent is named in the agricultural census register but another family member (usually a son) actually operates the farm business. Because of this possibility it will be necessary to ask a couple of introductory questions to ascertain whether or not the named individual is the principal farm operator. If they are then proceed to interview that individual and their spouse/partner. If they are not the principal operator then some additional questions will be required in order to identify who should be interviewed. The procedure is outlined in the decision tree below.

• Another situation that might arise is where two family members (usually brothers) farm in partnership. If both members are married and jointly operating the farm business then interview either one of the individuals and their spouse.

• If it is indicated that the farm is now let out or sold and therefore operated by someone outside the family, do not proceed with the interview. An alternative name/address will be provided from the reserve list. The key thing to note is that we want to interview farming couples and principal operator status is an important but secondary condition. For example, a 27 year old successor (e.g. a son) who is single would not be interviewed even if that person is now the principal farm operator. In that situation you would interview his parents but only if one of the parents is still significantly involved in running the farm (works 10 or more hours per week on the farm). In this case the farm is likely to be in the process of being transferred to the successor and we expect that one of the parents (as current/recent farm owner) will have been the individual at that address who was listed in the sample selection. However, if neither parent works on the farm

business (at least 10 hours per week), and the individual identified as the principal farm operator is single then the interview will not proceed. An alternative name/address will be provided from the reserve list. If on the other hand the 27 year old identified as the principal farm operator is married then you should interview that individual and their spouse rather than the parents even if one of the parents is named in the sample selection. These procedures are outlined in the following 'decision tree'.

Decision Tree for Identifying who should be Interviewed