

Project number: 5576
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Economics of innovation in the rural economy



Key external stakeholders:

Farming Organisations, Department of Environment, Community and Local Government; Department of Agriculture, Food and the Marine, LEADER companies; Enterprise Ireland; other enterprise support agencies; farmers; SME's and local authorities.

Practical implications for stakeholders:

- 1) By identifying the types of technologies that have low adoption rates, the project provides targets for KT activities.
- 2) The encouragement of networking for rural enterprise is as important as the encouragement of clustering.
- 3) Appropriate responses to animal health problems, among others, need stakeholder coordination and support.
- 4) Bureaucratic, financial and evaluation obstacles to some applicants' engagement with the LEADER programme exist and need to be addressed.

The outcome/technology or information/recommendation is:

- Technology adoption at farm level improved
- Rural enterprise profitability increased through networking
- Optimise stakeholder-led response to animal health issues
- Easier access to LEADER funds for applicants.

Main results:

Understanding of drivers of innovation on farms increased: clearer understanding of key strategies to increase rural SME viability: barriers to engagement with LEADER programme identified.

Opportunity / Benefit:

Project outputs are available as popular and peer reviewed publications and presentations. Project findings also formed basis of in-service training to Teagasc advisers to use in their interaction with clients.

Collaborating Institutions:

DCU; NUIG; NUIM

Teagasc project team:	Dr. Kevin Heanue (PI) Edel Kelly Christina Ryan Jessica McKillop Maria Heneghan Brendan Horan
External collaborators:	Dr. Rachel Hilliard (Department of Management, NUIG) Professor David Jacobson (Business School, DCU) Dr. Frank Devitt (Department of Design, NUIM) Économusée Project Team (EU INTERREG funded project) Marine Based Employment Opportunities Team (EU INTERREG funded project)
	External Stakeholders: Bord Bia; Fáilte Ireland; Crafts Council of Ireland

1. Project background:

The project had 2 main objectives which were designed to develop this area of research within Teagasc. First, was to set up systems of internal and external contacts and research networks that would provide the foundation for generating research ideas, contributions, collaborations and future projects on rural innovation. Second, to carry out specific research projects on aspects of innovation processes, determinants, actors, value added, policies and institutions that will lead to a greater understanding of innovation in the broad rural economy.

2. Questions addressed by the project:

- What do we know about innovation, innovation processes, actors, activities and policy in the rural economy, both on farms and outside the farm gate?
- Can a series of research projects be designed taking into account the evidence base established by the above question?

3. The experimental studies:

Drawing on a multidisciplinary team of internal and external collaborators, a variety of methods, including case studies, semi structured interviews, surveys and secondary data were employed to answer individual research questions.

There were 5 main pieces of analysis carried out in relation to the economics of innovation in the rural economy.

- The first, based on a statistical analysis of a modified version of the Community Innovation Survey implemented through the National Farm Survey (NFS), provided an overview of the extent and type of innovation on Irish farms.
- The second, based on questions about specific agricultural technologies inserted into Teagasc's NFS sought to get a better understanding of dairy farmers' adoption of technology.
- The third, based on case study research, provided evidence on the drivers of innovation in low and medium technology rural enterprises.
- The fourth focused more specifically on the role of the LEADER programme in rural enterprise support and promotion of innovation.
- The fifth, sought to generate understanding of the concept of a problem-focused innovation system and how such a system could be operationalised to guide interventions to increase innovation in Irish agriculture.

4. Main results:

Research Results

- Based on replies to a modified version of the Community Innovation Survey (CIS) implemented by the Teagasc National Farm Survey team, in 2007, 25 percent of farmers (or 24,889 individuals out of 98,666 in the survey) were engaged in some sort of innovative activity – in other words, trying something new in terms of products, processes, organisational innovation or markets that they hadn't done before – in an attempt to improve their farm's performance. This was the first implementation of a CIS-inspired innovation questionnaire to Irish agriculture.
- In the 2009 NFS, farmers were asked whether or not they used 20 different technologies/practices. Replies ranged from a high of 90% of all farmers implementing controlled grazing to a low of 3% of all farmers carrying out grass budgets. For dairy farmers, the figures ranged from a high of 93% and

a low of 15% for the same practices respectively. This was the first time that such an extensive range of technology/practice questions had been inserted into the NFS with a view to creating a benchmark against which to assess practice adoption over time.

- 3) Findings from case studies of firms in two predominantly rural industries, furniture manufacturing and fabricated metal products showed that location (especially local knowledge, sub supply and labour inputs) played an important role in the innovation processes of such low and medium technology firms. However, the role of location was different for different firms in different sectors, as the firms sought to respond to global competitive pressures. For the furniture firms, they increasingly had fewer connections (were less embedded) with the local rural area. By contrast, the fabricated metal product firms showed significantly more embeddedness with the local area and that this was perhaps even essential for them. From a policy perspective, the research findings suggests that cluster promotion (which has been an aspiration of Irish industrial policy since at least 1992) may not always be the correct strategy. For national and local development strategies the conclusion is that rather than one comprehensive industry or enterprise support policy, a much more complex variety of policies must be available.
- 4) Two main categories of 'barrier' are identified as having the capacity to inhibit popular engagement with the enterprise development aspect of LEADER. The first category comprised a range of bureaucratic and financial obstacles, such as compliance with LEADER eligibility criteria and funding rules, stringent business planning and feasibility research requirements and securing the required 25 percent to 50 percent match funding. The second category was in relation to the criteria used by LEADER companies in evaluating enterprise applications. More particularly, concerns were raised about how Local Action Groups (LAGs) interpret two key funding criteria in the evaluation process: displacement and innovation. Avoiding displacement means that an enterprise cannot be funded by LEADER if a similar business exists elsewhere within the catchment area of the LAG in question, or a neighbouring LAG. If enforced, the rule of displacement may prevent a certain type of competition and the process that is known as 'creative destruction' in the innovation literature. Creative destruction is the process whereby new businesses compete with existing businesses and replace those that are weak. In a 'creatively destructive' economy, entrepreneurs satisfy consumer wants through the provision of either completely new products or services, or improvements on existing products or services. The net effect is the same: inefficient incumbent firms (those that are not providing consumers with what they want at appropriate price and quality combinations) lose out to new firms, but consumers gain through expanded choice. The net result of both of these barriers is that the LEADER eligibility criteria and funding rules might in fact hamper the type of innovative activity that the programme was designed to support. In terms of recommendations, it was suggested that a more strategic interpretation of the displacement rule by LEADER might be appropriate if stimulating an innovation outcome is the goal of LEADER policy towards enterprise.
- 5) Increasingly, contributions to the innovation systems literature seek to use the framework operationally as a guide to designing interventions to an innovation system in addition to descriptive analysis of innovation systems. In contrast to other interventions, a 'problem focused innovation system' is considered temporary, reactive and applicable to market problems. However, there are few empirical examples of such interventions and few, if any, applications of the problem focused innovation systems framework to agriculture. This paper examines the concept of a 'problem focused innovation system' and argues that a recent intervention in the Irish agricultural sector – Animal Health Ireland's Mastitis Prevention and Control Programme, Cellcheck – is one such example. From a policy perspective, the case highlighted how some well-recognised critical innovation system challenges such as lack of actor coordination and purposiveness were addressed.

Other scientific activities

- In collaboration with colleagues in Teagasc Moorepark, a project to Benchmark and Understand the Utilisation of Grassland Management Practices was conceived and successfully attracted core Teagasc funding. Associated funding for a PhD Walsh Fellow to research certain aspects of grass and nutrient management practices was also achieved. The specific outcomes of that project and the associated Walsh Fellowship are the subject of a separate Technology update.
- Negotiated inclusion of Teagasc's Rural Development Programme into a project, funded by the EU INTERREG Northern Periphery Programme, which was based on the provision of an innovative model of rural micro enterprise support. That project is the subject of its own Technology Update.

5. Opportunity/Benefit:

The findings of this project inform Teagasc and other stakeholder approaches to innovation in the rural economy. The project also laid the groundwork for a series of innovation related projects in Teagasc.

6. Dissemination:

Main publications:

Peer reviewed

- Heanue, K., O'Donohue, K. and O'Neill, M. (2012) Rural Economic Development Through Collective Action, *Administration*, 60 (2), pp. 3-25
- Heanue, K. P. and Macken-Walsh, A., (2012) Static Structures and Dynamic Processes of Participation and Access: A Case Study of Connemara Community Radio, *Irish Communications Review*, 13, 99-115.
- Hennessy, T. and Heanue, K. (2012) Quantifying the Effect of Discussion Group Membership on Technology Adoption and Farm Profit on Dairy Farms, *Journal of Agricultural Education and Extension* 18.1, 41-54.
- Howley, P., O'Donoghue, C., and Heanue, K. (2012) Factors Affecting Farmers' Adoption of Agricultural Innovations: A Panel Data Analysis of the Use of Artificial Insemination among Dairy Farmers in Ireland. *Journal of Agricultural Science*, 4, (6), pp 171-179.
- Heanue, K. P., & Jacobson, D. (2008) Embeddedness and Innovation in Low and Medium Tech Rural Enterprises, *Irish Geography*, Vol 41. No. 1. March, 113-137

Commissioned Reports

- Heanue, K. (2011) *Technology/Practice Adoption and Diffusion*, Briefing Note for Economics and Planning Division of the Department of Agriculture, Food and Marine (November)
- Heanue, K (2010) (ed) *The Implications of the Recession for Irish Agriculture*, National Rural Network, Tipperary Institute

Book chapters

- Heanue, K. P. and Jacobson, D., (2010) Embeddedness and Innovation in Rural Enterprises, in Kirby, P. and Carmody, P. (eds) *The Legacy of Ireland's Economic Expansion*, Routledge, Oxon.
- Heanue, K. (2011) *Technology/Practice Adoption and Diffusion*, Briefing Note for Economics and Planning Division of the Department of Agriculture, Food and Marine (November)
- Heanue, K. P., (2007) Innovation, Education and Partnership in Peripheral Rural Ireland, pp. 103-113 In: Koulouris, P. and Sotiriou, S. (eds.) *Rural Learning for Development: Experiences from Europe. Report on Rural Learning for Development and Book of Proceedings of the 2007 RuraLEARN Conference and Workshops*, Ellinogermaniki Agogi, Greece. ISBN: 978-960-8339-25-1

Popular publications:

- Ryan, M., Ramsbottom, G., and Heanue, K. (2009) Technology Adoption and Innovation, *TResearch*, Vol. 4, No. 2, Summer, pp. 50-52
- Heanue, K. (2008) Innovation on Irish Farms, *TResearch*, Vol. 3, No. 2, 39-40.

7. Compiled by: Kevin Heanue, , Rural Economy and Development Programme