How often does intended farm management behaviour match 'actual' behaviour? Insights for thirteen farm activities

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How often does intended farm management behaviour match 'actual' behaviour? Insights for thirteen farm activities (2013-18).

Farmer Intentions Survey briefing note, March 2021

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Summary

At a time of considerable change and uncertainty in agriculture, we used two representative surveys of Scottish farmers, conducted in 2013 and 2018, and subsidy data to analyse how well actual farm management behaviour in recent years matched previously expressed intentions, for different farm activities. This analysis was then extended for subsets of farmers, focusing on the identification of unexpected changes by farmers who intended no change in management.

- In 2013, farmers were asked whether and how they intended to change the management of their business or holding by 2020, for a range of activities including investment and diversification decisions, farm structure, and environmental activities. Farmers were also asked what their management intentions would be in hypothetical scenarios of change in the Single Farm Payment (SFP).
- Based on information from 299 businesses which completed both the 2013 and 2018 surveys, actual (self-reported) behaviour in the period 2013-18 matched intended behaviour, as expressed in 2013, in a majority of cases for all thirteen activities used for comparison.
- Accounting for change in direct subsidies - by considering actual change in subsidy payments, and farmers' intended management changes in the scenario closest to this - typically slightly reduced the strength of the intentions-behaviour link, suggesting that additional factors influence farm management.
- The extent of unexpected farm changes suggest that farmers can underestimate their potential and ability to make management changes, particularly for activities such as investment in new technology, production intensity, agri-environmental activity and renewables. By contrast, intentions to not change the use of land were more regularly followed by stability.
- Collectively, these findings support the value of farmer surveys, and demonstrate clear potential for further assessment of factors which affect the link between intended and actual behaviour.

1.0 Introduction

Farmers and land managers are often asked for their views on how they are going to manage and adapt their businesses in future. Examples of such surveys include European surveys of the intentions of farmers to make investments (Lefebvre et al., 2014a); the Farm Business Survey in England (DEFRA, 2016), and research into key policy-relevant changes (e.g. the adoption of biofuels, Mattison and Norris, 2007). However, it has been recognised that the accuracy of this information – whether intentions are reflected in actual behaviours – is rarely assessed (Lefebvre et al., 2014b). These surveys are often used when policies are changing rapidly, due to the limited usefulness of existing data at such times (Hennessy et al., 2016). Given the significant reforms to the Common Agricultural Policy in the previous ten years, the availability of two detailed surveys in Scotland (2013, 2018) presents a rare opportunity to analyse how well changes to a range of farm management activities correspond with previously stated intentions.

2.0 Method

In this note, we describe an analysis which used two in-depth telephone surveys of Scottish farmers, which were developed by the James Hutton Institute and Scotland's Rural College:

- The CAP Intentions Survey in 2013: based on a spatially representative sample (from the June Agricultural Census/JAC) of 10,000 holdings (total respondents: 2,416)
- The Farm Intentions Survey in 2018, which used a spatially representative and stratified sample (using information on region, business size and farm type, from the JAC) of 11,000 businesses (total respondents: 2,494)

464 businesses which returned surveys in both 2013 and 2018 were identified. Following this, the percentage change in the amount of direct farm payments received (2014-18) was calculated for businesses which received some direct payments in both years. In 2013, farmers were asked about their management intentions in different scenarios of subsidy change, and therefore the real-life change in payments received by each business allows this factor to be accounted for. Additionally, respondents who stated that they did not receive a Single Farm Payment in the 2013 survey were removed from the analysis.

After these businesses were identified, the comparison of intended and 'actual' farm behaviour was carried out in cases where the same respondent, from the same business, may have participated in both surveys. This judgement was based on the age group and gender recorded in 2013 and 2018, and the number of years respondents had been involved in the farm management (reported in 2018)[1]. Therefore, 299 businesses were included in the analysis below.

The two surveys asked farmers to consider a range of farm activities: farm management decisions including business/holding size, commodities produced, labour, and types of investment, diversification and environmental management. Thirteen activities (included in both surveys, or at

[1] This is clearly subject to uncertainty: for instance, there were some differences in the 2013 and 2018 education levels from the 299 businesses. However, adding education to the criteria resulted in very similar 'match rates' (the 26 values in Table 3.1 - average absolute difference in these of c. 1.3 percentage points). Including all businesses (i.e. not using a subset) also produced similar values (c. 1.3 percentage points).

least closely comparable) are used in the analysis below. For each activity, self-reported behaviour 'in the last five years', described in 2018, was compared with two measures of intended behaviour from the 2013 survey:

- intended behaviour (change or no change) by 2020
- depending on the change in direct subsidies received by the business, either a) intentions 'If the size of your SFP was increased by 25%', b) intended behaviour 'If the size of your SFP was reduced by 25%', or c) the intended behaviour by 2020 noted above, where subsidies received increased or decreased by less than 25%. In other words, the respondents' intentions for the scenario matching the actual change in subsidies in following years.

In both 2013 and 2018, some activities were not applicable to respondents, hence there are differences in numbers of responses; comparisons were only made where applicable responses were provided in both years. The analysis below is based on the proportion of respondents whose 2013 and 2018 survey responses (i.e. intended and reported behaviour for the same activity) matched: i.e. where a respondent's intended and reported behaviour were both 'increase', 'decrease', 'no change', 'no' or 'yes' (the latter two only apply to commodities produced)[2].

3.0 Results

3.1 Links between intended and actual behaviour – 'match rates'

Table 1 provides a comparison of farmers' intended behaviour (as stated in 2013) with self-reported 'actual' behaviour described in 2018 ('in the last 5 years'). Across the thirteen farm activities shown, reported behaviour matched intended behaviour for between 50% and 80% of businesses. For seven activities intentions matched actual behaviour in more than two-thirds of cases, not accounting for subsidy change. These relatively high percentages support the value of surveying farmers and land managers and asking questions about future intentions and possible changes to farm management. However, for all except one of the activities, accounting for subsidy change reduced the match rate slightly (across all activities, on average, the match rate not accounting for subsidies is 4.6 percentage points higher). Lower match rates show types of farm activity which proved to be less predictable from stated intentions: these included key characteristics of farms: production intensity and size, and investment in technology and 'green' activities.

[2] Other combinations of intended and reported behaviour were not matches. Intended increases and decreases in farm size could be 'big' or 'small': these pairs were combined to 'increase' and 'decrease', respectively.

Table 1: The proportion of businesses where self-reported behaviour matched intended behaviour for different farm activities.

Farm activity	Businesses where behaviour matched intended behaviour - *not accounting for subsidy change* (%)	n	Businesses where behaviour matched intended behaviour - *accounting for subsidy change* (%)	n
The area of small-scale farm woodland*	**78.6**	140	**74.1**	143
The amount of land let to or contract farmed by others	**78.5**	121	**74.0**	123
The level of investment in tourism/other recreation	**77.3**	97	**70.3**	101
Commodities you produce	**76.3**	299	**75.6**	299
The area of forestry	**75.6**	135	**72.5**	138
The amount of employed labour	**70.1**	204	**62.3**	207
The level of off-farm investment/activity	**68.6**	172	**64.0**	178
The level of diversification	**62.5**	176	**58.3**	180
The amount of renewable energy production	**60.4**	154	**54.5**	154
The amount of agri-environmental activity	**60.1**	198	**62.1**	206
The amount invested in new technologies	**58.6**	222	**51.1**	227
Size of the business/holding**	**57.9**	299	**50.8**	299
The intensity of production	**55.3**	257	**50.2**	263

*Table ordered by the match rate not accounting for subsidy change. * - Activity included on 2018 survey only: compared with intentions to change the area of forestry. ** - "Sell up" option included on 2013 survey (for intentions) but not the 2018 survey.*

3.2 Farm activities: unexpected change and reaching management goals

In addition to the overall figures described above, match rates can also be calculated for different subsets of farmers, based on intended farm behaviour in 2013. For farmers where intended and actual behaviour were comparable, by far the most commonly expressed intention was to not change farm management: this was the case in 73.6%[3] out of 2,474 comparisons of intended and actual behaviour (in total, across all activities, not accounting for subsidy change). For these farmers, **lower match rates indicate higher proportions of unexpected farm changes**: change happening when it was not anticipated. By contrast, where intentions were to increase the activity - the case in 23.0%[4] of all behaviour comparisons - **higher match rates suggest greater success in reaching goals**: i.e. intended increases or expansions in activities or investments did take place. Very few farmers (c. 2.9% of behaviour comparisons) intended to decrease activities in 2013.

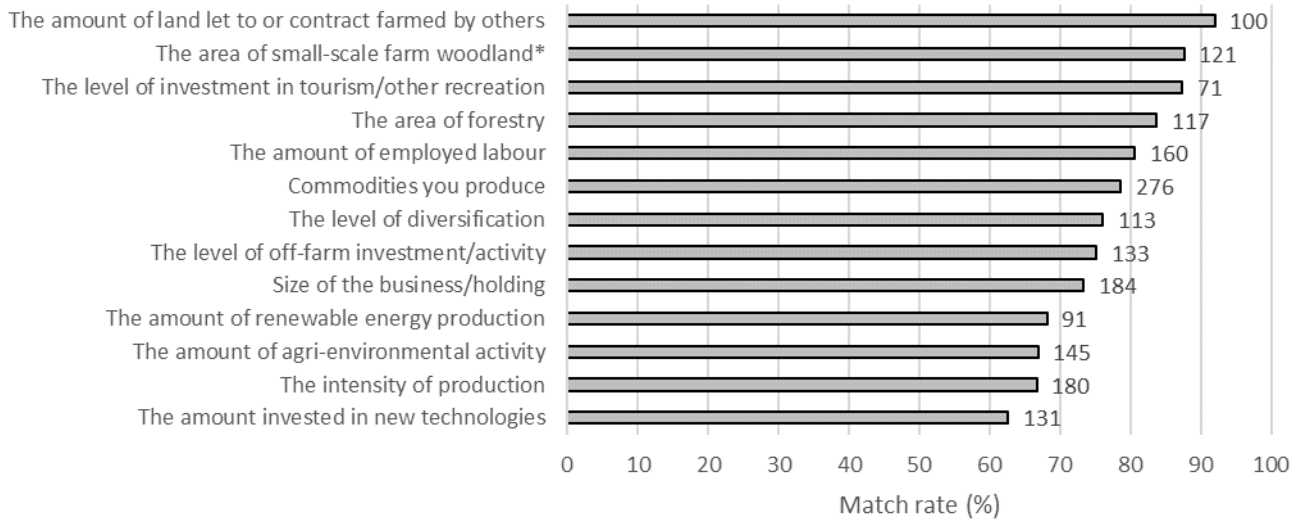
Figure 1 shows that for some activities (the area of land rented or contracted out, forestry, investment in tourism and recreation, and employed labour), the intended stability in management

[3] 'no change' or 'no' (commodities produced)
[4] 'increase' or 'yes' (commodities produced)

was mostly realised in subsequent years. For example, 100 businesses intended to make no change to the amount of land let to or contract farmed by others, and this proved to be the case for 92 of them in the five years to 2018. However, for investment in new technologies, production intensity, agri-environmental activity and renewable energy production, unexpected changes to management occurred for a greater proportion of businesses: the match rate of 62.6% for the former shows that over a third of businesses which did not intend to change this type of investment, actually did.

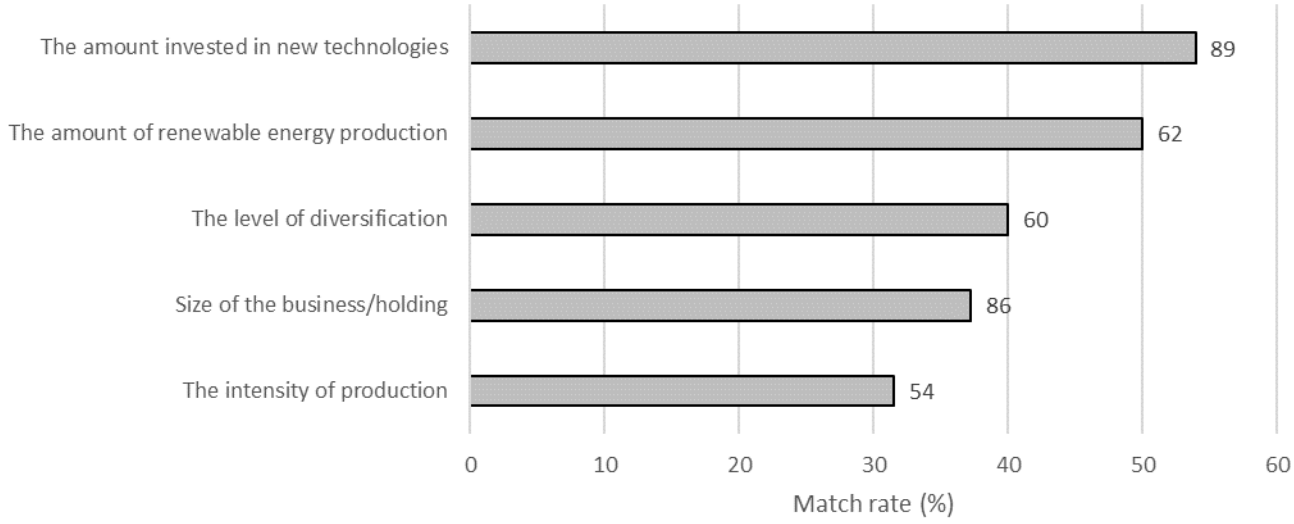
The summary of five activities in Figure 2 shows much lower match rates compared with those in Figure 1, revealing that positive intentions for farm management (increases to activities) were not frequently achieved. However, success was highest for relatively specific farm behaviours: investment in new technology (match rate: 53.9%) and renewable energy production (50%), but somewhat lower for increases to production intensity and business/holding size, which are broader aspects of farm management.

Figure 1: The proportion of businesses where self-reported behaviour matched intended behaviour for different farm activities, where no change in the activity was intended in 2013.



*Not accounting for subsidy change. Labels show number of businesses with applicable responses in both years. * - Activity included on 2018 survey only: compared with intentions to change the area of forestry.*

Figure 2: The proportion of businesses where self-reported behaviour matched intended behaviour for different farm activities, where an increase in the activity was intended in 2013.



Not accounting for subsidy change. Labels show number of businesses with applicable responses in both years. Only activities with data for at least 50 businesses were included.

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