END-OF-PROJECT REPORT

Recreational demand modelling for agricultural resources

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Summary

In the last decade the demand for rural recreation has increased in Ireland as the population has become increasingly urbanised. Increased affluence, mobility and changing values have also brought new demands with respect to landscape, conservation, heritage and recreation, with a greater emphasis on consumption demands for goods and services in rural areas. This project's contribution to the understanding of outdoor recreational pursuits in Ireland is based on the estimation of the first recreation demand functions for farm commonage walking, small-scale forestry recreation and whitewater kayaking. These are all popular activities that take place in Irish rural space. We use this empirical work to investigate the more general conflict between countryside recreational pursuits and farming activity. Through the estimation of travel cost models, the study derives the mean willingness to pay of the average outdoors enthusiast using small-scale forestry sites in Co. Galway, using farm commonage in Connemara and using the Roughty river for kayaking recreation in Co. Kerry. An estimate of the gross economic value of the sites as recreational resources was also derived. The results indicate the high value of Irish farmland (and the Irish rural countryside in general) from a recreational

amenity perspective. The project lasted approximately 2 years and was completed on-time (31st July 2007).

Introduction

This study was concerned with the valuation of recreational activity in rural Ireland. Three types of recreational pursuits were modelled in this project; farm commonage walkers, small-scale forestry users and whitewater kayakers. The valuation of the recreational use of an environmental amenity attempts to estimate the economic value, in monetary terms, which members of society receive from the use of natural resources. These resources cannot be efficiently allocated through markets due to their public good characteristics such as being non-rival and non-excludable. Yet walking in a farm forest or on upland commonage can provide an economic benefit to the individual even if a formal market does not exist. It is a benefit for which they would, if they had to, pay some monetary amount, perhaps a parking or access fee. The fact that they do not have to pay (in most cases) anything, results in the recreationalist retaining a ‘‘consumer surplus’’ as extra income (Loomis, 2000). Even if a uniform fee was charged for farmland access, a consumer surplus would still exist for all but the marginal user.

Methods of recreation valuation are usually categorised into stated and revealed preference approaches. In the former, respondents (usually recreationalists) are asked to directly state their Willingness to Pay (WTP) for recreational opportunities in the context of hypothetical changes in the supply or quantity of these opportunities. Revealed Preference (RP) models are the main alternative to Stated Preference (SP) techniques for modelling recreation. The RP methods of valuation are based upon data drawn from observations of behaviour in real markets from which inferences may be drawn on the value of a related non-market good. It is a RP method known as the travel cost method (TCM) that was adopted in

this project. The TCM valuation method has been used to estimate the demand for the services of recreation facilities in a wide variety of applications. Examples include Loomis et al. (2000) for whale watching; Chakraborty and Keith (2000) for mountain biking; Font (2000) for national park recreation; Curtis (2002) for recreational fishing; and Shaw and Jakus (1996) for rock climbing.

All land in Ireland is owned either by private landowners, the Irish government or state agencies. Recreational users do not have a legal right of entry to land in Ireland; access is at the discretion of the landowner. While the great majority of Irish landowners continue to facilitate recreational users, in recent times there has been an increase in the closure of lands. There are various reasons underlying this change in farmers' attitude to recreational users on their land. These include fear of litigation, poor behaviour by some recreational users, a decline in the economic viability of smaller farms and frustration that the farming community or landowners are the one party not to gain any direct benefit from the commercialised recreational use of their land.

Government supported initiatives to promote public access to the countryside in Ireland include The Irish Sports Council's "National Waymarked Ways", the Slí na Sláinte walking routes under the Irish Heart Foundation and forest walks developed by Coillte (the state owned forestry company). The National Waymarked Ways and Slí na Sláinte implement "wayleave" agreements between landowners, local development committees and local authorities. Coillte also has an open forest policy which encourages the use of forest walks. With a view to maximising the benefit of recreational activity to rural communities and providing a framework for the development of this sector, the Irish Department for Community, Rural and Gaeltacht Affairs, established Comhairle na Tuaithe (Countryside Council) in January 2004. Comhairle na Tuaithe is addressing three priority issues: access to the countryside;

the development of a countryside code and the development of a National Countryside Recreation Strategy. From a tourism prospective, guaranteed access to the Irish countryside by recreational users is imperative as countryside pursuits are the bed rock of Ireland's Special Interests Tourism plans. Within the Special Interests Tourism category "Walking Tourism" is Ireland's largest niche area delivering the highest numbers of visitors.

Data and Surveys Conducted

As already mentioned, three types of recreational pursuits were modelled in this project; farm commonage walkers, small-scale forestry users and whitewater kayakers. The data for the whitewater analysis was partly collected from a survey distributed to whitewater kayakers in and around the study area of the river Roughty in Co. Kerry. In addition, the survey was made available on the homepage of the main Irish whitewater kayaking website (www.irishfreestye.com). Kayakers who had used the river in the previous year and who had not already filled out a questionnaire on site were asked to download the questionnaire and return it via email. A total of 82 surveys were collected at the river, with a further 78 being returned via the internet. Out of a total of 160 returned questionnaires 144 were usable in the analysis.

Data for modeling the demand for small-scale forestry recreation was collected using on-site, in-person interviews between June and August 2006. Interviews were undertaken at two rural forest sites in Ireland; Barna Wood and Renville forest. Both forest sites are managed by Galway County Council. Barna Wood is located in the western suburbs of Galway city, covering 10.5 hectares and Renville Forest Park is located in the outskirts of Galway City, on the edge of Oranmore village with a forested area of 18.5 hectares. Barna Wood, just 3 miles from the centre of the city boasts the last natural

growing oak forest in the west of Ireland. This mature wood provides walks, trails and picnic facilities. Renville Park meanwhile has amenities for visitors and locals alike, with walks, a playground and picnic/barbeque facilities on site.

These two forest sites were chosen as the objective of this study was to estimate the recreational value of rural forestry to nearby residents. To this end, both chosen forest sites are relatively small and are located in close proximity to residential populations. They are not tourist destinations in their own right but nevertheless are used heavily by the local urban communities as recreational amenities. The frequency of visits is quite high with a significant number of people visiting the sites on a daily basis. The forests cater for a wide range of uses, from walking, nature walking, dog walking, cycling and picnicking. As part of this study, 269 on-site personal interviews were carried out in Barna Wood and Renville Forest Park. Since we suspected the validity of those individuals who stated a very high number of trips taken, we followed the example of Morey et al., (1993) and constrained the sample to those who stated that they had made 200 or less trips in the previous year. This left 235 remaining observations.

The data analysed in this project in terms of farm commonage walking recreation were generated from a survey of visitors to Roundstone Commonage, in Connemara, County Galway, Ireland. The Roundstone commonage site is owned and managed by a group 16 shareholders who use the land for grazing but allow freedom of access to the public for walking and other beach related recreation activities. The commonage site is situated on an outcrop of land that separates Dogs Bay and Gurteen Bay. A total of 265 individuals were interviewed. Each interview lasted approximately 15 minutes and followed a standard format.

For all 3 survey instruments, questions about the frequency and costs of trips to the recreational sites were asked. Specifically, respondents were asked how many trips they had taken in the previous 12 months. Focusing on each respondent's most recent trip, additional information was collected about the number of miles traveled, and the time required to complete the trip. Also contained in the survey were questions regarding each recreationalists's age, occupational status and income. The question regarding income requested that the respondent indicate which of six categories reflected their before-tax household income. The midpoint of each category was then taken as the best estimate of the respondent's income. The format of all survey questionnaires followed standard guidelines for the design of the valuation survey instruments (Bateman et al., 1996). Survey respondents were provided with some background information on the study and were then asked to outline how they used the particular rural site for recreation. Finally, socio-economic, demographic and attitudinal data was also collected from the respondents in all surveys.

Materials and Methods

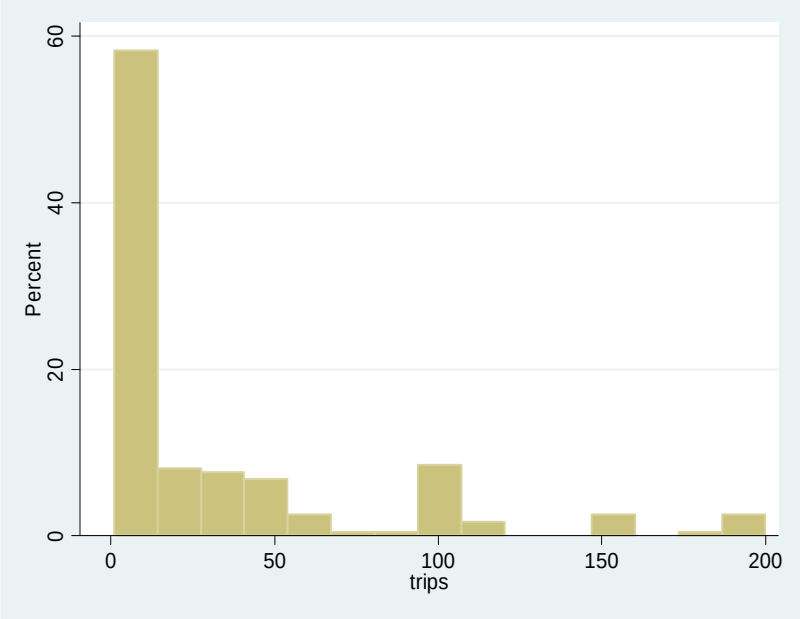
The travel cost model (TCM) is widely used by economists to estimate user benefits from visits to recreational areas. It is an indirect valuation technique which uses travel expenditure in getting to a site as a surrogate measure for the "price" paid by an individual visitor in order to use the site in question. The price faced by recreationalists is the cost of access to a given site (mainly the time and money costs of travel from home to site), and the quantity demanded per year is the number of recreational trips they actually make to a given site. A demand equation can then be estimated, from which consumer surplus can be derived. The economic value (consumer surplus) of a particular output of a public good such as forest site recreation can be found by estimating the consumer demand curve for that output. It

is important to note that the consumer surplus estimate is a measure of the user value of the forest site only, and does not necessarily measure the site's environmental or intrinsic value (McKean and Walsh, 1986).

Travel cost should reveal itself as being the critical driving factor behind the demand for trips to a recreational site. Demographic factors such as gender and age generally have less dramatic impacts on demand, but can be important in explaining why different groups respond differently to changes in price or income (McKean and Taylor, 2000). Variation among recreationalists in travel cost from home to the river, commonage or forest sites (i.e., price variation) creates the alternative recreation demand function.

Travel Cost Count Data models are typically estimated based on either the poisson or negative binomial distributions. Such an approach is consistent with the discrete nature of the dependent variable, i.e. the annual number of trips. The number of trips taken in any given year is reported as a discrete, non-negative integer value. Thus, application of the standard distributional assumptions (e.g., normality) is inappropriate because the dependent variable in the TCM cannot take on a continuous range of values. This is evident from the histogram in Figure 1 below where it can be seen that a discrete probability distribution will result in a better model specification.

Figure 1: Distribution of Recreational Trips to the Forest Sites in the Study



The Poisson model has been criticised because of its implicit assumption that the conditional mean of T (in our case T is the expected number of trips to the urban forest area demanded) equals the variance of T (Greene, 1993). Therefore, if a Poisson model is fitted to the river, commonage or forest site data, a mean-variance equality restriction is imposed on the estimation; effectively requiring the variance to be less than it really is. As a result, the true variability in the data is underestimated. This will lead us to the underestimation of standard errors, and so the overestimation of the degree of precision in the coefficients (Cameron and Trivedi, 1986).

This mean-variance equality has proven problematic in applied work since real data frequently exhibits "over-dispersion"; i.e., where the conditional variance is greater than the conditional mean. Take recreationalists at the forest site for example. The average number of trips taken to the forest in one

year was 32.5 but the variance was over 68 times that at 2,228. Following the work of Creel and Loomis (1990) and Grogger and Carson (1991), the Poisson distribution can be generalised to take into account this problem of over-dispersion. The generalisation most often used in the literature is the negative binomial probability distribution (Grogger and Carson, 1991; Englin and Shonkwiler, 1995; Curtis, 2002) where an individual, unobserved effect is introduced into the conditional mean.

There is one other issue that needs to be addressed with on-site collected data and that is the fact that there are no observations for individuals who made zero trips to the recreation sites. The survey dataset only reflects the behavior of individuals who took at least a single trip to the study areas. While this observation may be obvious, it has important implications for the empirical specification of the TCM. Exclusion of individuals who chose not to make a trip implies that the data has been systematically truncated. If this truncation is not recognised, the resulting parameter estimates will be biased in terms of inferences drawn about the population of potential beneficiaries of rural recreation in the future. This bias will extend to the estimates of consumer surplus that are derived from these parameters. To avoid this problem, one must modify the negative binomial distribution to reflect the fact that T_i is only observed when $T_i > 0$. Following Grogger and Carson (1991), the negative binomial probability distribution is adjusted to account for truncated counts. This probability model can be written as:

$$\Pr(T_i) = f(T_i) = \frac{\Gamma(T_i + 1/\alpha)}{\Gamma(T_i + 1)\Gamma(1/\alpha)} (\alpha\lambda_i)^{T_i} (1 + \alpha\lambda_i)^{-(T_i + 1/\alpha)} [1 - f(0)]^{-1} \qquad \textbf{(1)}$$

where there are i = 1, 2, …, n observations, T_i is the number of trips to a given site for individual i and λ_i is some underlying rate at which the number of trips occur, such that we expect some number of trips in a particular year i.e., the mean of the random variable T_i, $(E(T_i \mid X_i))$ is given by λ_i and $\lambda_i = \exp(X_i`\beta)$. The variance of y_i $(\text{var}(T_i \mid X_i))$ is given by $\lambda_i(1 + \alpha\lambda_i)$. The vector X_i represents the set of

explanatory variables reported for each individual i. It is a 1 by k vector of observed covariates and β is a k by 1 vector of unknown parameters to be estimated. The scalar α and the vector β are parameters to be estimated from the observed sample. Γ in equation (1) indicates the gamma function that distributes λ_i as a gamma random variable. Finally α is a nuisance parameter to be estimated along with β. This parameter is a measure of the ratio of the mean to the variance of the number of trips to the forest site. Larger values of α correspond to greater amounts of over-dispersion. The model reduces to the Poisson when $\alpha = 0$ as $E(T_i \mid X_i)$ is again equal to $var(T_i \mid X_i)$). The truncated probability function differs from the standard probability function by the factor $[1 - f(0)]^{-1}$. Since $f(0)<1$, multiplication of the usual probabilities by $[1 - f(0)]^{-1}$ inflates them, accounting for the unobserved zeros. Estimation of the resulting truncated negative binomial model relies on standard maximum likelihood techniques. The log-likelihood function for the truncated model can be written as follows:

$$\ln L = \sum_{i=0}^{N} \ln\Gamma(T_i + 1/\alpha) - \ln\Gamma(1/\alpha) + T_i \ln(\alpha\lambda_i) - (T_i + 1/\alpha)\ln(1+\alpha\lambda_i) - \ln[1-(1+\alpha\lambda_i)^{-1/\alpha}] \quad \textbf{(2)}$$

where N corresponds to the size of the truncated sample. The conditional mean and variance of this model is given by:

$$E(T_i \mid X_i, T_i>0) = \lambda_i[1 - f(0)]^{-1} \quad \textbf{(3)}$$

and

$$var(T_i \mid X_i, T_i>0) = \frac{E(T_i \mid X_i, T_i > 0)}{f(0)^{\alpha}}\{1-[f(0)]^{1+\alpha} E(T_i \mid X_i, T_i > 0)\}. \quad \textbf{(4)}$$

For comparison purposes, the demand model was also estimated under the less restrictive assumptions imposed by use of the truncated negative binomial distribution. A truncated Poisson distribution can also be used to model the data generating process that underlies the discrete, nonzero values observed in the sample. Although this model can be somewhat easier to estimate, it once again imposes the restriction that the conditional mean of the dependent variable, λ, is equal to the conditional variance.

Results and Discussion

The analysis on recreational pursuits in rural small-scale forestry was the first of its type carried out in Ireland. Other discrete choice modelling studies on recreational pursuits in Irish forestry have been carried out but none were concerned with rural, predominately locally used, forests outside of Coillte's control. This study found that the mean willingness to pay (mean WTP) (i.e., the consumer surplus + travel cost) of the average recreationalist using the urban forest sites in Co. Galway was €12.33 per trip. This result was conditional on the survey sample but still indicates the high value of these urban forest sites as recreational resources. Average sample travel costs were €7.36 compared to the total value of €12.33. Given that consumer surplus is 40 per cent of total willingness to pay this would suggest that individuals receive a considerable benefit from urban forest recreation in excess of their travel costs.

With regard to the estimation of the travel cost model for whitewater kayaking recreation, the study found that the mean consumer surplus of the average kayaker using the Roughty river in Co. Kerry was €235 per year. In a survey looking at river usage in Ireland carried out on the internet site, www.irishfreestyle.com, it was found that 43% of the respondents had paddled the Roughty river.

Taking this as an estimate of the proportion of the population of intermediate or advanced kayakers in the country, that paddle the Roughty river an estimated average of 2.83 times per year, this would mean an estimated 7,075 trips in aggregate to the Roughty river per year. This indicated a total consumer surplus figure of €0.589 million for the kayaking population using the Roughty river in Co. Kerry. The population estimate of total consumer surplus is estimated with 95% confidence to be between €0.442 and €0.884 million.

The study related to recreational pursuits on farm commonage found that the mean willingness to pay (i.e. the consumer surplus + travel cost) of the average recreationalist using the commonage area in Connemara was €41.92 per trip. This result is once again conditional on the survey sample but still indicates the high value of this commonage site as a recreational resource. Average sample travel costs were €9.67 compared to the total value of €41.92. The estimate of gross economic value or total willingness to pay for recreation usage of the Roundstone commonage area in Connemara was €1.82 million per year. Given that consumer surplus is 77 per cent of total willingness to pay this would suggest that individuals receive a considerable benefit from commonage recreation in excess of their travel costs.

Estimating the welfare effects of changes in the quality or supply of the rural environmental good being consumed by the recreationalist was another key goal of the analysis within the Rural Recreation Project. We therefore considered the implications for kayakers, forest users and walkers on farmland of changes in certain attributes of the forest, river or farmland. The results of the research show that a policy aimed at increasing by one unit the perception of water quality at the river Liffey would increase the welfare of kayakers by €1.89 per site visit. A policy of piping water for farm irrigation or the

building of a small scale hydro electric dam on one of the most popular whitewater kayaking rivers in the country, the river Rought in Co. Kerry would reduce the water level by such an extend as to make it un-navigable by kayak. The take out point on this river requires crossing privately owned farmland to access the road. The water removal policy was found to reduce the welfare of kayakers by an average of €9.61 per kayaker per trip. For forestry users it was found that the investment in a wildlife viewing hide at a small scale forest site in Co. Galway would increase average walker visits from 4.5 to an estimated 9.18 per person per year. This corresponds to an increase in welfare of €36 per person per year. The creation of a sculpture garden at the same site, resulted in an estimated increase in welfare per forest recreationalist of €29.53 per year. The actual models for each recreational demand schedule and further results are contained in the papers listed in the "Outputs from Project" section below.

What these results demonstrate is that recreational demand and accompanying economic values associated with the recreational use of the Irish countryside is significant. But there is a linkage between recreational demand and a managed landscape provided by grazing livestock systems and managed woodlands which underscores the importance of agricultural and rural development measures which support farming communities. To maintain the farming landscape in the condition that outdoors enthusiasts expect when they visit the countryside for recreational pursuits, policy instruments will be required which integrate agricultural concerns with those of recreational demand on privately owned farmland and which ensure the continuation of farming practices in areas of marginal land quality, the farmland type that is often the most valuable from a rural recreational perspective.

Conclusions

Ensuring that the future of rural recreation is sustainable requires ensuring that recreational developments on farmland do not adversely affect the production activities of farmers and also requires the recognition that there are costs involved for farmers in giving recreational access to their lands. This recognition is required especially where there is a need to introduce or maintain infrastructural facilities such as trails, signposts and information boards. This recognition could perhaps be most easily given to landowners under rural development programs or as supplementary payments under agri-environmental schemes such as The Irish Rural Environment Protection Scheme (REPS) which as been in operation in Ireland since 1994.

While it can be argued that there is considerable direct payments (now consolidated in the Single Farm Payment) which European farmers already receive from the taxpayer in return for acting as “custodians

of the countryside" these payments relate to farm production activities and under Council Regulation (EC) No 1782/2003 a requirement to maintain land in good agricultural and environmental condition. They are not intended to cover the costs of developing and maintaining trails, stiles, signposts and other facilities for recreationalists using the farmland. To this end additional resources may have to be made available to ensure that the potential for increasing countryside recreation in Ireland, and similarly increasing tourism activities related to recreation, is done with due regard to the landscape, the visitor experience and perhaps most importantly the farmers who own and work the natural resources.

Research by the Environmental Modelling Unit of RERC investigating the economic value associated with rural recreation has generated considerable interest in the relevant economic and policy making communities. Although policy makers are aware of the economic opportunities associated with open-air outdoor recreation activities, rational public decision making and finance provision requires that the economic benefits associated with rural recreation pursuits should be clearly identified and valued. Furthermore, the provision of new rural recreation schemes also depends on the supply of public funds, which must be justified to the public exchequer, the European Commission and the public at large. The results of RERC's programme of research in relation to rural recreation will inform this process. It will also, it is hoped, add considerably to the "public access to the Irish countryside for recreation" debate.

Outputs from Project

Refereed publications in international journals

Hynes, S., Buckley, C. and van Rensburg, T. 2007, "Recreational Pursuits on Marginal Farm Land: A Discrete-Choice Model of Irish Farm Commonage Recreation". *The Economic and Social Review*, Vol. 38, No. 1: 63 – 84.

Hynes, S., Hanley, N., Garvey, E., 2007 "Up the Proverbial Creek without a paddle: Accounting for variable participant skill levels in Recreational Demand Modelling". *Environmental and Natural Resource Economics*, 36: 413 – 426

Mill, G., van Rensburg, T., Hynes, S. and Dooley, C. 2007, "Valuing Preferences for Multiple Use Forest Management in Ireland: Citizen and Consumer Perspectives" *Ecological Economics* 60: (3) 642-653.

Hynes, S. and Hanley, N., 2006. "Preservation versus Development on Irish Rivers: Whitewater Kayaking and Hydro Power in Ireland". *Land Use Policy Journal* vol. 23, p170 - 180.

Christie, M., Hanley, N. and Hynes, S. "Valuing Enhancements to Forest Recreation using Choice Experiments and Contingent Behaviour Methods" Forthcoming in the *Journal of Forestry Economics*.

Hynes, S. and Cahill, B., "Valuing the Benefits to the Local Community of Supplying Recreational Facilities in Community Owned Forests: An Application of the Contingent Behaviour Method" Forthcoming in *Small-Scale Forestry*

Reports, PhD thesis and Proceedings

Christie, M., Hanley N., Garrod, B., Hyde., T, Lyons, N., Bergmann, E., Hynes, S. (2006). Valuing heterogeneity of forest recreation activities: Final report. Forestry Commission: Edinburgh.

Hynes, S., Buckley, B, van Rensburg, T. and Oh, S. 2006 "Valuing the recreational benefits of Irish low land commonage" Proceedings of the Agricultural Research Forum 2006, p. 65. Teagasc Publications.

Hynes, S. 2006 "Recreational Demand Modelling for Whitewater Kayaking in Ireland" Ph.D. Dissertation, University of Stirling, Scotland

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Hynes, S., Buckley, B and van Rensburg, T. 2007, "To Plough or Play? Modelling Recreational Pursuits on Irish Farm Commonage". Department of Economics, National University of Ireland Galway Working Paper Series No. 118. Downloadable at http://www.economics.nuig.ie/resrch/pdf/paper_0118.pdf

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Hynes, S. and Cahill, B. Dillion, E. 2007. "A Negative Binomial Discrete Choice Model of Forestry Recreation in Ireland" Teagasc Working Paper, No.9.

Hynes, S. and Cahill, B. 2007. "A Combined Stated-Revealed Preference Model of Recreation in Irish Forestry" Teagasc Working Paper, No.7.

Cahill, B and Hynes, S. 2007. "Trails or Timber? A Contingent Behaviour Model of Recreational Facilities in Irish Forestry", Department of Economics, National University of Ireland Galway Working Paper Series No. 115

Christie, M., Hanley, N. and Hynes, S., 2006. "Comparing welfare estimates using Choice Experiments and Contingent Behaviour Methods". Teagasc Working Paper, May 2006

Hynes, S., Buckley, C. and van Rensburg, T. "Agricultural versus Recreational Activity on Marginal Farm Land: A Discrete-Choice Model of Recreational Activity on Irish Farm Commonage" Teagasc Working Paper, April 2006.

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Hynes, S., Morrissey, K. and O'Donoghue, C., 2006. "Building a Static Farm Level Spatial Microsimulation Model: Statistically Matching the Irish National Farm Survey to the Irish Census of Agriculture", Teagasc Working Paper, April 2006

Hynes, S., Hanley, N. and O'Donoghue, C., 2006. "Using Continuous and Finite Mixture Models to Account for Preference Heterogeneity in a group of Outdoor Recreationalists", Teagasc Working Paper, February 2006.

Hynes, S., Hanley, N. and Garvey, E., 2006. "Up the proverbial creek without a paddle: Accounting for variable participant skill levels in recreational demand modelling", Teagasc Working Paper, January 2006.

Presentations

Buckley, C., van Rensburg, T.M. and Hynes, S. 2007. A contingent valuation assessment of recreational demand on farm commonage in Ireland. Irish Economic Association Conference, Bunclody, Co. Wexford, 27th - 29th April, 2007.

Hynes, S., Hanley, N. and O'Donoghue, C. 2006. "Using Continuous and Finite Mixture Models to Account for Preference Heterogeneity in Whitewater Kayaking" presented at the 3rd World Congress meeting of the Environmental and Resource Economists, Kyoto, Japan, July 3rd to 7th.

Hynes, S. 2006. "Environmental Economics and Community Development" presentation to staff and students of the Diploma in Community Development, NUIG, May 9th.

John Cullinan, Stephen Hynes, Cathal O'Donoghue, 2006. "The Use of Spatial Microsimulation and Geographic Information Systems (GIS) in Benefit Function Transfer – An Application to Modelling the Demand for Recreational Activities in Ireland" Paper presented at the twentieth annual IEA Conference in Wexford, April

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