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**Assessing the availability of off-farm employment and farmers'
training needs**

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Abstract

The number of farm households participating in the off-farm labour market has been increasing over the last decade and this additional income has become integral to the sustainability of farm households. The objective of this paper is to assess the availability of off-farm employment and examine policies needed to increase the employability of farm operators seeking off-farm employment.

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Introduction

During the Celtic Tiger era, a marked shift in the structure of the labour market occurred: the importance of agriculture and the traditional industrial sectors declined, while employment in high tech manufacturing and services grew strongly.

The number of farm households participating in the off-farm labour market increased significantly over the last decade, peaking at 54 percent of the farm households encompassed in the 2006 National Farm Survey (NFS). Empirical research conducted by Hennessy et al (2004) found that off-farm income assumed an integral role in sustaining farm households and insulating them from impoverishment: results showed that more than half of the farm households included in the 2004 NFS were safeguarded from an economically vulnerable position as a result of the farm household having an operator and/or spouse participating in the off-farm employment market.

In this paper we explore the position of farmers in terms of their prospects of securing off-farm employment. Specific objectives of the paper are:

1. to explore the skill profiles of farmers with off-farm employment.
2. to estimate the probability of different farmer profiles securing off-farm employment.

3. to provide an outlook on off-farm employment for the existing farmer profiles.
4. to examine policy options in relation to training provision needed to increase the employability of farmers seeking off-farm employment.

The paper is divided into four main sections. The first section involves analysing the skill profiles of farmers with off-farm employment. In this analysis we used educational attainment levels and work experience as a proxy for the skill levels of farm operators. The data encompassed in this objective was gleaned from the second quarter of the 2006 Central Statistics Office Quarterly National Household Survey (QNHS).

In the second section of the paper we assess the economic position of the working age population and calculate the probability of individuals with different skills profiles attaining employment. This enables us to make inferences on the off-farm employment prospects of farm operators given their skills profiles.

In the third section we provide an outlook for the sectors synonymous with off-farm employment provision. This analysis incorporates work conducted by various research bodies in Ireland.

In the final section we investigate what policies have been implemented to increase the employability of farmers seeking off-

farm employment, with particular emphasis on the ‘Options for Farm Families Programme’, which was established by Teagasc in co-operation with FÁS with the intention of assisting farm families in generating additional household incomes.

Section 1: Skill profiles of farmers with off-farm employment.

This section addresses the current skills profiles of farm operators. It is the first step in assessing farmers' prospects of securing off-farm employment and involves examination of their educational attainment and work experience.

Education attainment indicates skills and competencies acquired through the formal education and training process. It has a significant effect on the farm operator's ability to attain off-farm employment. Work experience allows us to identify the skills and competencies which farm operators have attained through previous employment and therefore provides an indication of their employability.

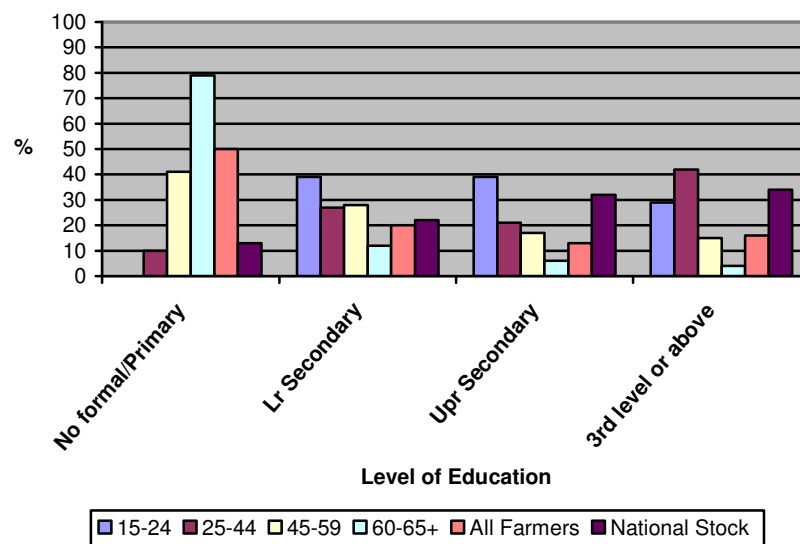
1. Education

Educational attainment refers to the highest level of schooling a person has attained through the formal education and training process. It indicates the level of knowledge, skills and competences a person is equipped with to enter the labour force.

Results from the 2006 QNHS showed that the educational distribution of farmers is skewed towards lower educational attainment (Figure 1): in 2006, approximately 70 percent of farmers had less than secondary

education. Older farmers' education distribution has more pronounced negative skewness: almost 90 percent of the 60-65+ age category (45 percent of the farming population) have less than lower secondary education, compared to 65 percent of the group aged 45-59 (28 percent of farming population) and just over 38 percent of the 25-44 age grouping (24 percent of the farming population). Similarly, younger farmers are more likely to hold third level qualification: 22 percent of the 15-24 age cohort holds at least a college certificate, compared to 2% of those aged 60+.

Figure 1: Age by Level of Education of Farm Operators and Working Age Population in 2006



Source: CSO-QNHS

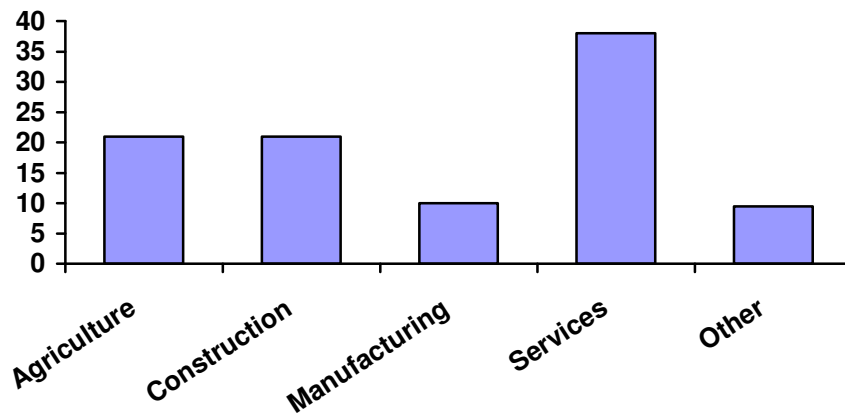
When compared the educational attainment levels of farm operators with that of the national stock, we found that the proportion of farmers with low educational attainment levels is above the population average. Figures from the 2006 census show that approximately 34 percent of the working population (i.e. those aged between 15 and 64) have a third level qualification of some denomination, in comparison to 16 percent of the farming population. Approximately 54 percent of the working age population reported secondary level education to be their highest educational attainment; contrastingly 33 percent of farm operators had secondary education in 2006. While almost 13 percent of the working age population had not progressed beyond primary level education in 2006, according to the QNHS, the number of farmers with no formal or primary only education has increased from 41 percent in 1999 to 50 percent in 2006.

2. Work Experience

Work experience data is taken from the National Farm Survey (NFS). The NFS provides data on off-farm employment in terms of sectors and occupations. The NFS classifies occupations into 37 categories, which we subsequently grouped into five broad categories: managerial, clerical, craft, high skill and low skilled.

The results (Figure 2) suggest that farmers who work off the farm tend to be employed in the traditional sectors of the economy such as, agriculture, construction and manufacturing.

Figure 2: Employment by Sector for Farm Operators (%)



Source: *NFS, 2002*

We also examined the sectors of off-farm employment for farm operators across regions. Results show that there is a regional variation in the sectoral employment of the farmers that participate in the off-farm labour market. The services sector accounts for the largest percentage of off-farm employment provision for farm operators in the Mid West, South West and West regions. In excess of a third of the farm operators in the Mid East, Midlands, South East and South West regions are employed in the agriculture, forestry and

fishing sector. While the building and construction sector accounts for approximately 40 percent of off-farm employment jobs in the Border region. If we combine the agriculture, forestry and fishing sector with manufacturing and building and construction, in excess of fifty percent of all farm operators across all regions are employed in these three sectors.

In relation to occupational classification, the largest proportion of off-farm employment for operators across all regions is in low-skilled jobs, which include occupations such as: drivers, postmen, sales reps, agricultural labourers (including forestry and fishing), construction labourers, production line workers, other manufacturing workers, shop assistants and hotel and restaurant workers: 75 percent of farm operators in the Midlands region are in low skilled occupations, in comparison to 56 percent in the Mid East region. The South East has the largest proportion of farm operators employed in high skilled occupations at 14 percent, these include occupations as: engineers, accountants, vets/AI, teachers, pharmacists, garda and nurses, in comparison to none in the Mid East. The Mid East region has the largest percentage (23%) of farm operators engaged in craft related occupations, such as: building tradesmen, mechanics, fitters and electrical maintenance and repair, in comparison to 4 percent of farm operators in the Border region. While the Border region has the largest

proportion of farm operators employed in managerial occupation at 26 percent, in comparison to 10 percent in the West region.

Conclusion

The analysis suggests that farmers tend to have low levels of education and rely heavily on the availability of low skilled and craft related jobs primarily in traditional sectors of the economy. Our analysis suggests the absence of any major variation in the skill profile of farmers across regions in Ireland.

Section 2: Estimation of the probability of different skill profiles securing off-farm employment.

In this section we estimate the probability of securing employment for a skill profile typical to farmers.

First, we use the principal economic status of the working age population (15-64 year olds) encapsulated in the 2006 QNHS, their age and educational attainment levels to calculate the probability of individuals with different characteristics attaining employment. The skills profile, which is proxied by educational attainment levels and work experience, enables us to identify the skills and competencies of individuals, and thereby allows us to assess the prospects of these individuals finding employment. Examining data on the full working age population enables us to make inferences on the probability of farm operators obtaining off-farm employment given certain age, geographic and educational characteristics.

The econometric technique encompassed in this analysis is the multinomial logit (MNL) model, whereby the dependent variable takes three states: employed, unemployed and unavailable for work.

Explanatory variables are: age, gender, education attainment and region.

Secondly, we will estimate the probability of obtaining employment for individuals located in different regions using data on regional unemployment rates. The unemployment rates provide an indication as to the availability of employment in particular regions.

The results of our model showed that the age, education and geographical location of an individual has a significant effect on their probability of being employed. Our results indicate that increased educational attainment increases the probability of an individual being employed. In relation to the effect of geographical location on the probability of employment: the results showed that residing in Dublin decreases the probability of an individual being employed, which was a surprising result in itself.

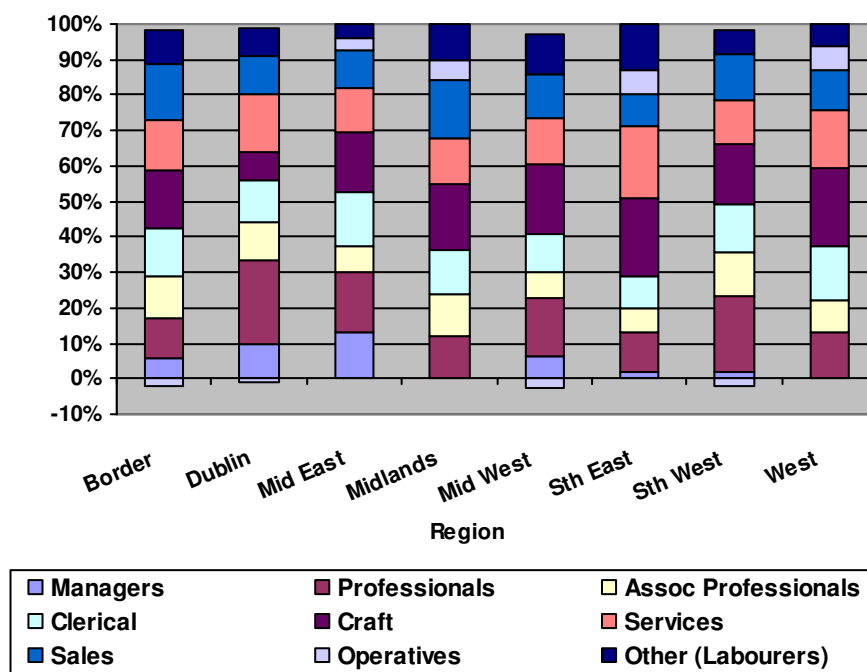
To investigate the validity of the models results on unemployment, we calculated the unemployment rates for regions. We found that the Mid East, Mid West and South West regions have the lowest unemployment rates of less than 4 percent. When we accounted for gender, males from the Mid East had the lowest unemployment rates of 3.1 percent.

The Border and South East have the highest unemployment rate of approximately 5 percent. Importantly, males residing in Dublin (and

females living in the West region) have the highest unemployment rate of 5.6%. In relation to education, males residing in Dublin with less than secondary education have an unemployment rate of 9.9 percent. With regard to the age profile of an individual, the highest unemployment rate is attributed to the 15-44 age group from Dublin. The results, which are in line with the results from the MNL model, demonstrate that Dublin has one of the highest unemployment rates. This is due to the large pockets of unemployment in some Dublin areas which have persisted during the years of economic boom.

Overall, unemployment statistics would suggest that, in terms of employment growth, rural Ireland benefited greatly from the Celtic Tiger era. However, the analysis below shows that there was a significant difference in the quality of jobs created in Dublin region and outside. According to the QNHS, 513,711 additional jobs were created in the Irish economy over the period 1998-2006. However, employment growth within broad occupational groupings has been unevenly distributed across regions as evidenced by Figure 3.

Figure 3 Regional distribution of employment growth over the period 1998-2006 by broad occupational group (% Share)



Source: QNHS 2006

Figure 3 shows that of the jobs created between 1998 and 2006; those created in the Dublin region are at the higher end of the occupational scale. The figure shows that 24 percent of the new jobs created in Dublin were professional, while only 11 percent in the South East were professional. Managerial, professional and associate professional occupations accounted for 45 percent of employment growth in Dublin

since 1998, while these occupations accounted for 22 percent of employment growth in the West region.

In relation to craft and lower skilled occupations, the results show that 30 percent of the jobs created since 1998 were in occupations such as craft, operatives and other (labourers). The results show that the proportion of operative jobs in the Border, Dublin, Mid West and South West regions have declined since 1998. When we examine the distribution of these jobs combined with craft and other occupation across regions, we find that these occupations accounted for 42 percent of the new jobs created in the South East region and 35 percent of the new jobs created in the Midlands and West regions, while these occupations represented 15 percent of the employment growth in Dublin since 1998.

Therefore, while unemployment rates are lower in regions outside Dublin, the jobs created in these regions since 1998 have been at the lower end of the occupational scale.

A Hypothetical example of two farmers'

Incorporating the results of the econometric model, we calculated the probabilities of two farmers being employed given their educational attainment levels, age and geographical location.

Farmer A is male, aged between 15 and 24 and has a third level qualification or greater. While Farmer B is aged between 45 and 59 and has no formal or primary only education.

When we compared the employment rates of Farmer A across regions we found that a farm operator residing in the Mid West has a 76 percent probability of employment compared to 72 percent in the West region. In relation to unemployment, if farmer A resides in the Border region he has a 6 percent probability of being unemployed compared to 3 percent in the Mid East region.

In relation to farmer B, our calculations showed that farmer B would have a 69 percent probability of employment in the Border region in comparison to 73 percent in the Mid West region. In the Border region there is a 9 percent probability of unemployment in comparison to 5 percent in the Mid East.

Therefore, if we focus on the Border and Mid East regions, farmer A is 3 percent more likely than farmer B to be employed in the Border and Mid East regions.

Conclusion

The results of our model show that increased educational attainment increases an individual's probability of securing employment. The results also demonstrated that the location in which an individual resides has a significant effect on their probability of being employed. We found that being located in Dublin increases the probability of an individual being unemployed, this statistic was substantiated by further calculations. However, while the unemployment rates may have been lower for rural regions, the quality of jobs created in the aforementioned regions has been at the lower end of the occupational scale. Therefore, given farmers' work experience in low skilled occupations coupled with their low levels of educational attainment, if a contraction occurred in these occupations, the probability of farmers attaining off-farm employment opportunities would be significantly reduced.

Section 3: To provide an off-farm employment outlook for the existing farmer profiles.

Introduction

The ability of farm households to attain and maintain off-farm employment opportunities is dependent on the vitality of the sectors in which they are employed and the farmers' skills profile. In this section we will draw on work conducted by the ESRI and the Expert Group on Future Skills Needs (EGFSN) to assess the long term outlook for the sectors synonymous with off-farm employment provision and to provide an indication of the difficulties farm operators may encounter when job seeking in the future.

Sectoral Outlook

According to the 'New Economy' theory, advanced countries are experiencing a remarkable growth in 'knowledge jobs' and standardised manual labour is being increasingly displaced by knowledge-rich employment.

In relation to Ireland, this theory was substantiated by Turner and D'Art (2005), who found on analysis of CSO data that between 1997

and 2004, job growth at the high end of the skills continuum exceeded growth in middle level occupations, with much of the job growth at the high skill level in managerial and administrative functions. Similarly, the *Tomorrow's Skills: Towards a national Skills Strategy* report by the Expert Group on Future Skills Needs found that between 1991 and 2001 'high skilled' employment increased significantly, while 'low skilled' employment declined.

According to the QNHS, between 1998 and 2006, 51,632 additional jobs were created in low skilled occupations such as operatives and labourers, with the latter accounting for 84 percent of these additional jobs. In contrast, there were 170,000 additional jobs created in managers, professionals and associate professionals occupations since 1998. These occupations accounted for 32 percent of the additional jobs created in the Irish economy since 1998, thereby illustrating the transformation in the structure of the Irish labour market.

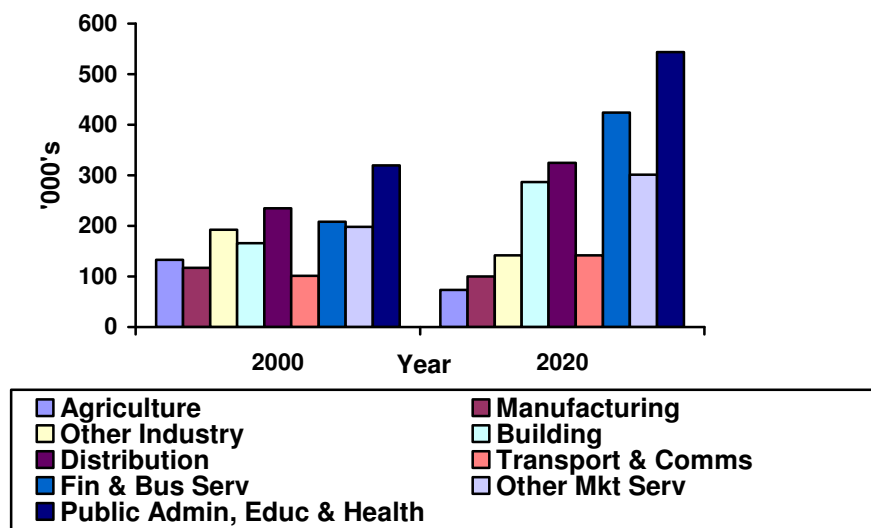
According to *The Current Trends in Occupational Employment and Forecasts for 2010 and 2020* report of the ESRI², the structure of the labour market is expected to be further transformed by 2020. In 2000, traditional industries such as agriculture, manufacturing and other

² Based on Low growth scenario which assumes that the US economy begins a gradual adjustment process to a more sustainable growth path prior to 2010 (possibly as early as 2007), resulting in slower growth, with knock on effects on world economies.

production industries accounted for 442,200 jobs in Ireland (Figure 4); by 2020 these sectors will provide 314,600 jobs, a reduction of approximately 128,000 jobs: there will be 60,000 fewer jobs in the agricultural industry. These are the sectors historically associated with off-farm employment provision; therefore, the forecasted contraction is expected to result in decreasing employment opportunities.

One of the most significant developments in the labour market in the coming years is the expected contraction in the construction industry. The number of new houses which peaked in 2006 with 88,000 units completed is expected to decline significantly in the medium run. Any contraction in this construction sub-section will give rise to job losses. Some commentators suggest that as many as 70,000 workers could lose their jobs in the new residential sector in 2008. While this sub-sector is expected to resume positive growth beyond 2009, it is unlikely that the levels of activity recorded in 2006 will be reached by the end of the decade. Although the anticipated contraction in new house building in 2008 will, to some extent, be off-set by the job creation in other sub-sectors of the construction industry (infrastructure, repair and maintenance and retail building), net effect in terms of employment will most likely be negative.

Figure 4: Percentage of total employment for each sector in 2000 and 2020



Source: ESRI, 2006

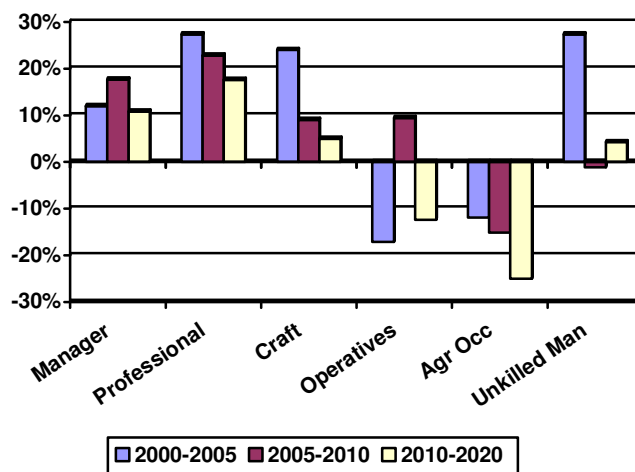
In contrast, the sectors associated with high educational attainment levels will account for a significantly greater share of total employment. According to the research conducted by the ESRI, between 2000 and 2020, the financial and business services, other market services and public administration, education and health sectors will employ an additional 543,100 people.

Occupational Outlook of Future Workforce

Figure 5 outlines the previous and projected occupational profiles of the Irish workforce according to the report by the ESRI. The graph illustrates a significant shift in the structure of the Irish Labour Market with an increased emphasis on knowledge based jobs. According to the ESRI, between 2000 and 2020, 81,700 people engaged in occupations such as operatives and agriculture will be redundant. This projection may have serious implications for the farm operators employed off the farm.

In contrast, the ESRI forecasts that between 2000 and 2020 there will be 364,500 additional jobs in managerial, professional and associate professional occupations.

Figure 5: Employment by Occupational Group 2000-2020 (ILO Basis)



Source: ESRI, 2006

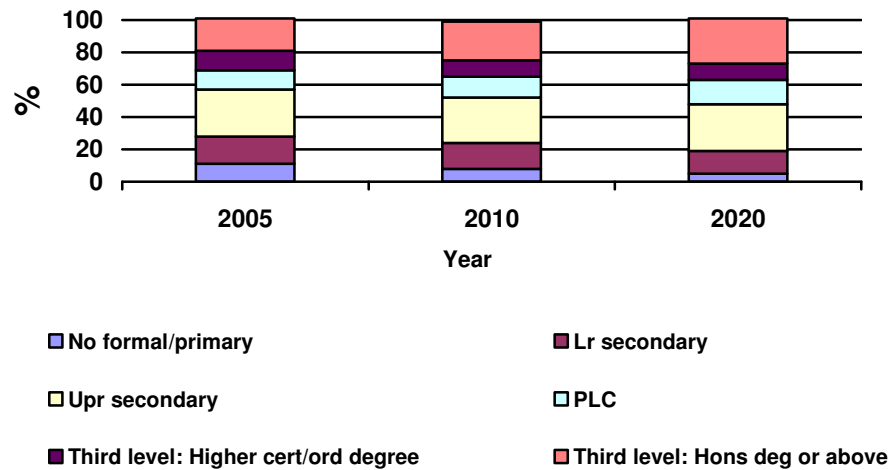
Educational Outlook

According to the labour force projections by educational levels of the EGFSN, by 2020 without policy change, there are expected to be labour force surpluses at the lower educational levels, with a large number of low-skilled individuals unemployed or inactive.

On the supply side, the EGFSN estimates that by 2020, 5 percent of the labour force will have no formal/primary level qualification and 19 percent will have below upper secondary education (Figure 6). This

represents a stark contrast to the educational attainment levels of the working population in Ireland in 2005: 11 percent of the labour force with no formal/primary only education and 28 percent with less than upper secondary education.

Figure 6: Labour Force Projections by Education Levels

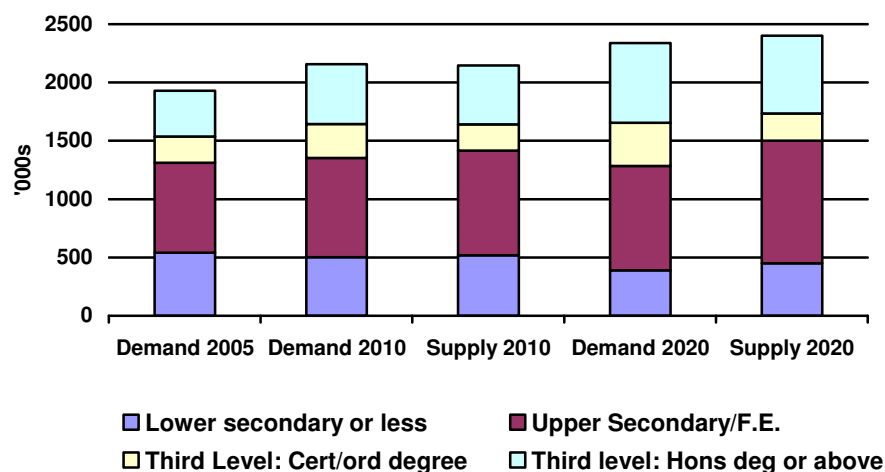


Source: *EGFSN, 2007*

On the demand side, by 2020, the EGFSN predict that there will be demand for 390,000 individuals with lower secondary education or less, but that there will be a supply of 450,000 such people. In 2020, according to the comparison, there will be a gap at third level honours bachelor degree and above. A large deficit of approximately 139,000 at third level higher certificate/ordinary degree is also projected as employment demand will far outstrip labour supply. This suggests that

there will be a shift in demand from low to high skilled individuals and that low skilled individuals could be unemployed or inactive in Ireland in 2020 (Figure 7). These projections mirror those produced by the ESRI.

Figure 7: Supply and Demand for Skills in 2010 and 2020



Source: *EGFSN, 2007*

Conclusion on Employment Outlook

Employment outlook for sectors where farmers tend to seek off-farm employment is gloomy: contraction is expected for agriculture, manufacturing and, in the short run, construction. Similarly, employment prospects for low skilled occupations are predicted to diminish as the demand for individuals with lower educational

attainment levels decreases. Given that our research has shown that 61 percent of farm operators participating in the off-farm labour market were employed in low skilled occupations and that 70 percent of all farmers in 2006 had less than secondary education, farm operators will require upskilling in order to increase their probability of securing off-farm employment.

Section 4: The effect of policies on the employability of farmers seeking off-farm employment.

Introduction

The previous section outlined the problems which farm operators seeking off-farm employment may encounter given their skills profiles and the forecasted downturn in the sectors historically associated with the provision of off-farm employment opportunities. Given these difficulties, this section of the paper evaluates policies that have been implemented to assist and enable farm operators to overcome the aforementioned obstacles by enhancing their employability and increasing their probabilities of securing off-farm employment.

Options Programme

Changes within the agricultural community motivated the Teagasc Advisory Service to evaluate the services they provide. In 2001, the Opportunities for Farm Families programme was implemented in collaboration with FÁS (Ireland's National Training and Employment Authority). The primary objectives of the programme were to help

farm families generate additional household income and improve their quality of life and to examine future options both on and off the farm.

The original programme was free to families with less than 100 income units³. The programme was divided into three stages. Stage 1 involved viability appraisal leading to the identification of a 'Way Forward Guide'. In Stage 2 specific measures to generate additional income and/or improve quality of life were identified by the family in conjunction with an adviser. It also identified the specific advice and training needs of the family and made appropriate referrals to other agencies, such as FÁS. While in stage 3, the farm family implemented the actions specified in the 'Way Forward Action Plan' and would often involve both training for off-farm jobs and placement in employment, suited to their skills.

The programme was modified and re-launched as the Planning Post Fischler Programme in January 2004 and is currently referred to as the Options for Farm Families Programme. One of the most notable changes is that the programme is now available to all farm families and free to those with less than 150 income units. To date there have been 15,000 participants in the scheme.

³ 180,000 litres if milk quota; 100 beef cattle; 600 sheep; 100 hectares cereals or equivalent. The first €19,046 of a farmer's off farm income is excluded in this calculation, as is all the partner's off farm income

Evaluation of Options

While the programme may be deemed a beneficial one, there are a number of problems relating to the current structure of the Opportunities for Farm Families Programme. One of the key problems involves capturing information pertaining to training and outcomes from training.

As mentioned previously, the Options Programme provides an off-farm employment appraisal worksheet. The worksheet asks the farm household members to state the employment areas in which they would like to work. If on completion of the appraisal worksheet, the operator decides that off-farm employment is worth pursuing, the Teagasc advisor refers the farm operator to the FÁS representative for that particular county. However, while there have been a large number of farm families agreeing to seek alternative sources of employment and engage in upskilling, there is limited information provided on:

1. the type of courses farm operators and/or spouses enrol in
2. the completion rate of FÁS training/courses undertaken by farm operators and/or spouses.

3. how successful the farm operator and/or spouse has been in attaining off-farm employment on completion of the FÁS training.
4. how off-farm employment has affected the farm household.

FÁS courses records

FÁS through a nationally integrated database encompassing all FÁS centres, have an established mechanism by which to record detailed information pertaining to the characteristics of individuals, for example farm operators, enrolled in FÁS courses. The database records information regarding the characteristics of the individuals who are undertaking a particular course such as their gender, date of birth, residential addresses, educational attainment levels, working skills and whether they have any prior FÁS or other qualifications, work experience etc.

In theory, FÁS course records database holds information necessary to ascertain the skill levels/profiles of the farm individuals and also providing us with an indication of how proactive farm households are in relation to increasing their employability. However, while there is a field which can be used to identify farmers on FÁS courses, filling this field is not mandatory and in most cases the field is unpopulated. The number of farmers identified in the FÁS database is too small that

this information cannot be used to make inferences about the entire farmer population undertaking training.

In relation to upskilling, preliminary analysis of the FÁS database showed that records were poor and that farmers were not identified as distinct from other individuals. From the limited data it was possible to ascertain that farmers tend to seek training in fields of transport (e.g. warehousing, driving) and engineering (e.g. welding).

Conclusion on the Effect of Policies on the Employability of Farmers

A programme has been established to enable and assist farm operators in enhancing their employability. However, our analysis shows that problems exist in relation to data collection and in terms of the promotion of the Options Programme. The data collection method employed by Teagasc and FÁS makes it difficult to assess the demand for upskilling or the scale and areas of training undertaken.

We recommend that there is a better follow-through of participants in the Options Programme who show an interest in part-time farming. The linkages that exist between FÁS and Teagasc should be exploited more productively and the Options Programme advisor should be involved in the selection of training courses and the job-seeking activity.

FÁS and Teagasc should establish better data collection procedures to facilitate the tracking of individuals through the stages of meeting the farm advisor, seeking employment training, job-seeking and final placing in employment. With better recording processes, it would be possible to evaluate the effectiveness of the training selected, the employment opportunities emanating from the training and the ultimate success in job seeking. In the absence of this data, it is extremely difficult to evaluate the current provision of training to farmers.

Conclusion

There have been an increasing number of farm households participating in the off-farm labour market. In 2006, over 54 percent of the farm households participating in the National Farm Survey had off-farm employment. Furthermore, off-farm income has assumed an integral role in insulating farm households from poverty.

The ability of a farm operator to secure off-farm employment depends not only on the buoyancy of the labour market but also the aptitude of the operators. The first section of this paper analyses the skill profiles of farm operators as proxied by their level of education and work experience. The analysis shows that approximately 70 percent of farm operators had less than lower secondary education. Furthermore, farm operators' work experience typically tends to be in traditional sectors such as agriculture and manufacturing and also in the construction sector. The jobs occupied by farm operators are generally at the lower end of the occupation / skill scale. Given the low levels of educational attainment and the accumulated work experience, farm operators tend to have poorer skill profiles than the general population; however, while the research shows that farmers' skill profiles do not vary significantly across regions, the West region appears to have the lowest skills profile of all those examined.

This paper also quantifies the effect of education, age and geographical location on the probability of employment. The results from the MNL model show that education has a positive and significant effect on the probability of an individual securing employment. Therefore, the results enable us to quantify the effect of farmers' educational attainment on their probability of securing off-farm employment. The results also show that geographical location is significant. The analysis demonstrated a regional variation in unemployment rates, arriving at the somewhat unexpected result that regions outside of Dublin have lower rates of unemployment. This suggests that rural regions have benefited from the Celtic Tiger and are now areas of strong employment provision. However, while the unemployment rates have been in decline in rural regions, the data presented also shows that the quality of the jobs created outside of Dublin has been at the lower end of the occupational scale than those created in Dublin.

In 2004, more than fifty percent of the farmers that worked off farm were employed in traditional industries such as agriculture and manufacturing and the construction sector. These sectors are forecasted to contract. According to research conducted by the ESRI there will be 128,000 less jobs in the traditional industries such as agriculture, manufacturing and other production industries by 2020. In addition, a significant number of jobs are expected to be lost in the construction sector in the short term as the sector contracts.

This paper also summarises research that suggest that demand for low skilled workers will decline significantly in the coming years while demand for higher skilled workers will increase. Our results show that farm operators have low levels of education attainment. This implies that farm operators, without enhancing their skill profiles, will struggle to secure off-farm employment opportunities in the future.

This paper shows that the existing skill profiles of farmers do not coincide with the projected demand for skills in the future and therefore policies need to be implemented to assist farmers in enhancing their employability. One such policy is the 'Opportunities for Farm Families Programme' which helps farm families to confront economic challenges and capitalise on the opportunities that will be presented in the coming years. In particular, it assists those farm households interested in participating in the off-farm labour market. However, we found that problems exist with regards to data collection by both Teagasc and FÁS makes it difficult to assess the upskilling efforts.

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