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Foreword

The ‘theme’ of this issue of *Studies in Agricultural Economics* is the European Rural Development Network (ERDN, www.erdn.eu). The ERDN was set up in 2002 to bring together the efforts and competencies of various research institutions, mainly located in eastern central and south eastern Europe, through jointly conducted work on the state and the paths of transformation of rural areas, and especially farming, in the region, in the perspective of the anticipated enlargement of the European Union (EU) and its future policies.

The ERDN is coordinated by the Institute of Agricultural and Food Economics - National Research Institute in Warszawa and encompasses the leading research centres in the region. The network goes from strength to strength, and its annual autumn conference is now well established. Agricultural economists are strongly represented but the ERDN appreciates that one of the main features of rural development is its complexity, and therefore the network includes scientists with a broad range of competences.

Several members of the Editorial Board of *Studies in Agricultural Economics* have actively participated in the work of the ERDN over the years and it therefore seems appropriate to publish a thematic issue of the journal that would showcase the research competences of the network. The idea was favourably received and this issue includes contributions from Austria, Bulgaria, Germany, Hungary and Poland.

The study of local land markets in western Germany by Margarian shows that there is a complex relationship between farmers’ strategies, their general attitudes and farm development dynamics. This result implies (a) that the specific conditions in local land markets can contribute to a regional differentiation of farm development strategies, and (b) that the observed differences result from path-dependent development and reflect rational considerations rather than irrational behaviour or exogenous cultural differences.

The first of two papers looking at the possible impacts of Common Agricultural Policy reform focuses on small ruminant farming in Austria. Through the use of farm models and an analysis of the Austrian Integrated Administration and Control System data sets, Hambrusch identifies redistribution effects resulting from the implementation of an area-based payment scheme instead of the Single Farm Payment Scheme in favour of less extensive farm management systems. By contrast, Ivanov and Sokolova model crop production in Bulgaria in the period 2013-2017 in the con-

text of the policy changes. The areas of maize and sunflower may increase, while those of wheat, barley and rapeseed will remain static or slightly decline. There is a positive growth trend in the projected yields for all five crops but prices per tonne will fall.

The next two papers address labour market issues. Unay Gailhard and Kataria analysed the determinants of labour force transition to inactivity in the German labour market. They found that, although education level and marital status both influenced the transition to inactivity during the global economic crisis (2008-09), the effects in rural and urban areas were different. The interaction of individuals with institutional settings was also a contributory factor. Rakowska’s study on unemployment trends in Poland since the start of the global economic crisis shows that the highest unemployment rates continue to be amongst females in rural areas. In the most problematic LAU 2 regions the combination of the lower mobility of many women and the remoteness from the main employment centres is the main cause of high unemployment rates.

The paper by Katona Kovács demonstrates why the focus of actions in rural areas has to be changed from funding to learning. Using the why-how-what approach, the author firstly argues that human and social capital are the most important resources for enhancing the development of rural regions, and then describes some actions which are already putting the focus on learning in rural areas.

Learning and innovation have been major factors in the transformation from mass production to a genuine rural experience economy in the Villány wine region in Hungary. This process unfolded over a period of 25 years or more. Kovács firstly identifies its five distinct phases and discusses the general and specifically local factors that can be implicated in it.

Finally, a short communication from Krammer and Heijman reports that the spending of visitors during the Christmas Festival ‘Magisch Maastricht’ in 2012 supported the creation of approximately 400 new jobs in Maastricht, mostly in the wholesale and retail sector.

It is a pleasure to be able to promote awareness of the ERDN through *Studies in Agricultural Economics* and I hope that readers will take an active part in future ERDN activities.

Andrew Fieldsend
Budapest, March 2014

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Anne MARGARIAN*

The reflexive relationship between land markets and farmers' strategies in Germany

The specific conditions of local land markets could support strategic interaction among farmers. In this case, ideas from strategic competition imply that currently observed regional differences in farmers' strategies should partly be explainable by reference to historical farm size distributions. We test respective hypotheses in a regression approach based on data on the *Landkreis* (district) level (NUTS 3) in Germany from a standardised survey among farm advisors and from secondary statistics. The results confirm the expected reflexive relationship between local land markets and farmers' strategic orientation. Moreover, a complex relationship between farmers' strategies, their general attitudes and farm development dynamics is identified. Thereby those explanations of regional differences among farmers' strategies which rely solely on factors exogenous to agricultural production, be it alternative employment possibilities or cultural differences, are contested.

Keywords: land market, strategic competition, social interaction, economic behaviour, path-dependence, structural change

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Introduction

Land is of fundamental importance for agricultural production. Its relevance from an analytical point of view stems from its characteristic immobility and from the fact that it is not producible. Its local availability is naturally restricted and in terms of land endowment the decline of one local producer is a necessary prerequisite for the growth of another. Accordingly, on the local land market¹ there is direct interaction among a restricted number of producers. This situation opens up the possibility that not only farmers' strategies affect the local land market but that the local land market conversely affects farmers' strategies. Most studies on structural change in agriculture consider the former, but not the latter.

Fundamental differences in farm development strategies are frequently reported (Margarian, 2010a). For Germany, these strategies are described mainly in sociological studies (e.g. Patrick *et al.*, 1983; Hildenbrand *et al.*, 1992; Herrmann, 1993; Sinkwitz, 2001). The observed differences are often explained by assumed exogenous differences in attitudes, which can be subsumed under the labels 'conservative' vs. 'growth-oriented'. Jürgens (2010) critically considers this strict dichotomy and its genesis. Van der Ploeg (1994) introduced the more differentiated concept of 'styles of farming'. This concept acknowledges the existence of a large number of rationalities, which are assumed to reflect the specific surrounding conditions and own capabilities of farmers. This insight paves the way for the idea of a reflexive relationship between environment and behaviour. The hypothesis of such a reflexive relationship would be supported if significant differences in strategies could be observed, not only between farms but at a regional level as well.

Spatially differing dynamics of farm structure developments (Huettel and Margarian, 2009) as well as anecdotal evidence² and sporadic scientific observations (e.g. Ohe, 1985; Weiss, 1999; Goetz and Debertin, 2001; Tietje, 2004;

Roeder *et al.*, 2006) hint at regional differences / spatial covariances in farmers' strategies. Corresponding to the identified differences in attitudes, these covariances are sometimes explained by exogenous regional differences in cultural backgrounds (e.g. Roeder *et al.*, 2006). Attempts to explain these behavioural covariances with 'hard' exogenous factors, especially regional labour market situations, have produced ambiguous results (e.g. Weiss, 1999; Goetz und Debertin, 2001; Glauben *et al.*, 2006; Breustedt and Glauben, 2007).

The specific characteristics of the land market have so far seldom been applied in order to explain regional variances in farm development strategies. The present paper tries to empirically document the proposed reflexive relationship between the land market and farmers' strategies. It thereby questions the approach of taking different strategies as given in economic models and attributing them solely to exogenously given differences in fundamental conditions and preferences. The answer to the question whether strategies are endogenously or exogenously determined is of fundamental importance for explaining structural change.

The following section outlines why the land market's characteristics cause a direct interconnectedness among farmers' decisions on growth, regional covariances in their strategies and thereby path dependence. The relationship between farmers' strategies and the land market is tested empirically based on data from a standardised regionalised survey among farm advisors and on additional data from secondary statistics. Firstly, the impact of the land market and of the initial farm size distribution on farmers' observed strategies is analysed in a regression approach. Then the reversed impact of the observed strategies, as mitigated by observed attitudes, upon the contemporaneous situation on the land market is analysed. Finally the implications of these findings are discussed.

¹ We refer to rental markets. Sale markets are much more influenced by strategic long term considerations and by activities of non-local investors.

² See e.g. *dlz agrarmagazin* 2/2007, p.147; *Frankfurter Allgemeine Zeitung* 126/2007, p.15 and *Süddeutsche Zeitung* 135/2006, p.V2/4.

An economic rationale for a reflexive relationship between markets and strategies

If markets were perfect in the neoclassical sense, prices would transport all information necessary in order to develop perfect strategies and the unrestricted mobility of factors would allow all factors to be transferred immediately to those places where they generate the highest possible private and social value. Global price signals would direct the development towards global equilibria. In the presence of non-marketable values such as rents of the *status quo*, global prices no longer effectively coordinate the decisions of economic actors and local price information (Makowski and Ostroy, 1995) and local interaction among actors becomes relevant. In the consequence, “economic actors are connected not by several main highways, but by a myriad of individual byways of their own construction” (*ibid.* p.811), i.e. different strategies evolve endogenously and the relationship between strategies and markets becomes reflexive.

As land is immobile and its availability delimited, the number of potential market participants in the local rental market for land is restricted. Moreover, the growth of one farm in terms of land depends on the decline of another. The decisions on growth or decline thereby depend heavily on the anticipated strategies of local competitors (Margarian, 2010a, b). This direct interaction in an oligopolistic market enables strategic behaviour, i.e. market participants anticipate expected decisions of others in their own course of decision making (Woeckener, 2007). In this case, reflexivity in markets arises as market structures determine decisions on market entry and market exit as well as decisions on growth.

Additionally, sunk costs, specific competences of farmers, non-pecuniary preferences for farming and other possible causes of rents of the *status quo* cause heterogeneous valuation of additional units of land by different producers. Under these conditions, supply of land does not react totally elastically towards higher prices. The most efficient farmers cannot simply overbid (technically) less efficient farmers (competition on prices or ‘Bertrand competition’, Woeckener, 2007) but need to take into account higher prices of each additional unit of demand (Margarian, 2010a, b). As is well known from the monopolistic case, the farmer in this situation takes into account rising prices and adjusts his/her demand downward. Those farmers that want to stabilise their farm in order to support the future realisation of rents of the *status quo*, might then have the opportunity to afford the necessary growth, although at a relatively high price. In the case of symmetric growth, the situation mirrors what has come to be known as quantity competition or the ‘Cournot’ case (e.g. Varian, 1992; Woeckener, 2007).

Nevertheless, incomplete information and rents of the *status quo* enable some market participants to manipulate expectations concerning their own current and future market position and to thereby induce asymmetric growth. Especially sunk investments allow some actors to believably signal their strong will for future growth; at the same time, others anticipate the resulting stronger limitation of market access and restrict their own supply, respectively demand. In

the oligopolistic setting this differentiation in quantity leaders and quantity followers is called, after its inventor, the ‘Stackelberg’ case (e.g. Varian, 1992; Woeckener, 2007).

Consequently, the actual differentiation of strategies and the resulting development in the farm size distribution depend on the heterogeneous ability of producers to believably signal their future demand for land. Farmers have the ability to signal believably a strong will for growth in land to competitors if they invest in large facilities, because the profitability of a specific type of production at a given scale in family farms with their quasi-fixed labour pool depends on the farm’s endowment with land. Regional differences in farmers’ strategies could then be explained in terms of the share of farmers that act as quantity followers or as quantity leaders analogously to the Stackelberg case.

These shares are expected to depend on the initial farm size distribution. If farm land historically was distributed unevenly among farms, large farms would initially act as natural quantity leaders due to their larger capacities and financial power, while small farms would be natural quantity followers that anticipate their restricted access to additionally available land. If no quantity leaders existed, the local situation would mirror the oligopolistic situation in symmetric quantity competition in the Cournot case. In this case, all farms would act as quantity adopters, but their potential for growth would be higher and costs of growth lower than that of the quantity followers in the Stackelberg case. Thereby, a sustainable impact of the initial farm land distribution on local farmers’ strategies could be explained. An additional unknown factor is the direction and size of scale effects. Actually, it has been shown theoretically and empirically that structural development in agriculture might be largely determined by the initial structural situation due to existing rents of the *status quo* and strategic interaction on the land market (Huettel and Margarian, 2009; Margarian, 2010a).

According to the argument, observed strategies are expected to represent rational adaptations to given conditions. Strategies that express themselves in a slow expansion in land result from a tight land market and the existence of high rents of the *status quo*, due to low opportunity costs of labour, for example. Producers that follow these strategies might be judged as ‘conservative’ by observers, while their behaviour might be perfectly rational given the farm’s situation and the situation of surrounding farms. ‘Growth oriented’ producers, on the contrary, leave an entrepreneurial impression on observers. Nevertheless, unconditional growth orientation could be highly irrational if the land market is tight and neighbouring farms show similar ambitions. Beyond these rough classifications into conservative and growth oriented farmers, depending on specific and sometimes idiosyncratic circumstances, countless individual strategies of adaptation evolve. This multifariousness, in accordance with Makowski and Ostroy (1995), is a direct consequence of imperfect markets, resulting uncertainty and direct interaction among market participants.

Based on these considerations, some simple hypotheses are derived for the following analysis: (a) with a historically uneven distribution of land among farms, the majority of local farms act as quantity followers and is thereby perceived as conservative; (b) farmers are assessed as more conserva-

tive if rents of the *status quo* are high and exit mobility is consequently low; and (c) as fundamental market conditions affect producers' ability to stabilise their farms, they also affect the attitudes of surviving producers, which in turn affect the local land market.

Two rationales form the basis for the third hypothesis: Firstly, competition induces a process of selection. If competition is fierce, only the most growth oriented farms survive. If competition is less intense, the variance in attitudes of surviving farms naturally increases. Secondly, human culture adapts to given economic and structural conditions. Specific values are ascribed to given occupations and structures, which are charged with additional meaning depending on further social and economic conditions. Thereby, the observed fundamental strategies might be accompanied by different additional values and attitudes. These would in turn impact upon the local land market, leaving a role, albeit reduced, for exogenous cultural differences in the explanation of structural development. Nevertheless, the extent of this role again depends on the type of local competition.

Empirical analysis of farmers' strategies

The derived hypotheses shall be tested with data from a standardised survey among farm advisors that was conducted in 2007. Agricultural advisors usually work within a restricted area. Here they are natural experts on the farmers' restrictions and opportunities, their strategies and processes of decision making. Two hundred and twenty-one advisors took part in an email survey that consisted of about 120 statements that were to be evaluated on a scale from 1 (corresponding to 'in (nearly) no case') to 7 ('in (nearly) every case'). The experts were asked to concentrate on the situation in a NUTS 3 level district (*Landkreis*) of high familiarity. Their assessments concerned 145 different districts from across western Germany.

A validation of the assessments was possible due to the multiple references of different experts to 61 of these districts. With a variance analysis³, the significance of the variation of the advisors' assessments between districts as compared to the variance of the assessments between advisors was determined. After dropping assessments for the same districts that deviated from each other by more than two points, the significance of differences in the assessments between districts was guaranteed for nearly all statements. In this manner, about 13 per cent of all statements were judged as deviating values and replaced by missing values. The same rate of misjudgement is expected for districts covered by only one expert. From the remaining values, the mean value was calculated for each district in order to reach a univocal assessment on the district's farming sector. The resulting data set consists of one set of assessed statements for each of the 145 districts. Based on these data, we create factors that capture farmers' situations and strategies, explain farmers' observed strategies with regional indicators related to initial

farm structure and economic opportunities and finally analyse the relationship between the strategies and the current situation on the land market.

Creation of factors

In the survey, two dimensions served the rough classification of farmers from the observers' point of view. One dimension was traditional or conservative behaviour ('conservative'), which was ascribed towards farmers whose main aim consists of stabilising their farm, who therefore avoid risk and make small steps of growth (Figure 1). Observers perceive such a strategy as traditional, but it would also be consistent with the strategy of quantity followers in strategic competition on the land market. Of the 221 respondents, five did not assess the corresponding statement. In more than half of the assessments, farmers in the respective districts were classified as *rather conservative* (five or more points on the scale), in less than a quarter as *rather not conservative* (three or less points on the scale). The remaining assessments were *intermediate* (four points on the scale). Even before removing 17 deviating assessments, the differences in the assessment of conservative behaviour of farmers between the districts according to the variance analysis were highly significant. Obviously, the dimension of conservative behaviour corresponded to an existing common mental construct among farm advisors.

The second dimension for a rough classification of farmers according to their strategic behaviour was an entrepreneurial attitude, which was ascribed to farmers who invest capital and labour where they are most profitable ('entrepreneur', Figure 2). Four assessments were missing for the

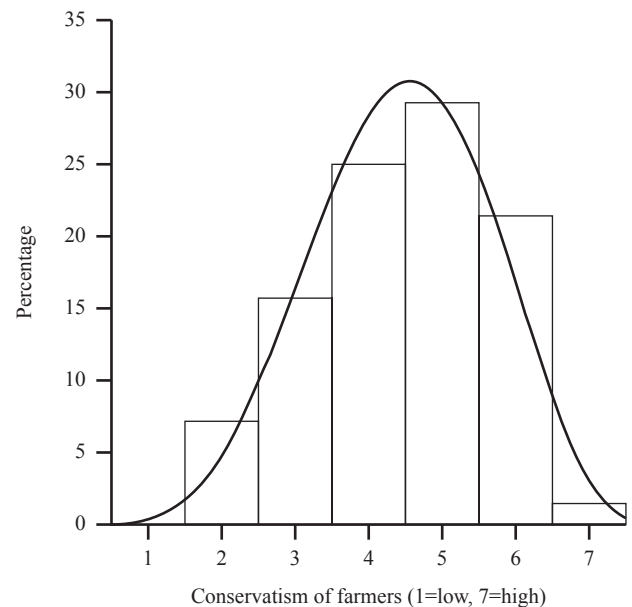


Figure 1: Assessment by farm advisors of farmers' conservatism in NUTS 3 districts of western Germany in 2007.

CONSERVATIVE: 'Farmers here are rather conservative/traditional: Their main goal is their farm's stability. They avoid risk and make small steps of growth in existing branches'.

Missing values: 5; deleted 'outliers': 17; share of variance that can be attributed to differences between districts in raw data: 56%, $Pr > F$ 0.0008; between Mean Square 2.5; within Mean Square 1.23

Source: own data

³ This and all other statistical calculations were conducted in the statistical programme package SAS 9.2.

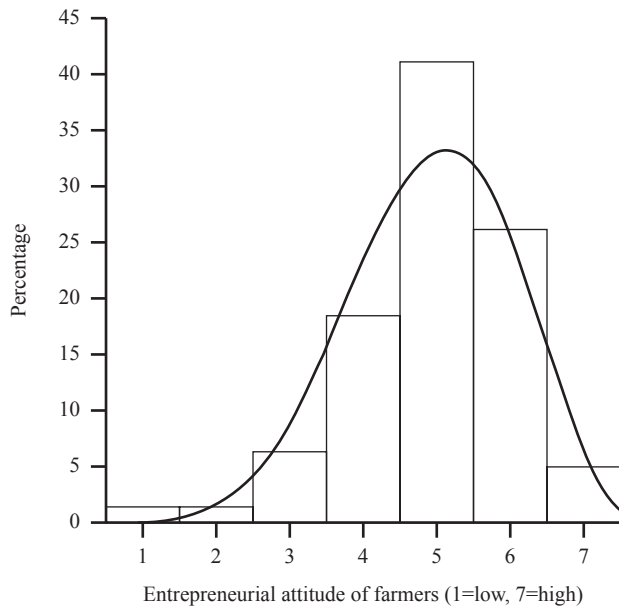


Figure 2: Assessment by farm advisors of farmers' entrepreneurial behaviour in NUTS 3 districts of western Germany in 2007.

ENTREPRENEUR: 'Farmers here are entrepreneurially oriented: They invest labour and capital where it is most profitable'.

Missing values: 4; deleted 'outliers': 24; Share of variance that can be attributed to differences between districts in raw data: 41%, non-significant; between Mean Square 1.67; within Mean Square 1.44

Source: own data

corresponding statement. The distribution of assessments revealed that this dimension clearly measured something different from the first dimension. The variance of assessments in this case was rather low, with 40 per cent of all assessments concentrated at five points on the scale. Differences between districts in entrepreneurial attitude were not significant before removing 24 deviating values.

While the first dimension determined the farmers' attitude with respect to their farm, this second dimension is concerned with general behaviour. Clearly, a high ranking of general conservative behaviour is rather rare; underlining the assumption that observed conservative behaviour of farmers is due to special conditions and restrictions of agriculture.

Only if conservatism has a high and entrepreneurial attitude a low assessment are the farmers in a district assessed as conservative in every respect. If both received high points on the scale, the respective farmers are conservative in agriculture but otherwise entrepreneurial. The case of low values in both dimensions did not occur (Figure 3a). Finally, if the first dimension received low values while the second was ranked highly, farmers' entrepreneurial behaviour generally dominates. By subtracting values of 'conservative' from values of 'entrepreneur', a single factor (MODERN) was created that captured all of these nuances. Owing to the fact that the case of low values in both dimensions did not occur, the middle values of MODERN are non-ambiguous in their interpretation. Therefore, MODERN shows a strong negative correlation with assessments on conservative attitudes ('tradition') (Figure 3b) and a strong positive correlation with entrepreneurial attitudes (Figure 3c). It was therefore possible to replace two seemingly loosely related dimensions (Figure 3a) by a single factor. Moreover, this new indicator could remove possible biases in the assessments due to different interpretations of the scale of different experts.

While the factor MODERN for the assessment of farmers' general attitude was constructed by simply differencing the assessments concerning two separate dimensions from the survey, other factors characterising specific restrictions, opportunities and strategies of farmers were created by factor-analysis. Therefore, in a first step those statements of the survey were selected that were assumed to relate to a common underlying concept. The concepts relevant for the following analysis are 'Behaviour', 'Dynamics' and 'Opportunities'. With the assessed statements of each conceptual group, one factor-analysis has been conducted separately. Usually four to five factors were identified that describe different dimensions of each concept (Table 1).

The creation of factors serves the aim of condensing a multiplicity of variables with similar implications in order to avoid, for example, problems of multicollinearity in subsequent analyses. Here, it also served the aim to raise the validity of the experts' subjective assessments by compensating erroneous assessments of single statements with other

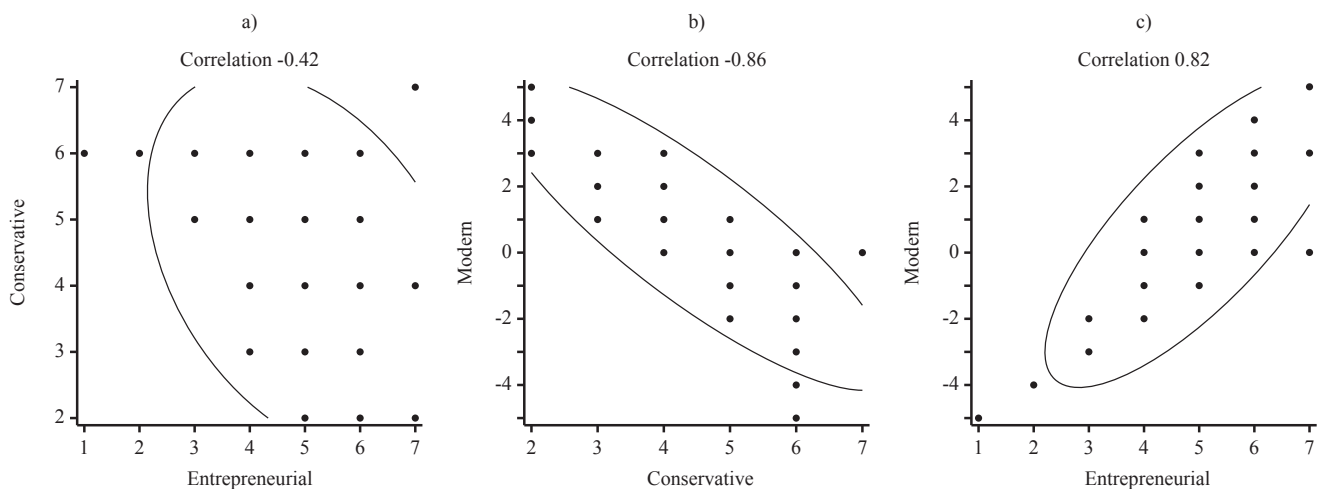


Figure 3: Scatter-plots of conservative and entrepreneurial behaviour of farmers in NUTS 3 districts of western Germany in 2007 and of the factor MODERN.

Number of observations: 137, 95% in ellipse

Source: own figure

Table 1: Factors and their underlying statements that describe the observed behaviour of farmers, observed farm dynamic in the districts, and observed opportunities for farmers in NUTS 3 districts of western Germany in 2007.

Behaviour (total communality or common variance: 2.84; explained share in total variance 0.28)	N	Factor loading
Habitual behaviour [HABITUAL] (0.65)		
"Underinvesting farmers lack faith and/or interest in their farm's ability for sustainable development."	138	0.69
"Such unprofitable farms are kept up because exiting farming seems unthinkable."	137	0.50
"Underinvestment in farms is due to risk-aversion of farmers."	138	0.47
Entrepreneurial behaviour [ENTREPRENEUR] (0.41)		
"Farmers here are entrepreneurial: they invest labour and capital where it is most profitable."	141	0.61
"Farmers here are rather conservative: they mainly want to stabilise their farms. They avoid risk and usually develop slowly in approved fields."	140	-0.36
"The necessary employment of non-family labour is a hindrance because farmers here view it sceptically."	131	-0.37
Commitment of farmers and their family [COMMITMENT] (0.41)		
"Farms here support each other based on mutual trust (neighbourly help)."	135	0.45
"Farm families are willing to sacrifice profit and consumption in the short term in order to sustain the farm in the long term."	139	0.44
"Income from non-farm labour is also employed in order to stabilise the farm financially."	140	0.42
Esteem of farmers and farming [ESTEEM] (0.20)		
"The exit from agriculture brings with it a loss of esteem for the farmer."	134	0.46
Dynamics (total communality or common variance: 1.84; explained share in total variance 0.26)		
Danger of rupture in structural change [RUPTURE] (1.21)		
"Exiting farms are characterised by below-average endowment with land."	141	0.58
"Middle size farms are left behind here. They need to exit or change into part-time farming in the medium term."	138	0.55
"Exits from farming occur with the alternation of generations."	141	0.48
"Growing farms are large farms."	144	0.41
"Exiting farms are characterised by good non-farm income opportunities of the farmer, e.g. its successor."	135	0.38
Stability of farms [STABILITY] (0.61)		
"Farms with low growth potential are continued by farm successors."	139	0.55
"Stable farms with growth potential are continued by farm successors."	144	0.44
Opportunities (total communality or common variance: 3.84; explained share in total variance 0.35)		
Lacking profitability of agriculture [NOPROFIT] (1.67)		
"In arable crops profitability of necessary investment would be questionable without farm investment aid."	124	0.78
"In pork and poultry profitability of necessary investment would be questionable without farm investment aid."	142	0.65
"In specialised cultivation profitability of necessary investment would be questionable farm investment aid."	142	0.58
"In dairy farming profitability of necessary investment would be questionable without farm investment aid."	139	0.51
Situation on local land market [LANDMARKET] (0.95)		
"Demand for land is larger than supply."	138	0.55
"Change to part-time farming is a reaction to lacking growth possibilities due to a tight land market."	132	0.52
"The necessary employment of non-family labour is a hindrance because the necessary abrupt growth not possible."	132	0.43
Investment opportunities [INVESTOPTION] (0.58)		
"More investments in new farm activities would be reasonable."	132	0.52
"Full-time farms have additional income sources to farming."	136	0.39
Availability of additional income [ADINCOME] (0.57)		
"Farmers that look for a non-farm job are usually successful."	138	0.41
"Underinvestment of farmers is due to risk averse banks."	135	-0.46

Note: Pairwise deletion of missing values: Minimum number of observations used for correlations is N = 113

The number in brackets after factors gives the common variance explained by each factor after oblique rotation

Source: based on data from responses to a farm-advisor survey conducted by the author in 2007

assessments for additional statements. Moreover, in the factor analysis, continuous variables (factors) are created from the discrete assessment values of the original variables. Therefore, the subsequent linear regression is more appropriate if it is based on factors. Factor-analysis is based on the correlation between single variables. If correlations are low, subsuming the respective variables in common factors might not be adequate. Nevertheless, the 'measure of adequacy' (MSA) showed that the variables from the experts' assessments were suitable. Owing to the facts that unbalanced correlation matrices were used because of many missing values and that the subjective assessments are expected to be erroneous, a common factor (CF) analysis was conducted rather than an analysis of principal components (PC) (Backhaus

et al., 2003). In CF, the common variance of all variables is explained rather than total variance; therefore, expected communalities and eigenvalues are below one. The necessary priors for expected communalities were estimated with the 'squared multiple correlations' (SMC) technique (Loehlin, 2004). Table 1 presents the explained shares of common variance in total variance for each analysis; with about 0.3 it is clearly below one for all three CFs as expected due to measurement errors and missing values. The judgement on the number of extracted factors relied on a balanced assessment (a) of the factors' absolute eigenvalues, which should equal at least one according to the Kaiser-criterion in PC but not necessarily in CF and (b) of a Scree-Test (Backhaus *et al.*, 2003), which graphically compares each factor's relative

contribution to the explanation of variance. Considerations concerning the factors' content provided additional guidance. Factors were rotated orthogonally and obliquely (*ibid.*) in order to reach unambiguously interpretable factors. Factors were interpreted considering all variables with a loading of 0.3 or higher.

Four of the factors in Table 1 describe the opportunities of farmers in the district: NOPROFIT describes deficits in regional profitability of agricultural production. INVESTOPTION describes alternative opportunities to invest in the region within or outside agriculture. ADINCOME describes the probability of an advantageous non-agricultural employment, which also reduces willingness to invest in agriculture even though accessibility to credit might be good. LANDMARKET describes the situation on the land market. It has high values if demand is high as compared to supply and if growth is restricted by scarcity in land.

Four factors were extracted that describe the observed behaviour of farmers: ESTEEM describes whether being a farmer is, in the farmers' eyes, related to a positive social standing. COMMITMENT describes whether belonging to the farmers' community is associated with special values. ENTREPRENEUR is very similar to MODERN, which was constructed by a naïve unweighted aggregation of the two original variables 'conservative' and 'entrepreneurial'. The main difference between MODERN and ENTREPRENEUR is the discrete character of the first and the continuous character of the latter variable. Finally, HABITUAL describes a situation where farms are kept up due to lacking alternatives rather than due to development potentials.

Four factors (NOPROFIT, LANDMARKET, INVESTOPTION and ADINCOME) relate to opportunities. Two factors deal with the observed farm dynamic in the districts. RUPTURE describes a situation that signals retarded structural change with few viable farms and many non-viable farms that are expected to leave the sector in the nearer future. High values of STABILITY in contrast signal that

farms in the district are stable. The distributions of values of the ten factors are presented in box and whisker plots in Figure 4. Mean values are indicated by a cross and outliers are plotted as individual points.

Explanation of farmers' observed strategies

A strategy that aims at farm stabilisation rather than at farm growth is defined as conservative. Often, conservative behaviour is judged as non-entrepreneurial. Nevertheless, the risk-avoiding stabilising behaviour of reduced growth might be a rational strategy of farm/firm development in the presence of rents of the *status quo* and quantity competition on the land market. Whether these conditions actually explain the perceived conservatism of farmers is analysed in a regression analysis. This analysis aims at a substantiation of the idea of a reflexive relationship between farmers' strategies and the land market.

As endogenous variables we use the original variable 'conservative', which is based on a single statement, as well as the two factors MODERN and ENTREPRENEUR, which are constructed from two, respectively three statements. With the estimation of these different models the robustness of results shall be demonstrated with respect to different specifications. The discrete variables MODERN and 'conservative' with 10, respectively 7 ordered levels are explained in multinomial logistic models with proportional odds. This model type implies that identical coefficients can be applied in order to explain the relative probabilities of all levels. A score test showed that the assumption on proportional odds for a multinomial model was not justified for MODERN and 'conservative' on the original scale. Therefore, the values of MODERN were aggregated into three (< 0 , $0 - 1$, > 1) and those of 'conservative' were aggregated into four classes (≤ 3 , 4 , 5 , ≥ 6). For the three- and four-class models the assumption of proportional odds were not rejected. The factor ENTREPRENEUR is a continuous

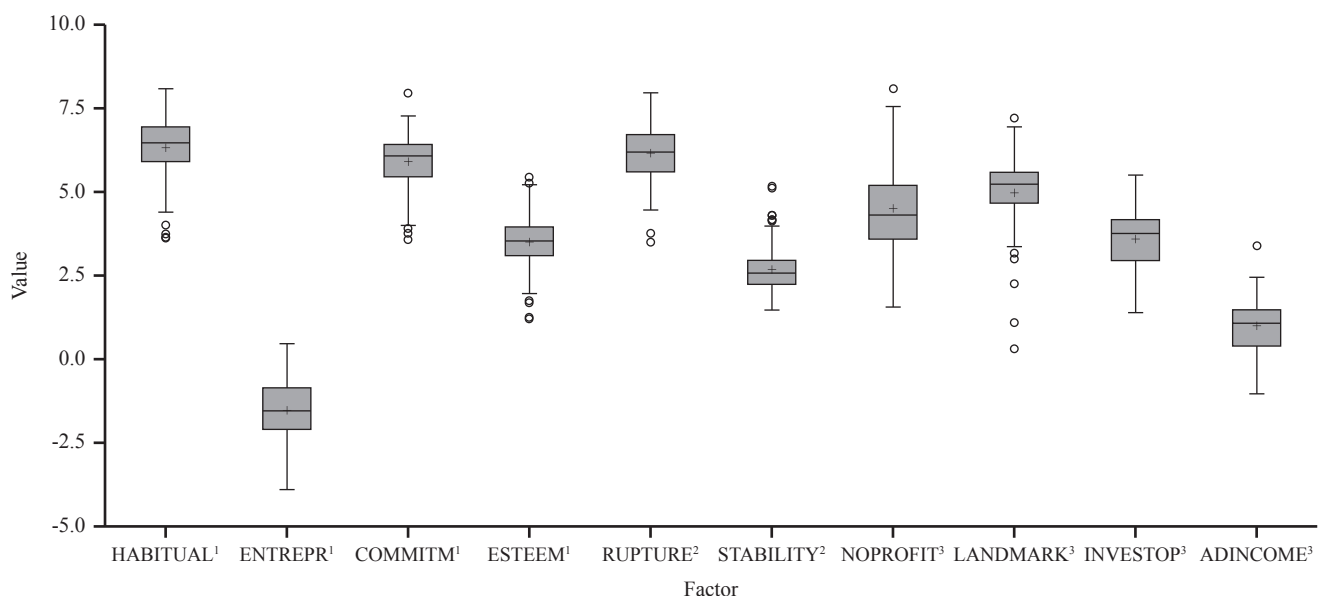


Figure 4: Box and whisker plots of the factors presented in Table 1.

N = ¹101; ²121; ³81

Source: own figure

Table 2: NUTS 3 district level variables explaining the strategic behaviour of farmers in western Germany in 2007.

Name	Meaning	Possible range	Mean	Std. dev.	Min	Max
GINI79	Inequality in land distribution in 1979	0-1	0.41	0.05	0.33	0.59
LESSFAVOURED	Share of less favoured land	0-1	0.50	0.3	0.00	1.00
LANDQUALITY	Normed quality of land	0-100	47.47	10.46	2.62	75.44
MEANSIZE	Mean farm size (hectares)	0	30.32	12.35	9.46	70.11
COWS	Dairy cows per 100 hectares	0	27.95	1.27	0.26	3.56
VALUEADDED	Agric. value added per 10 hectares (EUR 1000)	0	15.79	16	4.63	47.62
RENTEDLAND	Share of rented land cultivated by farmers	0-1	0.43	0.10	0.20	0.71

Number of observations: 145

Source: FDZ (1999), Federal Statistical Office (VALUEADDED), and Agricultural Census 1979 (GINI79)

variable and has as such been explained by a linear least square model.

Exogenous variables are presented in Table 2⁴. The Gini coefficient in our case describes the distribution of land in hectares with respect to different farm size classes (Margarian, 2010a). Principally, a higher value of the Gini coefficient indicates a higher inequality in the distribution. We introduce the Gini coefficient for land distribution in 1979 into our model in order to reflect the initial or historical situation. Earlier data were not available. The initial farm size distribution (GINI79) is expected to have a high impact on the growth history of farms in the districts due to its impact on strategy differentiation between quantity leaders and quantity followers. The growth history determines the strategic regime or the growth orientation of farms in the district. Specifically, a high Gini coefficient, i.e. strong inequality in historical land distribution is assumed to cause a differentiation into few farms with strong growth (quantity leaders on the land market) and many farms with restricted growth (quantity followers on the land market) if rents of the *status quo* are considerable. The value added of land (VALUEADDED) contributes positively to possible rents of the *status quo* of agriculture. At the same time, it also makes a potentially positive contribution to the possible rents of growth. Its expected impact is therefore ambiguous. The share of less favoured land (LESSFAVOURED) relates negatively to the potential rents of the *status quo*⁵. The share of rented land (RENTEDLAND) reduces possible rents of the *status quo* as it contributes to a potential instability of the *status quo* situation. Milk production (COWS) is characterised by a relatively low land-intensity of production. Additionally, high capital and labour intensity and specificity contribute to higher rents of the *status quo* due to sunk costs in milk production. The mean size of farms in land (MEANSIZE) determines the present full-time farms' necessity for growth and is therefore negatively related to the realisable rents of growth. A larger mean size should accordingly be related positively to conservatism. Nevertheless, as smaller farms result from restricted growth in the past, the factor could also support the conflicting hypothesis and has ambiguous implications.

The logistic model explains the probability that a dis-

trict's farmers are characterised by conservative behaviour according to external observers (low values of MODERN and high values in 'conservative'). The least square model reversely explains the more entrepreneurial orientation of a district's farmers. In the estimation, interactions among variables were controlled since these interactions allow for the test of conditional hypotheses (Brambor *et al.*, 2006). They therefore allow us to test the interplay between rents of the *status quo* and initial farm size distribution and their common impact upon farmers' strategic orientation. In order to make coefficients in the presence of interactions easily interpretable, variables have been centred on their mean (Jaccard, 2001)⁶. Some of the variables have been rescaled to create comparable values in order to facilitate convergence. Considering the test statistics at the foot of Table 3, the models are highly significant: The differences in experts' assessments on farmers' conservatism in different regions are explainable by the theoretically relevant variables from secondary statistics. The results are stable with respect to the different models estimated.

As expected, the historical distribution of land has a strong impact upon the observed behaviour of farmers, but this impact depends on additional conditions. Those variables that are assumed to capture existing rents of the *status quo* (LESSFAVOURED and RENTEDLAND) are insignificant themselves but have a highly significant role in moderating the effect of GINI79. Figure 5 illustrates the conditional relationship between the Gini coefficient (unevenness in land distribution) in 1979 and the estimated values of the factor ENTREPRENEUR. The figure is based on the coefficients of the last model in Table 3. It shows that there is the expected negative relationship between observed entrepreneurial behaviour and historical unevenness in land distribution in regions with low relevance of less favoured land: In these regions with potentially high rents of the *status quo*, a higher Gini coefficient contributes to stronger conservatism in the observed behaviour. Here, the multitude of smaller farms reacts by reduced growth to the original unevenness in land distribution (quantity followers in Stackelberg competition) and simultaneously shows a reduced exit mobility. In regions with a high relevance of less favoured areas, in contrast, there is a positive relationship between the Gini coefficient and entrepreneurial orientation. In these regions where the expected rents of the *status quo* are lower, the original

⁴ Other covariates had originally been included. One example is the share of arable land. Nevertheless, those variables that did not add to the explanatory power of the models have been removed subsequently in order to fight the problem of multi-collinearity.

⁵ The same models have alternatively been estimated with a measure for the mean quality of arable land (the German EMZ value) in the district, which are expected to be positively related to rents of the *status quo*. Results were as expected inversely related to those with the share of less favoured land. It was not possible to include both indicators in the model because of their strong multi-collinearity.

⁶ The assessment of the significance of interaction terms is usually rather tedious in linear models as well as in logistic models (see for example Margarian, 2012). Nevertheless, the application of models with moderator variables and mediator variables has recently been largely facilitated by a newly developed macro (PROCESS) for SPSS and SAS (Hayes, 2013).

Table 3: Explanation of conservatism, respectively entrepreneurial attitudes of farmers in NUTS 3 districts of western Germany in 2007.

Parameter	Outcome: Number of classes: Interaction with ...	Logistic proportional odds models		Generalised linear model
		MODERN 3	CONSERVATIVE 4	ENTREPRENEUR
		Directed at most conservative class		Reversed
Intercept		-1.19 *** (0.243)	-1.78 *** (0.251)	-1.57 *** (0.095)
Intercept		1.08 *** (0.239)	-0.15 (0.196)	
Intercept			1.24 *** (0.225)	
GINI79		0.17 *** (0.048)	0.09 * (0.038)	-0.02 (0.020)
LESSFAVOURED		0.006 (0.006)	0.004 (0.005)	-0.004 (0.003)
	GINI79	-0.004 *** (0.001)	-0.002 * (0.001)	0.001 *** (0.001)
RENTEDLAND		0.04 ° (0.024)	0.02 (0.021)	-0.01 (0.011)
	GINI79	-0.01 ** (0.004)		0.004 * (0.002)
VALUEADDED		-0.13 ** (0.043)	-0.10 ** (0.034)	0.03 * (0.015)
	RENTEDLAND	0.01 ** (0.004)	0.01 ** (0.004)	
MEANSIZE		-0.03 ° (0.018)		
COWS		0.05 *** (0.014)	0.04 *** (0.012)	-0.02 * (0.006)
(Pseudo) R-square		0.31	0.24	0.25
Likelihood-Ratio		<.0001	<.0001	
Score		<.0001	<.0001	
Wald		<.0001	<.0001	
R-square change due to interaction 1				0.07 ***
R-square change due to interaction 2				0.04 *
Number of observations		135	138	100

Note: Standard errors in parentheses below coefficients. ***, **, *, and ° denote significance at the 0.1%, 1%, 5%, and 10% level
Source: own calculation

unevenness of land distribution contributes to faster growth of some farms and accelerated exits of others and thereby to higher mobility and an accelerated dynamic in structural change. Higher mobility and faster growth are associated with entrepreneurial strategies by observers. These results support the notion that conservative strategies represent a rational reaction towards specific land market situations and environmental conditions.

An analogous interpretation applies to the interaction between RENTEDLAND and GINI79, as RENTEDLAND, like LESSFAVOURED, is associated with reduced rents of the *status quo*. The positive coefficient for VALUEADDED shows that a higher potential to realise value added contributes positively to a dynamic development, i.e. an entrepreneurial impression upon observers. Nevertheless, this positive relationship is attenuated by a high share of rented land as the negative coefficient on the interaction between VALUEADDED and RENTEDLAND implies. A high share of rented land signals potential instability of farms and also a tightness of the local land market. Dairy farms (COWS) are characterised by high investments and sunk costs and therefore by high rents of *status quo*. Accordingly, they contribute significantly to observed conservatism of producers.

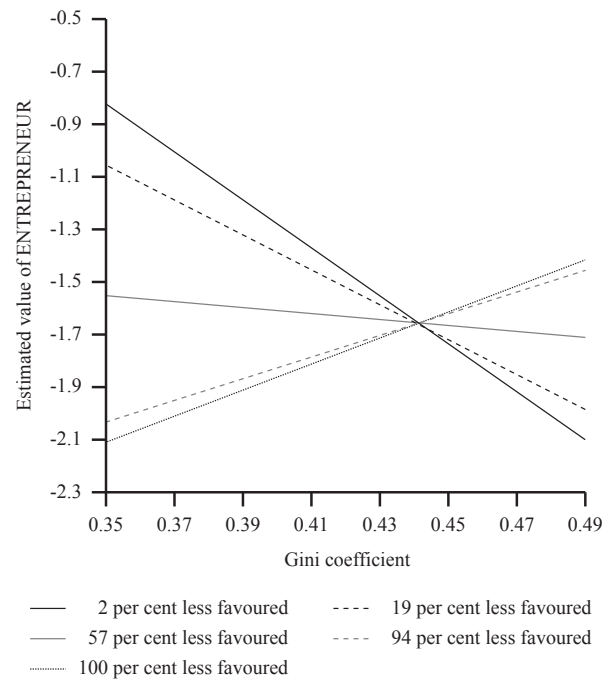


Figure 5: The differentiated effect of historical land distribution (Gini coefficient) on observed entrepreneurial behaviour amongst farmers in NUTS 3 districts of western Germany in 2007.

Source: own figure

Relationship between strategies and the current land market situation

The previous section assessed the impact of the land market upon farmers' observed behaviour. This section, in contrast, analyses the possible impact of farmers' observed general strategic orientation upon the current land market, possibly mitigated by attitudes, which might be collateral consequences of the long term strategic orientation of local producers. The development of such attitudes in a quantity competition regime might support the sustainability of regional differences in farm development strategies and therefore strengthen path dependence in farm structure development. This second causal direction completes the proposed reflexive relationship between strategies and land market. Interest now focuses on the relationship between farm structure, the economic environment and farmers' observed behaviour on the one side and current dynamics in structural change and the situation on the land market on the other. The analysis relies on the factors described above. The construction of the model to be estimated is guided by a simple logic of causation. Thereby BEHAVIOUR is assumed to impact upon farm structure DYNAMICS which influences the situation on the LANDMARKET (compare Table 1). The remaining three factors that describe farmers' OPPORTUNITIES (NOPROFIT, INVESTOPTION and ADINCOME) and relevant indicators from secondary statistics (see Tables 4 and 2) enter the model as covariates.

The model is formulated in a mediation approach, which allows testing direct impacts of variables upon each other as well as indirect effects, i.e. effects that are mediated by another additional variable. The idea of mediation is conceptually a challenge while it is rather easy to implement technically. Mediation models simply consist of a series of regressions with a subsequent inclusion of mediation variables (Hayes, 2013)⁷. In order to identify the indirect effects of the exogenous variable on the endogenous variable via the m mediators, $m+1$ models are estimated in an overarching logical model with a hierarchical causal structure. The first model explains the first mediator in terms of the exogenous variable and the n covariates:

$$HABITUAL = \beta_0^1 + \beta_1^1 ENTREPRENEUR + \sum \beta_{1+n}^1 COVARIATE_n + \varepsilon^1 \quad (1)$$

The second model explains the second mediator in terms of the exogenous variable and the first mediator:

$$ESTEEM = \beta_0^2 + \beta_1^2 ENTREPRENEUR + \beta_2^2 HABITUAL + \sum \beta_{2+n}^2 COVARIATE_n + \varepsilon^2 \quad (2)$$

The third model explains the third mediator in terms of the exogenous variable and the first and second mediator and so on:

$$MEDIATOR_m = \beta_0^m + \beta_1^m ENTREPRENEUR + \sum_{i=1}^{m-1} \beta_{i+m}^m MEDIATOR_i + \sum \beta_{1+m+n}^m COVARIATE_n + \varepsilon^m \quad (3)$$

The final model explains the endogenous variable in terms of the exogenous variable and all mediators:

$$LANDMARKET = \beta_0 + \beta_1 ENTREPRENEUR + \sum \beta_m MEDIATOR_m + \sum \beta_{1+m+n} COVARIATE_n + \varepsilon \quad (4)$$

In this last equation, β_1 determines the direct effect of the exogenous variable (ENTREPRENEUR) upon the endogenous variable (LANDMARKET). The indirect effect of the exogenous upon the endogenous variable via selected mediators m is calculated by the multiplication of β_1^1 with β_{m-1}^m with β_m^m , i.e., by the multiplication

- of the estimated effect of the exogenous variable upon the first mediator in the causal chain
- with the estimated effect of mediator m upon mediator $m+1$ in the causal chain
- with the estimated effect of the last mediator in the causal chain upon the endogenous variable.

A summation of all direct and indirect effects gives the total effect. The total effect could also be estimated as:

$$LANDMARKET = \beta_0^T + \beta_1^T ENTREPRENEUR + \sum \beta_{1+n}^T COVARIATE_n + \varepsilon^T \quad (\square)$$

The total effect may be insignificant despite significant direct and indirect effects if the signs of single effects are oppositional. This case applies in our model. The assessment of the significance of indirect effects necessitates some further calculations, which have been largely facilitated by the new Macro PROCESS that is available for SAS and SPSS (Hayes, 2013)⁸. This macro applies bootstrap confidence intervals for inference about indirect effects as the frequently applied Sobel test is assumed to rely on unrealistic assumptions⁹. The calculated significances that are presented in the following rely on these 95 per cent bias-corrected bootstrap confidence intervals. The number of bootstrap samples was set to 10,000.

Our model asks whether the principal strategic orientation of a region's farmers (ENTREPRENEUR) impacts upon other attitudes of a region's farmers, specifically upon HABITUAL and upon ESTEEM. ENTREPRENEUR and HABITUAL are both supposed to impact upon ESTEEM. A mediation of the effect of ENTREPRENEUR on LANDMARKET by HABITUAL and ESTEEM is theoretically expected, as non-price competition contributes to low values of ENTREPRENEUR and supplies the possibility for a larger variety of 'surviving' attitudes but it does not necessarily imply strength of specific attitudes. At the same time, the passive behaviour indicated by HABITUAL reduces demand for land and relaxes the land market while high ESTEEM provides additional rents of the

⁷ In Margarian (2010a) the alternative approach of a structural equation model (SEM) was applied, which is more flexible but also more demanding in terms of assumptions. Owing to partly justified concerns with respect to complex SEMs, in this paper we decided for a reduction in model complexity that in turn allows for the application of the more robust mediation approach.

⁸ Similar tasks are provided by the `sgmediation` command in STATA. Nevertheless, the most flexible and easily accessible approach in technical terms is via a combination of the `sureg` command and the `nlcom` command in STATA.

⁹ For an assessment of different test of the significance of mediated effects see MacKinnon *et al.* (2002).

status quo and thereby rises the will to stabilise farms via necessary growth in land. Thereby, ENTREPRENEUR has additional indirect effects upon LANDMARKET that depend on its potential contribution to HABITUAL and ESTEEM.

The model further assesses how these observed behavioural categories relate to the farm development dynamics, whose factors stem from a different construct (Table 1). STABILITY simply describes the current stability of dynamic as well as stagnating farms. It also depends upon the potential delay of structural change in past years (RUPTURE). Whether variables from the behaviour construct impact upon farm development dynamics depends on exogenous conditions that determine the extent of potential rents of the status quo and farmers' outside opportunities. If an impact exists, an indirect relationship between BEHAVIOUR and LANDMARKET is expected, thereby justifying the hypothesis of a mediated relationship in this case.

Figure 6 indicates all of the possible relationships that were tested in the mediation model, with dotted lines indicating those relationships that connect variables which are not from the same construct. The results of the different regression models that form the basis of the mediation approach are presented in Table 4. The first model explains HABITUAL, which is closely negatively related to the exogenous variable ENTREPRENEUR as expected. The coefficients on

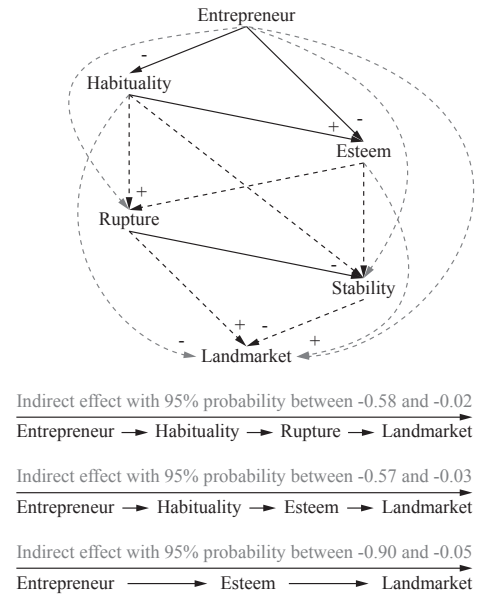


Figure 6: Causal relationships between economic environment, structural situation, farmers' attitude and strategic decisions in NUTS 3 districts of western Germany in 2007.

Note: Solid lines indicate relations between factors that relate to constructs and are therefore correlated by construction. Dotted lines indicate relations between technically unrelated variables.

Source: own figure

Table 4: Results of the separate regression models in the mediation approach.

Outcome:	HABITUAL	ESTEEM	RUPTURE	STABILITY	LANDMARKET
Constant	4.175 *** (0.415)	0.164 (0.425)	3.405 *** (0.648)	4.211 *** (0.778)	4.599 ** (1.778)
Exogeneous variable					
ENTREPRENEUR	-0.815 *** (0.120)	-0.546 *** (0.099)	0.146 (0.187)	0.043 (0.185)	0.042 (0.340)
Mediators					
HABITUAL		0.380 *** (0.081)	0.486 ** (0.146)	0.025 (0.157)	-0.542 ° (0.288)
ESTEEM			-0.293 (0.203)	0.138 (0.203)	0.706 ° (0.375)
RUPTURE				-0.236 ° (0.132)	0.493 * (0.250)
STABILITY					-0.430 ° (0.250)
Controls					
Factors					
NOPROFIT	-0.019 (0.068)	0.002 (0.042)	0.091 (0.064)	-0.074 (0.064)	-0.299 ** (0.119)
INVESTOPTION	0.273 ** (0.109)	0.022 (0.070)	0.052 (0.107)	-0.045 (0.105)	0.297 (0.194)
ADINCOME	0.033 (0.111)	-0.033 (0.068)	0.310 ** (0.104)	-0.177 (0.110)	-0.132 (0.206)
Variables from secondary statistics					
GINI79	-0.037 * (0.018)	0.021 ° (0.011)	0.013 (0.018)	0.013 (0.017)	-0.016 (0.032)
LANDQUALITY	0.007 (0.010)	0.003 (0.006)	0.017 ° (0.009)	0.024 ** (0.009)	-0.029 (0.018)
VALUEADDED	-0.038 * (0.018)	0.031 ** (0.012)	-0.050 ** (0.019)	-0.014 (0.020)	0.028 (0.036)
MEANSIZE	0.006 (0.009)	0.015 ** (0.005)	-0.019 * (0.009)	0.004 (0.009)	-0.010 (0.017)
COWS	-0.005 (0.006)	0.003 (0.004)	-0.010 ° (0.006)	0.006 (0.006)	0.014 (0.011)
R-square	0.61	0.80	0.51	0.29	0.29
p-value of whole model	0.000	0.000	0.000	0.071	0.090

Note: N = 67. Standard errors in parentheses below coefficients. ***, **, * and ° denote significance at the 0.1%, 1%, 5% and 10% level.

Source: own calculation

the covariates show that passive behaviour is stronger, where farmers seem to invest in non-farm assets (INVESTOP-TION, see Table 1) and where the initial inequality in farm size distribution (GINI79) and the value added of agriculture (VALUEADDED) are rather low.

The second model explains the second mediator, ESTEEM. ESTEEM is positively related to HABITUAL and negatively to ENTREPRENEUR. Moreover, it is higher, where the value added of agriculture per hectare is higher and where the mean size of farms is larger. One could interpret this result as such: in regions with few alternatives, farmers are rather passive and stabilise their farms. If at the same time they are lucky enough to have relatively large farms and good conditions for intensive production, their esteem is high as compared to other professions. If, on the other hand, farmers are outside-oriented, i.e. they use local alternatives and develop their farms entrepreneurially, or if the economic potential of existing farms is low, farming does not have a lower or higher esteem than any other occupation. The third model explains the second mediating variable, RUPTURE. This situation of delayed structural change and a structural divide between small and large farms is positively related to a passive behaviour of farmers (HABITUAL) but not so to the other two factors of the behaviour construct. Quite plausibly, delayed structural change is also more relevant where additional income sources exist (ADINCOME) and where VALUEADDED and the farms' MEANSIZE are smaller. The current STABILITY of farms (fourth model) is, as expected, negatively related to a delayed structural change (RUPTURE). It is additionally positively related to a better LANDQUALITY. Finally, the LANDMARKET (fifth model) is more relaxed where the passive behaviour of farmers dominates (HABITUAL) and where ESTEEM is low, probably because a lower esteem contributes to higher exit mobility. In regions that are characterised by a delayed structural change (RUPTURE) the land market is rather tight, while in contrast in regions with stable farms, the land market is rather relaxed. According to the covariates, in regions where profitability of farming is low (NOPROFIT), the land market is more relaxed as well.

Figure 6 summarises the significant causal relationships between ENTREPRENEUR, the mediators and LANDMARKET from the estimation results in Table 4. Plus signs indicate significant positive coefficients, minus signs indicate significant negative coefficients.

The causal chains below the graphic present the significant indirect effects of ENTREPRENEUR upon LANDMARKET according to the bootstrapping approach. While the direct effect of ENTREPRENEUR is insignificantly positive, all significant indirect effects are negative. This denoted difference between the direct and the indirect effect hints at the ambiguity inherent in the relationship between ENTREPRENEUR and LANDMARKET. On the one hand, more entrepreneurial or growth oriented farmers demand more land. On the other hand, they might also be characterised by a higher mobility or rather crowd smaller farms out of production (Margarian, 2010a, b). The results of the mediation model tell us that in regions where an entrepreneurial strategic orientation is accompanied by low HABITUALITY and/or low ESTEEM, the negative impact prevails: contrary to

first intuition, the dominant growth orientation contributes to a more relaxed land market. This implies that a more conservative strategic orientation goes along with a tighter land market if it is accompanied by high HABITUALITY and/or high ESTEEM. The partial relevance of RUPTURE indicates that this result is also due to the fact that structural change is less delayed in regions with more 'entrepreneurial' farms.

Discussion

The results of the two types of empirical models presented in the paper are in accordance with the idea of a reflexive relationship between the land market and farmers' strategies. According to the first model that explains observed behaviour by indicators of local agricultural structure, farmers act more conservatively in the observers' eyes in land markets with reduced competition. As the results show, this might be due for example to the dominance of few large farms on the land market or to a high share of rented land, which limits the ability to realise new rents of the *status quo* by additional growth. In this perspective and according to the first model, farmers minimise risks by continual but restricted growth in order to secure sustainable realisation of rents of the *status quo*. This general 'attitude' (or growth orientation) of farmers can therefore be explained endogenously.

The results of the second model based on mediated regression tell us that in regions where an entrepreneurial strategic orientation is accompanied by low HABITUALITY and/or low ESTEEM, the negative impact prevails: contrary to first intuition, the dominant growth orientation contributes to a more relaxed land market. This implies that a more conservative strategic orientation goes along with a tighter land market if it is accompanied by high HABITUALITY and/or high ESTEEM. The partial relevance of RUPTURE indicates that this result is also due to the fact that structural change is less delayed in regions with more 'entrepreneurial' farms. Accordingly, not only is observed behaviour explained by the local farm structure (model one) but farmers' strategic orientation also affects the current land market situation.

This reflexivity implies that the specific conditions in local land markets have the potential to contribute to a regional differentiation of farm development strategies. If strategies are thereby recognised as endogenous to the process of structural development, the possibilities of path dependence and of different equilibria need to be taken into account as well. The situation is even more complicated by the recognition that (weaker) competition on quantities implies a less severe selection process and thereby allows for a larger variety in fundamental attitudes towards development among the remaining farms. These attitudes might be conditional upon other factors such as local culture or local opportunities. They potentially further contribute to the variety in observed farm development strategies, thereby necessitating a careful analysis of local conditions in the explanation of land markets and of structural change in agriculture¹⁰. The results also imply that the observed differences in land markets and in

¹⁰ Taking into account the possibility of different equilibria leads to more differentiated models and the need to estimate far more coefficients in the explanation of structural change as can be seen from Margarian, 2010c.

structural change are a reflection of rational considerations under given circumstances and not, as sometimes assumed, a reflection of irrational behaviour. The results thereby, on the one hand, potentially increase the difficulty of analyses of agricultural economists but, on the other, raise hope that the observed phenomena are principally open to economic explanations.

Finally, in a methodological respect a word of caution seems appropriate: usually it is not possible to empirically determine the direction of causal relationships. Therefore, the value of the presented approach is in the combination of a proposed endogenous explanation for the observed heterogeneity in strategies and dynamics and the supplementary statistical analysis of primary data from a survey that was designed in order to test the derived hypotheses. If the theoretical fundament is principally contested, the empirical analysis will not be able to prove the reflexive relationship between market and strategies; but if the theoretical argument is not refused in principle, the empirical results may serve as enhancing evidence (Pearl, 2008).

References

- Backhaus, K., Erichson, B., Plinke, W. and Weiber, R. (2003): *Multivariate Analysemethoden. Eine anwendungsorientierte Einführung* [Methods of multivariate analysis. An introduction for applied research]. Berlin: Springer.
- Brambor, T., Clark, W.R. and Golder, M. (2006): Understanding Interaction Models: Improving Empirical Analysis. *Political Analysis* **14**, 63-82. <http://dx.doi.org/10.1093/pan/mpi014>
- Breustedt, G. and Glauben, T. (2007): Driving Forces behind Exiting from Farming in Western Europe. *Journal of Agricultural Economics* **58** (1), 115-127. <http://dx.doi.org/10.1111/j.1477-9552.2007.00082.x>
- FDZ (1999): *Data of the agricultural census 1999*. Kiel: Forschungsdatenzentrum.
- Glauben, T., Tietje, H. and Weiss, C. (2006): Agriculture on the Move: Exploring Regional Differences in Farm Exit Rates in Western Germany. *Jahrbuch der Regionalwissenschaft* **26**, 103-118. <http://dx.doi.org/10.1007/s10037-004-0062-1>
- Goetz, S.J. and Debertin, D.L. (2001): Why Farmers Quit: A County-Level Analysis. *American Journal of Agricultural Economics* **83**, 1010-1023. <http://dx.doi.org/10.1111/0002-9092.00226>
- Hayes, A.F. (2013): *An introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.
- Herrmann, V. (1993): *Handlungsmuster landbewirtschaftender Familien* [Patterns of action of peasant families]. Bamberg: WVB-Verlag.
- Hildenbrand, B., Bohler, K.F., Jahn, W. and Schmitt, R. (1992): *Bauernfamilien im Modernisierungsprozess* [Peasant families in the process of modernisation]. Frankfurt: Campus Verlag.
- Huettel, S. and Margarian, A. (2009): Structural Change in the West German Agricultural Sector. *Agricultural Economics* **40**, 759-772. <http://dx.doi.org/10.1111/j.1574-0862.2009.00413.x>
- Jaccard, J. (2001): *Interaction Effects in Logistic Regression*. Sage University Papers Series on Quantitative Applications in the Social Sciences, 07-135. Thousand Oaks, CA: Sage.
- Jürgens, K. (2010): *Wirtschaftsstile in der Landwirtschaft* [Economic styles in agriculture]. Das Parlament 5/6, Beilage: Landwirtschaft.
- Loehlin, J.C. (2004): *Latent Variable Models. An introduction to factor, path, and structural equation analysis*. London: Lawrence Erlbaum Associates.
- MacKinnon, D.P., Lockwood, C.M., Hoffman, J.M., West, S.G. and Sheets, V. (2002): A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods* **7** (1), 83-104. <http://dx.doi.org/10.1037/1082-989X.7.1.83>
- Makowski, L. and Ostroy, J.M. (1995): Appropriation and Efficiency: A Revision of the First Theorem of Welfare Economics. *The American Economic Review* **85** (4), 808-827.
- Margarian, A. (2010a): *Die regionale Spezifität des Agrarstrukturwandels: eine theoretische und empirische Analyse* [The regional specificity of structural change in agriculture: A theoretical and empirical analysis]. Aachen: Shaker.
- Margarian, A. (2010b): Coordination and Differentiation of Strategies: The Impact on Farm Growth of Strategic Interaction on the Rental Market for Land. *German Journal for Agricultural Economics* **59** (3), Special Issue, 202-216.
- Margarian, A. (2010c): *Gewinnentwicklung und Betriebsaufgabe in der Landwirtschaft: Angebotseffekte, Nachfrageeffekte und regionale Heterogenität* [Profit-development and farm-exits in agriculture: Supply effects, demand effects and regional heterogeneity]. *Arbeitsberichte aus der vTI-Agrarökonomie* 2010/11.
- Margarian, A. (2012): *The relation between agricultural and non-agricultural economic development: Technical report on an empirical analysis of European regions*. Braunschweig: vTI, *Arbeitsberichte aus der vTI-Agrarökonomie* 2012/01.
- Ohe, H. von der (1985): *Landwirte im Entscheidungsprozeß – Verhaltenswissenschaftliche Ansätze und Ergebnisse einer empirischen Untersuchung* [Farmers in decision processes: A behavioral science approach and results of an empirical investigation]. Frankfurt: Verlag Alfred Stroh.
- Patrick, G.F., Blake, B.F. and Whitaker, S.H. (1983): Farmers' goals: Uni- or Multi-Dimensional? *American Journal of Agricultural Economics* **65** (2), 315-320. <http://dx.doi.org/10.2307/1240881>
- Pearl, J. (2008): *Causality: Models, Reasoning and Inference*, Cambridge: CUP.
- Ploeg, J.D. van der (1994): *Styles of Farming: an Introductory Note on Concepts and Methodology*, in J.D. van der Ploeg, and A. Long (eds), *Born from within: practice and perspectives of endogenous rural development*. Assen: Royal van Gorcum, 7-30.
- Roeder, N., Kantelhardt, J. and Kapfer, M. (2006): Impact of the CAP reform on small-scale grassland regions. *Agrarwirtschaft* **55** (5/6), 257-267.
- Sinkwitz, P. (2001): *Landwirtschaftliche Nebenerwerbsbetriebe im wirtschaftlichen und sozialen Wandel* [Part-time farms in the process of economic and social change]. *Land-Berichte* **7/6** (2), Special Issue.
- Tietje, H. (2004): *Hofnachfolge in Schleswig-Holstein* [Farm-succession in Schleswig-Holstein]. Dissertation zur Erlangung des Doktorgrades der Agrar- und Ernährungswissenschaftlichen Fakultät der Christian-Albrechts-Universität zu Kiel.
- Varian, H.R. (1992): *Microeconomic Analysis*. New York: W.W. Norton & Co.
- Weiss, C.R. (1999): Farm Growth and Survival: Econometric Evidence for Individual Farms in Upper Austria. *American Journal for Agricultural Economics* **81**, 103-116. <http://dx.doi.org/10.2307/1244454>
- Woelckner, B. (2007): *Strategischer Wettbewerb: Marktökonomische Grundlagen, Produktdifferenzierung und Innovation*. [Strategic competition: Fundamentals, product differentiation and innovation]. Berlin: Springer.

Josef HAMBRUSCH*

The 2013 Common Agricultural Policy reform and its impact on small ruminant farming in Austria

Following a transition year, the new Common Agricultural Policy period, starting in 2015, is expected to bring a number of major changes in the payment scheme of Pillar 1. Using the example of the Austrian small ruminant sector (sheep and goats), this paper describes the effects of an area-based payment scheme instead of the Single Farm Payment Scheme applied previously. The calculations are based on the specification and simulation of seven different farm models and on an analysis of the Austrian Integrated Administration and Control System data sets. The results of both analyses suggest redistribution effects in favour of less extensive farm management systems. However, farms with high single farm payments per hectare are expected to face big cuts in direct payments by 2015. To avoid hardship the amount of the payments will be gradually amended over the coming years until 2019.

Keywords: CAP Reform, direct payments, farm simulation, small ruminants, Austria

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Introduction

The primary motivation for keeping small ruminants in Austria is the increasing demand for meat and milk. In this respect, the supply balance sheets published by Statistics Austria (2012) indicate a rise in the consumption of sheep and goat milk. Being ruminants, sheep and goats are capable of utilising grassland forage, which gives them a significant role in preserving the open cultural landscape (Hambrusch and Kirner, 2008). In this respect, Hofreither (1992) mentioned that landscape-related aspects were significant factors for the choice of holiday destination, which means that in Alpine regions the ecological effects of different forms of agricultural management are relevant for the region's appeal to tourists. Especially in less-favoured locations in mountainous areas, people who give up utilising agricultural land by setting aside domestic meadows and pastures frequently reforest such areas afterwards (Götzl *et al.*, 2011). As the production of cow's milk is more concentrated in the more favoured locations in mountainous areas (Kirner, 2007), the significance of small ruminants for the preservation of the countryside is likely to increase in the future.

The 2014-2020 Common Agricultural Policy (CAP) period, starting in 2015 after one year of transition, will bring about a fundamental change in the general framework conditions for European agriculture. It was agreed that special transition rules would be applied throughout 2014. The direction the new CAP will take is based on a set of legislative proposals presented by the European Commission (EC, 2011a) in October 2011. In the context of so-called trialogue, the European Commission, the European Parliament and the Council of EU Agriculture Ministers reached a final decision on the regulations for the reformed CAP in autumn 2013.

Against this background, this paper describes the effects a reformed CAP may have on specialised sheep and goat farms after 2013. The paper specifically examines the impacts of a change from the previous Single Farm Payment Scheme to a differentiated area-based model in the context of Pillar 1 of the CAP, which is to be introduced in five equal steps by 2019. The results are intended to help identify the conditions

and political incentives sheep and goat farming in Austria require, so it can continue to contribute towards maintaining an open cultural landscape, even where location conditions are difficult.

Methodology

Calculation of farm models

The calculations are based firstly on simulations of farm models and secondly on evaluations of Integrated Administration and Control System (IACS) data in Austria. The farm models were specified during two workshops held in February and June 2012 that were organised together with representatives of the Austrian sheep and goat farming associations. In order to reflect as broad a spectrum as possible, seven farm types with varying levels of production intensity (three lamb farms for meat production, two dairy sheep farms and two dairy goat farms) were modelled. Additional data were used from the results of evaluations of farming sectors (BMLFUW, 2012a) and from the standard gross margins for business planning (BMLFUW, 2008). The benchmarks used for these considerations were the total standard gross margins for each farm. Table 1 outlines key calculation assumptions on which the farm models are based.

The single farm payment level used in the farm models (shown in the lower section of Table 1) is based on historical entitlements with regard to land utilisation and animal stocks (animal density per ha). These essentially comprise the former premium for ewes and mother goats, the special aid for sheep and goats in less favoured areas and, in the case of farms with arable land, the formerly applied area-based compensatory payments. This is now to be compared with a differentiated area-based payment (DAP) model that, on the one hand, distinguishes between arable land or pastures and grasslands able to achieve average yields in monetary terms (EUR 294 per hectare) and extensively farmed grasslands (EUR 74 per hectare). The agro-political framework conditions were based on the principles for the implementation of the CAP until 2020 in Austria presented by the Federal

Table 1: Database for the seven farm models used in the study.

Designation	Unit	Lamb meat			Dairy sheep		Dairy goats	
		less intensive	intensive		conventional	organic	conventional	organic
			conventional	organic				
Mother animals	number	40	100	80	200	120	150	100
Livestock/hectare	mother animal/ha	3	8	6	8	7	8	7
Usable Agricultural Area (UAA)	ha	13.3	12.5	13.3	25.0	17.1	18.8	14.3
Grassland	ha	13.3	10.5	11.3	10.0	17.1	3.8	14.3
Arable land	ha	0	2	2	15	0	15	0
Fodder silage	%	20	65	45	72	40	75	0
Fodder hay	%	35	15	15	28	40	25	80
Fodder pasture	%	45	20	40	0	20	0	20
Organic farm	yes/no	no	no	yes	no	yes	no	yes
Farm Cadastre (FC) points	number	200	55	125	50	85	50	100
Direct payments	EUR/farm	952	2,904	3,464	8,080	2,856	8,550	2,380
	EUR/ha	72	218	277	323	168	428	164

Source: own composition based on data from an expert workshop

Minister in late August 2012 (BMLFUW, 2012b), which essentially correspond to the area-based payment scheme applied in this study. As for Pillar 2 of the CAP, the assumption was that the level of payments would remain the same.

Integrated Administration and Control System evaluations

With regard to the IACS evaluations, the sheep and goat farms were divided into several groups. To make the direct payment models comparable (single farm payment versus differentiated area-based payment model), the initial situation not only includes the single farm payment but also the milk and suckler cow payments. The individual agricultural area units comprise: extensively farmed grasslands consisting of alpine pastures, mountain meadows, once-mown meadows, rough grazing, litter meadows and grasslands lying fallow; intensively farmed grasslands with meadows mown several times a year and cultivated pastures as well as arable land. Besides the classic types of arable land, the latter also includes land with permanent crops. Finally, it should be noted that the evaluations were carried out at a level of sub-operations.

Results

Effects of a transition to an area-based payment scheme at the level of farm models

With regard to the farm models, the change in the total gross margin in conjunction with the unchanged level of payment from Pillar 2 (Rural Development) produce a mixed picture (Figure 1). While the organic farms and less extensively managed lamb farms show a growth in the total gross margin, the conventionally farmed operations show a decline. A direct link can be seen between the size of the area and the previous level of payment. All three conventionally managed farms also farm arable land which was eligible for payments in the past and contributed towards the previous farm payment. With these farms, the direct payments were correspondingly higher in the initial situation. When comparing the relative changes, it is also necessary to take into account the differing base levels. In the case of the exten-

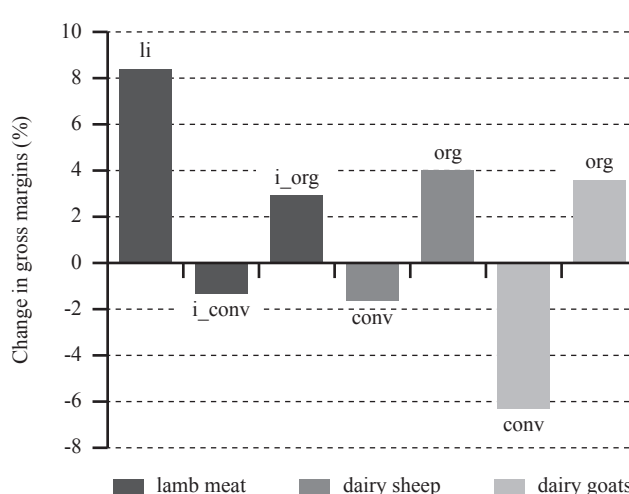


Figure 1: Change in the total gross margin of farm models in Austria applying the differentiated area-based payment scheme compared to the Single Farm Payment Scheme.

li: less intensive; i_conv: intensive, conventional; i_org: intensive, organic; conv: conventional; org: organic
Source: own calculations

sively managed lamb farms, for example, the single farm payment was EUR 72.00 per hectare of utilised agricultural area (UAA), whereas with the conventionally managed dairy goat farm the amount was EUR 428.00.

Comparative analysis of Integrated Administration and Control System data

The presentation of the IACS evaluation is based on the differing intensities of sheep and goat farming. The topmost, general level refers to all farms which, according to the 2011 IACS data, have kept at least one sheep or one goat. Where these farms are concerned, it can be assumed that small ruminant farming is subordinated to other farming sectors (e.g. dairy or suckler cow farming). For this reason, further farm categories were specified based on the share of sheep and goat farming in the farm's entire livestock unit per hectare (>20 per cent and >50 per cent livestock unit share). Additionally, the data allow distinguishing between non-milked and milked mother animals (in other words dairy sheep and dairy goats).

Table 2: Comparison between the level of payments under Single Farm Payment Scheme (including coupled livestock payments) and the differentiated area-based payment scheme in Austria according to farm categories (2011).

Category of farm	Sum Direct Payments (EUR million)		Direct Payments per farm (EUR)	
	Differentiated Area Payment	Single Farm Payment	Differentiated Area Payment	Single Farm Payment
All farms	693.3	724.1	5,047	6,393
With animals	470.8	543.9	4,833	5,935
Without animals	222.5	180.2	5,568	8,334
With arable farming	543.5	609.6	6,479	7,957
Sheep farms	38.2	36.8	3,163	3,493
>20% livestock unit share sheep	16.4	11.9	2,179	1,935
>50% livestock unit share sheep	12.2	8.1	2,084	1,727
Mother sheep not milked	30.1	28.8	2,964	3,255
Mother sheep milked	3.2	2.8	4,400	4,156
Goat farms	32.0	35.0	3,913	4,751
>20% livestock unit share goats	3.6	2.7	2,400	2,437
>50% livestock unit share goats	2.2	1.7	2,662	2,796
Mother goats not milked	14.4	16.0	3,508	4,383
Mother goats milked	6.4	6.5	3,520	3,935

Source: own calculations based on IACS data, 2011

When comparing the individual direct payment schemes, it is important to keep in mind that the introduced payment models target a larger group of recipients (+ 24,000 farms). At the same time, the amount of eligible land increases by 0.42 million hectares to 2.73 million hectares (e.g. orchards with fruit trees and vineyards, which previously were not eligible for receiving payment).

In Table 2, the first columns show the budget requirements, in other words the sum of funds for one farm category for each direct payment scheme. Owing to the budgetary requirements, the volume of payments drops to EUR 693.3 million ('all farms') when compared to the previously applied Single Farm Payment Scheme. A comparison between farms with and without livestock shows a shift towards the latter. This is attributable to the animal premiums that are incorporated into the single farm payments, which have now been transferred to all farms via the land formula, as well as the fact that with the area-based payment scheme, the number of farms eligible for payment that have no animals shows stronger growth. With operations that keep sheep and goats, the picture is quite different. If all operations are considered that keep sheep, the increase in payment is low or, in the case of goat farming, even negative. In many of these farms, other farming sectors led to a relatively high farm payment. The increasing degree of specialisation goes hand in hand with a growing share of livestock units in sheep or goat farming. With these farms, the single farm payment was frequently below average – the amount of payment increases correspondingly when the area-based payment scheme is applied.

After the introduction of the area-based payment scheme the increasing number of farms leads to a decline in the value of direct payments per farm when compared to the total payment volume (Figure 2). This trend is particularly noticeable in the many farms without livestock due to the more than 80 per cent increase in the number of farms entitled to receive payments (wine and fruit production operations). The situation is somewhat different where sheep and goat farms are concerned; depending on the type of operation, for the former the levels of payment received can even be increased.

Municipalities with pronounced arable or cattle farming

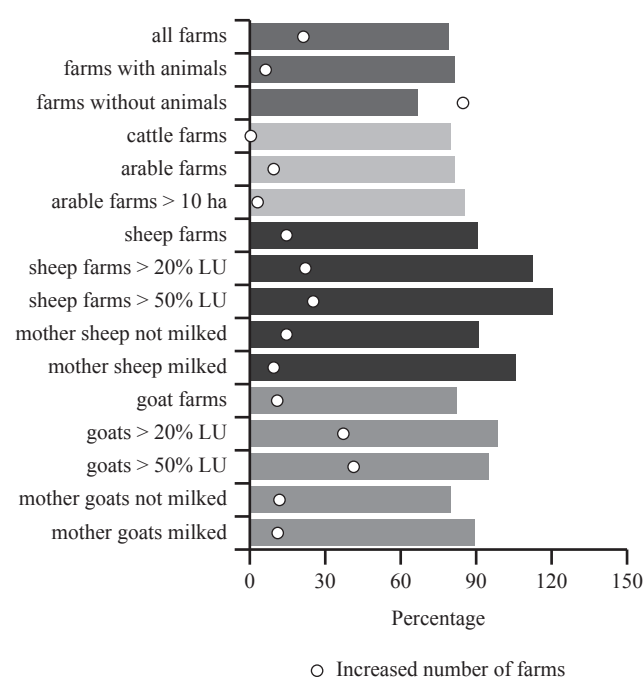


Figure 2: Change by farm category in the direct payment level per farm in Austria after the introduction of the differentiated area-based payment scheme compared to the Single Farm Payment scheme (including dairy and suckler cow premiums), 2011. The points represent the increase in the number of eligible farms in each of the farm categories.

LU: livestock unit

Source: own calculations based on IACS data, 2011

(e.g. in the foothills of the Alps, in valleys and basins), a decline in the volume of payments is to be expected (Figure 3). The extent to which the payments either increase or decline in a municipality after introduction of the area-based payment scheme depends not only on the previous amount of single farm payments, but primarily on the particular structure of the agricultural land. In the calculations, it was assumed that in future land with permanent crops would also be eligible to receive an area-based payment, which would increase the area for which payments can be received.

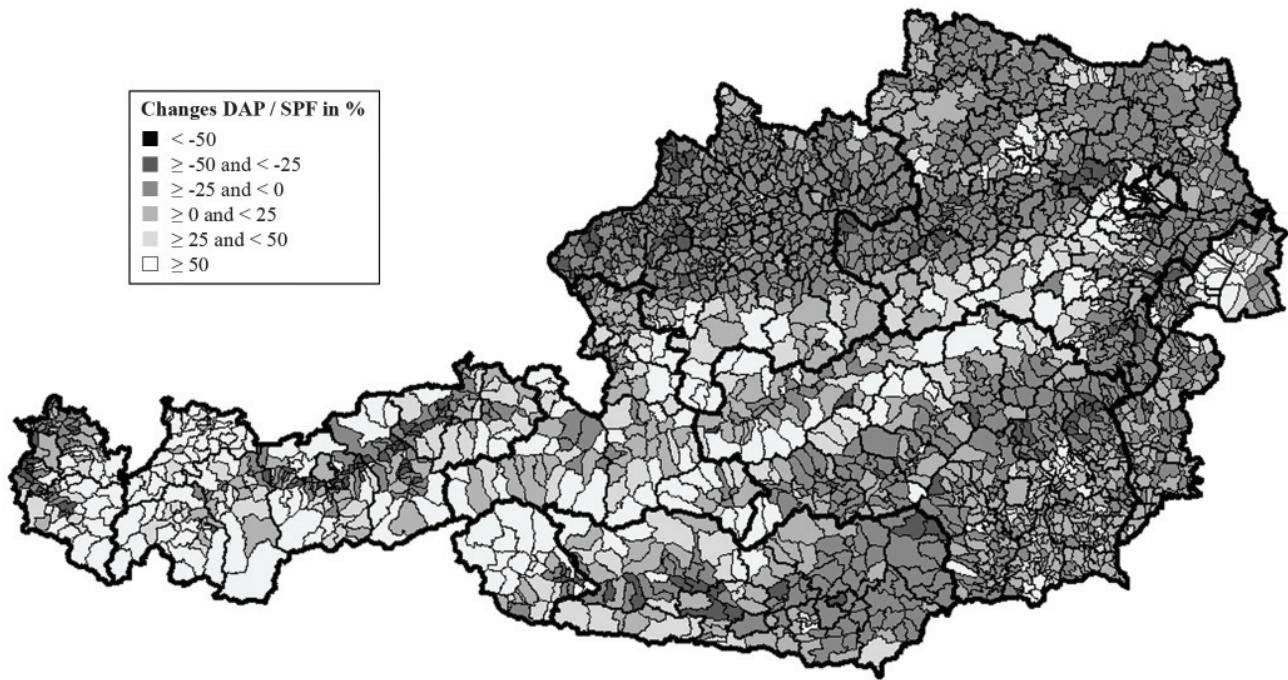


Figure 3: Change in the amount of payments at municipal level in Austria after changing from the Single Farm Payment Scheme to the area-based payment scheme.

DAP: Differentiated Area Payment; SFP: Single Farm Payment
Source: own composition based on IACS data, 2011

Discussion

These calculations are based on a series of assumptions which may even deviate further from the final formulation of Pillar 1 of the CAP and thus from the direct payments (e.g. the definition of areas for which payments can be received, the payment amount per category). Nevertheless, the two calculations (farm models, IACS evaluation) still allow several fundamental statements to be made on the switch from the Single Farm Payment Scheme, taking into account the coupled animal premiums, to an area-based payment model:

- Owing to the low budget and the increased number of applicants, lower payments per farm should generally be assumed;
- There will be a tendency for payments to be shifted towards more less extensively managed farm operations;
- The extent to which the changed direct payments will affect a farm depends heavily on the previous value of the farm payment entitlement – i.e. every operation requires separate analysis;
- The structure of the agriculturally utilised area (arable land, intensively or extensively farmed grasslands) affects the value of the new area-based payment entitlement;
- Besides changes in price and the management skills of farmers, the changed architecture (e.g. discontinuation of the suckler cow payment) may lead to a change in the relative competitiveness in individual agricultural sectors.

When interpreting the results, it is necessary to keep in mind that this study is based on a static method of analysis, i.e. no assumptions were made regarding adjustment steps

taken by the farms. The final level of the area payments will only be known after the next multiple application in 2014. According to Goldberger (2014), various analyses expect a premium per hectare between EUR 270 and EUR 280. In order to receive direct payments via Pillar 1 the farmers will have to comply with ‘cross compliance’ rules that cover, for example, animal and health protection or environmental requirements. Additionally, up to 30 per cent of the basic area payment will constitute a ‘greening’ component designed to shift the agricultural sector in a more sustainable direction (EC, 2011b). In Austria this will include, for example, participation in the equivalent measures of the Austrian agro-environmental programme (ÖPUL), crop rotation requirements, preservation of permanent pastures or the provision of 5 per cent of ecological focus areas. To avoid hardship the amount of the direct payments will be gradually amended over the coming years until 2019.

It is also still unclear in what way the specific support measures of Pillar 2 of the CAP will be defined and how much funds these will involve. As in the past the second pillar of the CAP represents a core element within the Austrian agricultural policy. Altogether EUR 8.8 billion is allocated by the EU for the period 2014-2020 and, including the co-financing contribution from the Federal state of Austria and its provinces, more than 61 per cent of the overall budget will be devoted to Pillar 2. Particularly for farms managed extensively, including many sheep and goat farms, agro-environmental and compensatory payments for less favoured areas are of high importance. It can be assumed that because of a reduction of the overall budget these measures will also be endowed with less financial support although, as described above, at least in the case of less intensively run farms these losses can be compensated at least to a certain extent by gains from Pillar 1.

References

- BMLFUW (2008): Deckungsbeiträge und Daten für die Betriebsplanung 2008 [Gross margins and data for operational planning]. Wien: BMLFUW, 188-191.
- BMLFUW (2012a): Lämmer- Ziegen- und Schafmilchproduktion 2011 – Ergebnisse der Betriebszweigausswertung aus den Arbeitskreisen. [Lamb goat milk and sheep milk production 2011 – Results of the branch evaluation of working group farms] Wien: BMLFUW, 15-33.
- BMLFUW (2012b): Die Eckpunkte für ein neues Regionalmodell. [The principles of the new regional model] [www document]. <http://www.lebensministerium.at/land/eu-international/gap/gap-2020/regionalmodell.html> (accessed 10 November 2012).
- EC (2011a): Proposal for a Regulation of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the Common Agricultural Policy. COM(2011) 625 final. Brüssel: European Commission.
- EC (2011b): Commission staff working paper - impact assessment: Common Agricultural Policy towards 2020: Annex 2: Greening the CAP. SEC(2011) 1153 final/2. Brüssel: European Commission.
- Goldberger, R. (2014): Welche Direktzahlungen bekomme ich? [What kind of direct payments will I receive?] Der fortschrittliche Landwirt. No. 5/2014. 8-9.
- Götzl, M., Schwaiger, E., Sonderegger, G. and Süßenbacher, E. (2011): Ökosystemleistungen und Landwirtschaft - Erstellung eines Inventars für Österreich. [Ecosystem services and agriculture – Generation of an inventory for Austria]. Report 0355. Wien: Umweltbundesamt.
- Hambrusch, J. and Kirner, L. (2008): Wirtschaftlichkeitsaspekte der Schafmilchproduktion in Österreich. [Economic aspects of sheep milk production in Austria], in proceedings of the International Conference on Dairy Sheep in Berlin, 17-19 October 2008. Berlin: Deutsche Gesellschaft für Züchtungskunde, 16-26.
- Hofreither, M.F. (1993): Landwirtschaft, Landschaftspflege und Tourismus. [Agriculture, Landscape Management and Tourism]. Diskussionspapier Nr. 22-W-93. Wien: Institut für Wirtschaft, Politik und Recht, Universität für Bodenkultur Wien.
- Kirner, L. (2007): Analyse der Wettbewerbsfähigkeit der Milchproduktion in Österreich zur Abschätzung des Produktionspotenzials nach natürlicher Erschwernis. [Competitiveness of milk production in Austria as basis for an assessment of the production potential in less favoured areas]. Die Bodenkultur **58**, 5-14.
- Statistics Austria (2012): Versorgungsbilanz für Rohmilch und Milchprodukte 2006 bis 2011. [Supply balances of raw milk and milk products 2006 to 2011] [www document]. http://www.statistik.at/web_de/statistiken/land_und_forstwirtschaft/preise_bilanzen/ (accessed 18 December 2012).

Bozhidar IVANOV* and **Emilia SOKOLOVA***

Modelling of cereal and oilseed crop production in Bulgaria in the context of policy changes

The article presents the results from a modelling exercise on five crops: wheat, barley, maize, sunflower and rapeseed. These crops cover 55 per cent of the utilised agricultural land in Bulgaria and over 90 per cent of the arable land. The main goal of the research was to project the development of the production and trade of these crops in Bulgaria between 2013 and 2017, as well as to implement an analysis of certain scenarios related chiefly to upcoming changes in the Common Agricultural Policy (CAP). The model is linked with the global crop market through European Union prices, as the Bulgarian commodity market is considered to be a price taker, and it assumes the development of other agricultural sectors (livestock) and the macro-economic situation in Bulgaria as exogenous variables. The research is an attempt to incorporate into Bulgarian analytical practice modelling methods that can provide useful figures and projections about the impacts of different political measures for decision makers, and market information on the prices and global supply and demand trends for farmers and agri-business organisations. The results show that the production of the modelled commodities will continue to increase in the coming years, mainly as a result of the growing global demand for cereals and the advantages of the production of these crops in Bulgaria compared to other field and permanent crops. It is also evident that the expected changes in the CAP will cause a small decrease in the planted and harvested area for most of these crops.

Keywords: baseline projection, cereals, oilseeds, model, trade, policy, prices

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Introduction

Agriculture in Bulgaria, as in the other eastern European Union (EU) Member States, is characterised by a notable dualistic structure: a large number of small farms on the one hand, and a small number of large farms with market orientation on the other. Although the share of the agricultural sector within the national GDP has been decreasing over the years, according to Eurostat data it still exceeds the equivalent share in other EU Member States. Furthermore, the significance of agriculture in exports has increased since 2007, from 10.7 to 16.8 per cent, while in absolute value agricultural exports have almost doubled.

In 2011 wheat, barley, maize, sunflower and rapeseed were grown on about 55 per cent of the utilised agricultural area and over 90 per cent of the arable land in Bulgaria. Besides, these crops accounted for about 75 per cent of the gross output in the crop sector and 43 per cent of the gross agricultural output in that year. They have benefited from Bulgaria's accession to the EU via the equal per hectare payments under the Common Agricultural Policy (CAP) (Popov, 2011). Since 2007 the cereal sector has managed to recover its level of production to become the leading crop production sector in Bulgaria in terms of value output (Ivanov *et al.*, 2012). Agricultural producers prefer to grow cereals rather than be involved in livestock and dairy, or fruit and horticulture production because the expected profitability is more calculable and reliable.

These five crops also play a major role in the agricultural trade balance of the country and are conducive to its positive net trade. The net export position of Bulgaria has strongly increased since 2008. This is a result of a higher production of cereal crops and improvement in the agro-technical conditions in respect of machinery, equipment and plant protection and seeding practices. Since 2000 the farm structure in the cereal subsector in Bulgaria has changed, as enlargement of the cereals producers via consolidation

of arable land holdings has been a notable feature. According to the 2010 Agrarian Census, 5,300 farms cultivate about 2,830,300 ha, the average size per farm being about 530 ha (MZH, 2012). More than 80 per cent of these farms are specialised in crop production and by expanding their land area they have achieved various advantages such as economy of scale and better agro-technical conditions, resulting in higher competitiveness. However, beyond cereals, Bulgarian agriculture has not maintained a large-scale farm structure since the transition from a centrally planned to a market economy.

The improvement of the on-farm production environment allows advantages to be gained in the grain global market. Using the domestic resource costs (DRC) index, Gorton and Davidova (2004) found that, due to the price of the land, rent and labour, the Bulgarian cereal sector already had a relative competitive advantage prior to Bulgaria's accession to the EU. Their results also suggested that over time Bulgaria was even increasing its competitive position in cereals. This provides a consistent demand in the domestic market that is relatively autonomous from the economic situation and valorises on the propitious conditions for exports to the Turkish and European markets (Mitova, 2012).

Bulgaria's average level of self-sufficiency during the period 2000–2010 was 112 per cent. With production systematically exceeding domestic demand, Bulgaria is a structural exporter of cereals. The wheat market in Bulgaria is strongly integrated with both the EU and the Balkan markets. The EU is the main destination for Bulgarian cereals exports, with wheat, maize and barley being the dominant crops according to Bulgarian Ministry of Agriculture and Food (MZH) data for the period 2002–2012. Bulgarian National Statistics Institute (NSI) and FAO data show that in 2011 the share of Bulgarian wheat exports in world wheat trade was 1.2 per cent, whereas concerning maize it was 0.78 per cent, positioning the country in the top 15 exporters worldwide. Even so, the country can be seen as a 'price taker' in a market with robust

competition, i.e. it does not influence the world market with its export surplus. Globally, Bulgaria was the second largest exporter of sunflower seeds in 2010, according to FAO data. After 2006, owing to the high international prices, rapeseed became the second most important oilseed crop in Bulgaria in terms of production area.

This paper presents the results of a modelling exercise designed to make five-year (2013–2017) supply side projections for the five major crops in Bulgaria in the context of a given agricultural policy framework and linked to the development of the global cereal market. Following on from this, our paper has two objectives: (a) to demonstrate the methodological approach and to present the main results concerning supply side of the five crops over a mid-term period; and (b) to make a comparative analysis of the changes and possible effects on the development of the production of these crops under the new (2014–2020) CAP framework versus the continuation of the former (2007–2013) CAP framework.

The model was set up on the principles and state-of-the-art knowledge achieved by similar research (FAPRI-GOLD, AGMEMOD). The result of our work is an econometric modelling system adapted to Bulgarian reality that can be used to make baseline projections of the major indicators concerning the development of the most important cereal and oilseed crops, and that can be used for further scenario development, and market and policy impact analyses.

Overview of the CAPA research project and model

The study is a part of a research project entitled ‘Establishment of the Centre for Agri-policy Analysis – CAPA’ financed by the America for Bulgaria Foundation (www.americaforbulgaria.org). The main goal of the project is to develop a system for the analysis of agricultural production, trade and policy using econometric methods. The sectors included in the analysis (cereals, oilseeds, dairy, meat and horticulture) represent the main production activities in Bulgarian agriculture. The research is being implemented by a team from the Institute of Agricultural Economics in Sofia in association with the Food and Agriculture Policy Research Institute (FAPRI) of Missouri University in the USA. The concept of the project is to develop specific agricultural econometric models that comply with the local circumstances and conditions; relying on the FAPRI experience and approach in implementing such activities and methods (Meyers *et al.*, 2010).

The model was used to generate baseline projections of the cereal and oilseed crops for a five year period to 2017. The historical data used for the projections cover the period from 1998 to 2011 (2012 in some cases). The data sources used were mainly national, from the NSI and the MZH. External sources were: Eurostat (<http://www.epp.eurostat.ec.europa.eu>) and FAO (<http://faostat.fao.org/site/342/default.aspx>). Where there was a lack of official data, the judgment of experts was applied and datasets were compiled from a network of representative farms. The model was calibrated by comparing the projected figures with historical data.

The development of the model required the creation of a database not only of data for the crop sectors, but also macroeconomic data, figures relating to agricultural policy in terms of support to the sector via different schemes and programmes, and the implementation of particular requirements, and technological data (regarding chemical and fertiliser use in agricultural production). The macroeconomic outlook included data about GDP, population, national incomes, exchange rates and inflation in Bulgaria. These were exogenous variables taken from external sources. Most of the data were from the Bulgarian national statistics, whereas the projections for GDP, inflation rates and exchange rates were compiled from IHS Global Insight (www.ihs.com) and national institutional forecasting. The policy outlook included data about the 2007–2013 CAP measures (Single Area Payment Scheme (SAPS) payments, top-ups, others) and the anticipated CAP expenditure in the period 2014–2020 (basic payment, ‘greening’ payment etc.). The data for the amounts of direct payments, and eligible and authorised hectares in 2007–2013 are based on the annual Agrarian Reports published by the MZH and the Bulgarian Payment Agency. The data regarding CAP 2014–2020 were taken from the Regulations accepted by the European Commission. The distribution of the payments under the new CAP was based on the provisions of EU Regulation 1307/2013 (EC, 2013).

There are two groups of assumptions, firstly regarding the data and the variables used in the model and secondly regarding the model parameters. The Bulgarian crop model was connected with both the FAPRI global modelling system (Meyers *et al.*, 2010) and their GOLD (grains, oilseed, livestock and dairy) model (Hanrahan, 2001; Binfield *et al.*, 2005) for the EU through the commodity prices at EU level. In line with the historical data it was assumed that the Bulgarian prices follow the major developments in the EU prices (Hanrahan, 2001). Moreover, most of the production is exported, meaning that the prices in Bulgaria are transmitted to the foreign, world prices (Keats *et al.*, 2010). For the grain crops the French price was used as a proxy for the EU price, while for the oilseeds Rotterdam or Hamburg prices were assumed to be determined on the world markets. The Bulgarian prices were linked to them with an elasticity coefficient of 1 following the GOLD model methodology (Hanrahan, 2001; Binfield *et al.*, 2005). In most cases the equations are linear and the model coefficients were then calculated based on the average historical data and the assumed elasticities (Hanrahan, 2001).

The policy variables are based on the country specific CAP measures – the SAPS and agri-environmental payments (AEP) under Pillar 2 of the CAP. Market measures such as coupled support are not included in the model because no such measures are implemented in the grain and oilseed sectors in Bulgaria. The 2014–2020 CAP direct payments include the so called ‘greening’ measures. It is assumed that, due to these changes, farmers will seek to bring additional land (idle land) into production in order not to lose production opportunities due to the specific greening requirements. According to the 2010 Agrarian Census (MZH, 2012) Bulgaria still has about 8 per cent land that is left idle and could be brought into production.

Application of the model

The model is dynamic, partial equilibrium, multi-product, non-spatial and econometric-based, and is designed to derive the basic supply and use tables, as well as estimates of prices (Meyers *et al.*, 2010) for five crops, wheat, barley, maize, sunflower and rapeseed. The model is predominantly deterministic, while stochastic analysis could be used in future for defining different scenarios and outcomes. The Bulgarian crop model follows the major steps in the GOLD model. However, the Bulgarian model for cereal baseline projections is not simply an adapted version of a cereal model used by FAPRI; it is rather a new model based on the FAPRI approach and the Bulgarian needs and conditions in terms of data availability and goals. The model consists of a system of single equations simulated in Microsoft® Excel®. The equations and the parameters have not been estimated; instead the selection has been guided by theory and expert feedback (Hanrahan, 2001).

The general work of the model can be described by:

$$y=f(X_1; X_2; X_3) \quad (1)$$

where y is a dependent indicator, which in separate equations can stand for area, yield, gross margins, costs etc., whereas different variables (X_i) represent independent factors influencing the development of the dependent ones.

That could also be presented as:

$$y=\alpha + \varepsilon\beta_1X_1 + \varepsilon\beta_2X_2 + \varepsilon\beta_3X_3 \dots + \xi$$

where α is the intercept, ε the elasticity, β the regression coefficients, X_{123} are variables and ξ is an error term.

The five crops have a similar specification for the supply side of the model, so the following equations were applied to all crops. The regression coefficients were calculated when possible, using the regression function, while the elasticity coefficients were assumed in accordance with economic theory and the equation specifications. The supply side includes equations about the price of the commodities, the area harvested, the yield of the crops and the total production. The prices of the crops were modelled as a function of the EU prices as described above and were calculated on a marketing year basis. The price equation can be presented as:

$$BGPx_i = \alpha + \beta * EUPx_i + \xi \quad (2)$$

where $BGPx_i$ is the Bulgarian price of the modelled commodity i , $EUPx_i$ is the EU price of the commodity i , α is the intercept and β is the regression coefficient and ξ is an error term.

$$BGPx_i = f(EUPx_i) \quad (3)$$

The harvested area for the five crops was modelled as a total area, and then the shares of each crop in this total area were modelled:

$$5CHA = f(\text{adjusted } 5CERR) \quad (4)$$

where $5CHA$ is the total harvested area for the five crops and adjusted $5CERR$ is the expected real returns for the five crops composed of the market return and all subsidies (SAPS, top-ups, state support, etc.).

$$X_i \text{ share in } 5CHA = f(EMRx_i / 5CEMR) \quad (5)$$

where X_i share in $5CHA$ is the share of the modelled crops in the total harvested area and is a function of the share of the crop's expected market return $EMRx_i$ out of the total five crops expected market return $5CEMR$.

The total five crop area ($5CHA$) is multiplied by the X_i share in $5CHA$ in order to get the harvested area (HA) for each crop:

$$HAX_i = X_i \text{ share in } 5CHA * 5CHA \quad (6)$$

The sunflower area was calculated as a residual, i.e. as the difference between the total projected area and the areas of the other four crops.

The expected market returns are the main factor in projecting the harvested area. In order to avoid price spikes and to represent balanced farmers' expectations of the return on each crop, the market return for each crop was calculated using the expected yield multiplied by a weighted three-year average farm gate price, altogether subtracted by the three-year weighted average production costs (Hanrahan, 2001) (the weights are as follows: 0.5 for t-1, 0.3 for t-2 and 0.2 for t-3). The main assumption is that the returns for the last three years have different weights in the decision-making process; with the returns and the costs of the year t-1 having greater importance than the ones from year t-2 and t-3.

$$y = \sum_{i=1}^n \overline{\alpha_{xi}} \{ (\eta_{xi} * \rho_{xi}) + \left(\int \theta_{xi} \right) - (\chi_{xi}) \} \quad (7)$$

where y is expected real market returns, $\overline{\alpha_{xi}}$ is the average share of each crop in the total area, $\eta_{xi} * \rho_{xi}$ is the equation of yield by weighted price of the commodity x_i , added with $\int \theta$, the sum of all CAP payments for the commodity x_i from Pillar 1 and 2, less the production costs (seeds, chemicals, fertilisers, fuel) denoted as χ_{xi} .

The adjustment for the total area was made by including the subsidies (SAPS payments and AEPs). The subsidies were included by multiplying the average payment per ha by a decoupling rate (Binfield *et al.*, 2005) which is different for the different policy measures. We assume a rate of 0.3 for the SAPS payments, because although they are decoupled from the production they still affect the producer decisions. The decoupling rate for the AEP is assumed to be 0.6, because they require implementation of specific production activities.

The CAP framework after 2013 will directly impact the projected figures for expected real return, participating in the total area function. The average yield of the different crops YLD_i is modelled as a function of the trend yields $TYLD_i$ and the precipitation $PREC_{k,j}$, where k and j represent the months from which the rainfall data used in the model are taken. For wheat, barley and rapeseed the rainfall in March was used as a proxy and for maize and sunflower the data for July were sourced. The specific months were chosen after a

correlation analysis was made between each month's rainfall and the harvested yields.

$$YLDx_i = f(TYLDx_p, PREC_{k,j}) \quad (8)$$

The total production was calculated as an identity for each crop.

$$PRx_i = HAx_i * YLDx_i \quad (9)$$

A scenario analysis was implemented regarding the effects of the changes in the CAP after 2013 in order to provide an insight into the effect of the future changes of the CAP on the five crops. The basic scenario assumes that the CAP measures in place in 2007-2013 will continue without change. The new scenario uses the CAP measures set out in EC (2013), but without the final decisions about the redistribution and degressing of the biggest subsidies.

Results

The five year projections of the chosen indicators, i.e. commodity prices, areas harvested and yields, for the five crops are the main baseline indicators resulting from this research. There is a positive growth trend in the projected yields for all five modelled crops compared to the actual data for 2012 (Figure 1). It was assumed that the average rainfall in certain months for the period 2013-2017 will be the same as it was during the period 1970-2012.

The production also depends on the harvested area (Figure 2), the projected values for which explain why the overall production of some crops are expected to decline, while others will maintain a positive trend. For example the total production of wheat in 2017 is projected to be about 4474 thousand tonnes, i.e. still higher than the total production in 2012, but

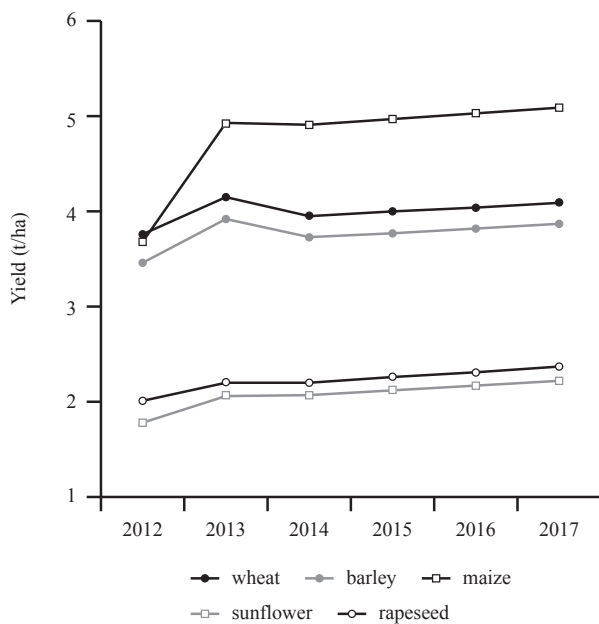


Figure 1: Yields of the five major crops grown in Bulgaria in 2012 and projections for the period 2013-2017.

Sources: 2012: MZH; 2013-2017: CAPA calculation, part of the Bulgarian Crop Model

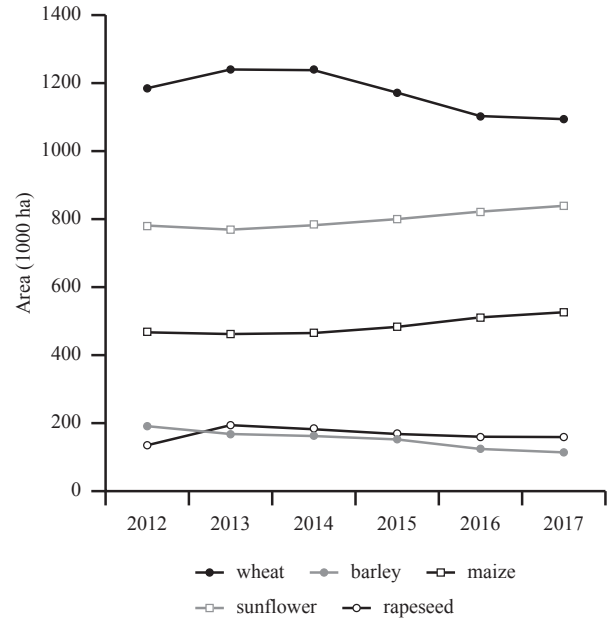


Figure 2: Areas of the five major crops grown in Bulgaria in 2012 and projections for the period 2013-2017.

Sources: 2012: MZH; 2013-2017: CAPA calculation, part of the Bulgarian Crop Model

less than the production in 2013 due to the smaller production area. Currently, farmers cultivating arable land in Bulgaria do not have many options for diversification of production and in the coming years they will look for a minimal internal restructuring, as the slight reduction in the areas with wheat, barley and rapeseed compared to the 2012 harvest year will be counterbalanced by increases in maize and sunflower (Figure 2).

We believe the main reasons for the different directions of the development concerning the five crops are the market return and the elasticity to it along with the specificities in the production. The prices are the underlying signal driving the internal restructuring and prompting upward and downward fluctuations in the area and production data. The projected

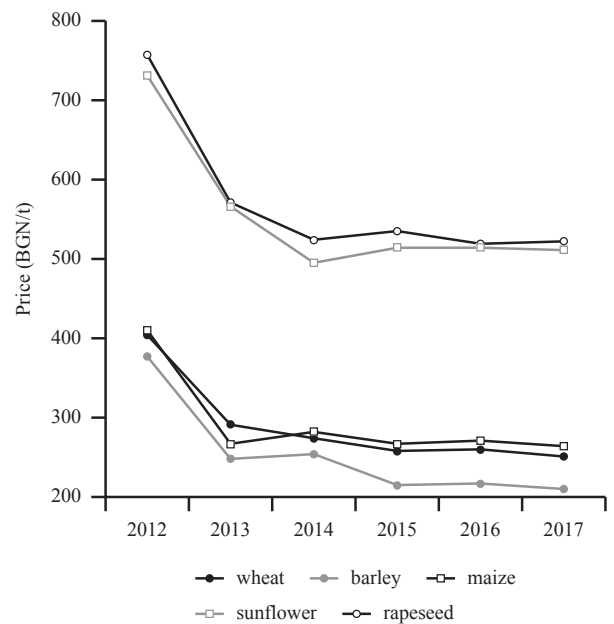


Figure 3: Prices of the five major crops grown in Bulgaria in 2012 and projections for the period 2013-2017.

Sources: 2012: NSI; 2013-2017: CAPA calculation, part of the Bulgarian Crop Model

prices in the Bulgarian market move in synchrony with the EU prices, as the perspective is downward compared to the period 2011-2012 and dropping to the levels of 2006-2008 (Figure 3). However we must keep in mind that these are projections of average market prices on the basis of marketing years, so certain changes and shocks may be expected in the period.

The projected prices for the oilseed crops are expected to be higher than those of the cereal crops with the price for sunflower seed a little over BGN 500/tonne for each year to 2017. Only for the marketing year 2014/2015 is the price expected not to go above 500 BGN/tonne. Altogether, the results distinctly show that the prices will go down in next five years, with the highest percentage fall (44 per cent) being estimated for barley, followed by wheat (37 per cent), comparing 2017 with 2012.

The projected maize prices are in the BGN 260-280/tonne range. The highest price is projected for 2014 – BGN 282/tonne. The decline in the price of maize by 2017 compared to 2012 is about 35 per cent, which is very close to the expected fall in the wheat and barley prices. However, one of the highest expected increases in the yields of these crops is recorded in maize, as in 2017 the yield per ha is estimated to be 35 per cent higher than in 2012.

The expected effects on the harvested area resulting from the planned changes in the CAP after 2013 were modelled. Two scenarios were run to see the possible effect of the new structure of the CAP, especially the direct payments and the agri-environmental payments (AEP). The current policy framework (CAP 2007-2013) is envisaged as a baseline scenario and the already approved changes for the 2014-2020 periods as a new scenario. The effects the subsidies have in the model are reflected in the total harvested area of the five crops and on that basis on the harvested area each crop will have. The new policy measures are predicted to cause a reduction in the total area sown to the five crops but this decline is expected to be minor. The wheat area will be about 20 thousand ha less in 2014, in 2015 about 18 thousand ha less, and in 2016 and 2017 about 17 thousand ha less (Table 1). Bearing in mind that the total harvested area of wheat for these years is about 1100 thousand ha, the change is really subtle and the effects on linked indicators such as production, self-sufficiency and trade are not expected to be substantial. The situation with the other crops is similar: the change is even smaller and only in rapeseed is it more than 10 thousand ha. If the yields per hectare could be improved the production itself will not be much affected.

We believe that the effect of the CAP 2014-2020 (i.e. an end to the increase in the production areas of the five major

Table 1: Expected effect of the post-2013 changes in the Common Agricultural Policy on the harvested area of the five major crops grown in Bulgaria, 2012-2017, thousand ha.

	2012	2013	2014	2015	2016	2017
Wheat	0.00	0.00	-20.5	-18.6	-16.9	-16.8
Barley	0.00	0.00	-2.7	-2.4	-1.9	-1.8
Maize	0.00	0.00	-7.7	-7.7	-7.8	-8.1
Sunflower	0.00	0.00	-3.0	-2.7	-2.5	-2.4
Rapeseed	0.00	0.00	-12.9	-12.7	-12.6	-12.9

Source: CAPA calculation, part of the Bulgarian Crop Model

crops) will mainly occur through the implementation of the 'greening' elements. Thus, even though the area of these five crops will decline slightly, the total agricultural area in farms and countrywide will slightly increase. The reason for this is that as farmers are required by the new CAP to assign 5-7 per cent of their land as ecological focus areas that a bigger area will be sown to legumes. It is anticipated that the

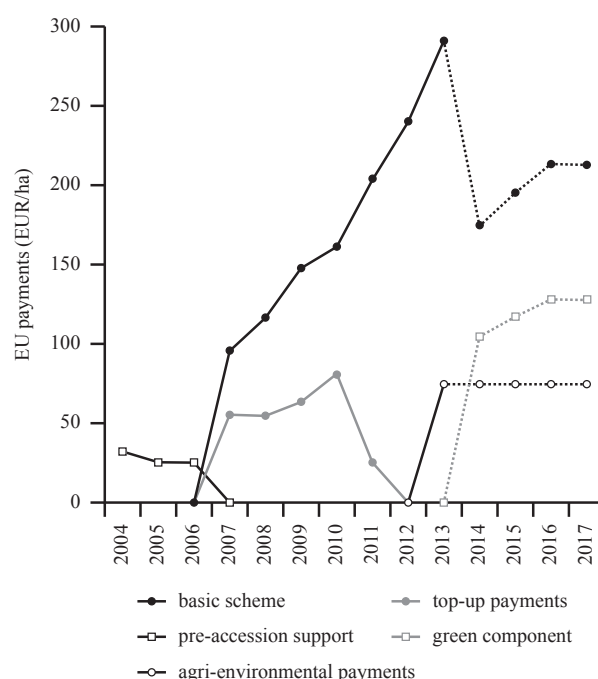


Figure 4: Allocation of European Union payments to agriculture in Bulgaria, historical and projected under the provisions of the Common Agricultural Policy 2014-2020.

Sources: 1998-2012: annual Agrarian Reports of the MZH; 2013-2017: CAPA calculation, part of the Bulgarian Crop Model

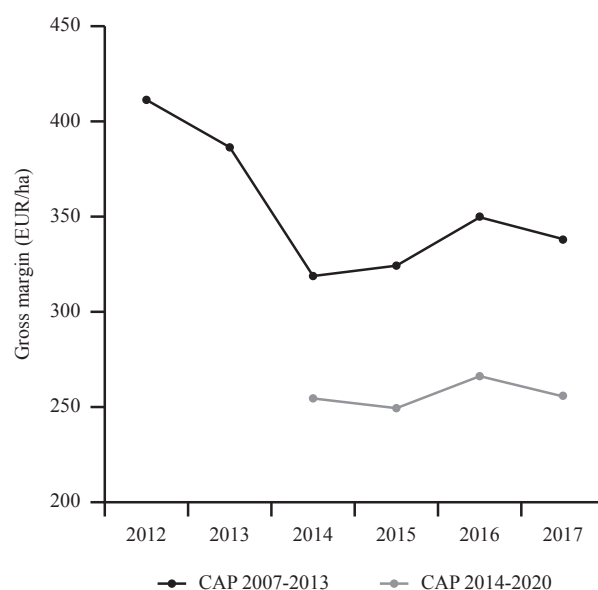


Figure 5. Projected average gross margins in the period 2014-2017 for the five main crops in Bulgaria under the provisions of the 2014-2020 Common Agricultural Policy framework, compared to those that would be obtained if the provisions for the 2007-2013 period were in force.

Source: CAPA calculation, part of the Bulgarian Crop Model

accumulated EU support per ha to agriculture in Bulgaria will fall after 2014 compared with the previous policy period (Figure 4). This can be seen as a favourable opportunity for the expansion of other crops which may beneficially impact the environment. The direct payment will be split into basic scheme and green payment and, in order to get the green component of support, farmers will need to diversify their cropping and reduce the area of cereals in favour of other crops such as legumes, industrial crops and grassland.

The gross margin of the production of five main crops under the two policy scenarios was projected for the period 2014–2017 (Figure 5). Owing to the decrease in the area harvested it is expected that the gross margin per hectare under the alternative (i.e. CAP 2014–2020) scenario will also be lower. However, the decrease (about EUR 20 per hectare for each projected year) will not be substantial. We should also bear in mind that there are possibilities for development, provided the producers manage to reduce their costs or diversify the commodity mix.

Discussion

The modelling work described here is a first attempt to project the mid-term development of the five main crops in Bulgaria, taking into account the new CAP financing arrangements to be introduced after 2013 and assuming certain market and production trends. Its main purpose is two-fold: baseline modelling of important indicators concerning these crops and the creation of a relevant basis for analysis of the markets and policy and in simulation of different scenarios. Along with the possibility to run different scenarios, the obtained results indicate the overall development of cereal and oilseed production in Bulgaria and these predictions can be considered reliable due to the link created to the global markets and the control of errors through simulating and approaching the model results to the historical data. A comparison of the modelled results with the actual data for 2013 shows a slight enhancement of the projected results concerning cropping area of 5–6 per cent for wheat and less than 4 per cent for other four crops. In terms of yield, the deviation from the actual data for all five crops in 2013 is about 5 per cent while regarding prices the modelled results are underestimated by about 4 per cent compared with the actual numbers.

The model is based exclusively on the Bulgarian needs and specifications linked with the models run by FAPRI, particularly the GOLD model. In the model a huge system of collected data is interconnected by equations which run simultaneously and this gives an opportunity to quantify the results from the impact and activity of various economic, market, policy, climate and other factors. The study and the implemented model incorporate and recognise the state-of-the-art in the model work done so far, referring to the AGMEMOD (Chantreuil and Barbenchon, 2009) and GOLD models, and introduce new components to some extent. For example, the CAPA model offers a different cost calculation component which is based on the explicit costs computation instead of using exogenous data, namely cost deflator. Resorting to this method of computation of the production

costs ensures higher accuracy of the calculations and better reliability of the results. The data for the explicit production costs are taken from representative farms and controlled by experts' judgement.

In terms of crop yields, the approach used in this study is also modified compared with the majority of the established models. The yield equation includes yield trend and the precipitation rate (rainfall in specific months), which is a proxy for the weather factor. The complementary analysis shows that there is a robust correlation between the precipitation rate in particular months and the crop yield, which predisposes using such a variable instead of others. Incorporation of the precipitation in the yield equations provides a higher relevance of the model, avoiding occasional relationships using other dummies and creates a higher understanding of the model.

In addition, this study is one of the first attempts to project in the mid-term the development of these crops in the context of the CAP framework for the period 2014–2020. Most of the analysed model works speculate with different scenarios of the policy, whereas the key changes in the policy in terms of the basic payment scheme, greening, broadened coupled support scheme and other elements are embedded in the CAPA model. In this study, all of the policy schemes are carefully analysed and involved, as they participate in the formulation of the expected return from agricultural activities. As with other models, the impact of the policy instruments is calibrated by a so-called decoupling rate, which reflects the separation of the subsidy from production in the implementation of the CAP.

In the CAPA model, the decoupling rate is not a constant coefficient but it is differentiated depending on the policy measure. Taking into account that the ecological payment (greening) is postulated to achieve different results compared to the basic payment, they are presumed with different decoupling rates. The ecological payments impose more restrictions on the production and farmers' decisions and entail higher costs for farmers to meet them. Such an assumption is used regarding other schemes too, as the primary goal was to create a system of equations that better corresponds with farmers' perceptions and performance.

The main limitations of the model pertain to the quality and the availability of the historical data at the national level. Historical data used in the modelling go back to 1998, but prior to this the data sets are very unreliable and other economic and political drivers strongly influenced the development of the cereal and oilseed sectors. Even the implemented econometric modelling is limited not only by the availability, but also the reliability of the data. During the process of data collection different sources provided conflicting figures for some variables, especially indicators related to the commodity prices and production costs. Regarding the costs, due to the data limitations, it was necessary to use representative farm data and the judgement of experts for the estimation of production costs. The limitations attributed to data availability and reliability resulted in the elaboration of functions and equations which deal with these by using proxy variables rather than unreliable or unavailable data sets. Such an example is the equation representing the yield per hectare, where the climate factors, normally composed of rainfall total and

distribution, soil moisture, temperature values, snow coverage and duration, climate extremes etc. are combined into a weather proxy based on precipitation for a certain month.

Altogether, this study uses and describes the set up CAPA cereal and oilseed model, which is thought to be linked further with other sectors' models, namely dairy, meat and horticulture, thus to become part of a general equilibrium model system transmitted to the global market by the FAPRI-GOLD model. The results of our analysis of the main crops grown in Bulgaria should be of interest to a great number of stakeholders, policy makers, farm associations, consumers' organisations and agri-business companies.

References

- Chantreuil, F. and Le Barbenchon, M.-D. (2009): AGMEMOD 2020 Project Final Reports: Final Activity Report Part 1. A deliverable of the EU Framework 6 project AGMEMOD 2020.
- Binfield, J., Meyers, W. and Westhoff, P. (2005): Challenges of incorporation EU enlargement and CAP reform in the GOLD model framework, in F. Arfini (ed.), *Modelling Agricultural Policies: state of the art and new challenges*. Parma: Monte Università Parma, 291-306.
- EC (2013): Regulation (EU) no 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation (EC) No 637/2008 and Council Regulation (EC) No 73/2009. *Official Journal of the European Union* **L347**, 608-670.
- Gorton, M. and Davidova, S. (2004): Farm productivity and efficiency in the CEE applicant countries: a synthesis of results. *Agricultural Economics* **30** (1), 1-16. <http://dx.doi.org/10.1111/j.1574-0862.2004.tb00172.x>
- Hanrahan, K.F. (2001): *The EU GOLD MODEL 2.1: An introductory manual*. Dublin: Teagasc.
- Ivanov, B., Popov, R., Jongeneel, R. and Sokolova, E. (2012): *How to create a viable and competitive agriculture: assessing the optimal CAP policy measure mix for the case of Bulgaria*. Sofia: Avangard Prima.
- Keats, S., Wiggins, S., Compton, J. and Vigneri, M. (2010): *Food price transmission: rising international cereals prices and domestic markets*. Project Briefing No 48. London: Overseas Development Institute.
- MZH (2012): *2010 Census of agriculture producers* Sofia: Ministry of Agriculture and Food.
- Meyers, W.H., Westhoff, P., Fabiosa, J.F. and Hayes, D.J. (2010): The FAPRI global modeling system and outlook process, *Journal of International Agricultural Trade and Development* **6** (1), 1-20.
- Mitova, D. (2012): Analysis and assessment of the impact of the CAP and national agricultural policy on the oilseed crop sectors. *Annual Report of IAE 2011-2012: Effects and impact of the CAP on the agriculture and food industry*. Sofia: IAE, 49-60.
- Popov, R. (2011): *Mid-term priorities of the agricultural policy in Bulgaria*. Sofia: Avangard Prima.

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Economic crisis and labour force transition to inactivity: a comparative study in German rural and urban areas

This study analyses the determinants of labour force transition to inactivity in the German labour market. Using German Labour Force Survey data the influence on the transition flow to inactivity of factors such as age, education, marital status, sex and registration with the public employment service are examined. We present estimates of degree of urbanisation-specific multinomial logit models to analyse the determinants of individuals' transition probabilities in rural and urban areas. By comparing the influence of the factors that affect transition to inactivity before (2002-07) and during (2008-09) the global economic crisis, this paper contributes to the general understanding of transitional labour market flow dynamics during the crisis period. The findings suggest that during the crisis period education level and marital status have had different impacts in rural and urban regions on the transition to inactivity. While these two factors influenced the transition to inactivity before the crisis, their effect has been stronger during it. Additionally the results suggest that the interaction of individuals with institutional settings (e.g. registration with the public employment service) have to be taken into account when designing active labour market policy measures, especially during crisis periods. Knowledge about the influence of these factors on the transition to inactivity, and their different effects in rural and urban areas, provides important information for designing policies aiming to reduce the transition to inactivity during crisis periods.

Keywords: labour force transition, inactivity, economic crisis, rural and urban areas, multinomial logit model, Germany

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Introduction

As a consequence of the global economic crisis in September 2008, the German economy declined by 6.7 per cent in GDP between the beginning of 2008 and the first quarter of 2009 (Bogedan *et al.*, 2010). However, average unemployment rates showed a 5 per cent rise in 2009, which was the lowest in Europe (BA, 2009). While studies exist that explain the reasons for this modest increase in unemployment (Faik, 2012) and the stabilising effect of short-time work contracts that avoid fluctuation in the labour market (Crimmann *et al.*, 2012), not much is known about the labour market in terms of transition to the undesired state of inactivity.

The study of Baqueiro-Espinosa and Unay Gailhard (2011) on economic inactivity in Germany during the 2008-09 global economic crisis showed that in rural areas in 2008, relative to the average of previous years (2002-07), the flow to inactivity from unemployment increased by 3 per cent for the age group 25-54 and by 9 per cent for the age group 55-64. In the second year of crisis, 2009, this increase was much larger: 19 per cent for the age group 15-24. Similar patterns are observed for urban areas, but with lower percentages. Regardless of crisis periods, the work of Gomes (2012) on the transition probabilities between economic statuses in UK labour market in 1993-2010 found that every quarter, on average 11 per cent of the unemployed moved into inactivity but still wanted a job while only 6 per cent moved into inactivity and did not want a job¹. An increase in the probability of flow to inactivity from unemployment can be explained by the discouraged individuals and disguised unemployment (Seeborg and DeBoer, 1989; Copus *et al.*, 2006). These two categories are considered within the concept of hidden unemployment². More generally,

these individuals are the persons on the margin of the labour force, defined as marginal attachment (Jones-Stephen and Riddell, 1995) by indicating that they want work but are not engaging in job search for individual or economic reasons.

Increases in flow to inactivity from unemployed and employed status provide information on the tendency of marginal attachment during crisis periods. A particularly important issue involves the understanding of factors that affect transition to inactivity during an economic crisis. Flows out of the labour market within an inactive status allow the variation in unemployment during economic crisis periods to be explained (Davis *et al.*, 2006).

In this paper we focus on the impact of the crisis on rural and urban labour force transition in Germany, and we aim to answer the following questions: (a) how has the global economic crisis influenced labour force transition to inactivity in Germany; (b) are there differences in the impact of the crisis on rural and urban labour force transition; and (c) if so, what are the determining factors that cause a change in labour flow before and during the crisis period?

The research focuses on the spatial division of rural and urban regions in Germany by estimating a degree of urbanisation-specific multinomial logit model (MLM). The MLM is used to examine how various factors (e.g. human capital and interaction of individuals with institutional settings) influence the labour force transition flows to inactivity from unemployed and employed status in rural and urban regions. We thus conduct a comparative analysis that highlights the differences between urban and rural areas during two economic periods: before (2002-07) and during (2008-09) the crisis. The results show how factors such as age, gender, marital status, education and registration with the public employment service influence the transition probabilities of individuals to an economically inactive status.

Several studies exist that analyse transition probabilities in the labour market in developing countries (Haltiwanger and Voopivec, 2002; Tasci and Tansel, 2005; Blunch and Sulla, 2011) as well as developed countries (Marston, 1976;

¹ Barham (2002), using the UK Labour Force Survey, reported that "the number of inactive individuals has grown double the number of unemployed in 1984 to five times the number in 2001" (p.1).

² Components of hidden unemployment are considered differently in the literature. In our study variables of inactive status of individuals are derived from the German LFS, which involved the above mentioned two components of hidden unemployment: discouraged individuals and disguised unemployment.

Bellman *et al.*, 1995; Faik, 2012; Gomes, 2012) both before and during the crisis. While most of these studies focus on gender differences by using gender-specific MLM, there is, to the best of our knowledge, no study that analyses the labour force transition probabilities regarding differences in the degree of urbanisation. This study thereby contributes to the rural studies literature by looking at labour force flows by degree of urbanisation during the 2008-09 global economic crisis. This work also complements previous literature on transitional labour market flow dynamics by focusing on factors influencing transition to inactivity, rather than unemployment, in crisis periods.

Transitional labour markets: theory and determining factors in transition flows

Previous studies on transitional labour markets (TLM) (e.g. Marston, 1976; Schmid, 1995; Kruppe, 2002) have distinguished transition flows as follows: transition between employment status; transitions between unemployment and employment; transition between education and employment; and transition between employment and retirement. In our study, by considering Marston's approach (Marston, 1976), we distinguish between individuals in the transition matrix that flow between jobs, unemployment and inactivity.

Inactive individuals are defined as those who are neither classified as employed nor as unemployed. As reflected in the labour force survey (LFS), examples of inactive individuals include those who are not seeking employment, discouraged workers that believe there is no work available, individuals looking after children, and incapacitated adults (Eurostat, 2006). Some studies (Blanchard and Diamond, 1990; Gomes, 2012) have disaggregated inactivity into two subgroups: inactive individuals that want a job and those do not want a job. However, these subgroups are not available in the German LFS used by us. By considering the findings of Joyce *et al.* (2003) that show the subgroups of inactivity have the same transition probability to employment status as the unemployed, our research uses inactivity without any subgroup distinction.

TLM studies provide two main emphases for the notion of reducing the extent of social exclusion (being in the out-of-labour force or inactive) in labour markets. Firstly, existing analyses emphasise individuals both from the labour market (employed, unemployed) and out of the labour market (inactive). Secondly, there is an emphasis on regulating activities in the whole transition matrix (training, part-time work, informal work, childcare etc.) including both within and outside of the labour market (Detzel and Rubery, 2002).

With regards to the previous findings of TLM studies, a number of hypotheses on the role of human capital and institutional settings on the labour force transition can be derived. These findings highlight the high sensibility of the youth age group to financial and economic crises across different countries (ILO, 2010; Scarpetta *et al.*, 2010). Choudhry *et al.* (2012) found that the impact of the 2007-08 economic crisis on the unemployment rate of young people is highly significant for high income countries. According to Blunch and Sulla (2011), in Serbia during the 2008-09 crisis there was a significant age effect in the labour force transition to

inactivity from unemployment and employment status. They found that being in the age group 35-44 positively influenced the transition to inactivity from unemployment status; the effect seems higher than for individuals in the 25-34 and 45-54 age groups.

The probability of transition to inactivity decreased with increasing level of education. Regardless of economic crises, in European Union (EU) Member States for the period 1997-2007 Eichhorst *et al.* (2010) concluded that the high level of education positively contributed to the probability of transition from non-employment (unemployment and inactivity) to employment. According to Lauerová and Terrell (2002), education is important in explaining flows to employment status from unemployment and out-of-labour force in all studied post-communist labour markets such as Bulgaria, Czech Republic, Germany, Hungary, Poland and Slovakia. The less educated individuals are more likely to be laid off or quit and less likely to find a job. Moreover, Gomes (2012) found that in the UK in the period 1993-2010 individuals educated to a high level faced fewer fluctuations in transition probabilities between the three economic statuses (employed, unemployed and inactivity) than the less educated individuals.

Gender and marital status are other important factors highlighted in the labour force transition literature (Bellman *et al.*, 1995; Tasci and Tansel, 2005; Blunch and Sulla, 2011). Estimation of transition probabilities by Blunch and Sulla (2011) showed that, relative to males, females were disadvantaged in the Serbian labour market in terms of flow from unemployment and inactivity status during the first year of the economic crisis. Tasci and Tansel (2005) found that in the Turkish labour market during the 2001 economic crisis there was a higher probability of single men and women losing a job. Additionally, while marriage increases the likelihood of transition to employment from inactivity for males, marriage reduces the likelihood of finding a job from inactivity status for females.

Regarding the role of institutional settings on the labour force transition during economic recessions, some studies also refer to the public employment service as an influencing factor (e.g. Curti, 1998). Caseworkers in the public employment service are responsible for implementing countries' active labour market policies and for helping the registered unemployed individuals they are expected to counsel. Depending on the country regulations, the public employment service provides vocational training and offers temporary employment possibilities and job search programmes to registered unemployed individuals.

In Germany, during the economic stagnation year of 2002 the government enacted several regulations in order to reform the labour market including the public employment service, the unemployment benefit system and active labour market policy. This labour market reform (*Hartz Reform*) aimed to activate unemployed job seekers that attached to public employment offices within a strict regime during the job search process. Studies on the effectiveness of the demanding requirements of the reforms (such as mandatory participation in activation programmes and reducing unemployment benefit duration) highlight the influence of the implemented regulations on the labour market. Achatz

and Trappmann (2009) show that within less than one year, 14 per cent of unemployment benefit recipients had left benefit rolls and half of those took up full or part-time jobs. Regarding the effects of activation policies on older age unemployed individuals, Nivorozhkin *et al.* (2013) found that while monitoring standard job search requirements is an effective method of activating unemployed people, this regulation has little effect on older workers, leading to increased exit rates from unemployment.

Different than effectiveness studies, Eichhorst *et al.* (2010) discuss whether an increasingly inclusive labour market is associated with a reduction in job quality (measured by contract type). They conclude that it depends on the study country: there are two trends in post-industrial labour markets; one towards more precarious employment for the recently non-employed (unemployment and inactivity) in Belgium, Czech Republic, France and Italy and another towards more permanent employment in Denmark, Hungary, Spain and the UK. These findings lead us to assume that being registered with the public employment service has a positive influence on transition to employment for working age group individuals and a negative effect on transition to inactivity from employed and unemployed status³.

TLM studies focusing on periods of economic crisis rarely investigate the spatial division of urban-rural regional differences. A few exceptions (e.g. Tasci and Tansel, 2005; Blunch and Sulla, 2011) show that transition to unemployment and inactivity probability differs between urban and rural areas during crisis periods. Blunch and Sulla (2011) found that urban areas were influenced more than rural areas both in terms of transition flow to unemployment and inactivity status. Additionally, findings by Tasci and Tansel (2005) suggest that individuals who live in urban areas are more likely to transition out of employed status compared to those who live in rural areas.

In this study, we take these findings as a starting point and investigate how factors such as age, education, gender, marital status and registration with the public employment service influence the transition flow to inactivity by estimating a degree of urbanisation-specific model in Germany both before (2002-07) and during (2008-09) the economic crisis period.

Methodology

A number of studies on labour force transition analyse transition possibilities by using multinomial logit models (MLM) (Bellman *et al.*, 1995; Gustafsson *et al.*, 2002; Laurerová and Terrell, 2002; Tasci and Tansel, 2005; Blunch and Sulla, 2011). These studies consider the transition flow as a polytomous problem. The transition of the individuals from one labour force status to another has been investigated as a stochastic process within the concept of the Markov Process. An individual can have three statuses, which we denote as

‘e’ for employment, ‘u’ for unemployment and ‘i’ for inactivity. Each year an individual can transition from one status to another with the following probabilities:

$$\begin{array}{lll} i \rightarrow e, P = Pie & i \rightarrow u, P = Piu & i \rightarrow i, P = Pii \\ e \rightarrow e, P = Pee & e \rightarrow u, P = Peu & e \rightarrow i, P = Pei \\ u \rightarrow e, P = Pue & u \rightarrow u, P = Puu & u \rightarrow i, P = Pui \end{array}$$

Pie, for example, denotes the transition probability of an individual from inactive to employed status. Corresponding to the given nine labour force transition possibilities between former (previous) year (f) and current year (c), matrix M could be shown as:

$$M = (mfc)$$

where mfc is the probability of transition ef, uf and if making the transition ec, uc and ic. Finally, we assign the transition matrix M as follows within nine independent transition probabilities:

$$M = \begin{bmatrix} Pie & Piu & Pii \\ Pee & Peu & Pei \\ Pue & Puu & Pui \end{bmatrix}$$

By taking the approach proposed by Marston (1976), in our study the transition from state f to c is defined as the ratio of the number of individuals in state f at time *t* who are in state c at time *t*+1, to the stock of individuals in the original state f at time *t*.

We analyse transitions in both rural and urban areas in Germany. The aim of using urbanisation-specific MLM is to test whether rural inhabitants have different levels of transition probabilities in the labour market than urban individuals. The model results also help us to identify significant factors (such as age, education, gender, marital status and registration with public employment offices) that affect individuals’ transitions in the labour market both before and during the economic crisis. The applied MLM considers three choices of economic status: employed, unemployed and inactive, where the values of status *Sn* have no natural order:

$$S_n \in \{1, 2, \dots, J\}$$

and the probability that an individual *n* chooses alternative economic status *j* is:

$$P_{nj} = \frac{e^{x_n \beta_j}}{\sum_{i=1}^J e^{x_n \beta_i}}$$

Since the coefficients of MLM do not have a straightforward interpretation (Greene, 1993; Cameron and Triverdi, 2009), studies on labour force transition usually report marginal effects and interpret the results using the average marginal effects of the estimated MLM model (Tasci and Tansel, 2005; Blunch and Sulla, 2011). The marginal, or partial, effect measures the effect on the conditional mean of *y* of a change in one of the regressors *X_k* (Cameron and Triverdi, 2009).

We provide the estimates of marginal effects in this study. Of the six constructed transition possibilities, the

³ As used in the study of Bellman *et al.* (1995), variables such as amount of unemployment benefit and income of the individual would be ideal for the labour force transition model. However these variables are not available in the used study survey. The findings of Blunch and Sulla (2011) show that unemployment benefit negatively influenced the probability to transition out of unemployment to inactivity during the 2008-09 crisis in Serbia. Similarly, in the eastern German labour market in 1991, the results of Bellman *et al.* (1995) suggest that increases in monthly benefit income would lower the probability of labour force exit of individuals.

focus of our paper is the two transition flows to inactivity status: the transition from unemployment to inactivity (Pui) and transition from employment to inactivity (Pei). For Pei, the study investigated 358,196 transitions, 107,905 for rural and 250,291 for urban areas. Additionally, for Pui, the total number of transitions is 47,670, 13,894 for rural and 33,776 for urban areas.

The data used in this study come from the annual German LFS that was obtained from the European Commission, Eurostat and EU for the years 2002-2009. These data divide the working age population (15 years and above) into three labour force groups – persons in employment, unemployed persons and inactive persons. The possibility of transition flows were mainly derived using yearly data at the country level, which is the average of quarterly surveys. By not taking into account individuals living in peri-urban (intermediate) areas, a comparative analysis considering individuals living in rural and urban areas was performed. This allowed us to determine if the probabilities derived from rural areas differed significantly from urban areas.

Results

Tables 1 and 2 show the results of the average marginal effect of the MLM for rural and urban areas, respectively, within the two study periods. Interpretations of the results are ordered according to the following variables: age, sex, marital status⁴, education and being registered with the public employment service. Here we discuss each variable as a significant determining factor explaining the transition to inactivity.

⁴ During the calibration process, single individuals were merged with the marital status of individuals equal to widowed and divorced or legally separated.

Determinants of transition to inactivity from unemployment – Pui

Age: For individuals living in rural areas, the marginal effect of age has a statistically significant and positive effect on the transition to inactivity from unemployment. We also observe significant and positive marginal effects for individuals living in urban areas. Considering the two different study periods (pre- and mid-crisis), we observe that both in rural and urban areas, for the older age group (55-64) the positive coefficient of the marginal effects on the transition from being unemployed to inactivity has increased slightly. Relative to urban areas, the statistically significant and positive marginal effects for the older age group during the crisis increased more in rural areas (0.152 to 0.281).

Sex: For individuals living in both types of study area (rural and urban), the marginal effect of being male on the transition to inactivity from unemployment is significant and negative. During the economic crisis the marginal effect of being male (on the Pui) was higher in both rural and urban areas compared to the previous period. Regarding the differences in the marginal effect of being male in rural and urban areas, we find that during the crisis, for males living in urban areas, the probability of transition (Pui) decreases more than for males living in rural areas. Findings show that the parameter of being male is important for explaining the transition flow to inactivity from being unemployed for both rural and urban areas during the crisis period.

Marital status: For individuals in both the rural and urban areas, the marginal effects of being single on the transition to inactivity from unemployment are not significant.

Registration with the public employment service: Examining the marginal effect on transition to inactivity from unemployment (Pui) for registered individuals with the

Table 1: Multinomial logit model, RURAL AREAS. Labour force transitions (average marginal effects).

	Before the crisis (2002-2007)						During the crisis (2008-2009)					
	Peu	Pei	Pue	Pui	Pie	Piu	Peu	Pei	Pue	Pui	Pie	Piu
AGE (years)												
25-54	0.004* (0.002)	0.001 (0.003)	-0.012 (0.023)	-0.022 (0.022)	-0.100** (.016)	-0.024** (0.009)	-0.003 (0.011)	0.003 (0.014)	0.093 (0.121)	0.063 (0.127)	-0.244** (0.076)	-0.037 (0.050)
55-64	0.007** (0.002)	0.035** (0.003)	-0.178** (0.024)	0.152** (0.022)	-0.269** (0.019)	-0.045** (0.010)	-0.007 (0.012)	0.036** (0.014)	-0.094 (0.127)	0.281** (0.130)	-0.401** (0.080)	-0.049 (0.052)
SEX												
Male	0.007** (0.001)	-0.007** (0.001)	0.012* (0.006)	-0.034** (0.006)	-0.038** (0.008)	0.008** (0.003)	0.006** (0.003)	-0.011** (0.004)	0.073** (0.032)	-0.057* (0.031)	-0.005 (0.034)	-0.001 (0.016)
MARITAL STATUS												
Single	0.001 (0.001)	0.004** (0.001)	0.006 (0.006)	0.005 (0.006)	0.051** (0.006)	-0.013** (0.003)	0.002 (0.003)	0.007* (0.004)	0.043 (0.035)	-0.029 (0.032)	0.047 (0.032)	-0.012 (0.015)
EDUCATION												
Medium	0.002 (0.001)	-0.002* (0.001)	0.043** (0.008)	-0.043** (0.007)	0.076** (0.007)	0.005 (0.003)	0.004 (0.004)	0.003 (0.006)	0.005 (0.042)	-0.036 (0.039)	0.108** (0.036)	-0.004 (0.017)
High	-0.004** (0.001)	-0.008 (0.002)	0.028** (0.012)	-0.042** (0.011)	0.107** (0.009)	0.011** (0.005)	0.005 (0.007)	-0.008 (0.007)	0.134** (0.063)	-0.128* (0.066)	0.178** (0.046)	0.002 (0.027)
REGISTER												
(PES)	0.089** (0.001)	0.034** (0.001)	-0.388** (0.006)	-0.200** (0.006)	0.031** (0.012)	0.138** (0.003)	0.082** (0.003)	0.027** (0.004)	-0.387** (0.026)	-0.180** (0.031)	0.002 (0.042)	0.145** (0.014)
# of obs.	101,946		13,242		15,671		5,959		652		792	
LR $\chi^2(14)$	25,485.480		8,100.340		5,160.180		931.650		267.760		177.550	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000		0.000	
Pseudo R ²	0.501		0.325		0.276		0.384		0.195		0.170	

PES: Public Employment Service; for other abbreviations (Peu etc.) see text

Parentheses are standard errors of average marginal effects. Significance levels: * = $p < 0.10$, ** = $p < 0.05$

Source: Own calculation from German LFS

Table 2: Multinomial logit model, URBAN AREAS. Labour force transitions (average marginal effects).

	Before the crisis (2002-2007)						During the crisis (2008-2009)					
	Peu	Pei	Pue	Pui	Pie	Piu	Peu	Pei	Pue	Pui	Pie	Piu
AGE (years)												
25-54	0.003 (0.002)	-0.003 (0.003)	0.027* (0.014)	0.024 (0.018)	-0.046** (0.010)	-0.011** (0.005)	0.007 (0.007)	-0.003 (0.009)	-0.014 (0.053)	0.008 (0.073)	-0.099** (0.038)	-0.051** (0.023)
55-64	0.004* (0.002)	0.037** (0.003)	-0.151** (0.015)	0.192** (0.018)	-0.206** (0.012)	-0.034** (0.006)	0.010 (0.007)	0.028** (0.009)	-0.176** (0.056)	0.196** (0.074)	-0.334** (0.044)	-0.096** (0.025)
SEX												
Male	0.006** (0.000)	-0.011** (0.001)	0.002 (0.004)	-0.038** (0.004)	0.014** (0.004)	0.013** (0.002)	0.006** (0.002)	-0.008** (0.002)	0.014 (0.016)	-0.079** (0.018)	0.034** (0.016)	-0.005 (0.009)
MARITAL STATUS												
Single	0.000 (0.001)	0.001 (0.001)	0.023** (0.004)	-0.003 (0.004)	0.041** (0.004)	-0.007** (0.002)	0.005** (0.002)	-0.001 (0.002)	0.045** (0.017)	-0.008 (0.020)	0.044** (0.015)	-0.012** (0.008)
EDUCATION												
Medium	0.000 (0.001)	-0.002* (0.001)	0.048** (0.004)	-0.061** (0.005)	0.059** (0.004)	0.004** (0.002)	-0.002 (0.002)	-0.001 (0.003)	0.032* (0.018)	-0.025 (0.020)	0.068** (0.015)	0.016* (0.009)
High	-0.006** (0.001)	-0.011** (0.001)	0.070** (0.006)	-0.093** (0.007)	0.104** (0.005)	0.009** (0.003)	-0.007** (0.003)	-0.010** (0.004)	0.051* (0.027)	-0.080** (0.033)	0.106** (0.018)	0.039** (0.011)
REGISTER												
(PES)	0.094** (0.000)	0.042** (0.001)	-0.334** (0.003)	-0.246** (0.004)	0.020** (0.006)	0.145** (0.001)	0.084** (0.002)	0.043** (0.002)	-0.377** (0.013)	-0.213** (0.024)	-0.020 (0.020)	0.159** (0.007)
# of obs.	230,819		31,643		41,320		19,472		2,133		3,002	
LR χ^2 (14)	56,357.100		17,660.820		12,688.460		3,429.920		864.300		752.680	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000		0.000	
Pseudo R ²	0.454		0.290		0.266		0.385		0.192		0.193	

PES: Public Employment Service; for other abbreviations (Peu etc.) see text

Parentheses are standard errors of average marginal effects. Significance levels: * = $p < 0.10$, ** = $p < 0.05$

Source: Own calculation from German LFS

public employment service, the estimated coefficients are statistically significant and negative. This result holds for both rural and urban areas and in both study periods. For individuals registered in both rural and urban areas, the marginal effect on the transition to inactivity decreased during the crisis period (e.g. -0.24 to -0.21 for urban areas).

Education level: The estimated marginal effects of higher education (bachelor's, master's degree or doctorate) on the transition to inactivity from unemployment are statistically significant and negative for individuals in both rural and urban areas. This result holds both before and during the crisis, and implies that regardless of degree of urbanisation and the economic conjuncture of the country, highly educated individuals are less likely to go to inactive from unemployed status compared to less educated individuals. Relative to before the crisis, for more educated individuals, the marginal effect on the transition to inactivity from unemployment, Pui increased (-0.042 to -0.128 for rural areas) during the crisis. For highly educated individuals living in variously urbanised locations, the marginal effect of transition to inactivity is strongly negative for times of crisis. However, regarding the marginal effects on transition to inactivity, we could not observe a similar trend for individuals with medium levels of education (second stage of secondary education and post-secondary non-tertiary education).

Determinants of transition to inactivity from employment –Pei

Age: Similar to transition to inactivity from unemployed (Pui), for individuals living in both rural and urban areas the marginal effect of being an older worker on the transition to inactivity from employment (Pei) is statistically significant and positive. In that transition flow (Pei), older age group (55-

64) individuals are more likely to become inactive compared to those who belong to younger age groups. Regarding the study periods (before and during the economic crisis), for the older age group (55-64) in rural areas the positive coefficient number of marginal effects on transition from employed to inactivity remained stable. Additionally, in urban areas, for the same age group the positive marginal effects on transition flow (Pei) changed very slightly. With regard to age as a determinant for transition to inactivity from employed status (Pei), the older age group (55-64) variable has a similar positive coefficient of marginal effects on transition in both study areas (rural and urban) and study periods (before and during the crisis).

Sex: As we observed for the results of transition from unemployed to inactivity (Pui), males who live in rural or urban areas are less likely to become inactive than females⁵. The marginal effects of being male on the transition to inactivity from employment are statistically significant and negative in both rural and urban areas. Examining the coefficient numbers of the marginal effect for both transition probabilities (Pei and Pui), for Pei, coefficient numbers are low (e.g. 0.007 or 0.008), while for Pui, coefficient numbers are higher (e.g. 0.079 or 0.055). For males in both urban and rural areas the negative marginal effect on the transition from being employed to being inactive (Pei) changed very slightly during the crisis. Regardless of economic conjuncture, being male has an identical marginal effect on the transition from being employed to being inactive.

Marital status: Regarding the effect of the two considered marital statuses (single and married) on transition, being single is not found to have a statistically significant influence on the transition flow to inactivity (Pei) in urban

⁵ In German Labour Force Survey females on maternity leave from a job are considered to be in employment.

areas, while the marginal effect on the transition to inactivity is significant and positive for rural areas (0.004 pre-crisis and 0.007 mid-crisis).

Education level: Average marginal effect results for education levels show different results regarding the two degree of urbanisation models. While higher education (bachelor's, master's degree or doctorate) is not found to influence the transition flow to inactivity (Pei) for individuals living in rural areas, a marginal effect of transition to inactivity is statistically significant and negative for those living in urban areas. Moreover, for highly educated individuals living in urban areas the marginal effect on transition to inactivity is statistically significant and negative. Regarding the crisis period, we observe that for highly educated individuals living in urban areas, the likelihood of becoming inactive after being employed has a similar coefficient (-0.01) before and during the crisis. The obtained equal marginal effects for highly educated individuals before and during a crisis suggest that an adverse economic situation did not increase the likelihood of becoming inactive after being employed.

Discussion

Our results suggest that, in urban and rural areas, education level and marital status both influenced the transition to inactivity during the economic crisis (2008-09), though to varying degrees. For urban areas, highly educated individuals (bachelor's, master's degree or doctorate) were less likely to flow to inactivity from being employed and unemployed compared to medium (second stage of secondary and post-secondary education) and lower educated individuals during the crisis period. However, we did not find the same trend for rural areas. During a period of economic crisis in rural areas, highly educated individuals are less likely to flow to inactivity from being unemployed, and education levels were not found to have a statistically significant impact on transition to inactivity from being employed. Although broadly consistent with the results of Gomes (2012), where it appears that highly educated individuals are significantly less likely to flow to inactivity from unemployment than less educated individuals, our findings suggest that a higher education effect is observed only for individuals living in urban areas.

Another important difference between urban and rural areas during the economic crisis period was observed with regard to the effect of marital status on the probability of becoming inactive. Our study results suggest that single individuals in rural areas were more likely to become inactive compared to married individuals in the crisis period. However, for the same variable, we did not observe a similar effect in urban areas. During times of economic crisis in urban areas, marital status did not show a statistically significant impact on the transition to inactivity from employed status as in rural areas. Hence, the negative effect of being single on the transition to inactivity was only observed in rural areas during the crisis, but this effect was not statistically significant in urban areas.

We used the years 2002-07 as a proxy for labour market conditions before the economic crisis. Regarding probabilities of transitioning to inactivity from being unemployed

and employed in this period, similar to the crisis period, it is found that for both urban and rural areas there is a significant difference for two factors: education level and marital status. While these factors similarly influence the transition to inactivity before the crisis, their effect was observed to be stronger during times of economic crisis. These results imply that, in rural areas, unmarried individuals are more likely to transition to inactivity compared to urban areas. Additionally, this effect increases during periods of economic crisis. Policy makers could concentrate on reducing inactivity rates in rural areas by working on focus groups of individuals who are single. The findings for both urban and rural areas before the crisis imply that medium level educated individuals are less likely to transition to inactivity. However, during the crisis, these individuals lost this advantage in rural and urban areas. Indeed, Eichhorst *et al.* (2010) show that while a high level education is a significant factor for explaining the transition into permanent contract from non-employment (unemployment and inactivity), medium level education is not. Therefore, regardless of degree of urbanisation, this medium level educated group may be considered a target group by policy makers during periods of economic crisis.

In addition to the comparative analysis of urban and rural areas before and during an economic crisis period, for transition to inactivity we found that the decision to flow to inactivity has a much greater impact on the older age group (55-64) relative to prime age group individuals (25-54). This confirms that being close to the retirement age (the official retirement age in Germany is 65) positively influences the transition flow to inactivity. According to the theoretical model, this difference can be explained by the different nature of these age groups such as an observed early retirement trend for the older age group in Germany (OECD 2009). In Germany, where promoting employment for the older age group is a serious alternative for the expected large gap in the labour supply for 2020 (Höhn *et al.*, 2008), the participation rate of the older age group (only men) was 63 per cent in 2008 (OECD 2009). Overall, the average retirement age is still significantly earlier than 65 years.

While our paper does not go into the details of the destinations of transition flows, Kruppe (2002) shows that there is a considerably higher transition from unemployment to 'passive' status (around 20 per cent including retired and inactivity) in Germany relative to other studied EU Member States. While 6 per cent of individuals leaving unemployment enter education or apprenticeship, 11 per cent of individuals leave unemployment for retirement after a period of unemployment.

We also observe that for older age group individuals a positive effect on transition to inactivity from unemployment increased during the crisis for both rural and urban areas. This implies that although the older age group is more likely to flow to inactivity, the economic crisis increased this probability for that age group. Regarding the political and practical implications, keeping older age individuals in the labour market may be a successful active labour market policy during an economic crisis period.

For males, a negative effect on transition to inactivity from unemployment decreasing during the crisis was observed for both study areas. This implies that in both study areas, for

males, the probability of being inactive decreases relative to females during times of crisis. Regarding the register variable, the negative and significant effect implies that the likelihood of getting inactive from unemployment declines with registration with the public employment service. During the crisis period, flow to inactivity from unemployed still has a negative effect with very slight changes. Therefore, we could conclude that even if registration with the public employment service could have a negative impact to the flow to inactivity; its impact stays stable during the crisis period. Our overall results suggest that beside human capital aspects, interactions of individuals with institutional settings have to be taken into account when designing active labour market policy measures during economic crisis periods.

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References

- Achatz, J. and Trappmann, M. (2009): Pathways out of unemployment assistance reciprocity. IAB-Kurzbericht 28. Nürnberg: Institut für Arbeitsmarkt- und Berufsforschung.
- BA (2009): The labour market in Germany – a year of crisis for the German labour market, Report on the labour market. Nürnberg: Bundesagentur für Arbeit.
- Baqueiro-Espinosa, O. and Unay Gailhard, I. (2011): Labour Force Transitions in Germany: Adopting Micro-Simulation Model to the Study the Impact of Policies at Municipality level. EU FP7 PRIMA Project Working Paper. Halle (Saale): IAMO.
- Barham, C. (2002): Economic Inactivity and Labour Market. Labour Market Division Working Paper. London: ONS.
- Bellman, L., Estrin, S., Lehmann, H. and Wadsworth, J. (1995): The Eastern German Labor Market in Transition: Gross Flow Estimates from Panel Data. *Journal of Comparative Economics* **20** (2), 139-170. <http://dx.doi.org/10.1006/jceec.1995.1007>
- Blanchard, O.J. and Diamond, P. (1990): The cyclical behavior of the gross-flows of U.S. workers. *Brookings Papers on Economic Activity* **21** (2), 85-156. <http://dx.doi.org/10.2307/2534505>
- Blunch, N.H. and Sulla, V. (2011): The Financial Crisis, Labor Market Transitions and Earnings: A Gendered Panel Data Analysis for Serbia. Discussion Paper No. 6151. Bonn: Forschungsinstitut zur Zukunft der Arbeit.
- Bogedan, C., Kraemer, B. and Maucher, M. (2010): The changing labour market in Germany in times of crisis. Brussel: SOLIDAR.
- Cameron, C.A. and Trivedi, P.K. (2009): *Microeconomics using Stata*. College Station TX: Stata Press.
- Choudhry, T.M., Marelli, M. and Signorelli, M. (2012): Youth unemployment rate and impact of financial crises. *International Journal of Manpower* **33** (1), 76-95. <http://dx.doi.org/10.1108/01437721211212538>
- Copus, A., Hall, C., Barnes, A. and others (2006): *Study on Employment in Rural Areas*. Brussel: European Commission.
- Crimmann, A., Wießner, F. and Bellmann, L. (2012): Resisting the crisis: short-time work in Germany. *International Journal of Manpower* **33** (8), 877-900. <http://dx.doi.org/10.1108/01437721211280362>
- Curti, M. (1998): Does economic stagnation affect unemployed workers, even when re-employed? *International Journal of Manpower* **19** (6), 410-423. <http://dx.doi.org/10.1108/01437729810233235>
- Davis, S.J., Faberman, R.J. and Haltiwanger, J. (2006): The flow approach to labor markets: new data sources and micro-macro links, *Journal of Economic Perspectives* **20** (3), 3-26. <http://dx.doi.org/10.1257/jep.20.3.3>
- Detzel, P. and Rubery, J. (2002): Employment Systems and Transitional Labour Markets: A Comparison of Youth Labour Markets in Germany, France and the UK. In G. Schmid and B. Gazier (eds), *The dynamics of full employment: Social integration through transitional labour markets*. Cheltenham: Edward Elgar, 106-148.
- Eichhorst, W., Konle-Seidl, R., Koslowski, A. and Marx, P. (2010): Quantity over Quality? A European Comparison of the Changing Nature of Transitions between Non-Employment and Employment. Discussion Paper No. 5285. Bonn: Forschungsinstitut zur Zukunft der Arbeit.
- Eurostat (2006): *Labour force survey in the EU, Candidate and EFTA Countries. Main characteristics of the national surveys, 2005*. Luxembourg: European Union.
- Faik, J. (2012): Income Inequality and Poverty in Front of and During the Economic Crisis: An Empirical Investigation for Germany 2002-2010. SOEPpapers on Multidisciplinary Panel Data Research 450. Berlin: DIW.
- Gomes, P. (2012): Labour market flows: Facts from the United Kingdom. *Labour Economics* **19** (2), 165-175. <http://dx.doi.org/10.1016/j.labeco.2011.08.002>
- Greene, W.H. (2003): *Econometric Analysis*. New York: Prentice Hall.
- Gustafsson, S.S., Kenjoh, E. and Wetzels, C. (2002): Postponement of Maternity and the Duration of Time Spent at Home after First Birth: Panel Data Analyses Comparing Germany, Great Britain, the Netherlands and Sweden. *Labour Market and Social Policy Occasional Papers* No. 59. Paris: OECD.
- Haltiwanger, J.C. and Vodopivec, M. (2002): Gross worker and job flows in a transition economy: an analysis of Estonia. *Labour Economics* **9** (5), 601-630. [http://dx.doi.org/10.1016/S0927-5371\(02\)00048-9](http://dx.doi.org/10.1016/S0927-5371(02)00048-9)
- Höhn, C., Mai, R. and Micheel, F. (2008): Demographic Change in Germany. In I. Hamm, H. Seitz, H. and M. Werding (eds), *Demographic Change in Germany: The Economic and Fiscal Consequences*. Berlin: Springer, 9-33.
- ILO (2010): *Global Employment Trends for Youth*. Special issue on the impact of global economic crisis on youth. Genève: International Labour Organization.
- Jones-Stephen, R.G. and Riddell, W.C. (1995): The Measurement of Labor Force Dynamics with Longitudinal Data: The Labour Market Activity Survey Filter. *Journal of Labor Economics* **13** (2), 351-85. <http://dx.doi.org/10.1086/298378>
- Joyce, M., Jones, J. and Thomas, J. (2003): Non-employment and Labour Availability. *Bank of England Quarterly Bulletin*, Autumn: 291-303.
- Kruppe, T. (2002): The dynamics of employment in the European Union: an exploratory analysis. In G. Schmid and B. Gazier (eds), *The dynamics of full employment: Social integration through transitional labour markets*. Cheltenham: Edward Elgar, 277-297.
- Laueroová, J. and Terrell, K. (2002): Explaining Gender Differences in Unemployment with Micro Data on Flows in Post-Communist Economies. Discussion Paper No. 600. Bonn: IZA.

- Marston, S.T. (1976): Employment Instability and High Unemployment Rates. *Brookings Papers on Economic Activity* **7** (1), 169-210. <http://dx.doi.org/10.2307/2534049>
- Nivorozhkin, A., Gordo, L.M. and Schneider, J. (2013): Job search requirements for older workers: the effect on reservation wages. *International Journal of Manpower* **34** (5), 517-535. <http://dx.doi.org/10.1108/IJM-05-2013-0114>
- OECD (2009): *Society at a Glance 2009: OECD Social Indicators*. Paris: OECD.
- Scarpetta, S., Sonnet, A. and Manfredi, T. (2010): Rising youth unemployment during the crisis: how to prevent negative long-term consequences on a generation? *Social, Employment and Migration Working Papers* No. 6. Paris: OECD.
- Schmid, G. (1995): Is Full Employment Still Possible? Transitional Labour Markets as a New Strategy of Labour Market Policy. *Economic and Industrial Democracy* **16** (3), 429-456. <http://dx.doi.org/10.1177/0143831X95163005>
- Seeborg, M.C. and DeBoer, L. (1989): The Unemployment Rates of Men and Women: A Transition Probability Analysis. *Industrial and Labor Relations Review* **42** (3), 404-414. <http://dx.doi.org/10.2307/2523397>
- Tasci, M. and Tansel, A. (2005): Unemployment and Transitions in the Turkish Labor Market: Evidence from Individual Level Data. *Discussion Paper Series* No. 1663. Bonn: IZA.

Joanna RAKOWSKA*

Female unemployment trends in rural areas of Poland in 2008–2012

This paper, firstly, identifies the scale and spatial differentiation of registered female unemployment in rural areas of Poland, defined according to the new Degree of Urbanisation (DEGURBA) classification of LAU2 regions used in the European Union (EU) for the Labour Force Survey, since the onset of the global economic crisis, and secondly, investigates the reasons for the occurrence of very high female unemployment rates that are either stable or increasing and very high gender gaps in unemployment rates. Quantitative analysis identified 27 rural communes in Poland affected by such problems. Most are situated in the north and several in the south-east of the country, mainly in post-state-owned farming areas. The results of semi-structured telephone interviews with representatives of local authorities of nine of those communes indicate that despite the different locations and different types of LAU2 regions, female unemployment is caused by similar factors: liquidation of state-owned farms not followed by any new job opportunities, peripheral location not attractive for external (out-of-commune) investors, lack of entrepreneurial skills, experience and finance to start own businesses, low income or poverty of inhabitants significantly limiting the purchase of goods and services, thus limiting the demand that could be met by local SMEs, and finally liquidation of enterprises, quite often the only employers in the commune. The problem of female unemployment cannot be solved by local authorities as they lack sufficient legal and financial resources, and needs to be addressed by both the government and the EU within actions of the Europe 2020 Strategy.

Keywords: rural areas, female unemployment rate, gender gap, global economic crisis

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Introduction

Over the past twenty-five years Poland has experienced a complex and complicated two-stage transformation process leading from a centrally planned economy to a free market and, since 2004, to membership of the European Union (EU) and its single market. Since 2011 Poland has been a full participant in the EU's single labour market (Dhéret *et al.* 2013).

Owing to changes resulting from past and recent transformation processes, as well as from present demographic trends, the condition of Polish labour market at the local level varies significantly: from more job opportunities in large cities to significant losses in jobs and increases in unemployment in small towns and rural communes, especially those situated in regions lagging behind in social and economic development (Rakowska, 2011). The latter constitutes one of the most serious problems, particularly in the case of women, many of whom are very vulnerable to unfavourable changes in local labour markets and consequently to unemployment. Women have not benefited from the recent increase in employment partly due to the fact that there is a lack of affordable childcare and care for dependent adults, usually members of the family (Bardasi and Monfardini, 2004; Heinen and Wator, 2006; Drejerska, 2008; Drejerska, 2009). It is especially visible in the case of labour force participation of rural married women and confirms the fact that differences in labour market behaviour largely depend on gender (Sawicka, 2008; Pedersen and Schmidt, 2010).

Irrespective of the classification applied, rural areas account for an extremely large share of the territory of Poland, inhabited by 39 per cent of the population (Rakowska, 2013). These areas have been undergoing intense demographic and economic changes leading to diversification of social and economic conditions. These changes have particularly affected women's participation in the labour market, which varies immensely at the local level. It shows most clearly in the emergence of two extremes: strong local rural economies (LAU2 regions or communes) usually situated close to large cities and

with strong functional links to the central city labour market and the opposite: weak and/or declining rural economies, often remote ones, characterised by high unemployment, lack of job opportunities and migration especially of the young female labour force. Between these extremes it is possible to identify a wide variety of rural areas: from peri-urban commuting areas linked to urban centres to remote, rural areas still relying heavily on agriculture, as well as rural areas with economies more oriented towards services, such as tourism or industry, including the food industry (EC, 2008). Consequently, rural women living in different rural communes are not a homogeneous group in terms of their activities, job opportunities and job mobility. Women provide for their households as they “tend to reinvest their income in improved nutrition, health and education for household members, thus increasing living standards and reducing ‘non-income poverty’ in the long term” (Krogh *et al.*, 2009, p.133). Women also play a pivotal role in maintaining rural communities, both because of their economic activities and their major contributions to the maintenance of family and community life (Braithwaite, 1996). Thus female unemployment is not only a crucial factor causing lower standards of living of affected persons and their families and a factor significantly contributing to social exclusion of both, but also one that strongly restrains local development.

For these reasons female unemployment has been a major concern of labour policy makers at both the national (MRD, 2009; MARD, 2010) and EU levels. The achievement of a 75 per cent overall employment rate for the 20–64 age group by 2020 is one of the headline targets of the EU's Europe 2020 Strategy (EC, 2010) and increasing the level of female labour market participation is essential for this to happen (European Council, 2013a). The European Commission's recommendations to Poland on measures it should adopt over the coming 18 months in order to implement the Europe 2020 strategy for growth and jobs (European Council, 2013b) stressed the need to increase the employment level of women. To effectively activate women's participation in the labour market it is necessary to recognise the present condition of the labour

market with special focus on its barriers and limitations for women. Some authors (e.g. Bakas and Papappetrou, 2013) indicate that despite its importance the subject of the structure of unemployment by gender has received relatively little attention. Labour market diagnosis will enable the selection and implementation of measures aimed at reducing also female unemployment, especially at the local level (Copus *et al.*, 2011).

Based on the above, the three main objectives of this paper are: (a) to describe trends in unemployment rates in Poland since the start of the economic crisis in 2008, including comparison of trends in female (FUR) and male (MUR) unemployment rates for different types of LAU2 regions, and to identify different patterns of FUR changes and gender gaps; (b) to identify spatial differentiation of FUR in Poland in 2012 and to identify 'problematic' rural areas in terms of high FUR and high gender gap; and (c) to identify the reasons for high FUR in 'problematic' rural areas.

Methodology

The study consists of a two-stage analysis: quantitative analysis of formal (registered) unemployment statistics for the period 2008-2012, extracted from the Local Data Bank (LDB) of the Central Statistical Office of Poland, completed with the EU's new Degree of Urbanisation (DEGURBA) classification of LAU2 regions (Eurostat, 2011), and qualitative research carried out in August 2013. The findings of the quantitative analysis formed the basis for selecting 'problematic' LAU2 regions, i.e. those affected by the most unfavourable combination of female unemployment characteristics. Representatives of the authorities of these communes were surveyed in the second stage including qualitative analysis.

The retrieved statistics used for the quantitative analysis relate to formal unemployment, i.e. the number of unemployed persons registered in Labour Offices in accordance with the *Law of April 20, 2004 on Promotion of Employment and Labour Market Institutions* (CSO, 2012), for all LAU2 in Poland. The registered unemployed are defined as persons who are not employed and not performing any other kind of paid work, able and ready to take full-time employment and meeting all the criteria listed in the Law, among them the following: (a) they are aged 18 or over and under 60 (women) or under 65 (men); and (b) they are not owners or holders (sole or dependent) of agricultural real estate with an area of agricultural land exceeding 2 convertible ha; are not subject to retirement and pension insurance from full-time work due to being a spouse or a member of an agricultural household with an area of agricultural land exceeding 2 convertible ha. The latter requirement is of special importance in rural areas, as the fact that owners or holders of agricultural land cannot be registered as unemployed creates so-called 'hidden unemployment' or 'agricultural overload of the unused labour force' and makes the scale of real unemployment impossible to define. FUR is measured as the number of unemployed women registered at Labour Offices as a proportion of all women of working age. MUR is calculated similarly.

Rural areas were defined according to the revised version of the EU DEGURBA classification used for the Labour

Force Survey, LFS (EC, 2012). The classification creates a three-way typology of LAU2 regions: (a) *densely populated area* (alternative name: cities or large urban area), where at least 50 per cent of the population lives in high-density clusters, in this paper called 'cities'; (b) *intermediate density area* (alternative name: towns and suburbs or small urban area), where less than 50 per cent of the population lives in rural grid cells and less than 50 per cent lives in a high-density clusters, in this paper called 'small urban areas'; and (c) *thinly populated area* (alternative name: rural area), where more than 50 per cent of the population lives in rural grid cells, in this paper called 'rural areas'.

To provide a more detailed insight into the situation of women in rural and urban labour markets, FUR and MUR were analysed separately for the three DEGURBA categories, although – according to LFS assumptions – cities and small urban areas may be combined and treated as one category constituting urban areas. For the reference year 2012 the new DEGURBA classification for Polish LAU2 regions was downloaded from the EUROSTAT RAMON metadata server. To reflect the socio-economic character of the regions we used the typology elaborated by Komornicki and Śleszyński (2008) for the purposes of a study on spatial planning. This identified 16 categories of LAU2 regions, of which some were associated with urban centres and their suburban zones; with industrial, tourist, communication, rural, ecological and rural-ecological functions, as well as a separate category of LAU2 regions without any specific functional specialisation.

In the second stage of the research qualitative analysis was based on data collected in semi-structured telephone interviews with the Secretary of the Commune¹ in each selected 'problematic' LAU2 region. After an introduction explaining the reason for calling, the interviews started with the open-ended question: what are the reasons for high female unemployment in your commune? The subsequent questions depended on the answer to this and aimed at clarifying the local labour market context for female unemployment, especially unemployment duration, job opportunities for men and women in the local and adjacent labour markets, volume of job seeking migration by gender and age, main destinations of job seeking migrants, etc.

Results

Findings of the quantitative research

According to the revised DEGURBA criteria 79 per cent (1958) Polish LAU2 regions are defined as rural, 18 per cent (447) as small urban areas and the remaining 3 per cent (74 communes) as cities. The mean FUR for the years 2008-2012 was 10.9 per cent in rural areas, 8.7 per cent in small urban areas and 7.7 per cent in cities. The mean FUR was higher than MUR in all three types of LAU2 region, and followed the same tendency to be higher in rural than in urban areas (Figure 1). During the five year period both FUR and MUR

¹ Secretary of the Commune is one of head positions in the hierarchy of local authorities.

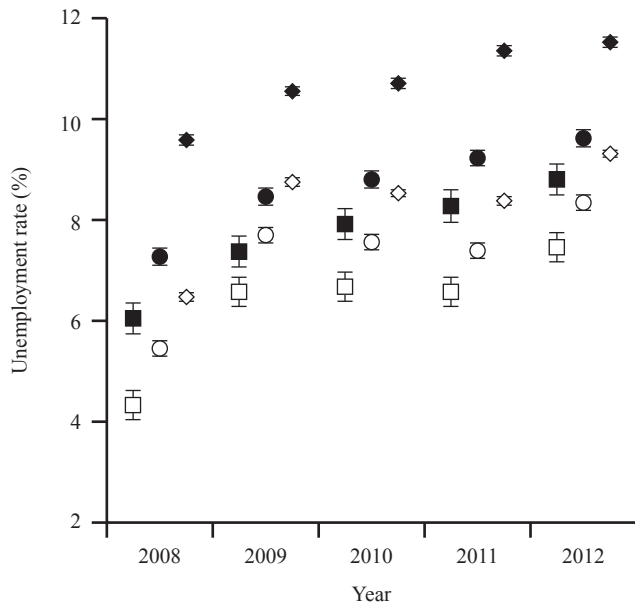


Figure 1: Female (black symbols) and male (white symbols) unemployment rates in the period 2008-2012 in LAU2 regions of Poland classified according to DEGURBA criteria (squares = cities, circles = small urban areas, diamonds = rural areas). Error bars indicate 95 per cent confidence intervals.

Source: author's elaboration based on the Local Data Bank (LDB) of the Polish Central Statistical Office (GUS)

increased substantially but the mean increases in unemployment rates differed between rural and urban areas as well as between females and males. Male unemployment increased more than female unemployment in percentage terms during this time but, in rural areas, mean MUR in 2012 was still much lower than mean FUR in 2008. By 2012 FUR equalled 11.5 per cent in the rural areas of Poland, compared to 9.6 per cent in small urban areas and 8.8 per cent in cities.

Between 2008 and 2012 the biggest decrease in FUR in a rural LAU2 region was -9.9 percentage points (pp) and the biggest increase was 10.9 pp, while the change in MUR ranged from -10.2 pp to 9.9 pp (Figure 2). FUR increased by 4.0 pp or more in 13.2 per cent of rural LAU2 regions and fell by 2.95 pp or more in 1.6 per cent of rural LAU2 regions. In 85.2 per cent of rural LAU2 regions, characterised by changes ranging from -2.95 pp to 3.99 pp, FUR was relatively stable over the five year period. The corresponding figures for MUR were 22.7 per cent, 0.4 per cent and 76.9 per cent respectively illustrating that, notwithstanding the higher overall female unemployment rates, more regions witnessed large increases in male unemployment rates during this period.

Increases in FUR in excess of 5 per cent were observed in 90 rural LAU2 regions, of which 29 were defined by Komornicki and Śleszyński (2008) as communes of agricultural function and others as: without any specific function (7), with valuable natural sites (7), of developed agricultural function and with environmentally valuable sites (6), of developed industrial function (7), of developed industrial and tourism functions (6), outer zones of *powiat* (LAU1) towns (6), and transportation corridor extensively used (6). The remaining 16 LAU2 regions are of mixed types, i.e. representing two or more of the above listed characteristics.

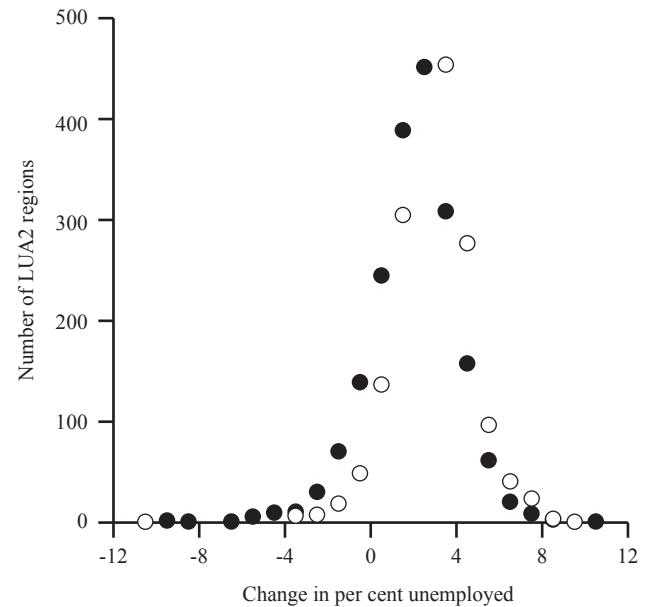


Figure 2: Distribution of rural LAU2 regions of Poland according to the change in female (black symbols) and male (white symbols) unemployment rates during the period 2008-2012.

Source: author's elaboration based on LDB of the GUS

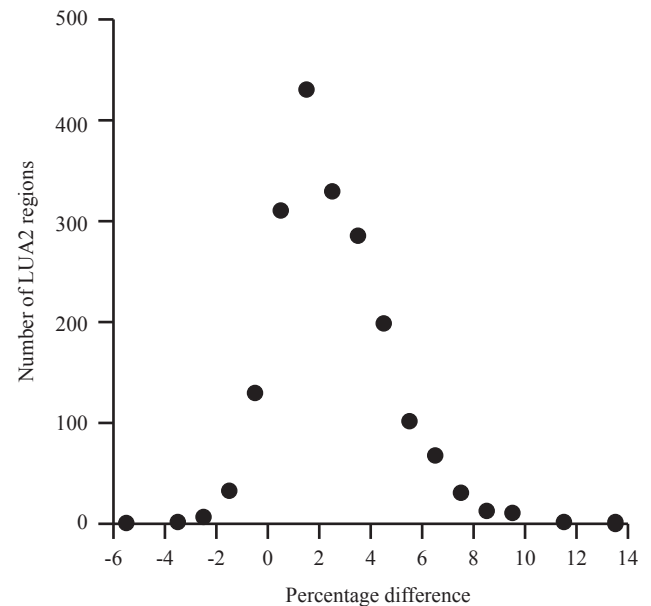


Figure 3: The difference between the mean female and male unemployment rates of LAU2 regions in Poland for the years 2008-2012.

Source: author's elaboration based on LDB of the GUS

The difference between the mean FUR and MUR for the years 2008-2012 varied between LAU2 regions: the unemployment gender gap ranged from a mean FUR that was 5.3 pp lower than the mean MUR of the region to a value that was 13.2 pp higher (Figure 3). Only in 9.9 per cent of rural communes was the mean MUR higher than the mean FUR over the five year period. In 11.2 per cent of rural communes the mean FUR was higher by 5 pp or more than the mean MUR.

In 2012 the FUR in rural LAU2 regions ranged from 2.9 to 30.3 per cent (Table 1). The FUR of the majority (59 per cent) of these regions fell into the lowest one-third of this

Table 1: Female and male unemployment rates in rural areas of Poland in 2012.

Category	Total number of LAU2 regions	Female unemployment rate %		Male unemployment rate %	
		mean	range	mean	range
Low	1161	8.6	2.9 - 12.0	7.3	1.2 - 13.8
Moderate	750	15.3	12.1 - 21.1	11.9	6.2 - 22.7
High	47	23.0	21.2 - 30.3	17.9	8.0 - 28.2

Source: author's elaboration based on LDB of the GUS

range, 38 per cent of regions fell into the middle one-third, and in the remaining 2 per cent the FUR fell into the highest one-third of the range. The mean FUR of these 47 regions was 23.0 per cent, compared to a mean MUR of 17.9 per cent. A combination of high 2012 FUR with either a high increase or a relative stability was observed in 39 rural communes, which represent all types of LAU2 regions in the typology of Komornicki and Śleszyński (2008), except cores of metropolitan areas, their adjacent areas and *powiat* towns.

An unfavourable combination of high 2012 FUR with a high increase or relative stability over the period 2008-2012 and the biggest gender gap in terms of the mean FUR for the years 2008-2012 exceeding the mean MUR occurred in 31 rural communes located in six NUTS2 regions (Figure 4):

- Świecie nad Osą, Lipno, Łasin and Dobrze in Kujawsko-Pomorskie;
- Chlewiska, Pionki and Jastrząb in Mazowieckie;
- Domaradz, Dydnia and Lutowska in Podkarpackie;
- Trzebielino and Czarna Dąbrówka in Pomorskie;
- Sępól, Godkowo, Budry, Działdowo, Wilczęta, Rychliki, Braniewo, Lidzbark, Kowale Oleckie, Lelkowo and Dąbrówno in Warmińsko-Mazurskie;
- Wapno in Wielkopolskie;
- Bliżyn in Świętokrzyskie; and
- Przelewice, Barwice, Recz, Szczecinek, Grzmiąca and Kalisz Pomorski in Zachodniopomorskie.

These 'problematic' rural communes represent seven different types in the functional typology of Komornicki and Śleszyński (2008):

- Nine communes of developed agricultural function (Łasin, Świecie nad Osą, Dobrze, Sępól, Braniewo, Wilczęta, Lipno, Lelkowo and Wapno);
- Seven communes without any distinct functional specialisation (Działdowo, Rychliki, Przelewice, Barwice, Grzmiąca, Jastrząb and Szczecinek);
- Six communes with environmentally valuable sites (e.g. national parks) (Chlewiska, Dąbrówno, Recz, Pionki, Bliżyn and Kalisz Pomorski);
- Four communes of developed tourism function (Lutowska, Czarna Dąbrówka, Lidzbark and Godkowo);
- Three communes of developed agricultural function and with environmentally valuable sites (Dydnia, Kowale Oleckie and Budry);
- One commune of developed industrial function (Trzebielino);
- One transportation corridor intensively used (Domaradz).

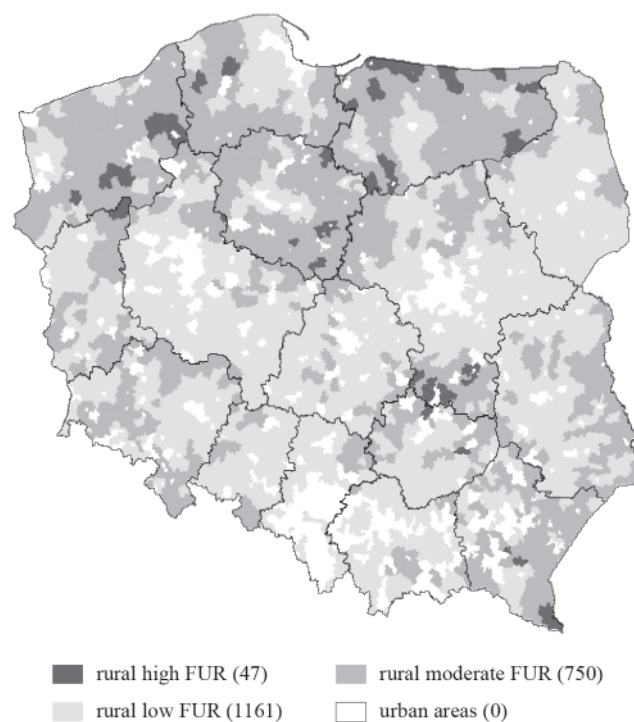


Figure 4: Location of rural LAU2 regions of Poland characterised by low (pale grey), moderate (mid grey) and high (dark grey) female unemployment rate in 2012. See Table 1 for unemployment rate thresholds. Urban areas are shown in white.

Source: author's elaboration based on LDB of the GUS

Findings of the qualitative research

One commune representing each of types (iii) to (vii) was selected for further research, together with two communes from each of the more numerous groups (i) and (ii). To better identify inter-regional differentiation of female unemployment the selection was based on additional criterion of including 'problematic' LAU2 regions from different *voivodships* (NUTS2 regions). As a consequence the survey group included nine units with populations ranging from 2120 to 6344 inhabitants and total unemployment rates ranging from 14.2 per cent to 26.7 per cent. FUR, although the highest in Poland, also varied: from the highest in Chlewiska to the lowest in Wapno (Table 2).

The causes of female unemployment were quite similar in all surveyed communes irrespective of type or location. Thus these causes can be generalised. All respondents pointed out that female unemployment in their communes has been long-term and that the statistics are a sum of the unemployed women who were registered recently (less than one year ago) and thus have rights to financial benefits and those who were registered more than one year ago, thus do not get any financial benefits, only social (including health) insurance. As there are no new job opportunities in the local labour market for women the numbers of long-term unemployed without unemployment pay are increasing. This is related to the legal condition that one has to be employed full-time for one year and then made redundant to be eligible to be registered as unemployed with all benefits. If the employment is of a different form or is of shorter duration the unemployed do not receive any money. This condition

Table 2: Labour market data for the rural LAU2 regions selected for survey.

Name of LAU2 region	Type*	Population total	of working age		Unemployment		Working age females	Female unemployment	
			total	%	total	%		total	%
Chlewiska	iii	6183	3807	61.6	1016	26.7	1694	513	30.3
Trzebielino	vi	3745	2437	65.1	493	20.2	1110	288	25.9
Budry	v	2961	1879	63.5	389	20.7	812	200	24.6
Domaradz	vii	6141	3793	61.8	748	19.7	1714	417	24.3
Rychliki	ii	4057	2590	63.8	505	19.5	1142	268	23.5
Braniewo	i	6344	4161	65.6	798	19.2	1862	421	22.6
Recz	iii	5717	3746	65.5	651	17.4	1679	372	22.2
Lutowiska	iv	2120	1440	67.9	264	18.3	643	142	22.1
Wapno	i	3102	1983	63.9	281	14.2	912	195	21.4

* According to the typology of Komornicki and Śleszyński (2008)

Source: author's elaboration based on LDB of the GUS (as of 31 December 2012)

is especially important in rural areas where seasonal job opportunities occur, however 'seasonal' means shorter than one year. Respondents stressed that the real extent of female unemployment, i.e. formal and informal, is unknown, but it is certainly higher than the official statistics show.

Prior to the economic transition, all 'problematic' communes located in the northern regions had numerous large state owned farms employing the local population. Owing to differentiation of agricultural production in most of them there were sufficient jobs both for men and women. A few respondents remarked that women did not then have to work as jobs at state farms in the centralised economy included the provision of extra non-financial but significant benefits sufficient for only a man to support the whole family. The political and structural changes after 1990 resulted in the privatisation of those farms and caused large scale loss in jobs, as ex-farm hands were offered no alternative employment. Men have been in a little better situation as their short-term or seasonal job mobility is higher. According to the respondents women run households (perform mothers' and housewives' duties) so their job mobility is significantly limited. These facts lead to the conclusion that in the surveyed 'problematic' communes authorities face structural long-term female unemployment.

All respondents agreed that despite the lack of formal job offers there is a 'black' labour market in their communes, but that it is "not of considerable size". An informal job, where the employer does not pay obligatory insurance, is disadvantageous to the employee, but in situations where there is no other choice it is accepted. Still there are more informal job offers for men than women, reflecting the general trend in surveyed local labour markets.

In all cases the peripheral location was pointed out as the main reason for the difficult situation in local labour markets. This means not only a long distance from urban centres of considerable social and economic significance but also a lack of railway or – more importantly – road connections with such places. In some communes bus routes operate only in the weekday mornings and evenings. Neither public nor private bus transport operates at weekends. Location, especially directly at Poland's north and east borders, which are at the same time external EU borders, was indicated as most unfavourable to developing local small and medium-sized enterprises and/or attracting external investors and employers. After Poland's EU accession the rules of the EU's single market stopped cross-border trade with Ukraine and Belarus,

which for many inhabitants of border LAUs was a source of either formal or informal but significant income.

Another contributing reason is the lack of job opportunities for women in directly neighbouring communes. Not too long a distance would enable commuting by cars, even in case of lack of bus or railway transportation.

Only in four communes respondents said that female unemployment increased recently due to closing enterprises, most of which were production plants. These employed from 20 to 80 people. The latter case is Trzebielino, which Komornicki and Śleszyński, (2008) identified as a commune of developed industrial function, and which now due to liquidation of enterprises is affected by high unemployment.

The gender gap, meaning higher female than male unemployment, was caused by two main reasons. One of them is the fact that men are employed or run their micro-enterprises (often self-employed) in construction, which is a typically male field. They offer construction and redecoration services also to outside local markets, including work abroad on a seasonal or whole-year basis. Two respondents mentioned that the main employers in their communes offer mostly so-called 'manual' jobs requiring physical men's labour (e.g. a plant producing artificial fertilisers).

Two of the surveyed communes, Wapno (Box 1) and Lutowiska (Box 2) make quite special cases. Furthermore, two extra interviews were carried out with authorities of Lelkowo and Górowo Hławieckie communes where formal FUR, although still very high, decreased in 2010-2012, which is why they were not classified in this study as 'problematic', but provided additional information. The decrease in FUR was caused by emigration of the unemployed for so called 'permanent stay', which requires formal registration as a resident in the new place of living. The main reason for taking such a decision is the lack of local job opportunities. There are two destinations for emigrating job seekers: the first is domestic, mostly Warszawa, and sometimes other big cities of Poland, and the second but not less important is Germany. As the leaving population is of productive age, local authorities consider this situation very unfavourable and indicative of a stronger trend of demographic decline.

Box 1: Case study: Wapno commune.

A rather unusual and interesting situation exists in Wapno, the only ‘problematic’ LAU2 region in Wielkopolskie region. Before 1977 this local labour market had been thriving but it never recovered from a mining catastrophe. In Wapno there was a salt mine employing 600 people. It was an old-established plant, renowned for its extremely high quality salt. As more than 90 per cent of its production was successfully exported central authorities decided to increase the output by exploiting the upper layers, situated dangerously close to the surface. Soon this caused floods of underground waters to the mine corridors and subsidence which destroyed several dozens of private and public buildings in Wapno village. The real underground extent of that collapse and possible future consequences are unknown even now, as due to a decision of the central authorities the ‘collapsed’ mine was flooded with water from the nearby lake shortly after the catastrophe. The mine was a kind of ‘employer-monopolist’; no other plants operated there at that time, so overnight all of its employees became jobless. As a consequence the previously prosperous local shops and service providers lost their clients, which resulted in their businesses closing. As the area has been perceived as insecure no new enterprises have been set up there ever since – neither in the time of the centrally planned economy nor after 1990. The cost of extensive geological analysis is too high for the small local budget. The unfavourable, peripheral location without satisfactory road connections also makes the commune unattractive to external investors, both domestic and foreign. According to the above presented functional typology, the commune has rather an agricultural character but the case of Wapno commune is unique in the whole country when considering the primary reasons for unemployment in this commune. However, the other characteristics of the current situation in the local labour market are similar to those in other ‘problematic’ rural LAU2 regions.

Box 2: Case study: Lutowska commune.

Lutowska is a commune located in the very south-east corner of Poland. A large part of its borders are national and external EU borders, the latter inhibiting formerly existing cross-border trade. Nearly 60 per cent of its area is taken by Bieszczadzki National Park, which is on the one hand an undeniable asset, but on the other a restraint on many kinds of economic activity. External investors willing to establish in the area, such as Bieszczady Safari Park, were discouraged by legal and administrative barriers and environmental protection demands related to the National Park. The commune is peripheral in terms of location and road and railway connections, and this is the main reason why the unique natural beauty of the surrounding mountains does not attract as many tourists as it could. Thus the well-preserved natural environment and unique landscapes do not influence the labour market, as opposed to, for example, the Tatra mountains and Zakopane area, where such assets are the driving factor for the prosperous development of communes. In Lutowska high female, and also male, unemployment is of long-term structural character. In the 1990s a big state-owned farm employing 500 people from Lutowska and the neighbouring communes was closed, then the Forest Superintendencies cut the number of their employees by 300. These were the only significant employers in that area. Such job losses caused the migration of young people seeking job opportunities both abroad and to big cities in Poland. Long-term unemployment (formal and informal) of a large share of the population results in a very low purchasing power and limited demand for the goods and services provided by local small business. At present women are offered only seasonal jobs connected with forest care. Lutowska is classified as a commune of developed tourism function, but this function is not developed enough to prevent high and long-lasting female unemployment. This is partly due to the fact that tourism in that area is only a seasonal activity. The case study of Lutowska commune is an example that illustrates the most common reasons for female unemployment, reflecting the situation in the majority of surveyed ‘problematic’ LAU2 regions.

Discussion

During the period 2008–2012 there has been, according to official statistics, both a continuing increase in female unemployment rates and a significant unemployment gender gap in rural areas of Poland. However, the real extent of female unemployment is evaluated by the local authorities interviewed in this study to be much higher than the official level.

Both the post-1990 economic and social transition and recent economic and social conditions have caused a polarisation of local labour markets. Female unemployment rates and the gender gap are both less favourable in rural peripheral areas than in rural suburban areas. In most surveyed rural labour markets in peripheral areas there are fewer job offers

for women than for men, so women living in these areas are more vulnerable to negative changes in local labour markets and to unemployment. Furthermore, although female and male unemployment have similar causes, in Poland as in other countries (e.g. Ollikainen, 2003; Ollikainen, 2006; Lauerová and Terrell, 2007 and Dănăciă, 2012) unemployment affects men and women differently as a consequence of their different social roles. The survey results suggest that in recent years there has been no significant change in women’s roles in child care and in families as compared to the earlier findings of Bardasi and Monfardini (2004), Heinen and Wator (2006), Drejerska (2008) and Drejerska (2009). Thus while men can often seek job opportunities in non-local labour markets, most rural women with children continue to

be more bound to their place of living and are dependent only on local job opportunities. Rural women living in suburban areas have more job opportunities due to the possibility of commuting to the city than is the case in peripheral rural areas.

By contrast, the group of unemployed single women is in a different situation, as the absence of childcare responsibilities allows them to be more mobile and able to migrate from rural areas, often for a long-term or permanent stay. Out-migration of the (especially young) female labour force is an important factor in the correct interpretation of changes in female unemployment rates and the gender gap. Local authorities of 'problematic' communes stress that the decreases in rural female unemployment rates and in gender gaps recorded in official statistics do not necessarily imply increases in female employment and improvements in job opportunities in local labour markets as might be assumed. On the contrary, they may result from such a worsening of conditions that the unemployed move away, seeking a job mostly in the big Polish cities or abroad (Rakowska, 2012), and intending to stay there not temporarily, but for a longer period. In such cases the communes face not only still unsolved, although statistically lower, female unemployment but also a loss of demographic capital, as female out-migration can cause a significant gender imbalance in the younger working age population. It shows that not only have the economic and social problems arising from the transition process not been solved but that they have in fact increased and become a cause of other negative phenomena such as demographic decline. Rural areas affected by such phenomenon should also be identified as 'problematic'.

As among the most common reasons for unemployment are those resulting from the process of economic transformation (i.e. liquidation of state-owned farms not followed by any new job opportunities, peripheral location not attractive for external (out-of-commune) investors, lack of entrepreneurial skills, experience and finances to start own businesses, low income or poverty of inhabitants significantly limiting the purchase of goods and services, thus limiting the demand that could be met by local SMEs, and liquidation of enterprises, quite often the only employers in the commune), the role of local authorities in reducing female unemployment, and also total unemployment, is limited. What local authorities in Poland can do is determined by the law: regulations strictly define their duties and responsibilities and most of all the principles and aims of spending budget funds. Still they can realise projects supported by EU Structural Funds that are aimed at activation of rural women in the labour market, provided that the implemented programmes are devised according to local needs.

In this context the identification of 'problematic' rural communes and their local experiences, as well as the correct interpretation of statistical changes, is necessary to better understand the factors and processes that influence rural employment and unemployment as key elements in elaborating future well-targeted rural development policies in line with the EU's Europe 2020 Strategy. Recognition of local experience and accommodation of this knowledge in strategies may – as Copus *et al.* (2011) observe – increase the effectiveness of such policies.

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References

- Bakas, D. and Papapetrou, E. (2013): Unemployment by Gender: Evidence from EU Countries, *International Advances in Economic Research on-line* <http://dx.doi.org/10.1007/s11294-013-9423-2>
- Bardasi, E. and Monfardini, C. (2004): *Women's Employment, Children and Transition: An Empirical Analysis on Poland*. Ezoneplus Working Paper No. 25. Berlin: Freie Universität Berlin.
- Braithwaite, M. (1996): Women, equal opportunities and rural development. *Equal partners in development. LEADER Magazine* 5/96.
- Copus, K., Shucksmith, M., Dax, T. and Meredith, D. (2011): Cohesion Policy for rural areas after 2013. A rationale derived from the EDORA project (European Development Opportunities in Rural Areas) – ESPON 2013. *Studies in Agricultural Economics* **113** (2), 121-132. <http://dx.doi.org/10.7896/j.1113>
- CSO (2012): Registered Unemployment. I-IV Quarter. Statistical Information and Elaboration. Warszawa: Central Statistical Office of Poland.
- Dănăciă, D.-E. (2012): Unemployment Duration and Exit States of Women in Romania and Hungary. *Proceedings of FIKUSZ 2012 Symposium for Young Researchers*, 47-67.
- Dh  ret, C., Lazarowicz, A., Nicoli, F., Pascouau, Y. and Zuleeg, F. (2013): Making progress towards the completion of the Single European Labour Market. EPC Issue Paper No. 75. Brussel: European Policy Centre.
- Drejska, N. (2008): *Badanie kobiet na rynku pracy [Women in the labour market]*, in J. Sawicka (ed.) *Sytuacja kobiet wiejskich na rynku pracy: badania empiryczne. [Situation of Rural Women in the Labour Market. Empirical Study]*. Warszawa: Wi   Jutra, 59-95.
- Drejska, N. (2009): *Aktywno   ekonomiczna mieszka  c   wsi – ujęcie modelowe na podstawie bada   wlasnych [Economic activity of the rural population - a model approach based on individual research]*. *Acta Scientiarum Polonorum. Oeconomia* **8** (4), 23-34.
- EC (2008): *Poverty and Social Exclusion in Rural Areas*. Brussel: European Commission.
- EC (2010): *EUROPE 2020: A strategy for smart, sustainable and inclusive growth. COM(2010) 2020 final*. Brussel: European Commission.
- EC (2012): *Annual Update of the Degree of Urbanisation Due to Changes in the LAU Boundaries*. Brussel: European Commission.
- European Council (2013a): *Joint Employment Report*. 6799/13. Brussel: Council of the European Union.
- European Council (2013b): *Recommendation for a Council recommendation on Poland's 2013 national reform programme and delivering a Council opinion on Poland's convergence programme for 2012-2016*. 10648/1/13 REV 1. Brussel: Council of the European Union.
- Eurostat (2011): *The new degree of urbanisation*. Brussel: European Commission.
- Heinen, J. and Wator, M. (2006): *Child Care in Poland before, during and after the Transition: Still a Women's Business*. *Social Politics* **13** (2), 189-216. <http://dx.doi.org/10.1093/sp/jxj008>

- Komornicki, T. and Śleszyński, P. (2008): Struktura funkcjonalna gmin a postępy w pracach planistycznych (2004–2006) [Functional Structure of Communities and Planning Works Advancement (2004-2006)]. *Studia Regionalne i Lokalne* **3** (33), 53-75.
- Krogh, E., Hansen, T.N., Wendt, S. and Elkjaer, M. (2009): Promoting Employment for Women as a Strategy for Poverty Reduction, in: *Promoting Pro-Poor Growth: Employment*. Paris: OECD, 133-147.
- Lauerová, J.S. and Terrell, K. (2007): What Drives Gender Differences in Unemployment? *Comparative Economic Studies* **49**, 128-155. <http://dx.doi.org/10.1057/palgrave.ces.8100192>
- MARD (2010): Kierunki rozwoju obszarów wiejskich. Założenia do "Strategii zrównoważonego rozwoju wsi i rolnictwa" [Directions of Rural Development. Assumptions for 'Strategy of Sustainable Rural Development']. Warszawa: Ministry of Agriculture and Rural Development.
- MRD (2009): Strategia Rozwoju Regionalnego 2010-2020: Regiony, Miasta, Obszary Wiejskie [Strategy of Regional Development 2010-2020: Regions, Cities, Rural Areas]. Warszawa: Ministry of Regional Development.
- Ollikainen, V. (2003): The Determinants of Unemployment Duration by Gender in Finland. VATT Discussion Paper 316. Helsinki: Valtion taloudellinen tutkimuskeskus.
- Ollikainen, V. (2006): Gender Differences in Unemployment in Finland. *Jyväskylä Studies in Business and Economics* 51. Jyväskylä: University of Jyväskylä.
- Pedersen, P.J. and Schmidt, T.D. (2010): What is unemployment in Europe? Concepts and measurement in the European community household panel. *Empirical Economics* **40**, 705-728. <http://dx.doi.org/10.1007/s00181-010-0351-1>
- Rakowska, J. (2011): Development Prospects for Rural Areas against Changing Concepts of Regional Policy in Poland. Paper presented at the conference Development Prospects of Rural Areas Lagging Behind in the CEE Region, Szent István University, Gödöllő, Hungary, 24-26 May 2011.
- Rakowska, J. (2012): Selected Aspects of Registered Unemployment in Rural Areas in Poland 2009-2011. *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu* **14** (6), 236-241.
- Rakowska, J. (2013): Klasyfikacje obszarów – kryteria, definicje, metody delimitacji. Studium metodyczno-statystyczne [Classifications areas - criteria, definitions, methods of delimitation. Methodological and statistical study]. Warszawa: Wieś Jutra.
- Sawicka, J. (ed.) (2008): Sytuacja kobiet wiejskich na rynku pracy: badania empiryczne [Situation of Rural Women in the Labour Market. Empirical Study]. Warszawa: Wieś Jutra.

KATONA KOVÁCS Judit*

Where to put the focus in rural development: changing the focus from funding to learning

Since Hungary's accession to the European Union (EU) most of the actions in rural areas have complied with the regulations of the funding programmes of the EU's Common Agricultural Policy. The purpose of this paper is to demonstrate why the focus of actions has to be changed from funding to learning. The paper is structured as follows. In the introduction, the author explains, in the light of her research experience since 2001, why a change in focus is needed. The main body of the paper shows how the need for this change can be explained from different perspectives. Firstly, structural change in the economy is given as a reason. Secondly, the need for change is explained from the concept of neo-endogenous rural development, i.e. the interplay between local and external forces. Finally the reason for shifting the focus from funding to learning is explained in terms of the endogenous and exogenous factors influencing rural development, based on the framework developed by the EU Framework 7 project 'RuralJobs'. The paper concludes with some examples of the types of tools that have already been used and actions that should be implemented to achieve this change in focus.

Keywords: change in focus, rural development, strategic learning, why-how-what

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Why is a change in the focus of rural development needed?

Sinek (2009) pointed out that the first question addressed by successful entrepreneurs when establishing their companies is, why should the enterprise be created, what is the purpose of it? With the outcome of a conversation with an academic colleague in mind, that even scientific papers have a story to tell, the author has structured this paper in line with the 'golden circle' approach of Sinek (2009), namely asking why, then how and then what?

At the beginning of her research career in rural development, the author examined the role of the European Union's (EU) Common Agricultural Policy (CAP) in Hungary, with special regard to agri-environmental management. As this research was linked to policy regulations it was in rather a 'top down' direction, examining the effects of selected tools such as agri-environmental measures, direct payments and the LEADER approach. The experience gained during this period (2001-2006) redirected the interest of the author to human and social capital. Examination of sustainability, resilience and system thinking has become a basic element in her work.

Acceptance by agriculture that corporate social responsibility is a pre-condition for the licence to produce is now an established societal demand. Production methods that have regard for the planet and people as well as profit have become a 'must' for the food industry (Slingerland and Rabbinge, 2009). The author keeps in mind the three dimensions of sustainability (nature, society and economy), in which nature creates the frame, the limits of growth, and society is understood to be part of it. Each human being, as an individual part of society, has his/her responsibility and has to understand the system he/she lives in. This is very important because, as Senge (2011) points out, people do not believe that they influence the future, while Johnson (2013), in line with Meier (2005), states that our future is based on how we as individuals live and talk today.

In Hungary, human and social resources, which play an

important role in the rural economy, show a great deficit (Katona Kovács, 2006a). Appreciating the importance of human and social capital and their deficit in the North Great Plain NUTS 2 region where she lives, the author is looking for ways to increase these resources. This is the first and most important answer to the *why* question.

Since 2006 the author's research work has sought answers to how human and social capital could be increased in local economies, as key factors for future development, even in the improvement of agri-environment management. Although there are good examples of changes generated through policy instruments, such as the LEADER programme (ÖIR, 2004), instead of trying to form or to increase human and social capital via 'top down' policy mechanisms, while keeping the importance of these instruments in mind, the author is looking for 'bottom-up' tools and participatory actions. This preference is based on an increasing body of evidence. For example, Dam *et al.* (2009) explore the transition of societal organisation from heavy reliance on the state towards self-organisation by citizens in communities. They note that private citizens are increasingly expected to take responsibility for the direction of their own lives. The success of the LEADER programme also comes from the space it gives for bottom-up approaches, for partnership and co-creation. Based on the model elaborated by Lukesch (2007), Katona Kovács *et al.* (2011) examined, from the three modes of operation offered by the model (animating actions, structuring actions and consolidating actions), the types of activities of the Local Action Groups (LAGs) in the North Great Plain region. Their results demonstrate the importance of animating actions amongst the LAGs in the region. In this region the level of governance is such that "the ability of people to articulate their common needs is the starting point for many innovations ... It is the only point where we can speak about development programmes in the strict sense" (Lukesch, 2007, p.16). Today animating actions are the most needed operations in the North Great Plain region, so as to encourage different actors to work together and experience the results of common thinking. Dialogue about the common needs is an important first step to help the development of local communities. OECD (2007) recognises that

rural development has gained strength through LAGs, adding to the numbers of those responsible for rural areas. This 'bottom-up' orientation of research into the development of human and social capital is the second answer to the question *why* the author believes a change in the focus is needed.

Looking for an approach that would help to increase human and social capital, in 2011 the author became a member of the 'Tiimiakatemia Debrecen', implementing a new education model from Finland. Tiimiakatemia education is an innovative Finnish model founded in 1993 by Johannes Partenen that develops team entrepreneurs (Tiimiakatemia, 2011). Tiimiakatemia is based on a learning triangle: theory, learning by doing, and team learning. An important part of the education is creating individual learning contracts (after Cunningham, 1999) with students in which they answer the following questions: Where have I been? (learning history); Where am I now? Where am I going? (future goals); How do I get there? How do I know I have reached the goals? The knowledge gained by the author since entering this system gives the final answer to *why*. The most important lesson from team coaching at Tiimiakatemia and translating this knowledge to rural development is that residents are those who have the greatest responsibility for the success of their region, so they themselves have to look for and find answers for their own future.

In summary, the reason why the focus in rural development has to be changed is that the answer for the future of rural regions has to be given by those living in these regions.

How can the need for changing the focus be explained?

This part of the paper explains the need for changing the focus from different perspectives. Firstly, structural change in the economy is given as a reason. Secondly, the need for change is explained from the concept of neo-endogenous rural development, i.e. the interplay between local and external forces. Finally, shifting the focus from funding to learning is explained in terms of the endogenous and exogenous factors influencing rural development, based on the framework developed by Sabau and Paquet (2009).

Structural change in the economy

The service sector employs 60-80 per cent of the economically active population of the industrialised countries. The main defining characteristic of this extremely broad category is that it covers activities which are neither industrial nor agricultural and which, despite their diversity, do not involve any tangible product. Information and communication play vital roles in many services that are defined primarily in terms of the interpersonal relationships involved. Examples of this are found both in the rapidly expanding private service sector which is benefiting from the growing complexity of economies and in the public sector. The growing service sector needs people with good social and communication skills – skills that UNESCO (2013) observes are not necessarily taught at school or university.

Marquardt (2011) defines the eight most significant forces that have changed the business world and necessitate company-wide learning in the twenty-first century as: globalisation and the global economy; technology and the Internet; radical transformation of the world of work; increased customer power; emergence of knowledge and learning as major organisational assets (workforce moving from manufacturing to mentofacturing); changing roles and expectations of workers; workplace diversity and mobility; and rapidly escalating change and chaos. Pink (2009) characterises the process of socio-economic change as follows: the *Agricultural Age* (farmers); the *Industrial Age* (factory workers); the *Information Age* (knowledge workers); and the *Conceptual Age* (creators and empathisers).

Anderson (2012) describes the process of change as follows: "Globalization and communications 'flattened' the world once, drawing manufacturing to low-cost labour in the developing world, a process first observed in the nineteenth century by David Ricardo as the triumph of 'comparative advantage'. Now we are 'flattening' it again, but along a different dimension. Thanks to automation, labour costs are a small and shrinking fraction of the cost of making something. Other factors, from transportation costs to time, start to matter more. ... Industrial robots are getting cheaper all the time, while humans are getting more expensive. ... On the product-development side, the Maker Movement tilts the balance toward the cultures with the best innovation model. Societies that have embraced 'co-creation', or community-based development, win. They are unbeatable for finding and harnessing the best talent and more motivated people in any domain. Look for the countries where the most vibrant Web communities flourish. Those are the values that predict success in any twenty-first century market. Good ideas can come from anywhere and take the world by storm. More innovation, in more places, from more people, focused on more narrow niches" (pp.227-228).

These structural changes are also present in agriculture. For example, in 2000 a new vision for the Dutch agricultural sector was presented by the Ministry of Agriculture. It proposed that food production should no longer focus on farming alone, but on the whole agro-food chain from primary producer to consumer. It also re-defined 'green' as being more than our natural heritage, encompassing quality of life, living conditions, recreation, open space, undistributed areas and water resources as well (Rabbinge and Slingerland, 2009).

Agriculture provides different products: food, feed, fibre, fuel, feeling (public goods, experiences), pharmaceuticals etc., the so called 'F's, and a significant proportion of the personal consumption expenditure on 'F's pays for activities that take place beyond the farm gate. The information technology revolution, as part of the knowledge-based society, prompts new ideas in agriculture as well as in business. To combine business and culture is also a part of this process and the results of the EU Interreg IVC project 'Creative Growth' highlighted development of the creative sector as one of the drivers of the emerging knowledge economy (Creative Growth, 2011).

An understanding of the complexity of agriculture (Figure 1) and the wide range of actors with different expertise

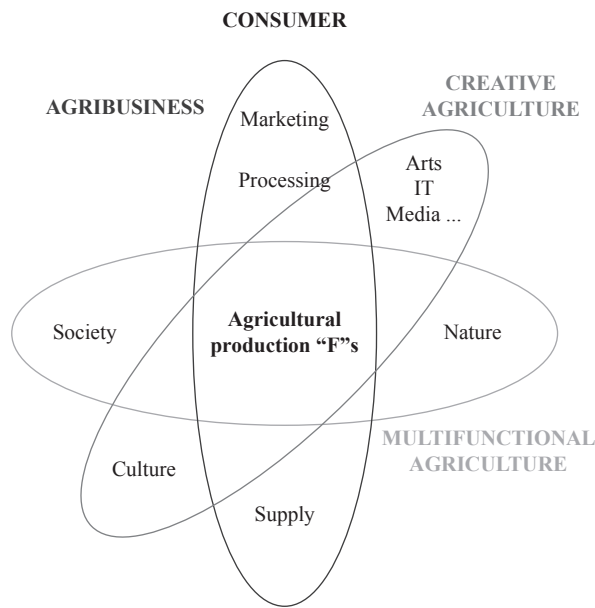


Figure 1: Complex system linked to agriculture.

Source: Katona Kovács and Bóta-Horváth (2012)

linked to it allows us to see why a learning organisation and an emphasis on learning is needed. Bearing in mind the possibilities these different dimensions (vertical, horizontal and transverse) give and the knowledge they need, rural ‘teampreneurship’¹ has to be a possibility for development in the future.

The Oivallus study on how education can best prepare students for working life in the 2020s points out that in the future projects will involve varying combinations of people

¹ Members of Tiimiakatemia defined teampreneurship as ‘a form of entrepreneurship in which an individual entrepreneur works and learns in a team that is composed of peers’.

(CFI, 2011). A team needs strong basic competencies and lots of desire to try out the new, i.e. to improvise. Working as a network (or a band), learning from one another and building on the ideas of others are skills that need practising. What is crucial for success is how well different experts work together. Marquardt (2011) states that “companies that do not become learning organisations will soon go the way of dinosaur; they will die out because they were unable to adjust to the changing environment” (p.vii). In a globalised economy, rural businesses access markets, customers and suppliers beyond their localities as well as within, reflecting a greater diversity in ways of doing business. The ‘new rural economy’ therefore needs new infrastructure to support it. The rebalancing within rural economies away from traditional rural sectors towards the more knowledge intensive sectors and the service economy has also been the focus of government policy in, for example, England (Cowie *et al.*, 2013).

Neo-endogenous rural development

In the literature, the concept of rural development has evolved over time (Terluin and Post, 1999). Relatively recently, the concept of neo-endogenous rural development has gained ground, in which the control of the process is recognised as an interplay between local and external forces. Van der Ploeg *et al.* (2008) suggest that ‘endogeneity’ refers to the degree in which a regional economy is grounded on regionally specific resources and simultaneously develops them. They hypothesise that the more endogeneity there is in a regional economy, the higher the competitive advantage of the region concerned will be. To take advantage of the interplay between local and external forces, activating human resources (also as regionally specific resource) is an

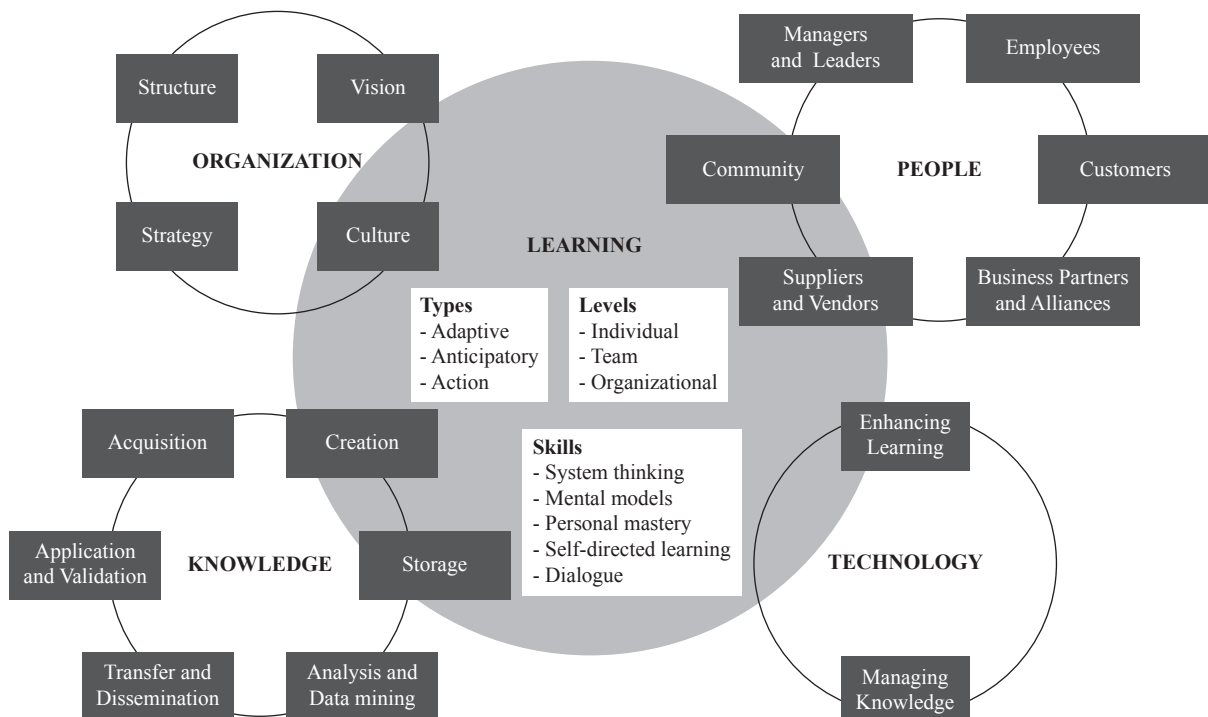


Figure 2: The systems learning organisation model.

Source: Marquardt (2011)

important task at the local level. This fits with the UNESCO (2013) recommendation that education should be brought into endogenous growth by strengthening local potential and the spirit of empowerment.

Nemes and High (2013) show that the content and actors of knowledge transfer have changed radically over time. Much of the knowledge and information that is required today for sustainable rural development is rather complex, and impossible to create and distribute in traditional ways. At the same time a whole range of network-based, bottom-up institutions are emerging, especially in the field of sustainable agriculture and rural development. These are filling (or could potentially fill) many of the information and organisational gaps.

Looking at the need for change from the direction of neo-endogenous development and learning to consider endogeneity, local values are very important. Noticing the values around us is not easy task. There is a phenomenon that in social psychology is called Hedonic Adaptation, which means that human beings are very good at getting accustomed to positive changes, especially in their lives (Lubamaerski, 2013). For example, open space and silence are often not determined as being of value to rural people, but they are 'services' for which citizens from urban areas are ready to pay. Flanders (2013) draws attention to transparency around values. She also notes that people need to be well informed about what is happening where they live and how it relates to what is going on around them. People need to get to know each other and be shown a way to respond to the challenges they face. As the control of the process is an interplay between local and external forces, learning the skills of dialogue and system thinking is also very important. Localities must become learning organisations. Marquardt (2011) defines five subsystems necessary to sustain viable, ongoing organisational learning (Figure 2). The organisation, people, knowledge, and technology subsystems are necessary to enhance and augment learning. The five subsystems are dynamically interrelated and complement one another. If any one subsystem is weak or absent, the others will be significantly compromised.

Endogenous factors influencing rural development

DfID (1999) grouped resources of rural regions into five categories, namely natural, human, social, physical and financial capital. Sabau and Paquet (2009) listed these as purely endogenous factors influencing rural development. Linking these resources to the three dimensions of sustainability, it can be suggested that: (a) *Natural* capital is linked to the *environmental* dimension; (b) *Human* and *social* capitals are linked to the *social* dimension; and (c) *Physical* and *financial* capitals belong to the *economic* dimension. Understanding the environmental dimension as the *frame* of development, which has to be recognised and taken into account, and the economic dimension and its capitals (physical and financial) as *products* of the social dimension, the most important resources for enhancing the development of rural regions are those of the social dimension, namely human and social capital. Haase Svendsen *et*

al. (2010), show that both tangible and intangible capital are being perpetually accumulated and converted by individuals in social 'games'. They also note that if a person or a group succeeds in accumulating the right mix of capital, he/they can simply rule their surroundings.

Human resources

In Hungary 56.4 per cent of the funding earmarked for the establishment of microenterprises was redirected to other measures of the 2007-2013 Rural Development Programme because of lack of interest (ASz, 2012). Is redirection the best answer here, or would it be better to find ways to help local people to become entrepreneurs? What Marquardt (2011) says about companies could also be true for rural regions: "Brainpower is becoming a company's most valuable asset, which creates a competitive edge in the marketplace. We are challenged to find and use it" (p.12). If we accept human capital as the most important resource of rural development, it has to be developed and space for active citizenship has to be created. The NEF (2013) approach to wellbeing, namely: *connect, be active, keep learning, take notice, and give*, illustrates that the wellbeing of rural inhabitants could be improved through the development of human capital.

Finally, Pink (2009) writes that societies, like computers, have operating systems – a set of mostly invisible instructions and protocols on which everything runs:

- *Motivation 1.0*, the first human operating system was all about survival. There are biological drives here like, hunger, thirst and sex;
- *Motivation 2.0* was built around external rewards and punishment that worked fine for routine tasks. 'If-then' rewards can be effective for rule-based routine tasks – because there is little intrinsic motivation to undermine and not much creativity to crush. A long-recognised drive to respond – reward and punishment. Rewards by their very nature narrow our focus;
- *Motivation 3.0*, the upgrade that is necessary for the smooth functioning of 21st century business. We need to upgrade autonomy, mastery and purpose. This third drive is called *intrinsic motivation*.

Type I behaviour (intrinsic motivation) has three elements: *autonomy*, the desire to direct our own lives to be self-directed; *mastery*, the urge to make progress and get better at something that matters, get better at what we do; and *purpose*, yearning to contribute and to be part of something larger than ourselves. Mérő (2010) makes the point that self-actualisation or mastery, as mentioned also by Pink (2009), can be a need not only for humans at the top of the hierarchical pyramid, but for those at a lower level as well. These results linked to human capital also underline the importance of empowering local people to find their personal mastery, the purpose of their life and their vision about their region. Through the development of human capital entrepreneurship, one of the scarcest resources in rural areas (ASz, 2012), could also be improved.

Social resources

Wiesinger *et al.* (2008) clearly point out the importance of social capital in rural development dynamics and suggest that it should be more recognised by policy-makers as a key factor in the development process. After extensively reviewing the literature on social capital during her PhD research (Katona Kovács, 2006b) the author adopted the definition for social capital used by Štulhofer (2000), namely that it has three, strongly connected elements: trust, keeping norms and social relations. During discussions about the meaning of social capital with Finnish partners of the Tiimiakatemia Learning Network (TALN), a new element was added, this is truth/honesty. Before incorporating this new element, a question for the author was which of the three above-mentioned elements is the most important and/or the first needed to build social capital? The answer of Tinggaard Svendsen and Haase Svendsen (2009) to this question is that, in the diversity of conceptions of social capital, social capital research should be carried out by operationalising social capital as trust. This fourth element – honesty – provided an answer for the author to this question: communicating the truth is a first step in building social capital. That is the reason why social capital is generated from human capital and understood as the second most important resource which has to be developed in rural areas. Wellbeing is also related to strong social capital via the *connecting* and *giving* components of the NEF (2013) definition and the *positive relationships* element identified by Seligman (2011)².

Following Marquardt (2011), there are different levels of learning (Figure 2), meaning that strong social capital means higher levels of learning as well. Stronger social capital gives more space for knowledge creation and innovation too. The potential for innovation appears to increase when a number of conditions are met. These include the creation of heterogeneous groups of stakeholders and unlikely coalitions (to provide spontaneous, mostly novel, perspectives on challenges or problems); the development of mutual trust and social cohesion (openness, honesty and transparency); a communal vision of the future (ownership); and good process management (facilitation utilising a range of creative work methods and inspiring environments for joint learning) (Vogelezang *et al.*, 2009).

Influencing factors with exogenous and endogenous components

The rural development framework developed by Sabau and Paquiel (2009) lists five factors with both exogenous and endogenous components (i.e. they exist both within and outside the territory), namely: government, market, knowledge centres, cultural assets and investors. The first three of these factors are examined here.

Government

In terms of government, since Hungary's accession to the EU in 2004, the approach to rural development in the country has been mainly support oriented, meaning that most of the actions in rural areas have complied with the regulations of the funding programmes of the CAP. EU Member States have to set up rural development programmes to disburse the funding from Pillar 2 of the CAP, which accounts only for about 20 per cent of the CAP budget. This Pillar requires co-finance and a lot of administration work from applicants. The LEADER programme, as part of Pillar 2, addresses a wider range of actors in rural regions (not only farmers) and, through the development of own strategies of local regions co-created by different local actors, encourages an increase in social capital, but accounts for only 1 per cent of the CAP budget and has the highest administrative burden. Meanwhile, Pillar 1, with the dominance of direct payments, accounts for around 80 per cent of the CAP budget and the funding is much easier for farmers to apply for. The results of an analysis of the Hungarian Single Area Payment Scheme database for 2005 (Katona Kovács, 2008) tended to support those of Dax (2006) who reported that Pillar 1 support is distributed in a way that tends to benefit richer regions with larger farms. Instead of extractive ownership with a financial purpose: maximising profit, Kelly (2012) sets out a vision of generative ownership with a living purpose: creating the conditions for life.

Market

Turning from the government factor to the market factor, the EU budget accounts for only around 1 per cent of the GDP of the EU-27, while in 2007 the final consumption expenditure of households was estimated to be 56.4 per cent of the GDP (Eurostat, 2009). As mentioned earlier Marquardt (2011) also underlined increased customer power as a significant force creating change in the 21st century. Senge (1990) noted that most of the problems faced by humankind concern our inability to grasp and manage the increasingly complex systems of our world. Problems were 'actuality systems' that lured policymakers into interventions that focused on the symptoms and not the underlying causes, thereby producing short-term benefits but long-term malaise. As the final expenditure of households accounts for such a high percentage of the GDP, and customer power is a significant force for change, as pointed out by Marquardt (2011), what is important to business owners and consumers alike is that there should be transparency around values (Flanders, 2013). Consumers should understand their role and the effects of their consumption patterns in the local economy.

Knowledge centres

The change linked to the factor of knowledge centres also explains the need for learning. The EU Framework 7 project SOLINSA defined 'Learning and Innovation Networks for Sustainable Agriculture' (LINSAs) as 'networks of producers, consumers, experts, NGOs, SMEs, local administrations and components of the formal Agricultural Knowledge and

² Seligman (2011) proposes that wellbeing has five elements: *positive emotion* (be happy), *engagement* (being engaged with what you are doing), *meaning* (having a sense of meaning or larger purpose in your life), *positive relationships* (having good relationships with others) and *accomplishment* (feeling that you are achieving your goals).

Innovation Systems (AKIS) that are mutually engaged with common goals for sustainable agriculture and rural development – cooperating, sharing resources and co-producing new knowledge by creating conditions for communication’ (Brunori *et al.*, 2011). These networks operate on the principle of sharing knowledge and learning. They benefit from a new approach to learning which involves exchange and feedback loops between research, extension and practice, rather than the ‘linear’ transfer of knowledge, as in the case of the conventional AKIS (see also Nemes and High, 2013). Fieldsend and Székely (2013) suggest that the present system in Hungary does not adequately reflect the needs of potential users, especially as these needs evolve over time. The ‘bottom-up’ approach of consulting with users (i.e. farmers) on their needs remains an important component of achieving an efficient and effective AKIS.

What steps could be taken to change the focus?

The previous part of this paper highlighted the importance of learning from different directions such as structural change in the economy, neo-endogenous rural development, and endogenous and exogenous factors influencing rural development. In this last section the author would like to draw the reader’s attention to some actions which are already putting the focus on learning and introduce the outlines of a project proposal of TALN on rural teampreneurship, creating a social and physical environment for learning and co-creation. In line with neo-endogenous rural development these already existing actions supporting learning are also an interplay between local and external forces, at the moment with more external, or ‘pushing’ elements. Shifting the focus from funding to learning could bring a change defined as ‘The Power of Pull’ (Hagel *et al.*, 2012). Instead of ‘pushing’ (designing the funding system and using standardised processes) ‘pull’ is about expanding our awareness of what is possible, mastering new practices and taking new actions to realise possibilities. The challenge is how actions in the direction of learning with higher endogenous, or ‘pull factors’ could be generated.

Already existing learning supporting actions

The European Commission’s Europe 2020 strategy (EC, 2010) for delivering growth that is smart, sustainable and inclusive also focuses on learning. According to the strategy ‘smart’ growth means improving the EU’s performance in *education* (encouraging people to learn, study and update their skills); *research/innovation* (creating new products/services that generate growth and jobs and help address social challenges); and the *digital society* (using information and communication technologies).

UNESCO (2013) bases life-long learning on the four pillars of education (learning to *know*, learning to *do*, learning to *live together*, and learning to *be*) and states that these four pillars cannot be anchored solely in one phase in a person’s life or in a single place. There is a need to re-think when in

people’s lives education should be provided, and the fields that such education should cover. These periods and fields should complement each other and be interrelated in such a way that all people can get the most out of their own specific educational environment throughout their lives.

At Wageningen University and Research Centre (WUR) the hierarchical structure has been replaced by a network structure. WUR is called a ‘third generation’ university and its strength is determined by three characteristics: firstly the internal coherence which comes as a result of the generally accepted vision and mission of the university; secondly the flexibility, but nonetheless stability of the institution’s finance; and thirdly the willingness and ability to work with partners from very varied backgrounds. A characteristic of third generation universities is their collaboration with private sector parties and WUR focuses on a more participatory model of knowledge creation. Alongside these changes the Dutch Ministry of Agriculture stopped subsidising experimental farms and gardens in 1996 to force farmers and their representatives to take more responsibility for the research by co-funding it themselves (van den Berg, cited by Rabbinge and Slingerland, 2009).

To answer emerging challenges through the knowledge needs of sustainable agriculture, many kinds of network-based alternatives have appeared in Europe. Some (such as LINSAs) have emerged within existing research and extension services, others were commercial, or bottom-up NGO types of initiatives. A good example is Open Source Ecology (<http://opensourceecology.org/>). This network of farmers, engineers and supporters is enabling the easy fabrication of the 50 different industrial machines that it believes are necessary to build a small, sustainable civilisation with modern comforts.

Massive open online courses (MOOCs), such as Coursera (<https://www.coursera.org/>), or edX (<https://www.edx.org/>) are good examples for ‘pull’ type of actions promoting learning. Coursera for example is an education company that partners with top universities and organisations to offer courses online for anyone to take, for free. Their aim is to empower people with education that will improve their lives, the lives of their families and the communities they live in.

Rural teampreneurship – a possible answer for endogenously generated learning support

With entrepreneurship being a scarce resource in rural areas some of the members of TALN (including the author) believe that ‘teampreneurs’ are crucial agents to bring change and innovation to local communities. TALN visualises industry in the 21st century as ‘teampreneur’ manu- and mentofacturing. In this sense, new approaches are needed to co-create a different development paradigm that is more smart, sustainable and inclusive, in which entrepreneurial dynamics will play a vital role. Brokering local and explicit knowledge, designing and testing new business opportunities with different stakeholders; promoting new combinations of resources and creating networks and open platforms for action are some of the challenges that rural areas will have to address.

Based on the methods used in Tiimiakatemia, TALN members from different parts of Europe are planning to create a project to develop a social and physical learning envi-

ronment for rural teampreneurship, following the three basic elements outlined by Keränen (2013): space and tools, facilitation and projects. For learning and innovation space in rural regions, Cowie *et al.* (2013) point out that rural enterprise hubs can be more than physical business spaces. They are capable of being key nodes in the flow of knowledge within the rural economy – both within the hub and between the hub and the wider economy. Ville Keränen from TALN, a former Finnish teampreneur in Tiimiakatemia, has put forward the idea of a Rural Design and Entrepreneurship School in a container (Keränen, 2013), an open learning and innovation space consisting of three basic elements as follows:

- The container is a place where there are tools to build prototypes and a media kit to broadcast ideas everywhere. That is the basis for a feeling that everything is possible;
- The facilitator's job is to give permission to think and act differently. Permission is given by building trust among the people. Different kinds of workshops, from brainstorming to photography and from prototyping to sales, are facilitated in order to inspire turning ideas into reality. Good facilitation gives the feeling that everything is possible;
- To think and act differently, projects are needed that excite people and find the optimal moment when the challenges and skills meet.

Creating an environment for learning, increasing the actions from such endogenous directions could help to: (a) create the space to understand learning as a responsibility for individuals themselves; (b) increase the self-confidence of local people; and (c) bring to the surface the already existing knowledge in rural regions. There is an increasing awareness of the importance of tacit knowledge as a process of learning and in this sense, the tacit knowledge that exists in rural areas must be accessible and open. It also demands community involvement and sharing, which is very important for building social capital. Rural enterprise hubs and rural design and entrepreneurship schools are not only tools or innovative approaches to learning, but also institutional innovations, which are a critical element for rural development within the Europe 2020 framework. In this sense, they can contribute to empower rural communities. Traditional system boundaries marking clear distinctions between urban and rural areas, between water and land, between industry and agriculture production, between policy makers and citizens, between scientist as knowledge creator and farmer as knowledge applier will disappear. A combination of functions and a combination of partners is needed to create this new society (Slingerland and Rabbinge, 2009). The social and physical learning environment that rural teampreneurship could generate could help to create this new society.

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References

- Anderson, C. (2012): *Makers: The New Industrial Revolution*. London: Random House.
- ASz (2012): Jelentés a vidékfejlesztési célkitűzések megvalósítására, a helyi közösségek szerepének megerősítésére fordított pénzeszközök felhasználása eredményességének és hatékonyságának, a vidéki életminőség javításában betöltött szerepének ellenőrzéséről [Report on implementation of the budget for the use of rural development objectives, strengthening the role of local communities earmarked for the effectiveness and efficiency of the control of the quality of life of rural role]. Report No. 1293. Budapest: Állami Számvevőszék.
- Brunori, G., Berti, G., Klerkx, L., Tisenkopfs, T., Roep, D., Moschitz, H., Home, R., Barjolle, D. and Curry, N. (2011): *Learning and innovation networks for sustainable agriculture: A conceptual framework*. SOLINSA Deliverable No. 1.
- CFI (2011): *Oviallus: Final report*. Helsinki: Confederation of Finnish Industries.
- Cowie, P., Thompson, N. and Rowe, F. (2013): *Honey Pots and Hives: Maximising the potential of rural enterprise hubs*. Centre for Rural Economy Research Report: Newcastle: CRE.
- Creative Growth (2011): *Homepage of the Interreg IVC project 'Creative Growth'* [www document]. <http://www.creative-growth.eu/> (accessed October 2011).
- Cunningham, I. (1999): *The Wisdom of Strategic Learning. The self managed learning solution* (2nd edition). Farnham: Gower Publishing.
- Dam, R., Eshuis, J. and Aarts, N. (2009): *Transition starts with people: self-organising communities ADM and Golf residence Dronten*, in K.J. Poppe, C. Termeer and M. Slingerland (eds), *Transition towards sustainable agriculture and food chain in peri-urban areas*. Wageningen: Wageningen Academic Publishers, 81-92.
- Dax, T. (2006): *The Territorial Dimension of CAP and Spatial Cohesion*. *EuroChoices* 5 (2), 12-19. <http://dx.doi.org/10.1111/j.1746-692X.2006.00029.x>
- DfID (1999): *Sustainable Livelihoods Guidance Sheets*. London: Department for International Development.
- EC (2010): *EUROPE 2020: A strategy for smart, sustainable and inclusive growth*. COM(2010) 2020 final. Brussel: European Commission.
- Eurostat (2009): *Consumers in Europe*. Brussel: European Union.
- Fieldsend, A.F. and Székely, E. (2013): *An assessment of agricultural knowledge and innovation system in Hungary*. *Rural Areas and Development Series* 10, 27-44.
- Flanders, L. (2013): *Welcome to Commonomics: How to Build Local Economies Strong Enough for Everyone* [www document]. http://www.yesmagazine.org/commonomics/welcome-to-commonomics-how-to-build-local-economies-strong-enough-for-everyone?utm_source=ytw20131004&utm_medium=email (accessed October 2013).
- Haase Svendsen, G.L., Kjeldsen, C. and Noe, E. (2010): *How do private entrepreneurs transform local social capital into economic capital? Four case studies from rural Denmark*. *The Journal of Socio-Economics* 39 (6), 631-644. <http://dx.doi.org/10.1016/j.socec.2010.06.012>
- Hagel III, J., Brown, J.S. and Davison, L. (2012): *The Power of Pull: How Small Moves, Smartly Made, Can Set Big Things in Motion*. Jackson TN, Basic Books.
- Johnson, B.D. (2013): *Vintage Tomorrows*. TEDx talk at TEDxDanubia [www document]. http://www.tedxanubia.com/hu-HU/TEDxDanubia_Talks/Brian_David_Johnson.aspx (accessed: September 2013).
- Katona Kovács, J. (2006a): *Agri-environmental management and rural development after the EU accession in Hungary*. *Apstract*

- 1 (1), 37-47.
- Katona Kovács, J. (2006b): Az agrár-környezetvédelem és a vidékfejlesztés összefüggései az Európai Unióhoz való csatlakozás tükrében [Agri-environmental management and rural development in Hungary in the context of EU accession]. Doctoral (PhD) dissertation. Debrecen: Debreceni Egyetem.
- Katona Kovács, J. (2008): The Effect of CAP Payments on Territorial Cohesion in the North Great Plain Region of Hungary, in Cs. Csáki and Cs. Forgács (eds), *Agricultural Economics and Transition: What was expected, what we observed, the lessons learned*. Proceedings of a joint IAAE-EAAE Seminar (Volume II), Corvinus University, Budapest, Hungary, 6-8 September 2007.
- Katona Kovács, J. and Bóta-Horváth, N. (2012): Rural Team-Entrepreneurs: An Answer to Innovative, Multi-Disciplinary Human Capital Education. *International Food and Agribusiness Management Review* 15 Special Issue A, 93-97.
- Katona Kovács, J., High, C. and Nemes, G. (2011): Importance of Animation Actions in the Operation of Hungarian Local Action Groups. *European Countryside* 4, 227-240.
- Kelly, M. (2012): *Owning Our Future: The Emerging Ownership Revolution. Journeys to a Generative Economy*. San Francisco CA: Berrett-Koehler.
- Keränen, V. (2013): Rural Design and Entrepreneurship School in a Container [www document] <http://www.slideshare.net/banana-dotfi> (accessed October 2013).
- Lubamaerski, S. (2013): Assigned video 6.1: This Emotional Life - Understanding Happiness. From a course in social psychology at Wesleyan University, Middletown CT.
- Lukesch, R. (2007): *The LAG-Handbook: A guide through the stunning world of local action groups*. Brussel: LEADER+ Observatory Contact Point.
- Marquardt, M.J. (2011): *Building the Learning Organization. Achieving Strategic Advantage through a Commitment to Learning*. Boston MA: Nicholas Brealey.
- Meier, D. (2005): *Team Coaching with Solution Circle. A Practical Guide to Solution Focused Team development*. London: Solutions Books.
- Mere, L. (2010): *Az érzelmek logikája [The logic of feelings]*. Budapest: Tericum Kiadó.
- NEF (2013): Our work: Well-being [www document]. <http://www.neweconomics.org/issues/entry/well-being> (accessed September 2013).
- Nemes, G. and High, C. (2013): Old institutions new challenges: the agriculture knowledge system in Hungary. *Studies in Agricultural Economics* 115 (2) 76-84. <http://dx.doi.org/10.7896/j.1303>
- OECD (2007): *OECD Rural Policy Review – Case Finland*. Background report for OECD. Helsinki: OECD.
- ÖIR (2004): *Methods for and Success of Mainstreaming Leader Innovations and Approach into Rural Development Programmes: Final Report*. Report commissioned by the European Commission. Wien: ÖIR-Managementdienste GmbH.
- Pink, D.H. (2009): *DRiVE: The Surprising Truth About What Motivates Us*. New York: Riverhead Books.
- van der Ploeg, J.D., Oostindie, H., Broekhuizen, R. van, Brunori, G., Sonnino, R., Knickel, K. and Tisenkopfs, T. (2008): *Towards a framework for understanding regional rural development*, in J.D. van der Ploeg and T. Marsden (eds), *Unfolding webs: The dynamics of regional rural development*. Assen: Van Gorcum.
- Rabbinge, R. and Slingerland, M. (2009): Change in knowledge infrastructure: the third generation university, in: *Transition towards sustainable agriculture and food chain in peri-urban areas*, in K.J. Poppe, C. Termeer and M. Slingerland (eds), *Transition towards sustainable agriculture and food chain in peri-urban areas*. Wageningen: Wageningen Academic Publishers, 51-62.
- Sabau, C. and Paquet, P. (2009): *The Rural Labour Market*. Deliverable 2.5. of the EU Framework 7 project 'RuralJobs'
- Seligman, M.E.P. (2011): *Flourish. A Visionary New Understanding of Happiness and Well-being*. New York: Atria Books.
- Senge, P.M. (1990): *The Fifth Discipline: The Art and Practice of the Learning Organisation*. London: Random House Business.
- Senge, P.M. (2011): Peter Senge congratulates Tiimiakatemia in Finland on its 15th birthday anniversary for achieving its vision of Top Unit of Entrepreneurship [www document]. <http://www.youtube.com/watch?v=qegtAuPLYEY> (accessed: March 2012).
- Sinek, S. (2009): How great leaders inspire action [www document]. http://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action.html (accessed July 2013).
- Slingerland, M. and Rabbinge, R. (2009): Introduction, in K.J. Poppe, C. Termeer and M. Slingerland (eds), *Transition towards sustainable agriculture and food chain in peri-urban areas*. Wageningen: Wageningen Academic Publishers, 13-24.
- Štulhofer, A. (2000): *Dynamics of social capital in Croatia 1995-1999*. Zagreb: University of Zagreb.
- Terluin, I.J. and Post, J.H. (1999): *Employment in leading and lagging rural regions of the EU: Summary report of the RUREM-PLO project*.
- Tiimiakatemia (2011): *Tiimiakatemia in a nutshell* [www document]. <http://www.tiimiakatemia.fi/en/tiimiakatemia/tiimiakatemia-nutshell/> (accessed October 2011).
- Tinggaard Svendsen, G. and Haase Svendsen, G.L. (2009): The troika of sociology, political science and economics, in G. Tinggaard Svendsen and G.L. Haase Svendsen (eds), *Handbook of Social Capital: The Troika of Sociology, Political Science and Economics*. Cheltenham: Edward Elgar Publishing, 1-16. <http://dx.doi.org/10.4337/9781848447486.00006>
- UNESCO (2013): *The Four Pillars of Education* [www document]. <http://www.unesco.org/delors/fourpil.htm> (accessed October 2013).
- Vogelezang, J., Wals, A., Mierlo, B. and Wijnands, F. (2009): *Learning in networks in Dutch agriculture: stimulating sustainable development through innovation and change*. In: *Transition towards sustainable agriculture and food chain in peri-urban areas*, in K.J. Poppe, C. Termeer and M. Slingerland (eds), *Transition towards sustainable agriculture and food chain in peri-urban areas*. Wageningen: Wageningen Academic Publishers, 93-111.
- Wiesinger, G., Vihinen, H., Tapio-Biström, M.-L. and Szabó, G. (2008): Social capital: a dynamic force against marginalisation? in F. Brouwer, T. van Rheenen, A. Elgersma and S. Dhillon (eds), *Sustainable Land Management: Strategies to Cope with the Marginalisation of Agriculture*. Cheltenham: Edward Elgar Publishing, 197-215.

KOVÁCS Dezső*

From mass production to a genuine rural experience economy: the case of the Villány wine region in Hungary

The transformation of wine regions is one of the few success stories in the Hungarian countryside since the political changes in 1989-90. This paper explores the features of the transformation process in the Villány wine region. Within two decades the region has gone through five developmental stages, from mass production to a genuine rural experience economy. Breaking with the socialist mass production practice, local wine makers focused on quality, resulting in improved wine quality and the introduction of wine tourism. Out of the difficult situation after the political changes – high unemployment, bankruptcy of former companies and forced entrepreneurship – the small scale producers who started new ways of production and cooperation have achieved considerable success for themselves and their communities. This study identifies the turning points and consecutive changes in the social and economic transformation of a wine community, its qualitative characteristics and consequences.

Keywords: quality wine, wine road, rural experience economy

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Introduction

Hungary is close to the northern border of viticulture. Although the whole country is suitable for wine production, the vineyards are mostly associated with the hilly and low mountainous areas. Hungary's wine growing area between 1853 and 1960 was about 200-250,000 ha, but during the past 50 years the area has decreased by about 60 per cent (KSH, 2013). Although the vine territories in Hungary have declined significantly, vine and wine production still plays an important role for people living in villages and small towns.

From the 1960s onwards (owing to collectivisation) small scale peasant household plots (0.1 or 0.5 ha) and large scale vineyards (from fifty to a few hundred or thousand hectares) represented the vine structure in the country. Individuals were allowed to cultivate less than 0.5 ha of vines but this represented a significant means for rural households to add to family incomes. The purpose of large-scale production was for domestic supply as well as for exports – including both to East and West. Within the COMECON¹ market it was quantity and not quality that counted (Bodnár, 1996); the better quality wines were sold for hard currency to the West for moderate prices.

Hungarian vineyards represent only 1 per cent of the world vine territory and about 1.5 per cent of the European vine territory. In 2009 there were 83,555 ha of vine plantations in the country (Benoist and Imre, 2010). The vast majority of vine territories belongs to 22 so called 'historical wine areas'² that usually have 600 to 6000 hectares of plantations. Two-thirds of the Hungarian vine area is covered by white wine varieties but by 2009 red grapes covered 29 per cent of the vine territory, an increase of 6 per cent since 2001. Over half (56 per cent) of the vineyards are only 10-20 years old. In 2009, four-fifths of the vineyards were classified as being well managed and in the Villány wine region this figure was 98 per cent (Benoist and Imre, 2010).

In relation to wine produced Hungary also has a low share – about 1-1.5 per cent – of global production which is about

1.5-2 per cent of the European wine output. About 3.5-5.4 million hectolitres of wine is produced annually (Radóczné Kocsis and Györe, 2006). Around 3.3 to 3.4 million of wine hectolitres is consumed and, according to official data, in 2011 per capita wine consumption stood at approximately 26 litres.

The political changes in 1989-90 led to a sharp turning point in the regime of grape and wine production. Transformation into producing for quality wines has occurred in each wine growing region over the past 20 years. In terms of quality wines, Hungary has not only *Tokaj* wine, but also several other high quality wines which deserve recognition (Copp, 2006).

Villány, the capital of the Villány wine region

The town of Villány with its population of 2,600 lies on southern slopes of the Villányi hills, a 30 km long and 7 km wide east-west limestone elevation in the southern part of Hungary. The area is often called the Hungarian Mediterranean because of its climate. The former village gained town status in 2000. Its population is moderately aging and decreasing in size. The economy of the town is based on viticulture and wine provides a living for the majority of the population. In Villány town the vine growing area is about 366 ha (Eco-Cortex, 2009). The town is the capital of the Villány wine region, with approximately 2,600 ha of vine growing territory which is defined by law. Seventeen villages and towns belong to the wine region including Harkány, a popular thermal bath and spa town, and Siklós, a small historic town with its famous castle.

Villány was inhabited during the Middle Ages but was depopulated during the Turkish occupation in the sixteenth and seventeenth centuries. After the Turks were driven out, Serbian and German settlers were invited to cultivate the abandoned land. The red wine production originates from them: the Serbs brought the *Kadarka* variety from the Balkans and the Germans brought the *Kékoportó* from Rheinland-Pfalz (Dezső *et al.*, 2004). Almost half (44 per cent) of the city population regards itself as of German origin and the German culture and traditions are still strongly felt. By the second half of the nineteenth century Villány had developed

¹ Council for Mutual Economic Assistance.

² Except the Kunság wine region on the Hungarian Great Plain which had 22,370 ha of vines in 2011.



Figure 1: Service providers of the Villány-Siklós wine road, 2013.

Source: Fonyódi Valéria

an important wine economy both on the large feudal estates and the small scale peasant holdings, but the phylloxera epidemic dating from 1875 set back development strongly. Zsigmond Teleki, a local breeder and winemaker, found a cure for the phylloxera pest in the clay soils (Laposa and Dékány, 2001).

The emergence of wine tourism and wine roads

Parallel with the progress in wine quality in the 1990s (Kramer, 2003), Getz (2000) and Hall *et al.* (2000) laid the foundations of the wine tourism and wine road literature. Getz (2000) viewed wine tourism as a ‘complete sensory experience’. His definition tries to capture the development and marketing aspects of wine tourism and not only the tourist experience. “Wine tourism is travel related to the appeal of wineries and wine country, a form of niche marketing and destination development, and an opportunity for direct sales and marketing on the part of the wine industry” (p.4). Hall *et al.* (2000, p.5) concluded that “Wine tourism is a concept and product that is still undergoing substantial development. The term wine tourism embraces two industries which each have substantial implications for regional economies, environments and lifestyles and which have been long entwined”.

Development of wine roads can be studied from different theoretical perspectives. One is Butler’s tourist area life cycle (Butler 1980). This concept describes the different phases of development in a tourist area in terms of time and the number of visitors. For rural tourism development based on Butler’s life cycle, Kovács (1998) introduced a different curve. Jurinčič and Bojnec (2011) studied the Goriska Brda wine district in Slovenia and also used the lifecycle method with four development stages to understand the positions of wineries in the district.

During the last decade the literature of wine tourism and wine roads has multiplied. Several case studies and country evaluations have been published from the Old and New World (Tassiopoulos *et al.*, 2004; Correia *et al.*, 2004; Carlsen, 2004; Zamora and Bravo, 2005; Getz and Brown, 2006; Zamora and Lacoste, 2007; Corrado and Odorici, 2009; Martinez Carrion and Medina Albaladejo, 2010). Szivas (1999) provided a short analysis about the start of

the wine tourism in Hungary. Nevertheless the observation of Getz (2000, p.5) is still valid: “Little if any research has been conducted on how the suppliers emerge and develop, and what is needed to facilitate growth and quality in this sector”. Coinciding with the 20th anniversary of the establishment of the Villány-Siklós Wine Road Association, this paper addresses this gap in the literature by means of an in-depth case study of the emergence of quality production in the renewed Villány wine region of Hungary.

Methodology

Different qualitative methods – interviews, participant observation, document and literature review – were used to explore the overall characteristics of the transformation of the wine region. This was not just technological, territorial, structural and organisational change, it was also an adjustment to new political and economic paradigms, to the rules of the market economy with all of its consequences.

The basis for the study was semi-structured interviews with local winemakers that focused on the professional development and career path of the winemakers and the establishment of their wineries. The first interviewees were selected according to the recognised role they played in the development of quality in winemaking and also their participation in the activities of the Villány-Siklós wine road, and further interviewees were identified using the snowball method. Altogether, 21 interviews were conducted between spring 2008 and 2010, and a further six after 2011. The interviews lasted one to two hours. They provided in-depth information (about changes, events and turning points in the winemakers’ lives, and about people who helped or hindered them) that is important in defining the stages of development for the individuals as well as for Villány. The statements of the paper refer mainly to Villány town and its winemakers but the Villány vintners have holdings in the whole wine region and the developments described in the study occurred across the whole region.

Other background information for the research included the minutes from town council meetings and the available statistics from the local area, literature about the emergence

of new family wineries and winemakers, and two decades of participant observation by the author through taking part in cultural and gastronomic events in the area. Informal discussions with rural tourism hosts between 2006 and 2008 on rural tourism trainings also provided valuable background information and insights into the lives of local people.

Results

The development phases of quality wine production in Villány

The development of wine tourism and quality production in Villány can be divided into five phases developing out of the qualitative changes and innovation in the previous period. The phases usually started with a symbolic event or special fact or the start of a new trend that had an impact on the winemaking community and also on the local population.

Phase 1: the 'latent era'

This phase started in the late 1970s and lasted until 1991. As a general tradition almost every family had a small vineyard (0.1–0.5 ha) and cellar and besides home consumption they sold their wine to friends and people from towns. The beginnings of change are linked to the fact that some private winemakers started bottling their wines and selling them to restaurants, hotels etc. There was a local producers' group in Villány, where the land was provided by the cooperative or the state farm but the plantation was established, owned, cultivated and harvested by the producers. This group began to purchase special quality wines from small scale producers and to label the bottle with the name of the producer. It was only a 10–15 mm wide label, such as 'wine from József Bock's wine cellar', but it represented high quality that came from the private sector. These quality wines very quickly became known and popular among retailers, restaurants and hotels at the end of the 1980s. Additionally, there were five or six producers (including Tiffán, Polgár, Gere, Bock and Blum) who operated small taverns similar to the Austrian *Buschenschanks* for visitors (*Bock interview*). This small-scale, handicraft production still existed predominantly at the level of a hobby, based on local lifestyle and family traditions and as a way of supplementing family income. Each winemaker had a main job in either agriculture or industry. The future 'Wine Producer of the Year' top winemakers, Tiffán, Polgár, Gere and Bock, all had middle or leading managerial positions in local companies.

The first private investor, Debreceni Pál from Szeged, came to the region in 1988. To fulfil his intention to produce excellent Villány red wines, he bought a large holding from the large state firm *Pannonvin* in Kisharsány. His company was to become the *Vylyan*, one of the biggest estates in the wine region.

This stage ended by the spring of 1991 at which time Ede Tiffán won a gold medal at the wine competition of the *Sunday Times* in London. This drew a lot of attention to him and also to Villány and its red wines. Based on this success he was awarded the first 'Wine Producer of the Year' title in Hungary. He immediately received an offer for his whole

stock, but he visioned his future differently. "They wanted to take these 10,000 bottles to the 1991 World Fair in Sevilla ... They wanted to buy the whole stock and pay for it immediately. But I said no. It was more important for me to sell it to the Hungarian gastronomy ... in Sevilla people would drink the wine and not know to whom it belongs. Here I can make the foundations of my own activities in the best Hungarian restaurants and hotels" (*Tiffán interview*).

Phase 2: the 'great take-off'

From 1991 until the end of 1996 a significant number of individual producers decided to develop a family wine business. Becker Nóra, the mayor of Palkonya and the chairperson of the Villány-Siklós Wine Road Association, described this period of change as follows: "It was the moment in 1994, when all which had maintained the old system began to collapse, from the furniture factory to the stone quarry, from the co-operative to the state farm, but the privatisation was not yet over. Nobody knew what would happen from this" (*Becker interview*).

In this period people started to acquire land, either by auction based on the compensation law or by purchasing. It was also the start of the technological development. The experience of large-scale cultivation by Tiffán and Polgár meant a detailed knowledge of the wine region territories existed. At this time they already recognised that, despite the low wine prices, one must create new plantations instead of cutting out the vines because they must be able to trust in the marketability of the quality wine³.

At this time Gere opened his bed-and-breakfast (B&B) with 19 beds and it remained the only such facility until 1997 when four other small hotels were opened. He also began to cooperate with an Austrian winemaker Weninger. Before the political changes Villány did not have any tourist lodgings and it had only a single big restaurant called *Oportó*. Most of the private cellars were closed to the public.

So the early 1990s were characterised by re-privatisation, acquisition of land, the planting of new vineyards, learning of new technologies and new knowledge and the creation of the Villány-Siklós wine road. Regarding vine cultivation there was a radical break with the previous large-scale practice. Quality winemaking became the priority. "We have learned the low yield approach. This is the alpha and omega for quality wine production" (*Bock interview*).

The Villány-Siklós Wine Road Association was set up in 1994 following a study tour to Austria, Germany and France for the Villány winemakers and their wives, and researchers and tourist experts. Becker Nóra recalled: "As we came home on the bus, we already discussed that we have to do the same at home, it was like as if it was figured out for us. The wine road that we saw there were clear rural development instruments. We, mostly the mayors, were completely blown away that we saw something and we wanted something similar for us" (*Becker interview*). The objective of the Association was "the establishment of the wine route, promotion of the production of quality wines, the develop-

³ Owing to the depressed prices of red wine and the popularity of sweet white wines, coupled with economic uncertainty, at the beginning of the 1990s some producers started cutting out the vines in their vineyards.

ment of wine tourism and rural tourism, the protection of the vineyards and ecological image of the Villány wine region, an increase in the market and the demand for local quality wines, the protection of the monuments, cultural and architectural treasures, and the articulation and representation of the interests connected to all the above”.

The establishment of the Association was coupled with a European Union (EU) ‘Phare’ project. The Phare Inter-Communal Co-operation (ICC)⁴ programme provided funding for the first training sessions about entrepreneurship, rural tourism and hospitality and also offered interest-free loans for the entrepreneurs via a local savings cooperative bank. At that time the commercial interest rates were above 30 per cent. The modest capital injection in the first round of the interest-free programme gave a huge impetus to the 40 people who participated in it. “It was a fantastic step forward. Those 40 participants still here are among our suppliers of services, but in a much improved condition. They have ten times as many vineyards, some millions or billions [of HUF] in investment behind him” (*Becker interview*).

At this time however the gradual development of wine tourism was still not appreciated by officialdom. As Tiffán reported “At the end of 1994, as the chairperson of the Villány-Siklós Wine Road Association, I participated in the tourist season’s closing session of the Baranya County Tourism Office. Participants spoke about thermal tourism, equestrian tourism and several other things, but no one mentioned wine tourism. Then I delivered a speech and warned them that there is also a wine tourism here which just started in Villány. If I consider how things go in Western Europe one can expect greater success and government officials have to pay attention to it. At that time I got a mere hint but 3–4 years later this hinting stopped” (*Tiffán interview*).

Phase 3: expansion, upgrading and strengthening, and ‘conscious product marketing’

The period from 1997 was one of reassessing previous ideas and goals and setting new targets. By this time four wine producers (Tiffán, Polgár, Gere and Bock) had held the title of ‘Wine Producer of the Year’ and the quality of the wine had significantly improved. A new challenge was how to effectively market these quality wines. As Gere Andrea observed from her own experience: “At the beginning the winemakers could not imagine how to promote themselves.

⁴ The Phare Inter-Communal Co-operation (ICC) programme introduced the principles and practice of bottom up local development bringing together all key players in a territory of sub-regions or municipalities. The Villány-Siklós wine road was among the 14 winning projects and it was crucial for small local entrepreneurs to push them to establish their own wineries.

There were no websites, web pages or brochures. Everyone was trying to set down the foundations – to have a good quality wine in the bottle ... Perhaps by 1997, 1998 or 1999, with the *Kopár Cuvee*, there was a deliberate marketing thrust behind the wine, in order to show to our customers our philosophy as well” (*Gere interview*).

The leading family wineries had grown very fast within a decade. The former 0.5–1 hectare producers multiplied their lands and yields. Bock remembers his beginnings and the ways of thinking at that time: “Actually we started working and we did not know what the upper limit was. I said that I would be producing 15 hectares and that would be fantastic. There was no tinge of anxiety. I paused for a moment when I passed the 1,000 hectolitres mark in 1998–99. Then I said, ‘Wow, this is a bit much’. Today (in 2010) we are working with roughly 4,000 hectolitres of wine, even a little bit more than that” (*Bock interview*).

The top winemakers outgrew the initial investments of the 1990s and started new undertakings to build new capacities. They could already access EU pre-accession funds to make their investments. Before Hungary’s accession to the EU in 2004, several of the producers pursued new plantations because they were aware that the EU would put an upper limit on the Hungarian wine-growing area.

At this stage a second cohort of winemakers achieved some fame and recognition⁵. They produced excellent wine while also increasing their assets – they started revitalising the streets of wine cellars of Villány by establishing wine bars, shops with wine tasting and restaurants.

Phase 4: blossoming of wine tourism, large scale acquisitions and investments, and approval of quality requirements and ‘greening’

The first decade of the new millennium was full of innovations and events. It witnessed a substantial increase in tourism activities in Villány town and the surrounding region including festivals, spas, hiking and biking activities, nature trails etc. Wine tourism became more and more distinctive due to the wine road and entrepreneurial efforts. At the beginning of the wine road development the idea was that tourists from Harkány, a traditional spa town 12 km from Villány with a big tourist accommodation capacity, would come to Villány to taste wine and there would be no need to provide accommodation and other facilities. However, during the ten

⁵ Those winemakers who established their family wineries at the beginning of the 1990s and decided to be vintners as their main profession, following the patterns of Tiffán, Gere, Bock and Polgár. Most of them had lost their previous jobs and this fact pushed them to be independent entrepreneurs. They usually started out from a small (half to one hectare) family vineyard.

Table 1: Indicators of tourism activity in Villány town, 1994–2012.

	1994	1997	2000	2003	2006	2009	2012
Public accommodation establishments	1	5	7	7	9	8	7
Number of bed places	19	49	84	169	214	214	267
Number of tourist arrivals	319	1,145	2,596	6,004	10,967	14,593	17,896
Number of tourism nights spent	613	3,033	4,474	9,579	15,669	22,131	28,036
Private accommodation establishments				34	42	60	56
Number of bed places			0	164	232	334	375
Number of tourist arrivals			310	851	2,186	2,822	4,202
Number of tourism nights spent			588	1,477	3,701	5,068	6,665

Source: Hungarian Central Statistical Office

years from 2000 community and individual accommodation capacities in Villány town increased considerably (Table 1). Pécs, the county capital situated 35 km from Villány with its 160,000 permanent inhabitants and tourists, was also a source of visitors.

Ten years after Debreceni's arrival, a new big investor, Csányi Sándor, owner of the OTP Bank and the wealthiest man in the country, came to Villány. He bought up the former state farm (the biggest estate in Villány) and established the Csányi winery, producing and selling his wines under the brand name of *Teleki*. Its capacity is about two million bottles per year. Two other new investors built cellars and processing facilities as green-field investments on the outskirts of the town. In 2004, Szűcs Robert, a financial investor associated with Wunderlich, a local vintner, and under this brand name, established a winery equipped with the most modern equipment and high-quality service and restaurant⁶. The next new investment in 2006 was the Sauska winery. Krisztián Sauska, a Hungarian American who made his fortune in the USA. The creation of his estates drove up the land prices in Villány (Dóra, 2006). His goals for winemaking and the wines themselves, however, earned high appreciation both from consumers and local winemakers⁷.

After three years of preparation and discussion, the rules for the protection of origin – DHC (*Districtus Hungaricus Controllatus*) Villány – were accepted for the wine region, and order 91/2005 (X.18.) of the Hungarian Ministry of Agriculture and Rural Development was issued about the protected origin wines of the Villány wine region. This regulation (which is stricter than the Hungarian Wine Law) defines the grapes which can be grown in the wine region and several other rules about pruning, the number of vine stocks per hectare, the upper limit of the quantity of grapes etc.⁸ A trademark, the protected flower Hungarian crocus (*Colchicum hungaricum*) with 'DHC Villány' inscription, refers to the origin of the wine with name of the producer and the place of production.

This stage among the 'pioneers' was a consolidation phase. Their land areas (50–70 hectares) were 50 to 100 times larger than at the beginning of the 1990s. The Bock winery and the *Vylyan* winery earned the 'Wine Producer of the Year' award in 2008 and 2009 respectively. Since the beginning of this phase the top winemakers have started matching the wine and gastronomy with cultural events, music, literature, training events, exhibitions, stand up comedies, such as with music and wine, jazz and wine, literature and wine, art and wine etc. The first four-star wine wellness hotel was opened in Villány in 2009 by Gere Attila. Other accommodation facilities were remodelled by Bock and Polgár; their capacity was significantly expanded, and wellness and spa services, and cultural facilities were incorporated as well as wine-tasting and gastronomy elements.

The second cohort of producers referred to earlier (Malatinszky, Günzer, Vylyan, Szemes, Kecskés, Mayer, Ricu,

Jekl, Szende, Molnár and others) enjoyed significant growth in terms of both the quantity and the quality of their wines and their names are as well respected as those of the pioneers.

Another new phenomenon in the second part of this phase was that a so-called 'Villány small generation' (Bányai and Teszár, 2008) appeared. They were the sons and daughters and young family members of the first and second generations of winemakers, and also some young newcomers who were challenged by the possibility of quality wine making in Villány. By now these young people had responsible positions in the family wineries.

In 2008 a cultural festival called *Ördögkatlan* (Devil's Cauldron) was established under the guidance of *Bárkaszház*, a popular theatre from Budapest. In 2012 the festival had 50 venues in three villages of the wine road (Palkonya, Kisharsány and Nagyarsány) 25–28 thousand visitors and 370 cultural activities. By 2013 the number of visitors increased to 35–40 thousand and a new venue (Beremend) joined the Festival.

During this period, the 'greening' idea of organic farming and the production of organic wine appeared. Two German couples, who settled down in the area in small villages a short distance from Villány, were the main drivers in this field. But the leading winemakers, Bock, Gere, Polgár, and Tiffán, also followed this trend and they gradually switched their land to organic farming, reducing or ending the use of synthetic chemicals (*Gere interview*).

Phase 5: tourism marketing and unfolding opportunities

Villány town and the wine region are situated at the periphery of the country. However, two important events helped to expose Villány wines to the international community. The first was in 2010 when Pécs held the title of Cultural Capital of Europe. The second was the the Hungarian Government's Presidency of the EU in 2011. Both events offered a great opportunity for Villány and for the members of the Villány-Siklós Wine Road Association to present their wines and values to the Europe-wide public. Also in 2010 the M6–M60 motorway from Budapest approached Pécs and the 4–5 hours driving time from the capital was reduced to 2–2.5 hours, so the main market for Villány, became 'much closer'. A bypass is planned for the town of Villány and parallel with this will be the creation of an opportunity for the designation of a new industrial district where wine and other businesses will be able to settle.

In 2012 the town won a grant of HUF 298 million from the New Széchenyi Plan (EU Regional Development Fund and Hungarian Government funding) towards a new investment of HUF 400 million to fit out a significant area with infrastructure and facilities to become a venue for big festivals, events, concerts etc. The Villány Red Wine Festival used this new festival space at the beginning of October 2013 for 30,000 visitors.

Villány is thus trying to catch up with the developments achieved in the levels of wine production. In 2011, these amounted to around 1,700 vine holdings (individual cultivated units) occupying over 2,500 ha (Table 2). One owner may have several holdings: it is estimated that Csányi cul-

⁶ This relationship has since been broken, now the new name is Jammertal Winery and Wunderlich continues his winemaking in his old wine cellar.

⁷ *Sauska Cuvée 5* won the Decanter World Wine Award 2013 in the category of Red Bordeaux Varietals over GBP 15. This award for wines is the equivalent of the Oscar in the film industry.

⁸ The categories of quality wine are the Villány Protected Original Premium Wine (VVEB Prémium) and the Villány Protected Original Classic Wine (VVEB Classic).

Table 2: The number and territory of vine holdings bigger than 500 m² in the Villány wine region, 2011.

Size of holding (ha)	Number of holdings	Territory (ha)
< 1	1279	426
1-5	322	626
5-10	47	338
10-30	30	497
30-100	9	431
> 100	2	255

Source: Database of the National Council of Wine Communities.

tivates about 370 ha of vineyards in total and Vilyan around 125 ha. In 2014 Csányi expects to invest HUF 200 million in increasing its production capacity (Trade Magazin, 2014). Besides performing well in several international wine competitions, in 2013 the company's domestic sales were up 15 per cent and its turnover exceeded HUF 1 billion. The wine tourism needs new attractions and new experiences in the town, not to mention the need to renew its infrastructure. The small cellars in the busier areas of the town are being modernised and neglected areas are slowly being developed. The main driving force in the town is now the experience economy.

Discussion

Many general and specifically local factors can be implicated in the transformation of the Villány wine industry from mass to quality production during the past two decades (Table 3).

Amongst the general factors the change in the political system was decisive as it opened the way for family enterprises and made it possible to create family-run wineries with the acquisition of land through purchase or privatisation. The example of wine roads in 'western' countries, the direct experiences of working abroad and the early success of the 'pioneers' in Villány were the 'pull' factors, while the economic hardship which forced people to start their own family wineries was the 'push' factor towards making quality wine⁹. The managerial experience which had previously been acquired at large scale industrial or agricultural firms also played a role in the creation of family wineries.

A very important local factor in Villány is the commitment to quality. The move to quality production occurred in a very short period of time and was accepted by a large number of vintners. Before the political changes occurred, the number of quality wine producing vintners here represented a small 'critical mass' that caught the attention of traders, in contrast to other wine regions where there was mostly one outstanding winemaker¹⁰. Within a couple of years, quality wine production became the general norm and objective

Table 3: Factors which have influenced the move to quality production in the Villány wine region.

General factors	Local factors
• Institutional (political) support and background; • Financial support. • Entrepreneurial freedom, market economy.	• Commitment to quality; • Visionary pioneers and leaders; • Ability to learn from others; • Cooperation, partnership; • Permanent innovation (in technology, tourism, marketing, greening, cooperation); • Climate, geography; • Respect of local traditions and their customers; • Ethnic German knowledge and contacts with Germany; • Hospitality.

Source: own composition

among Villány vintners. The more the cellars opened in Villány the more guests arrived and they also formed a critical mass, which further facilitated the opening of the wine cellars on the town's 'wine street', so the cellars have become also a 'phenomenon' (*Tiffán's expression*).

The mix of geographical, natural, climatic and social conditions is also a specific local factor. The Villány hills create a special microclimate for grape and Villány town is on a similar latitude to Bordeaux. The traditional Swabian diligence and culture, providence and insistence on the place of the tradition, respect and love of the grape, recognition of the value in the experiences of older people were other important factors, together with an openness to new issues and the search for new solutions.

The establishment of the Villány-Siklós Wine Road Association and the wine road itinerary and associated premises occurred in parallel with the European wine road expansion. For example, in Italy the wine roads appeared in 1993 with the establishment of the Italian Wine Tourism Association. Hall *et al.* (2000) noted that "[p]rior to 1993 the majority of Italian wine producers failed to realise, or ignored, the tourism potential of the wine industry" (p.39). In addition, the Italian public did not consider wineries as tourist attractions (Colombini, pers. comm., 1997). The Villány-Siklós Wine Road Association was an important springboard for local vintners to develop their family wineries, to become entrepreneurs and obtain the basic knowledge to start wine tourism (Kovács, 2011). Its marketing activities promote the whole community and also the individual service providers. At the inception of the Association one could find winemakers, village mayors, B&B owners, tourism experts, representatives of cultural institutions and journalists among the members. In 2014 there are mainly entrepreneurs and village mayors representing 17 local governments and six honorary members, the former mayors who played important roles at the start. The wine road includes 47 wine tasting places, 40 accommodation and 34 catering providers, although these activities partly overlap one another.

The phases described in this paper represent several innovations which were responses by Villány wine producers to customer demand. The wineries have created not only the possibility of tasting and buying the wine locally but they have developed complex wine tourism services including wine tasting, selling, gastronomic and cultural offers, high

⁹ Many families in Villány had relatives in Germany who frequently visited Villány and *vice versa*. After the political changes some winemakers established joint ventures with foreign entrepreneurs, the most well known is the Gere-Weninger partnership. Mayer Márton exported wine for seven years privately to Germany after 1990 (Dlusztus, 2004a). In 1993 Villány represented Hungary at the World Horticultural Expo in Stuttgart. The traditional Villány cellars at the exhibition were built by Wunderlich. Polgár and Gere spent half a year in Stuttgart at the Expo, selling their wine and in this way balancing their financial situation (Dlusztus, 2004b).

¹⁰ Tiffán mentioned that 4-5 people already produced enough quantity and quality to attract wine traders to Villány.

quality accommodation, wellness, spa and other recreation activities. A comparison can be made to the Douro Boys informal network in Portugal (Rebello and Muhr, 2012), which “shows how a very simple and informal network can be the engine of a sustainable development of small wine producers located in an old, traditional and unknown wine region” (p.117). Experiencing the wine and winery on site provides much more enjoyment than simple consumption of high quality wine elsewhere. Despite the global economic crisis and financial difficulties, by the estimates of the wine road 70 per cent of the customers are loyal to Villány and their wine producers and these customers regularly return to their favourite winemaker.

Correira *et al.* (2004) paraphrased the comments of an earlier researcher with the statement that “one of the paradoxes of a successful wine route is that wineries need to work together – both formally and informally – with their commercial rivals if the route to be successful” (p.17). The rural experience economy in Villány means that high quality family brands compete but at the same time also cooperate with each other in an attractive rural setting. Within these brands one can find the personalities of family members, their lifestyles, culture, philosophy and family history. Furthermore, the winemakers do not form a separate class in Villány, they are involved in various community activities such as being a members of the local government, vice-mayor, sponsor of the local football team, participants of wine qualification, active members of the Wine Communities etc. The activities of the wine road, the Local Councils of Wine Communities and the Villány Wine Order create close contacts among entrepreneurs who are partners but also competitors with each other.

After decades of being excluded from the world market, these years of transformation have brought new opportunities to Villány winemakers. They have learned a lot, both intentionally and unintentionally, during the past two decades and now they are able to place themselves on the map of the great wines of the world. It seems that the world is also starting to recognise it.

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References

- Bányai, G.B. and Teszár, Á. (2008): Villányi kisgeneráció. [Small Generation of Villány] Villány Magazin 16-31.
- Benoist, Gy and Imre, Zs. (2010): Szőlőültetvények összeírása, 2009 (előzetes adatok) [Census of vine territories, 2009 (preliminary data)]. Statisztikai Tükör **IV** (73), 1-3.
- Bodnár, L. (1996): A szőlészet és borászat helyzete az 1990-es években [The conditions of wine growing in the 1990s]. Tér és Társadalom **4**, 153-163.
- Butler, R.W. (1980): The Concept of a Tourist Area Cycle of Evolution: Implications for Management of Resources. The Canadian Geographer **XXIV** (1), 5-12. <http://dx.doi.org/10.1111/j.1541-0064.1980.tb00970.x>
- Carlsen, J. (2004): A Review of Global Wine Tourism Research. Journal of Wine Research **15** (1), 5-13. <http://dx.doi.org/10.1080/0957126042000300281>
- Copp, D. (2006): Hungary: Its Fine Wines and Winemakers. Budapest: PrintxBudavár.
- Corrado, R. and Odorici, V. (2009): Winemakers and Wineries in the Evolution of the Italian Wine Industry: 1997-2007. Journal of Wine Research **20** (2), 111-124. <http://dx.doi.org/10.1080/09571260903169472>
- Correira, L., Ascencao, M.J.P. and Charters, S.M.W. (2004): Wine Routes in Portugal: A Case Study of the Bairrada Wine Route. Journal of Wine Research **15** (1), 15-25. <http://dx.doi.org/10.1080/0957126042000300290>
- Dezső, J., Sebe, K. and Horváth, G. (eds, 2004): Villányi Hegység Útikalauz [Villány Mountains Travel Guide]. Pécs: JPTE Barlangkutató Egyesület.
- Dlusztus, I. (2004a): Magyar Borászok: Mayer Márton [Hungarian winemakers: Mayer Márton]. Pécs: Alexandra Kiadó.
- Dlusztus, I. (2004b): Magyar Borászok: Gere Attila [Hungarian winemakers: Gere Attila]. Pécs, Alexandra Kiadó.
- Dóra, M.T. (2006): Villány-Siklós a borászok kánaánja lett. [Villány-Siklós has become Canaan of Winemakers]. Magyar Hírlap, 4 August.
- Eco-Cortex (2009): Integrált Városfejlesztési Stratégia: Villány Város Önkormányzatának. [Integrated Development Strategy for Villány Local Government]. Pécs, Eco-Cortex.
- Getz, D. (2000): Explore Wine Tourism: Management, Development and Destinations. Elmsford NY: Cognizant Communication Corporation.
- Getz, D. and Brown, G. (2006): Critical Success Factors for Wine Tourism Regions: a Demand Analysis. Tourism Management **27**, 146-158. <http://dx.doi.org/10.1016/j.tourman.2004.08.002>
- Hall, C.M., Sharples, L., Cambourne, B. and Macionis, N. (2000): Wine Tourism around the World: Development, Management and Markets. Oxford: Butterworth-Heinemann.
- Jurinčič, I. and Bojnec, Š. (2011): Wine tourism development: The case of the wine district in Slovenia, in: M.F. Romano (ed.), Proceedings of the First European Conference on Wine and Food Tourism, Volterra (Pisa) Italy, 13-15 April 2011.
- Kovács, D. (1998): Phases in the Development of Rural/Village Tourism, in: L. Grandberg and I. Kovach (eds), Actors on the Changing European Countryside. Budapest: MTA TK Politikatudományi Intézet.
- Kovács, D. (2011): Út a tömegtermeléstől a vidéki élményszolgáltatásig – Villány és a Villány-Siklós Borút példája. [The road from mass production to rural experience economy – the example of Villány and the Villány-Siklós wine road]. Területfejlesztés és Innováció **5** (2), 23-44.
- Kramer, M. (2003): Making Sense of Wine. Philadelphia: Running Press.
- KSH (2013): Magyarország földterülete művelési ágak szerint, 1853-2012 [The land of Hungary by cultivation type 1853-2012] [www document]. http://www.ksh.hu/docs/hun/agraar/html/tabl1_3_1.html (accessed 26 November 2013).
- Laposa, J. and Dékány, T. (2001): Villány borvidékek ékessége [Villány: Jewel of the Wine Regions]. Budapest: Aduprint Kiadó és Nyomda.
- Martinez Carrion, J. and Medina Albaladajo, F.J. (2010): Change and Development in the Spanish Wine Sector, 1950-2009. Jour-

- nal of Wine Research **21** (1), 77-95. <http://dx.doi.org/10.1080/09571264.2010.495856>
- Radócné Kocsis, T. and Györe, D. (2006): A borpiac helyzete és kilátásai. [Situation and outlook of the wine market]. Budapest: AKI.
- Rebelo, J. and Muhr, D. (2012) Innovation in wine SMEs: The Douro Boys informal network. *Studies in Agricultural Economics* **114** (2), 111-117. <http://dx.doi.org/10.7896/j.1118>
- Szivas, E. (1999): The Development of Wine Tourism in Hungary. *International Journal of Wine Marketing* **11** (2), 7-17. <http://dx.doi.org/10.1108/eb008692>
- Tassiopoulos, D., Nuntsu, N. and Haydam, N. (2004): Wine Tourists in South Africa: A Demographic and Psychographic Study. *Journal of Wine Research* **15** (1), 51-63. <http://dx.doi.org/10.1080/0957126042000300326>
- Trade Magazin (2014): Csányi Winery invests in production for export [www document]. <http://www.trademagazin.hu/en/hirek-es-cikkek/ceg-es-szemelyi-hirek/exporthoz-fejleszt-a-csanyi-pinceszeti.html> (accessed 31 March 2014).
- Zamora, J. and Bravo, M. (2005): Wine, product differentiation and tourism: exploring the case of Chile and the Maule Region. *Universum* **20** (2), 298-315. <http://dx.doi.org/10.4067/S0718-23762005000200016>
- Zamora, J. and Lacoste, P. (2007): Tourism and Wine: A Marriage of Convenience or True Love? *Journal of Wine Research* **18** (2), 121-123. <http://dx.doi.org/10.1080/09571260701660896>

Short communication

Laurey-Anne KRAMMER* and Wim HEIJMAN*

Events as boosters of the regional economy

Events are increasingly being used as a means to boost regional economic development through tourism, but are they truly effective to this end? In this article we attempted to answer this question by measuring the impact of the Christmas Festival 'Magisch Maastricht' on the economy of the municipality of Maastricht in the Netherlands. We used input-output analysis by which we calculated the number of additional jobs per sector created by the spending of visitors during the event. The results show that the impact on the urban economy is significant.

Keywords: regional development, jobs, input-output analysis, location quotient

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Introduction

Events and tourism based upon them may be powerful boosters for regional economic development. This is not surprising when considering the success of the tourism sector in recent decades (Williams, 2009). The roles and possible impacts of events have been researched for quite some time; they are of increasing importance for destination competitiveness (Getz, 2008). This paper aims at evaluating the impact of an event as measured by the number of additional jobs it creates in the case of the Christmas festival 'Magisch Maastricht' (Magical Maastricht).

Magisch Maastricht is an annual event held in Maastricht, which is the capital of the province of Limburg, Netherlands. The municipality of Maastricht supports Magisch Maastricht because of the economic value that it adds to the municipality (Maas and Claessens, 2011). However, the municipality has not yet researched the impact of the event on employment. This article aims to report on the first attempt to do so and to show that the method used is effective in measuring the economic impacts of events.

Methodology

Input-output analysis is a method that represents the interdependencies between different sectors of an economy. The input-output table shows the flow of goods and services between the sectors of an economy over a certain period of time, normally a year (Leontief, 1986). Because there are no standard input-output tables available at regional level we used the Dutch input-output table of 2011 to calculate the regional technical coefficients of the municipality of Maastricht for 2011. This was done by way of the Simple Location Quotient (SLQ) method proposed by Jensen *et al.* (1979) and Heijman and Schipper (2010).

Next to the secondary data that we extracted from the national input-output table and various other sources, we collected primary data with the help of a questionnaire administered in person and carried out on random days throughout the Magisch Maastricht event. Visitors were asked the following question: "Can you indicate your average spending per sector during Magisch Maastricht?" A list with the fol-

lowing five sectors followed this question, with the request to indicate their spending per sector in EUR: (a) wholesale and retail; (b) transportation and storage; (c) lodging, meals and drinks; (d) information and communication; and (e) culture, sports and recreation. The data were collected using the convenience sampling method.

After analysing the completed questionnaires, we computed the change in the final demand per sector generated by Magisch Maastricht, which equals the average spending per sector for the sample multiplied by the number of visitors. In this case the number used (600,000) was that published for 2011, but visitor numbers in 2012 were similar (ZKA, 2013).

With this information the change in output can be calculated with the help of the Leontief Equation. By multiplying the inverse of the difference between the identity matrix I minus the matrix of regional technical coefficients A with the change in final demand ΔF , we can calculate the change in output ΔX :

$$\Delta X = (I - A)^{-1} \Delta F$$

We then divided ΔX by the annual output per employee per sector, which tells us the number of jobs (in years of work) that are added per sector by the extra spending caused by Magisch Maastricht. The annual output per employee was found with the following formula:

$$\text{Output per year per employee per sector} = \frac{\text{National output per sector}}{\text{Numbers of employees on national level per sector}}$$

Results

We collected 80 questionnaires during the four weeks of Magisch Maastricht 2012. The data collection took place on 7, 12, 20 and 28 December 2012 at the *Vrijthof* (central square) in Maastricht. In total, the 80 respondents spent EUR 5618 at Magisch Maastricht, giving an average expenditure of EUR 64.60 per person. Most of the money was spent in the wholesale and retail sector (Table 1). From these data the total additional visitor expenditure during the event was estimated and, in accordance with the described methodology, the numbers of additional jobs by sector was calculated.

Table 1: Visitor expenditure and number of additional jobs estimated to have been created as a consequence by sector at Magisch Maastricht 2012.

Sector	Expenditure (EUR)		Number of additional jobs
	Average per person	Estimated total*	
Wholesale and retail	50.69	30,412,500	185.7
Transportation and storage	3.94	2,362,500	36.3
Lodging, drinks and meals	5.69	3,412,500	132.8
Information and communication	0.60	360,000	10.3
Culture, sports and recreation	3.68	2,212,500	38.3

*Based on 2011 visitor number of 600,000

The five sectors together created roughly 403 additional jobs (Table 1). Most (186) jobs were created in sector (a), wholesale and retail, which is not surprising since the majority of the spending during Magisch Maastricht occurred in this sector. Sector (c), lodging, meals and drinks, added roughly 133 jobs. The number of additional jobs created by Magisch Maastricht in this sector is substantial: the questionnaire results showed that only 9 per cent of the visitor spending goes to this sector, yet it created 33 per cent of the additional jobs. Apparently the multiplier effect of extra spending in this sector is relatively high if compared to the other sectors.

Discussion

The purpose of this research was to find out if Magisch Maastricht had an impact on the economy of Maastricht. We used input-output analysis and location quotients to measure this and, based on the results, we concluded that there is indeed an impact. In total, in 2012, around 5,900 jobs were created in Maastricht (ZKA, 2013), meaning that in that year Magisch Maastricht created around 6.8 per cent of the additional jobs in the city. Considering the fact that the event is only temporary and that the number of tourists during the event rose after the introduction of the event from low season to high season numbers (ZKA, 2013), we regard these numbers as significant and conclude that Magisch Maastricht does have a relatively high impact on the regional economy.

Naturally, there are some contestable points in this research. Firstly there is the issue of the SLQ. The SLQ is a convenient and simple way to calculate regional input-output coefficients, but the simplicity of this method comes with certain limitations. Tohmo (2004) for example says that the SLQ method “understates regional propensities to import, with the error increasing inversely with the size of the region” (p.46) and leads to overestimations of the multipliers.

Another limitation of this research is the collection of data through questionnaires. Firstly, the chosen sample method, namely convenience sampling, comes with a few biases. Examples of these biases are that the subjects are selected based on convenient accessibility and proximity to the researcher, giving a distorted image of the population which cannot be generalised beyond the sample. Furthermore, the fact that we only questioned Dutch visitors to the event means that spending from foreign tourists is not included in the research even though they constituted 18 per cent of the visitors in 2011 (Gemeente Maastricht, 2012). Our figure of 403 additional jobs is therefore only an indicative total for the five sectors.

Nonetheless, the method used proved to be effective and may be developed further in order to provide regional governments with a powerful tool to evaluate the economic impact of events. In the process of political decision making this may be crucial for the decision on whether to support an event or not.

References

- Gemeente Maastricht (2012): 2011 Magisch Maastricht Evaluatie [2011 Magical Maastricht Evaluation]. Maastricht: Gemeente Maastricht.
- Getz, D. (2008): Event tourism: Definition, evolution, and research. *Tourism Management* 29 (403-428). <http://dx.doi.org/10.1016/j.tourman.2007.07.017>
- Heijman, W.J.M. and Schipper, R.A. (2010): Space and economics: An introduction to regional economics. Wageningen: Wageningen Academic Publishers.
- Jensen, R., Mandeville, T. and Karunaratne, N. (1979): Regional Economic Planning: Generation of Regional Input-Output Analysis. Beckenham, Kent: Croom Helm.
- Leontief, W. (1986): Input-Output Economics (2nd edition). New York: OUP.
- Maas, T. and Claessens, S. (2011): Rapportage Magisch Maastricht 2010, met aanbevelingen voor volgende edities [Reporting Magical Maastricht 2010, with recommendations for future events]. Maastricht: Gemeente Maastricht.
- Tohmo, T. (2004): New Developments in the Use of Location Quotients to Estimate Regional Input-Output Coefficients and Multipliers. *Regional Studies* 38 (1), 43-54. <http://dx.doi.org/10.1080/00343400310001632262>
- Williams, S. (2009): Geography of Tourism. A New Synthesis (3rd edition). London: Routledge.
- ZKA (2013): Hoe ziet de toerist Maastricht? Analyse toeristische kerncijfers Maastricht 2008-2012 en imago-onderzoek [What does tourist Maastricht look like? Analysis of major touristic figures in Maastricht in 2008-2012 and image research]. Report commissioned by the City of Maastricht. Waalwijk, Netherlands: ZKA.

Conference report

Global Forum and Expo on Family Farming

Budapest, 4-6 March 2014

Family farming plays a central role in achieving global and local food security, as well as in ensuring the sustainable use of natural resources. In order to raise the profile of family farming and smallholder farming, to reposition family farming at the centre of agricultural, environmental and social policies in the national agendas by identifying gaps and opportunities, and to promote a shift towards a more equal and balanced development, the United Nations (UN) declared 2014 as the International Year of Family Farming.

As a key event for the International Year, the Ministry of Rural Development of Hungary, in cooperation with the Food and Agriculture Organization of the United Nations (FAO), organised a *Global Forum and Expo on Family Farming* that was held in Budapest on 4-6 March 2014.

The Forum addressed four main subjects: (1) The role of family farms in contributing to local and global food security; (2) Family farming and the three dimensions of sustainability – harmonising the social, environmental and economic aspects; (3) Key challenges and opportunities for agricultural investments in family farming; and (4) The role of women and young farmers in family farming.

By covering these issues in an integrated manner, combining policy, scientific, financial-economic and governmental approaches, the Forum contributed to the global dialogue and debates on policies and programmes that affect family farming at national, regional and local levels. The main policy discussions of the Forum were conducted through plenary sessions, a Ministerial roundtable that focused on subject (1) above, and three concurrent panel discussions that addressed subjects (2) - (4).

Parallel to the Forum, the Expo provided an opportunity for the family farmers of the participant countries to introduce their activities to Forum participants and the general public.

At the closing plenary session a Closing Summary document was presented and the wording of this was as follows:

“Initiated by the Government of the Philippines and the World Rural Forum, the UN General Assembly declared 2014 as the International Year of Family Farming. Against this background, the FAO and the Hungarian Ministry of Rural Development organised a Global Forum to identify the various political, policy, business and social elements that play a role in the complex environment in which family farms operate. The overall objective was to find ways in which economies and communities could benefit from the values that family farms represent in food production, management of natural resources, biodiversity, human relations and the preservation of cultural heritage.

The main findings of the two day event, which emerged from the ministerial roundtable and the three parallel panel discussions, are the following:

Even if family farms differ to a large extent from region to region, they have values that all nations share and challenges that all nations need to tackle.

Most smallholder farms are family-based and make a significant contribution to global food and nutrition security. However, family farms and the countries in which they operate are diverse in many ways and the solutions offered for them should be tailored for this diversity.

Farmers need a high enough income to maintain their rural livelihoods and not to move to urban areas in the hope for a better life. To this end, a decent price for their produce and services needs to be obtained.

Limited access to land and other natural resources, knowledge, education and financing are seriously hindering family farming development globally. Best practices of coping mechanisms should be widely disseminated.

Co-operation could offer access to investment, technology and markets, making family farming viable. An enabling environment, including clear and simple legislation and a proper taxation system, is crucial for the development of co-operatives and farmers’ organisations. Socially responsible partnerships with civil society organisations and with the private sector can play an important role in the promotion of co-operation.

Women are the backbone of family farming but their large contribution is not duly recognised in terms of income earned and access to productive resources and assets. If both women and men have adequate access to productive resources, rural societies can become more resilient. Hence, women’s meaningful participation in decision making processes should be enabled. We should continue raising awareness of the role of women in family farming management and promote women’s equal access to land, credit, education, technology, networks and decision-making processes.

Youth are increasingly losing interest in agriculture and are migrating away from rural areas in search for job opportunities in other sectors. In order to provide young farmers with adequate livelihoods, appropriate income, targeted policies, programmes and projects are essential.

The common ground among the views expressed reflects the key position that family farms occupy in sustainable agriculture. Since we all want our agrarian systems and rural networks to be sustainable, we must strive to support family farms.

Economic sustainability is essential for family farming. Viable farming helps to keep young people on the farm. We also need pragmatic co-operation and responsible actions from different stakeholders: especially government, business, farmers and civil society.

Environmental regulations should take into account the measured and internalised positive and negative externalities of different types of family farming. Traditional family farming strongly contributes to environmental sustainability. New environmental challenges should be answered by participative research, knowledge transfer and life-long learning.

The social sustainability of family farming is based on the next generation’s willingness to take part in farming and the society valuing the culture behind traditional family farming”.

Extended summary

KESZTHELYI Szilárd and MOLNÁR András

Results of Hungarian FADN Farms 2012

The Hungarian Farm Accountancy Data Network (FADN) consists of 1,599 individual and 388 corporate sample farms. These farms are representative of the approximately 106 thousand commercial Hungarian agricultural producers in terms of farm type, economic size and legal form. The Research Institute of Agricultural Economics (AKI) is responsible for the collection of micro-economic data on the costs and incomes of these. The results are published annually by AKI and may be downloaded in Hungarian or English from the AKI website (www.aki.gov.hu) or requested in printed form from aki@aki.gov.hu.

The publication begins with a short introduction about the general context and the purpose of the publication, definitions of the economic terms and indicators used, and a description of the method of deriving the balance sheet and income. The profitability and the change in assets in the agricultural sector as a whole are then described, the factors influencing the income situation of individual and corporate farms are separately highlighted, the effect of subsidies on profitability is discussed, and a comparison is made of the results of individual and corporate farms. Following this the development of land prices and rental fees across the different FADN regions of Hungary are reviewed, and a narrow international comparison limited only to financial indicators is made. Attention is then paid to the application of environmental indicators in the FADN context, and the publication concludes with a short overview on the small farms below the sampling threshold level. The book is supplemented by a comprehensive set of tables that introduce aggregated FADN farm data broken down by legal form, region, type of farming and economic size.

The main findings are as follows. Since the 2009 financial crisis the profitability of the agricultural sectors has been continuously growing, although the pace of growth in 2012 has slowed down substantially, and differentiated between farm types. Profit before taxes of individual farms has risen by 6 per cent and of corporate farms by 7 per cent. The net value added has stagnated. Below average crop yields have been balanced by favourable crop prices. In the live-stock sector the average prices of animal products have also exceeded those of the previous year. Gross production value and production costs per hectare increased by 5 and 6 per cent respectively in the case of individual farms, while for corporate farms both figures rose by 2 per cent.

An important element of favourable profitability is that accumulated 2011 stocks were sold at 2012 high prices. In terms of net value added, pig producers have increased their profits the most, by 48 per cent. Greenhouse vegetable farms managed to expand their profit levels by 25 per cent, and the profits of poultry producers and field vegetable farms increased by about 10 per cent. By contrast, arable crop producers and dairy farms experienced stagnating profit levels. The profits of cattle and sheep rearing together with fruit growing farms shrank by about 10 per cent while those of mixed farms and vine producers fell by 25 and 32 per cent respectively.

Investments per hectare – regarding all farms – amounted

to HUF 76.7 thousand while the amount of subsidies attached to investments stood at HUF 4.9 thousand per hectare. The value of investments decreased by 4 per cent and the amount of investment subsidies by 11 per cent. The drop is without question related to the substantially (13 per cent) reduced investments into buildings. Investments into machinery on the contrary grew by 3 per cent. Despite this setback net investments (gross investments less depreciation) were HUF 14.7 thousand per hectare higher; meaning that technological development and rejuvenation have continued. Investment intensity was the highest in the case of pig and poultry farms which is the result of development programmes initiated earlier.

The structure of financing the businesses changed considerably in 2012; businesses moved towards self-financing. Profits generated in previous years have been reinvested in the sector. The equity of farms has increased by 15 per cent, while the amount of liabilities fell by 6 per cent and interest costs declined by 27 per cent. This, under favourable conditions, shows considerable potential in the financing of agricultural businesses.

The increase of land prices continued in 2012. The price of arable land went up by 12 per cent – well above the inflation rate – to HUF 601 thousand per hectare. Land rental fees grew even more, by 17 per cent. On average farmers had to pay HUF 36.3 thousand to rent one hectare of arable land in 2012. Based on the data of 2012 we can conclude that farms cultivating partly on Nitrate Vulnerable Zones used slightly less nitrogen and achieved lower yields. There are significant regional differences in nitrogen use, which mostly follow the profitability as well. However, in Heves and Nógrád counties, contrary to general correlation between nitrogen use, wheat yield and profitability witnessed in other NUTS 3 regions, the less profitable farms used larger amounts of nitrogen but produced lower yields. This suggests that some farms use inappropriate practices and/or they experienced higher than average rates of natural disaster(s).

This was the first year that farms below the economic threshold were also selected for the purpose of rural development issues. Despite the fact that these households are producing a certain share of their own foodstuffs, a sizeable amount of their incomes are spent on food. The average share spent on food is 29 per cent but, because of the specific nature of the produced foodstuffs, in the case of crop producers this share is higher (34 per cent) while for livestock keepers it is lower (25 per cent).

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