MORE THAN INCOME BENEFITS? THE IMPACT OF FARM INVESTMENTS ON FARMERS' PERCEIVED QUALITY OF LIFE. EVIDENCE FROM AUSTRIA

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Abstract

The evaluation of farm-investment programmes is a challenging task, since investments and the effects caused by investments are very heterogeneous. Investments do not only have purely economic effects such as income augmentation and workload reduction, but they also influence farmers' quality of life. In our study we analyse 23 typical agricultural investment projects in Austria and we investigate the impact of those investments projects on farmers' perceived quality of life. The findings show that the farmers pursue multiple objectives with their investments. The investment projects contribute positively to farmers' satisfaction with quality of life; this applies particularly for labour-intensive dairy farms and for life domains such as work, income and leisure time. We conclude that the application of QOL-indices significantly broadens our understanding of investment processes and we recommend integrating such an indicator into future investment project evaluation.

Keywords: farm investment, investment behaviour, quality of life, mountain farming

1. Introduction

The Austrian farm-investment support programme is a part of the second pillar of the CAP. Apart from improving working conditions, animal welfare and environmental conditions, it aims particularly to improve the competitiveness of farms and to safeguard agricultural incomes. Recent econometric studies on the economic effects of the farm-investment support programme show that income-raising effects of the measure are limited (Kirchweger and Kantelhardt, 2012; Ratinger et al., 2012). However, this does not mean that investment programmes do not work properly but rather it indicates that profit maximisation is not the only objective that farmers pursue.

Gallerani et al. (2008) outline in their review of the literature on farm-investment behaviour that farm-investments relate to a large number of socio-economic issues. In marginal regions, as we find them e.g. in the Austrian Alps, farm-investment decisions are even more difficult to explain by mere profit maximisation. Other objectives such as improving quality of life by reducing workload may gain in importance in such regions. Källström (2002) points out that farm life nowadays also has to cope with changed norms of society. Farmers subjectively value the qualities of farm life. If these qualities, however, cannot hold up against the farmer's valuation of societal norms, such as financial position, vacation or family life, farmers may take decisions to change their way of life. In its most radical form, this may be the decision to quit farming (Källström and Ljung, 2005) or, from a successor's perspective, not to take over the farm.

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It becomes clear that the creation or the safeguarding of a certain level of quality of life (QOL) is of high importance. This applies also to farm-investment support programmes which show a high potential for shaping farm endowment in a way that working conditions are highly acceptable for farmers and consequently contribute to a good QOL. If programmes have the potential to influence positively the farmers' QOL, this may also contribute to ensuring comprehensive land use, even in marginal regions. However, in order to consider QOL in political programmes, appropriate indicators are necessary. The main objective of our study is to develop such an indicator and apply it to 23 Austrian farm-investment projects. Furthermore, we compare the result of our QOL estimation with the total household income change in order to identify possible correlations between these indicators.

The remainder of this paper is organised as follows: the next section gives an overview of QOL literature. The methodology and the data basis are introduced in Section 3. In Section 4 we present the main findings on QOL in agriculture and finally we discuss our results and draw some conclusions on future research in the concluding section.

2. Quality of life

QOL is a relatively young concept. First surveys on QOL were conducted in the mid-sixties, although the term QOL was first mentioned in 1920 by A.C. Pigou. Pigou defined QOL as 'non-economic welfare'. Nowadays QOL has become a popular theoretical construct in social sciences and numerous definitions can be found in literature (Felce and Perry, 1995; Quendler, 2011). Furthermore, literary analysis shows that there is an overlap between the term QOL and other, quite similar terms such as happiness, life satisfaction and well-being.

In the last years three principal QOL-research trends have emerged:

1. The first approach is the objective approach. It uses aggregate social indicators, which are external to the individual, to measure QOL (Arbuckle and Kast, 2012). One example for such an indicator is income. Indicators can be simultaneously observed by other people than the individual itself (Bogue and Phelan, 2005).
2. The second approach is based on an individualistic conception of QOL. This subjective perspective of QOL emphasises the individual's perception of its condition in life (Arbuckle and Kast, 2012). Subjective indicators aim at the values and attitudes of individuals. Indicators can furthermore be divided into two groups: the first is a set of global indicators which assesses living conditions in general, e.g. satisfaction with life. The second group relates to individual life domains, e.g. satisfaction with work. As Cummins (1996) underlines, 'the great majority of more recent definitions, models and instruments have attempted to break down the QOL construct into constituent domains'.
3. The third approach is very common in German-speaking countries and tries to combine both approaches (Quendler, 2011). Diener and Suh (1997) outline that objective social indicators and subjective well-being measures may only modestly correlate. Therefore, the authors note the complementary nature of both approaches.
4. In the context of agricultural research, numerous studies on perceived quality of life were conducted in the course of the U.S. Farm Crisis of the 1980s. Several studies (in particular Molnar, 1985) examined the impact of structural factors such as income, farm size and employment on subjective well-being. Studies succeeded in detecting a correlation - at least shortterm - between total household income and QOL. However, there was no correlation found between QOL and farm income (Molnar, 1985; Coughenour and Swanson, 1992). This

might be explained by the fact that farmers perceive their work both as business and a way of life (Coughenour and Swanson, 1988) and economic and non-economic rewards, such as QOL, contribute to satisfaction with farming. A recent study by Arbuckle and Kast (2012) concludes that positive assessments of quality of life among farm families depend strongly on non-farming domains of their life. In this context the authors underline the growing importance of off-farm employment in order to maintain QOL.

3. Method and data

3.1. Structure of the survey

Our survey is based on a survey approach of Radlinsky et al. (2000) , who conducted a survey on the QOL of Swiss Agriculture. The Swiss researchers developed in their work a 'quality of life index' (QLI), which is in line with the subjective QOL-model of Campbell et al. (1976). Consequently it measures subjectively perceived satisfaction with objectively measurable life domains. One advantage of this approach is that it implements experiences which are important to the individual. However it should be emphasised that self-reported measurement values may be subject to biases.

Our QLI comprises 10 life domains, namely 'working on one's own farm', 'amount of education', 'income', 'standard of living', 'family life', 'social environment', 'political and economic conditions', 'leisure time', 'health' and 'values and religion'. The interviewees were asked to rate their satisfaction with each area of life by using a five-point Likert scale, ranging from 'very dissatisfied' (1 pt) to 'very satisfied' (5 pts). As we wanted to measure the development of QOL, we asked interviewees to indicate their level of satisfaction at two different points of time, one prior to the investment and one after the investment (at the date of the survey). Since individuals do not attach the same importance to each life domain, interviewees could weigh the domains by evaluating them. The 5-point Likert scale ranges from 'very unimportant' (1 pt) to 'very important'(5 pts). The importance of each life domain is supposed to be constant over time.

The QLI is calculated as the sum of the products of the satisfaction and the importance of each life domain.

$$QLI = \sum i_{ld} * s_{ld}$$

Where:
i_{ld} = importance of certain life domain
s_{ld} = satisfaction with certain life domain
ld = life domain ('working on one's own farm', 'life standard', 'family life', …)

The interviews with the farmers took place in early 2012. In order to guarantee a profound experience of interviewees with farm-investment activities we considered only farms which invested in a period of three to five years prior to the survey. It should be noted that we conducted the survey in the context of a general evaluation study of the Austrian farm-investment support programme 2007-2013. Besides a statistical analysis of the farm-investment programme, case studies of typical investments highlighted the motives and the objectives that farmers pursued with these investment projects. The semi-structured questionnaire covered different topics ranging from the socio-economic data of the farms, through changes of the farmer's workload to the farmer's perceived quality of life.

3.2. Description of the farm sample

The participating farms represent typical Austrian farms and investment projects and were selected in co-operation with the Austrian Ministry of Agriculture. Our sample comprises 23 family farm-investment projects. As Figure 1 shows, we considered projects from a wide area and we integrated all relevant farm types into our study.

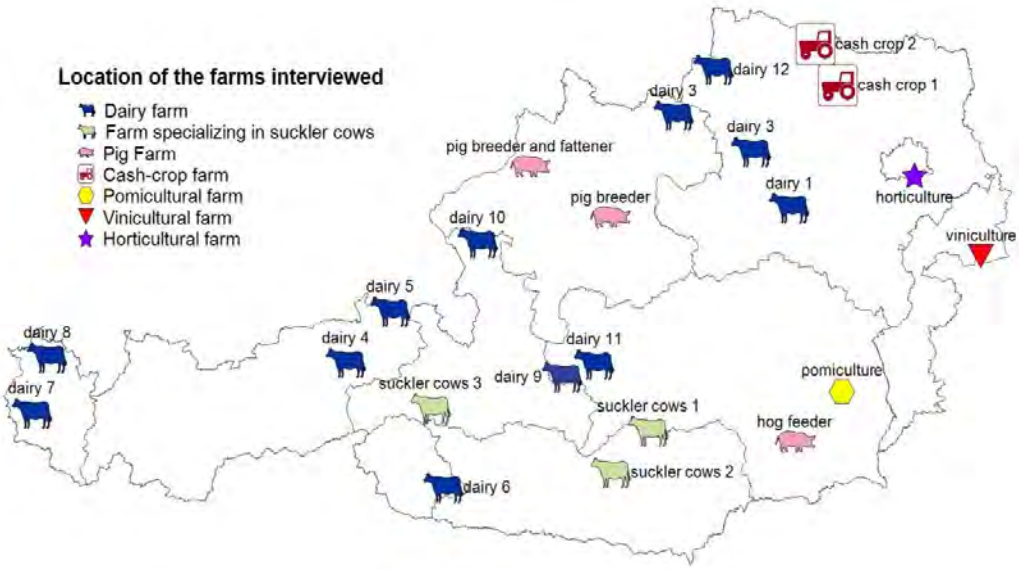

Figure 1. Location of the farms interviewed

Table 1 gives a more detailed overview of the 23 sample farms. Net investment costs of the surveyed projects range from € 12,000 up to € 470,000. The farmers pursued various objectives with their investment projects. The goals can be classified into three groups: (i) economic goals (e.g. business growth, maintenance of income level); (ii) goals concerning workload (e.g. better working conditions, reduction of working time); and (iii) necessary adjustments due to amended statutory provisions (e.g. animal welfare directive, organic guidelines).

A closer look at the surveyed investment projects reveals that the projects are very diverse: for instance, three dairy farms follow a growth-orientated strategy with their investments. They raised the herd size and invested into modern technology such as milking robots. Three further dairy farms converted from stanchion barns to free-stall barns in order to improve working conditions. Pig fattening farms invested in new stables, the vinicultural farm and one cash-crop farm built storage buildings.

Table 1. Overview of surveyed farms

Farm	Description	Investment project	Capital Cost	Primary aim of investment
dairy 1	Specialised grassland farm	New construction of free-range barn incl. milking robot, 2008	€ 445,000	n/a
dairy 2	Specialized grassland farm	Expansion of free-range barn incl. milking robot, 2008	€ 470,000	Business growth
dairy 3	Specialized grassland farm	Expansion of free-range barn, 2007	€ 300,000	Additional income
dairy 4	Mountain farm	Reconstruction of a barn, adaptation into free-range system	€ 285,000	Better working conditions
dairy 5	Mountain farm	Construction of an mountain barn	€ 250,000	Higher working productivity
dairy 6	Mountain farm	Adaption of a stanchion barn	€ 175,000	Better working conditions
dairy 7	Specialised grassland farm	New construction of free-range barn	€ 500,000	Better working conditions
dairy 8	Mountain farm, Vorarlberg	New construction of free-range barn	€ 300,000	Ease of physical work
dairy 9	Mountain farm	Adaption of a stanchion barn	€ 100,000	Reduction of working time
dairy 10	Specialized grassland farm producing pasture milk	Hay ventilation system	€ 35,000	Better working conditions
dairy 11	Mountain farm, Styria	Alpine forest road	€ 20,000	Maintenance of income level
dairy 12	Mixed farm, converting to organic farming	Runout for cattle	€ 12,000	Better working conditions
Suckler cows 1	Mountain farm, specialised on forestry	Expansion of free-range barn by an outside lying area incl. hayloft	€ 62,000	animal welfare directives
Suckler cows 2	Mountain farm, off farm employment	New construction of a free-range barn incl. hayloft	€ 240,000	Maintenance of income level
Suckler cows 3	Grassland farm specialised in direct marketing	New construction of a free-range barn	€ 320,000	Business growth
Pig breeder		New construction of a breeding stable	€ 164,000	Additional income
Hog feeder		Feeding stable	€ 300,000	Creation of new family job
Pig breeder and fattener		Modernisation and expansion of barns	€ 261,000	Maintenance of income level
Cash crop 1	Organic cash crop farm,	Storage building	€ 256,000	n/a
Cash crop 2	Organic cash crop farm,	Crop silo	€ 78,000	Reduction of working time
Pomiculture	Pippins	Apple trees,	€ 106,000	Maintenance of income level
Viniculture	Mixed farm (cash crops, horticulture, viniculture)	Wine cellar and storage building	€ 350,000	Maintenance of income level
horticulture	Tomatoes,	New construction of a glass house	€ 250,000	Maintenance of income level

4. Results

A first result of our survey is that farmers clearly associate with the term 'quality of life' the term 'freedom', which goes with being a farmer: They highlighted that their job (still) offers 'a kind of independence' and that they can be 'their own boss'. They can work and live 'in accord with the natural seasons' and they cherish having the opportunity to 'bring up their children in the countryside'. This positive appraisal of farm life is also reflected in the future perspective, which all farmers estimate as rather positive up to clearly positive. Furthermore it becomes clear that the majority of the farms (19) do not pursue the goal of accelerated growth with investments, but rather plan to secure the existence of their farms.

Figure 2 displays how farmers (n = 23) score the different life domains. Size and position of the bubbles indicate the importance that farmers assign to the various life domains. All domains are rated on the scale between *rather important* (+1) and *very important* (+2), whereas '*work on one's own farm*', '*health*' and '*family life*' are valued most important. '*income*' as well as '*political and economic conditions*' achieve only medium importance.

The lines in Figure 2 show farmers' satisfaction with each life domain. The green broken line indicates perceived satisfaction prior to investment and the red continuous line is perceived satisfaction after investment. It becomes clear that farmers succeeded in increasing their satisfaction particularly in those domains which are of high importance for them. The highest increases can be observed in the following three life domains: '*Work on one's own farm*' rose on average by 0.70, '*income*' by 0.57 and '*leisure time*' by 0.48. These life domains clearly correlate with the aims that farmers declare to pursue with their investments.

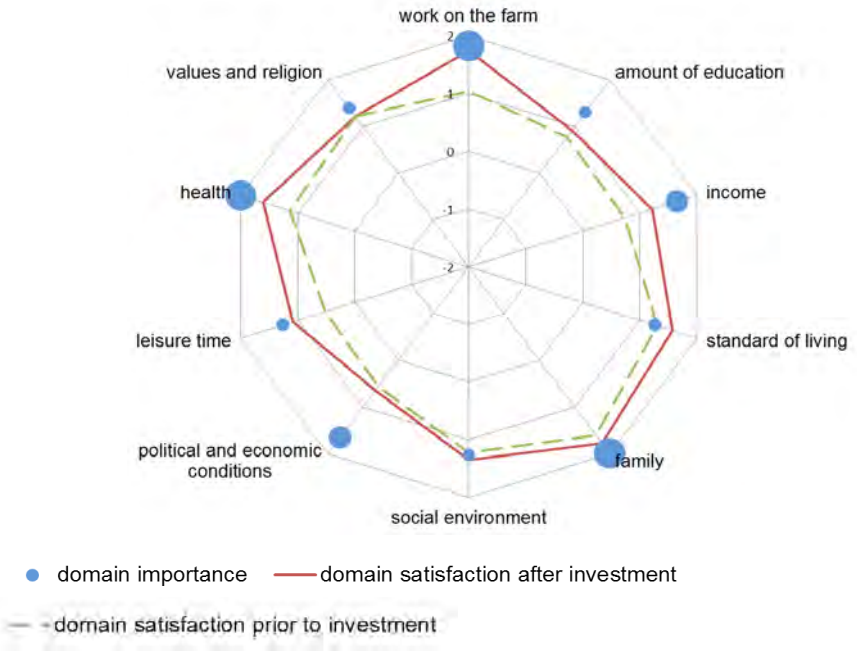

Figure 2. Medium differences in QOL in the course of farm investments (n = 23)

As the next step, we collate the importance of and the satisfaction with the various life domains into one single value, the Quality-of-Life Index (QLI). Figure 3 shows the development of the QLI over time. A total of 19 of the 23 interviewed farmers succeed in increasing its QLI. Dairy Farm 10 has the highest increase, which might be explained by the extraordinary positive impact of the new hay ventilation on the alleviation in the allergic discomfort of one family member. The investment of Dairy Farm 1 increased the farmer's QLI by 23%, which is mainly caused by the farm family's gain in leisure time due to the new milking robot.

In general, non-dairy farms have a smaller QLI increase than dairy farms. Cash crop 1 as well as pig breeder and fattener stay fairly constant, since the QLI-level is already high prior to investments. However, these farmers pursued goals different from QLI increases. The QLI of the pomicultural farmer shrunk in the course of investing. This is mainly caused by the fact that the farmer is increasingly discontent with the political and economic situation of agriculture.

Figure 4 shows the correlation between the relative QOL change and the relative change of total house income before and after investment. Due to missing accounting data, only 17 of the farms can be considered. As the figure already illustrates, there is no significant correlation between income changes and QOL changes. Eight farms show an increase in QLI as well as in total house income. In contrast to this, six farms are more satisfied with their life despite decreasing income.

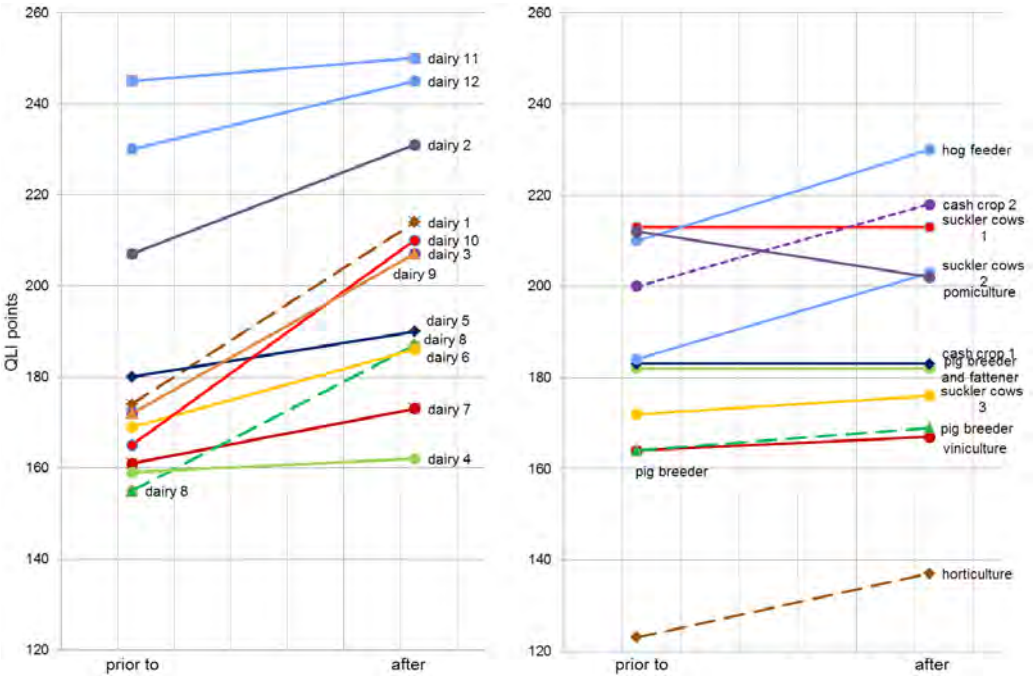

Figure 3. Development of perceived QOL prior to and after investment on the 23 farms interviewed

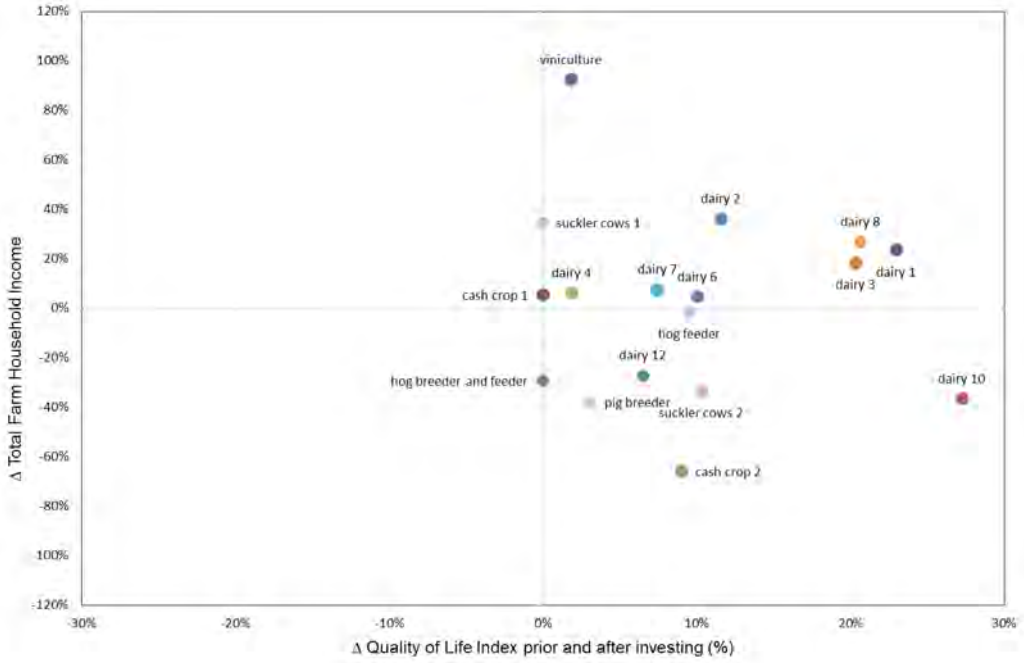

Figure 4. Relative changes in total farm household income and QLI in the course of investing

5. Conclusions and proposal for further research

The results of our study show that the analysed investments have on average a positive impact on the farmers' perceived QOL. However, results are quite heterogeneous: in particular, labour-intensive dairy farms succeed in realising an increasing QLI, while QLI increase is for other farm types moderate or, in one case, even negative. Important life domains from the point of view of farmers are 'work on one's own farm', 'health' and 'family', the highest increases in satisfaction can be observed in the life domains 'work on one's own farm', 'leisure time' as well as 'income'.

Due to the small number of interviewed farms, this study only roughly indicates changes in QOL. In order to investigate the effects of investments on QOL it is planned to establish a follow-up study, which will quantitatively analyse whether the observed trends are generalizable. Moreover, our study indicates that it is necessary to enhance the QLI in order to become an additional instrument for measuring success and efficiency of farm-investment programmes. The QLI could consequently be used – beside classical indicators such as income augmentation – as a decision-support instrument for the future shaping of investment programmes.

In conclusion, we can say that the application of the QLI significantly broadens our understanding of investment processes. Therefore, we can recommend integrating such an indicator into future investment project evaluations.

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