Which farm characteristics influence work satisfaction? An analysis of two agricultural systems

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ABSTRACT

This study explores the influences of agricultural systems on a social aspect of farming, namely work satisfaction. We use an individual activity choice model and hypothesize that different systems yield different levels of satisfaction with farming. Farmers of northeast (NE) Germany and Switzerland were surveyed with a joint questionnaire, as these study regions differ widely in terms of farm size and thus in economies of scale. Regression analysis was done in two separate models including different proxies for farm income, namely farm size (n = 1137) and perceived financial situation of the farm (n = 1158). The results show that in the large-scale industrialized agricultural system of NE Germany, farmers' work satisfaction is positively affected by both farm income proxies. Both of these elements have a significantly different effect on the work satisfaction of Swiss farmers. Their work satisfaction is not affected by farm size and the positive effect of the perceived financial situation of the farm is significantly less strong for Swiss farmers than for German ones. Thus, monetary return seems to play a major role in utility of farming for NE German farmers, whereas it is less important for Swiss ones. Additionally, the Swiss agricultural system seems to offer qualities besides economic returns for its farmers as they are generally more satisfied with their work despite the lower economic return compared with NE German farmers.

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1. Introduction

Different agricultural systems have coexisted for a very long period, but comparative research on many aspects of this coexistence is still scarce. Particularly in recent decades, owed to the absence of an ideological debate in former periods, large-scale, industrialized systems and small-scale family farm systems have coexisted without much reflection on their impact to societal welfare.

It is obvious that historical developments rather than social engineering have shaped today's agricultural systems. The significance of path dependency in agriculture has been described extensively (Balmann, 1994; Balmann et al., 1996; Lauber et al., 2006). However, different agricultural systems may also be the result of collective choice.

This paper focuses on satisfaction with the work carried out within two different agricultural systems, taking into account that work satisfaction is considered important by researchers (Schulz et al., 1991; Laschinger et al., 2004; Homburg and Stock 2005), even though it rarely is viewed in a broad systemic context. We hypothesize that work satisfaction is higher in small-scale family farm systems than in large-scale industrialized systems. However, without supporting data, this claim draws mainly on people's perception of idyllic small-structured agriculture and on their objection to industrial modes of food production (Cone and Myhre 2000). The activity choice model is used for a theoretic

exercise in Section 2, exploring a possible trade-off between the economic advantages and the social disadvantages of a large-scale, industrialized agricultural system. Section 3 describes the case study framework that is used for an empirical test of the hypothesis. In Section 4, the method is applied. Section 5 then presents the results, of which conclusions are drawn in Section 6.

2. Activity choice model

The activity choice model has been developed and applied on an individual level by Mann (2013). It acknowledges the fact that every activity, work or leisure, causes a certain degree of non-monetary utility (u), i.e., it is more or less enjoyable. In addition, all activities either generate income ($Y > 0$), are money-neutral ($Y = 0$), or cost money ($Y < 0$). For each time period, there is usually more than one option of how to allocate this time. Indifference curves, describing the personal trade-off between monetary flow and non-monetary utility, do now help to make the choice between the options with each having a Y- and a u-value. The more the indifference curve moves to the upper right, the higher the total utility will be. This model takes into account that well-being, as proven by an extensive body of literature summarized by Howell and Howell (2008), is affected by both monetary and non-monetary factors.

Such a model obviously can be applied to "model" persons in different agricultural systems, as done in Fig. 1 for a large-scale, industrialized system on the one hand and for a small-scale family farm system on the

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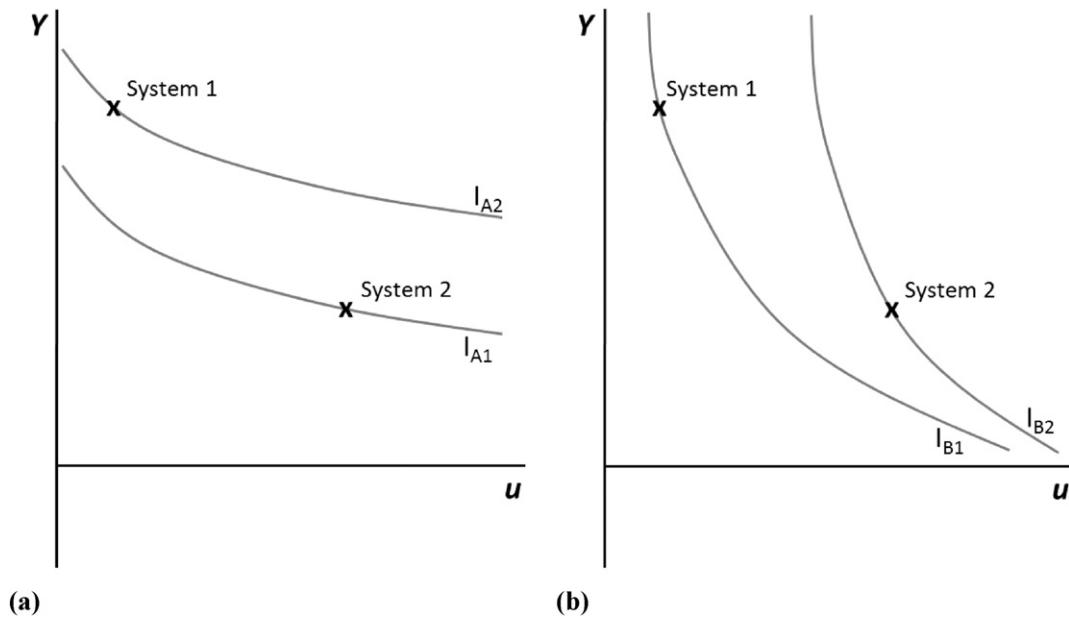 E-mail address: tim.besser@agroscope.admin.ch (T. Besser).

Fig. 1. An activity choice model for two countries. Indifference curves for (a) Country A (large-scale agriculture–monetary utility is valued higher than non-monetary utility) and (b) Country B (small-scale agriculture–non-monetary utility valued higher than monetary utility).

other. Due to considerable economies of scale, it is safe to say that the average economic return per time unit for food production on the narrow sense is higher in a large-scale industrialized system (depicted as "System 1" in Fig. 1) than in a small-scale family farm system (labeled as "System 2"), particularly if one deducts public subsidies that usually help to keep the latter systems afloat (Chavas and Aliber, 1993; Munroe, 2010; Wan and Cheng, 2001). This notion ignores externalities of small-scale farming systems that can generate income from other sectors. On the other hand, Fig. 1 assumes that the average non-monetary utility of spending time within the large-scale system (work satisfaction as defined by Mottaz, 1985) is lower than in the family farm-based and small-scale system. This claim is probably in line with the romanticized perceptions of small-scale family farming in many industrialized countries, but certainly needs empirical evidence. It is based on the notion that farmers in small-scale systems can act according to their own belief systems, which, as Greiner (2015) shows, is of large importance to them.

In order to draw realistic indifference curves into the model, we should review previous findings on preferences regarding farm size. Gasson (1973) discusses two sociological theories by which farm size can be related to certain values of farmers (including satisfaction with agricultural work). The first theory concerns the adaptation of a farmer to his current situation in which the positive aspects of work are valued most. Needs that cannot be gratified in a satisfactory manner are rather denied. Farmers of larger entities therefore adjust to the relatively better income situation that in turn positively affects their work satisfaction. They may deny that qualitative, non-monetary utility aspects in their work life are missing. The second theory draws on Maslow's (1943) classic Need Hierarchy theory. Having fulfilled basic needs such as subsistence and security through economic hedging, farmers of larger farms can strive for higher-order needs such as social needs, esteem, or self-actualization. In contrast, farmers of smaller and thus economically less secure farms rather focus on subsistence and security of their farm. Kliebenstein et al. (1980) note that Maslow's approach might be more useful for the family farm structure than for the non-family farm structure. Based on these thoughts, Fig. 1 assumes that the aggregation of individual preferences to a social indifference curve (for a discussion of the technicalities of this aggregation see Varian, 1984) leads to different results in two different countries. In Fig. 1a, it is assumed that residents of Country A with a competitive agricultural structure are

willing to barter quite a lot of non-monetary utility for money. Therefore, they prefer System 1 over System 2. In the case of Country B with a small-scale structure (Fig. 1b), non-monetary utility is valued more highly. Therefore, System 2 generates a higher social welfare. These differences between social indifference curves may be due to different levels of wealth, to national cultures, or other factors.

It has been demonstrated that wealthy countries tend to preserve their small-scale agriculture through generous subsidies, whereas less wealthy countries have more structural change (Mann, 2014). The activity choice model serves as a demonstration that both a small-scale family farm-based system and a large-scale industrialized system may be a rational choice by societies, provided that there is a trade-off between work satisfaction and economic efficiency.

It should be emphasized that many factors other than the agricultural system will influence the two dimensions of the activity choice model and have to be controlled for. Farm size would be one of the obvious examples. Large-farms are more profitable than small farms (Hall and LeVeen, 1978; Hallam, 1991; Lips et al., 2008). It has been mentioned repeatedly that people compare themselves to their environment when judging their well-being (Clark et al., 2008; Frey and Stutzer, 2002), so that farmers' happiness may well be affected by them having a larger or a smaller farm than their neighbors.

3. Study regions

In democracies, societal choices ought to be reflected in national policy. In the case of agriculture, subsidies and other institutional factors have an effect on a country's agricultural structure. There is a broad range of agricultural structures among countries and in particular in regions where the agricultural landscape has historically been shaped very heterogeneously like in Europe. Comparisons are particularly fruitful if these historic factors are as distinct as possible between the cases.

The European Union's (EU) common agricultural policy (CAP) aims to standardize the agricultural policy among the EU member countries. It was found that the CAP promotes increases in farm size (Bartolini and Viaggi, 2013). This is intended by the European Commission, which declared modernization and rationalization of the European agriculture as one of its goals (European Commission, 2014). Also due to historic reasons, the northeast of Germany might be seen as an example of a role model for a large-scale and efficient agriculture. For our comparative