

**Extended Abstract**  
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<b>Paper/Poster Title</b>	<b>Behavioural Drivers of Farmers Intention to Adopt Long-Term Land Leasing: An Application of Extended Theory of Planned Behaviour</b>
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**Abstract prepared for presentation at the 97<sup>th</sup> Annual Conference of the Agricultural Economics Society, The University of Warwick, United Kingdom**

**27<sup>th</sup> – 29<sup>th</sup> March 2023**

<b>Abstract</b>	<i>200 words max</i>
<p>Land rental systems play an important role in shaping farmers’ land-use decisions in terms of providing sufficient incentives to increase their efficiencies, productivity and environmental sustainability. An insecure, short-term land rental system, such as conacre in Northern Ireland, may be a disincentive to farmers in their decision-making around investing in land management and development, consequently resulting in reduced farm-level productivity. The objective of this study is to analyse the psychological and behavioural factors influencing farmers’ intention to take up long term land leasing in Northern Ireland. To achieve our objectives, we employed a mixed method approach. Specifically, we employed the theory of planned behaviour (TPB) methodology which we extended with the inclusion of the perceived risk and pro-environmental behaviour constructs and structural equation modeling (SEM) techniques. Data was collected using a hybrid approach and principal component analysis (PCA) employed to validate and confirm the belief-based components within each construct while Cronbach’s Alpha Coefficient was used to assess the internal reliability of the questions in each of the constructs. The results of our analysis showed that attitude, perceived behavioural control, subjective norm and perceived risk were statistically significant, determinants of farmers intention to adopt long-term land leasing. The study results have important implications for the design of effective policies aimed at encouraging long-term land leasing through behavioural change.</p>	
<b>Keywords</b>	Conacre; Land tenure; Land reform; Northern Ireland; Structural equation modeling;
<b>JEL Code</b>	Q150
<b>Introduction</b>	<i>100 – 250 words</i>
<p>The mobility and efficiency of the land market is a crucial part of a society’s farming sector as it determines the rate at which existing farmers can expand production to enhance their farming and the availability of land for new entrants into farming. Land mobility is a significant issue in Northern Ireland with the majority of farming undertaken on owned land, transferred intergenerationally thus the transfer of land through open-market sales is very limited and land prices are high. In addition, access to land through leasing is constrained by the short-term</p>	



conacre land rental system predominant in the region (Adenuga et al., 2021; Milne et al., 2022). The conacre land rental system which is unique to the island of Ireland involves the renting of land nominally for 11 months or 364 days and permits land to be let to other farmers without the need for either party to enter into a long-term commitment. Currently around one third (about 300,000 hectares) of agricultural land in Northern Ireland is being farmed under conacre agreements (Adenuga et al., 2021). However, the short-term nature of the conacre system does not provide security of tenancy over a longer time frame to encourage investment in land, which may have a consequential effect on the overall competitiveness, environmental sustainability and productivity of the Northern Ireland agri-food sector (Milne et al., 2022). The objective of this study is therefore to analyse the behavioural drivers of farmers' intention to adopt long-term land leasing in Northern Ireland. To the best of our knowledge, this study offers the first attempt to use a mixed method approach to analyse the behavioural factors influencing farmers' intention to adopt long-term land leasing. The study results would provide policy makers with requisite evidence base and valuable insights into formulating policies to encourage long-term land leasing.

<b>Methodology</b>	<i>100 – 250 words</i>
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**Data Collection**

The sampling frame for this study is the farm census data for Northern Ireland which consist of 25000 farms out of which 12 747 responded to the census for the year 2020. We selected 4029 from the farming population who took part in the survey in 2020 using a stratified random sampling technique. The questionnaire used for data collection was developed in a hybrid format such that it can be completed both on paper and online using a QR code. Out of the 4029 questionnaires administered, 1228 paper questionnaires were returned in the pre-paid envelopes sent alongside the questionnaire before the deadline date set while 499 questionnaires were completed online. In total we received 1727 responses for analysis.

**Analytical techniques**

To achieve the objectives of this study we employed a combination of quantitative and qualitative modeling techniques. The qualitative aspect of the methodology involved key informant interviews and focus group discussion with important stakeholders in the Northern Ireland agricultural sector. For the quantitative aspect of the analysis, we combined the theory of planned behaviour (TPB) with structural equation modeling technique (SEM). Analysis was undertaken for all the farmers in our sample and for farmers that currently rent out land. The TPB stipulates that intention is jointly determined by three psychological constructs: attitude, subjective norm, and perceived behavioural control toward the behaviour. We extended the TPB to include two additional constructs of perceived risk and environmental attitude, which are hypothesised to influence the likelihood of adopting of long-term land leasing. The use of SEM has the advantage of being able to simultaneously estimate measurement and structural models compared to a correlation approach. Principal component analysis (PCA) was used to validate and confirm the belief-based components within each construct while Cronbach's Alpha coefficient was used to assess the internal reliability of the questions in each of the construct. The analysis was undertaken using different estimation options of "maximum likelihood" and the "maximum likelihood with missing values".

<b>Results</b>	<i>100 – 250 words</i>
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The results of our analysis showed that farmers intention to adopt long-term land leasing is influenced by behavioural factors. We assessed the fitness of the structural equation model using multiple indices. The indices for both the TPB and the extended TPB model attained the recommended Goodness-of-Fit (GOF). The root means square error of approximation (RMSEA), goodness of comparative fit index (CFI), Tucker-Lewis index (TLI) and the coefficient of determination (CD) were all close to or better than the recommended levels indicating that the hypothetical model was suitable



for analysing the survey data. The results of our analysis showed that the results for both TPB and the extended TPB models are similar in terms of the relationships between the constructs and the intention to take up long-term land leasing. All the constructs for the TPB model, attitude, perceived behavioural control and subjective norm were positive and statistically significant at the 1% level. However, the magnitude of the effects of the constructs on farmers intention to take up long-term land leasing were asymmetric. Attitude has the largest influence given the relative size of the path coefficient. On the overall, our TPB model explains 75.6% of the variance in behavioural intention to take up long term land leasing. The results of the extended TPB model showed that perceived risk has statistically significant and negative impact on the intention to take up long-term land leasing. This implies that farmers that are risk averse are less likely to take up long-term land leasing. On the other hand, pro-environmental construct does not have a statistically significant relationship with the intention to take up long-term land leasing. However, it has a positive and statistically significant effect on attitude implying that attitude significantly mediates the effect of environmental behaviour on the intention to take long-term land leasing. We found some slight differences in the results obtained in the sub-group of farmers that currently rent out land compared to analysis for the whole sample.

#### **Discussion and Conclusion**

*100 – 250 words*

In this paper, we extended the social-psychology theory of planned behaviour to explain the intention of farmers to adopt long-term land leasing. Intention is modelled as a function of belief-based measures which include attitude to long-term land leasing, subjective norms, perceived behavioural control, perception of risk taking and environmental orientation which accounts for the heterogeneity in the environmental attitude of farmers and farmland owners. The model constructs were validated and confirmed using the PCA. The study results shows that farmers attitude towards long term land leasing has the greatest impact on their intention to adopt long-term land leasing for the average farmer in the study area. Conducting the analysis only for farmers that currently rent out land also show similar results with the attitude component of the model having greater impact on the intention of the lessors to adopt long-term land leasing. Our findings provide support for the TPB as a whole and hence adequate in examining farmers' intention to take up long term land leasing. The results of our analysis both for the whole sample and for the sub-sample of farmers that currently rent out land has shown that the attitudes of farmers play a key role in the explanation of the relationships between the analysed variables. Not only is the intention to take up long-term land leasing directly influenced by attitude, but the results also show that it also serves as a mediator between other variables considered in the models. This important role of attitude as a mediator between the intention to take up long term land leasing and other constructs is fully in line with those of previous studies. The result has strong policy implications as it emphasises the importance of formulating policies that would support change in the attitude of farmers towards long-term land leasing. In order to increase the uptake of long-term land leasing in Northern Ireland, changing the perspectives of farmers in relation to their attitudes towards long-term land leasing should be a primary objective. Efforts should also be made to increase the capability of the farmers through relevant trainings and ensure accurate and consistent information is provided to farmers by those professionals who they look towards for advice around land leasing i.e. accountants, solicitors and land agents.

