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## A CROSS-COUNTRY COMPARISON OF NON-FARM EMPLOYMENT IN MACEDONIA AND SLOVENIA<sup>1</sup>

von

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### 1 Introduction

Rural non-farm employment (NFRE) is gaining prominence in debates on rural development (Start 2001). The expansion of NFRE and diversification of income are desirable policy objectives because they give individuals and households more options to improve livelihood security and to raise their living standards. Empirical evidence suggests that there exists a positive correlation between higher income levels of rural households, higher productivity in agricultural activities and access to NFRE. Moreover, NFRE is found to be correlated with the level of education, the quality and access to infrastructure and the service sector and the access to financial services, and employment in the non-farm sector. However, the interdependence between cause and effect is complex (Pfluger 2000). Therefore, analysis is needed case by case to gain a better understanding of discerning patterns and clusters.

In the context of the enlargement of the European Union (EU), the socio-economic imbalances between individual regions in Central and Eastern Europe (CEE) have been recognised as one of the most intractable problems of transition. The income differences between the two case countries, Slovenia and Macedonia, are substantial. The gross domestic product (GDP) per capita of Slovenia is five times as high as of Macedonia. Slovenia's share of agriculture in GDP is close to Western European levels with about 3.2% in 2000 and 2001 (Clement 2002). Macedonia is far more dependent on agriculture, contributing about 9.7% to GDP in 2000 (Gruber 2002). The two countries suffer from high open unemployment rates and, presumably, disguised unemployment in agriculture. Here, Macedonia displays the highest rate of open unemployment with 30.5% (2001), followed by Slovenia with 5.9% (2001). Clearly, for Macedonia, the agricultural sector is still functioning as a sector to absorb disguised unemployment. Thus, structural transformation that would increase labour productivity in the agricultural sector may not be at the top of the agenda. Nevertheless, employment opportunities for the disguised unemployed in the non-farm sector are of great importance for future restructuring of the agricultural sector.

The objective of this contribution is to analyse the factors that determine the structure and composition of rural incomes as well as the choice of employment activities within one household and determinants for shifting away from traditional rural employment such as agricultural activities. It will review attitudes of the rural population to avail themselves of non-farm opportunities. Also, the analysis will identify differences in underlying characteristics between four household types with a different mix of activities.

### 2 Methodology and data

The distinction between demand-pull and distress-push factors is of particular interest to the study. It allows to highlight the different constraints, which the rural, predominately farm

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population experiences in obtaining NFRE. The term demand-pull is used to describe a situation in which agricultural workers become able to seize more remunerative employment opportunities in the non-farm sector (Davies 1996, Hart 1998). The response to demand-pull factors often results in an increasing specialisation and intensification within the non-farm sector (Möllers and Heidhues 2003). The term distress-push describes a situation in which inadequate incomes in agriculture pushes workers into poorly paid non-farm sector employment. Contrary to demand-pull factors, the reaction to distress-push factors in agriculture implies a growing diversification of income creating activities (Möllers and Heidhues 2003).

The study is based on a research grant by the EU (EC-PHARE ACE Project No. P98-1090-R) "Accession in the Balkans: Policy Options for Diversification in the Rural Economy" (from April 2000 to May 2002). Slovenia was selected for the analysis because it is both, an accession country to the EU of the first round and, furthermore, it represents the accession country with the highest per-capita income. The inclusion of Macedonia allows to (1) compare NFRE of a non-accession with an accession country of about the same population size and a per-capita income (25% of EU-15 average per-capita income in purchasing power parity) reaching the lows of Bulgaria and Romania. Important for the comparability of the country data within the research project was the definition of regional boundaries within which the survey on NFRE took place. It was agreed to choose two distinct regions in each country with different potential for NFRE. Moreover, in each of these two regions a peri-urban and a rural sub-region were selected.

The term NFRE is used to mean any non-farm employment by a household located in a rural area, including urban jobs and remittances. In this sense, the types of households that were interviewed in each sub-region comprised (1) full-time farm households, where all household members worked on the farm, (2) part-time farmers with off-farm wage-employment, where at least one household member worked in a wage job, (3) part-time farmers with self-employment activities, where at least one household member had started an own business, and (4) rural households that had fully abandoned farming. The last type of household must have been engaged in farming before taking up full-time NFRE. Accordingly, the questionnaire was designed to match these four types of rural households and employment structures. The basis for the comprehensive questionnaire was the questionnaire used by the World Bank for its Living Standard Measurement Surveys (LSMS).

A multinomial logistic regression model of discrete choice is used to identify significant differences in underlying characteristics between households with and without NFRE; and between diversified and non-diversified enterprises and activities that have led to job creation opportunities and those which have not. This approach allows to consider the chance (or log-odds) of diversifiers or non-diversifiers adopting particular types of non-farm opportunities and thus to empirically identify and quantify the importance of the potential constraints. Nevertheless, there exist exogenous variables which may push farmers out of agriculture but do not influence access to NFRE as such, i.e. lack of agricultural income pushes farmers to search for income elsewhere but has no effect on access to income elsewhere. Contrary to pull factors, the push factors influence the behaviour, but they do not affect access to NFRE.

In Box 1, the explanatory variables for the model and the hypotheses behind the choice of these variables are presented. The list is narrowed to the statistically significant variables during the modelling:

## Box 1 Significant variables from household survey

### Demographic variables

**Number of active HH members:** Number of family members older than 15 and younger than 65.

This indicator may be necessary to evaluate labour productivity in the different income creating sectors. It is likely that the direct labour productivity indicators below are not applicable because, e.g. households that have abandoned agriculture do not show a value for agricultural labour productivity. We have a true missing value there. This implies that in the regression analysis, the whole observation (household) would be neglected.

**Gender ratio:** Women in the age group of 16 and 64 years as share of total active household members

Depending on whether these active women are employed or not, it can push or pull the households in either direction.

### Income related and risk-bearing capability related variables

**Farm size:** Total cultivated area in ha

The farm size influences the decision to remain or to leave agriculture because of its decisive influence on income. Farmers with the possibility to cultivate larger land holdings may also have the possibility to diversify into higher paid NFRE sectors (Gordon 2000). For households, which abandoned farming in full, this indicator was given the value zero, if no other figure was reported.

**Proxy for income level:** Logarithm of income quintile, whereby quintile 5 has the highest income level.

For each country, the income has been categorised in quintiles. This variable can go in both directions, meaning that a household in a low income quintile may be pushed to get engaged in NFRE and a household in a higher income quintile may be pulled into NFRE.

**Proxy for equity capital:** Logarithm of equity capital tertile (corresponds to enterprise assets)

For each country, the value of enterprise assets has been categorised in tertiles. Enterprises, farm or non-farm, that are located in a higher equity tertile are assumed to be better established in the market than otherwise. Nevertheless, in the area of orchards and vineyards, labour intensive and capital extensive profitable enterprises may be possible too.

### Attitudes towards farm & non-farm employment

**Positive attitude of the operator towards agriculture, wage-employment and self-employment:**

The attitudes of the household head are hypothesised to be decisive for his/her own decision of employment and the household members decisions. A dummy variable indicates, whether a household head has a positive attitude towards a type of employment (dummy = 1) or not (dummy = 0). Three different types of employment were assessed in regard to the attitude towards them: wage-employment, self-employment and agricultural work.

## 3 Household characteristics

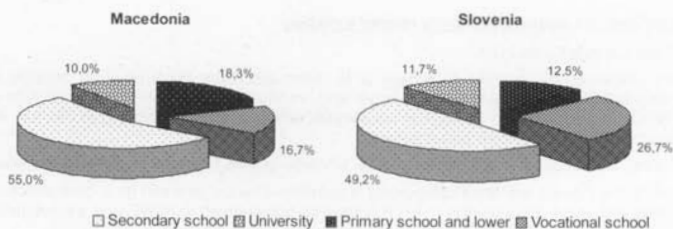
The sample of 240 rural households is dominated by part-time farm household in which at least one household member follows some type of dependent employment (41%). Second are full-time farm households (23%). The rural households, which abandoned farming as an income creating activity totally and rural households with some form of self-employment activity are both contributing 18% to the households. Particular characteristics of the sample are that in Slovenia, the full-time farms were selected on the basis of their future viability while in Macedonia, the full-time farms were randomly selected.

Figure 1 refers to the highest level of education which a member in a given household had achieved. In both countries, the educational standard is very high. In Macedonia and Slovenia, 65% and 61% of the households, respectively, had at least one household member with a secondary school or even university degree. Vocational training is most pronounced in Slovenia. There, almost 27% of the households had one or several members with vocational training. Interestingly, part-time farm households with self-employment activities displayed the largest share of vocational training.

The average family size across the two countries is 4.5. Slovenia's average is slightly above and Macedonia's slightly below this average. The dependency ratio in Slovenia is the highest too. In Slovenia, one active household member (16-65 years of age) has to support 0.69 de-

pendent household members (< 16 years & > 65 years), in Macedonia the ratio is 0.55. It is also interesting to note that the part-time farms with wage or self-employment activities, that is diversified farm households, have to support on average larger families than full-time farms or rural households which have abandoned farming. Not only are the families larger, the dependency ratio is larger too, implying that these households do not have more active household members capable of working but more dependent members to support financially. This is true in both countries. It could be already be an indication that the reason for diversifying is rather a distress-push than a demand-pull reason.

**Figure 1 Highest level of education, in percent of households**



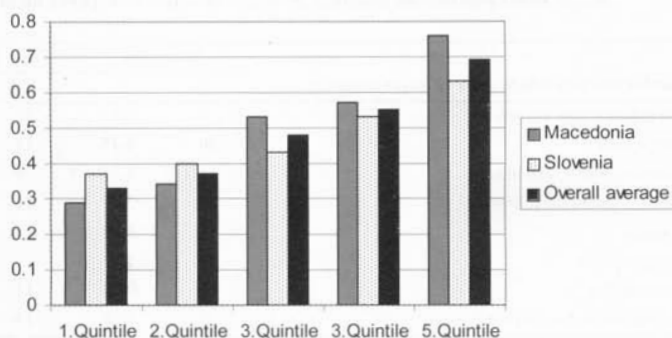
Source: Own calculation. Data from EC-PHARE ACE Project No. P98-1090-R.

The average farm size varies substantially across the two case countries. It is significantly larger in Slovenia with 13.2 ha. The family farms in Macedonia are much smaller than in Slovenia with about 2.9 ha.

The per capita income value of the Macedonian and Slovenian sample of rural households for 2001 are 1,408 Euro and 4,020 Euro, respectively. All income figures refer to net income. The empirically observed per capita income in Macedonia and Slovenia is 30% and 60% lower, respectively, than the average per capita income reported by EBRD (2002) for the year 2001 (1,738 USD (1,941 Euro) and 9,416 USD (10,518 Euro) in Macedonia and Slovenia respectively). To some extent, this result can be explained by the fact that one of the regions selected in Slovenia (Pomurska region) is the least developed region in Slovenia. In addition, the World Bank (2000) estimated that the risk to become poor in a transition country is 50% larger in rural areas as compared to urban areas. Thus this result may not surprise too much. A comparison with income quintiles based on PPP-Euros reveals that the incomes in Macedonia deviate less from the Slovenian incomes than previously assumed. Here on average, the rural incomes in Macedonia reaches two thirds of that in Slovenia.

One objective of the study was to analyse whether diversification of employment contributes to income. The number of non-farm employment activities per active household member increases from the lowest to the highest income quintile (Figure 2). However, while Slovenian households on average have a greater number of overall income creating activities than Macedonia, Macedonia leads the field as it concerns non-farm activities. Agriculture seems not to produce sufficient income for the needs of the Macedonian households and pushes more and more household members into non-farm activities. On average, Macedonia displays 0.53 non-farm activities per active household member and Slovenia 0.50.

**Figure 2** Income levels in relation to average number of income creating non-farm activities per active household member



Source: Own calculation. Data from EC-PHARE ACE Project No. P98-1090-R.

Note: N=117 households.

The quintiles are calculated for each country separately on the basis of its real income distribution.

Table 1 shows the major non-farm income creating activities in the case-countries. Three outcomes are striking. First, the trade sector is among the two most important sectors for non-farm employment. Second, the three most important activities in Macedonia account for 17.5% of all non-farm activities of the household members and in Slovenia for 12.3%. That is a large share of the activities in each country. Third, the array of activities appears to be more diverse in Slovenia than in Macedonia. It is also interesting to note that Slovenia is ahead as it concerns the total number of non-farm activities. Nevertheless, as has been already shown above (see), an active household member in Macedonia undertakes, on average, more non-farm activities than a household member in Slovenia.

Table 2 indicates the per capita incomes of different household types and income sources. Interestingly, in Slovenia, the full-time farms have the highest per capita income (4,511 Euro) as compared to the other household types in the country. This is different for Macedonia. There part-time farms with self-employment produce the highest per capita income (2,043 Euro) as compared to the other household types. Households that have abandoned farming in Slovenia can be considered as runner-ups to the per capita income of full-time farms (3,886 Euro). Part-time farms are very close together at around 3,400 Euro but around 25% behind the leader of the group. In Macedonia, a clear picture arises. Households that have abandoned farming do worst with a per capita income of 959 Euro. This figure is followed by full-time farms with a per capita income of 1,144 Euro (+20%) and part-time farms with wage employment (+53%). The per capita income of household members in part-time farms with self-employment is more than double that of households that have abandoned farming. Households that have abandoned farming seem to be quite diversified in Macedonia, thus it is puzzling that their per capita incomes are so low. The relative contribution of wage and self-employment income is substantial, but apparently the jobs are at the low end of remuneration as the family size of this household type is smaller than of part-time farms. The high per capita income of full-time farms in Slovenia seems also to be related somewhat to family size, as it is relatively small in this type of household. Moreover, the subsidisation of agriculture is

relatively pronounced in Slovenia (and negligible in Macedonia). Subsidies contribute between 21% and 33% to farm income per household. Somewhat surprisingly, the subsidisation level is highest for part-time farms with more than 30%.

**Table 1 Major non-farm income creating activities of active household members**

<i>Total number and percentage share of major activities</i>	Macedonia		Slovenia	
	#	%	#	%
• Food industry/food processing	7	2.27	12	3.68
• Trade sector	<b>20</b>	<b>6.47</b>	<b>14</b>	<b>4.29</b>
• Restaurant, waiter, and alike	11	3.56	4	1.23
• Tailoring, embroidery, knitting	7	2.27	12	3.68
• Car repair	<b>12</b>	<b>3.88</b>	2	0.06
• Transport sector	<b>22</b>	<b>7.12</b>	7	2.15
• Tourism sector	1	0.03	<b>13</b>	<b>3.99</b>
• Construction sector, carpentry	8	2.59	<b>13</b>	<b>3.99</b>

Source: Own calculation. Data from EC-PHARE ACE Project No. P98-1090-R.

Notes: a) The total number of active household members (16-64) in Macedonia = 368 and Slovenia = 352.

b) Some active household members may be engaged in more than one non-farm activity.

**Table 2 Sources and amount of net income per capita**

	Abandoned farming		Full-time farming		Part-time farming & wage-income		Part-time farming & self-employment	
	Share (%)	Euro (Ø)	Share (%)	Euro (Ø)	Share (%)	Euro (Ø)	Share (%)	Euro (Ø)
<b>Macedonia (N=120)</b>	(N=24)		(N=25)		(N=51)		(N=20)	
Farming	0.2	2	87.0	995	45.9	674	26.3	537
Wage-employment	48.5	498	2.7	31	45.8	672	9.1	185
Self-employment	36.7	378	0.0	0	0.0	0	52.6	1,076
Non-earned income	14.6	150	10.3	118	8.3	122	12.0	246
Per capita income	1028		1,144		1,468		2,044	
<b>Slovenia (N=120)</b>	(N=20)		(N=31)		(N=47)		(N=22)	
Farming	-4.1	-176	63.2	2,849	19.5	663	26.3	1,163
Wage-employment	67.1	2,881	4.1	183	51.7	1,754	13.9	614
Self-employment	1.7	74	5.5	247	3.6	122	44.2	1,951
Non-earned income	35.3	1,518	27.3	1,232	25.2	854	15.6	689
Per capita income	4,297		4,511		3,393		4,417	

Source: Own calculation. Data from EC-PHARE ACE Project No. P98-1090-R.

Notes: Total number of persons in the survey per country: Macedonia=529 and Slovenia=561.

Non-earned income = Pensions, social security payments, child benefits etc.

#### 4 Econometric modelling of non-farm rural employment

It is not uncommon that a dependent variable has more than two possible categorical values. In this case the multinomial logit analysis allows estimating a model that describes the relationship between the independent variables to the categorical dependent variable. The multinomial logit analysis is thus a logit analysis in nature but more general because it permits that

the dependent variable has more than two categories. Here the dependent variable is the logarithm of the household categories from 1 to 4 observed in the sample:

$$\text{Multi-nominal logit analysis} \left\{ \begin{array}{l} 1 - \text{HH, which abandoned farming} \\ 2 - \text{Full-time farm HH} \\ 3 - \text{HH with wage-employment} \\ 4 - \text{HH with self-employment} \end{array} \right\} = f(\text{explanatory variables})$$

The multinomial logit analysis uses a Maximum-Likelihood-Algorithm to estimate the parameters of the predictor variables. The coefficients for the independent variables are presented in Table 3. A negative logit coefficient can be interpreted such that when the independent variable increases by one unit, the odds that the dependent variable refers to the reference category (here group 4 'part-time farmers with self-employment') increases by the odds ratio (that is the exponential function, elogit coefficient). The classification table (Table 4) relates the observed to the predicted group membership, in this case employment category of household.

The fit of the model is good. Chi-square is significant at the 1% level, and more importantly, the Nagelkerke-pseudo-R<sup>2</sup> explains 62% of the variance among the groups with the eight variables included (Table 3). Correlation and covariance matrixes were estimated in the process of selecting the explanatory variables in the model. The model predicted 63% of the observations correctly (Table 4). However, the classification of two out of the four categories is not overly satisfactory; these are the full-time farm households and the rural households with self-employment activities. For these two groups the model predicts only between 38% and 55% of the observations correctly. Of the 240 observations, 236 were included in the multinomial logit regression.

The demographic variables reveal two interesting details. First, part-time farm households with self-employment activities seem to have a relatively low share of women. Second, they display a rather large number of (predominantly male) active household members. An additional active household member reduces the odds to belong to the household group one instead of four by about 45%, for household group two the odds are reduced by 50% and household group three by 15%. This is a strong indication for the fact that a greater number of active household members strengthens the trend to go into self-employment activities. One reason could be that labour demand can be satisfied more easily with well known household members before employing non-family labour and getting involved with formal employment regulations.

The farm size has nearly no predictive power on the choice of farm activity types. Nevertheless, the farm land coefficient is highly significant for the response category 'households that have abandoned farming'. Rural households that have abandoned farming tend to have less farm land. Since the sale and lease markets for land are not yet fully developed, neither in Slovenia nor in Macedonia, this result seems to indicate that distress-push reasons were causal for that type of household to abandon farming.

The variables indicating the risk bearing capacity looked at equity and income. A low equity stock points rather to households which have abandoned agriculture. Households with part-time farming belong normally to the better-off income groups. Part-time farming with self-employment appears to be the most effective strategy to create an income that maintains the livelihood on an acceptable level. The exception are the full-time farm households in Slovenia as mentioned earlier.

Table 4 Multinomial logit estimation of employment categories, both countries

	Reference category = Part-time farm HH with self-employment				Reference category = Part-time farm HH with wage employment			
	Abandoned farming		Full-time farm households		Part-time farm HH with wage employment		Part-time farm HH with self-employment	
	Logit coefficient	Odds-ratio	Logit coefficient	Odds-ratio	Logit coefficient	Odds-ratio	Logit coefficient	Odds-ratio
<b>Demographic variables</b>								
Gender Ratio	0.46**	1.047	0.029**	1.029	0.019(*)	1.019	-0.019(*)	0.981
Number of active household members	-0.603**	0.547	-0.696***	0.498	-0.164	0.848	0.164	1.179
<b>Farm characteristics</b>								
Farm size in ha	-0.954***	0.385	0.045*	1.046	-0.045(*)	0.956	0.045(*)	1.046
<b>Risk bearing capacity</b>								
Logarithm of equity capital tertile								
• Lowest tertile	1.995**	7.351	-1.163*	0.313	-0.148	0.862	0.148	1.160
• Medium tertile	0.082	1.085	-0.449	0.639	0.340	1.405	-0.340	0.712
Logarithm of income quintile								
• Lowest quintile	-0.397(*)	0.672	2.566***	13.008	0.142	1.153	-0.142	0.867
• Second quintile	1.155	3.174	1.985**	7.280	1.608**	4.992	-1.608**	0.200
• Third quintile	0.897	2.451	1.639**	5.148	1.209*	3.351	-1.209*	0.298
• Forth quintile	0.083	1.086	0.534	1.705	0.696	2.005	-0.696	0.499
<b>Attitudes towards NFRE</b>								
Operator's attitude towards agriculture	-1.558*	0.211	0.518	1.679	-0.006	1.006	0.006	0.994
Operator's attitude towards wage-employment	0.841	2.319	-0.094	0.910	1.056**	2.874	-1.056**	0.348
Operator's attitude towards self-employment	-0.994(*)	0.370	-0.693(*)	0.500	-0.996**	0.369	0.996**	2.706
Intercept	0.864		-0.073		0.044		-0.044	
-2 Log-Likelihood	427.963							
Chi-Square	206.278***							
Nagelkerke pseudo R <sup>2</sup>	0.621							
Observations in model	236							

Source: Own calculation. Data from EC-PHARE ACE Project No. P98-1090-R.

Significance at the (\*) 15, \*\*10, \*\*\*1% level.

Surprisingly, the attitude towards agriculture was only relevant and significant among those rural households, which had abandoned agriculture already. If the attitude towards farming is positive the odds are reduced by 79% that the household falls into the first category, which has abandoned farming altogether. The variable 'attitude towards wage-employment' was significant and displayed a high odds-ratio for the groups of part-time farmers with wage employment. If the attitude towards wage employment is positive, the odds to be part of the third group of household types (instead of being part of the reference group, which is the group representing part-time farming with self-employment) increases by 2.9. As expected, the positive attitude towards self-employment was significant for the group 'part-time farm households with self-employment'. If the attitude is positive the odds to belong to this group of households increases by 2.7 according to the odds-ratio.

**Table 3** Classification of correctly predicted employment categories, both countries

Observed	Predicted				Percent correct
	1	2	3	4	
1 = household which abandoned farming	34	0	10	0	77.3
2 = full-time farm household	3	32	17	4	57.1
3 = household with wage-employment	7	14	71	6	72.4
4 = household with self-employment	4	6	16	16	38.1
Overall percent correct predicted	20.0	21.7	47.5	10.8	<b>63.8</b>

Source: Own calculation. Data from EC-PHARE ACE Project No. P98-1090-R.

Note: The categories of the dependent variable are: 1 = household which abandoned farming; 2 = full-time farm household; 3 = household with wage-employment; and 4 = household with self-employment.

A preliminary conclusion of these results could be that non-farm employment can contribute to increase rural income levels, particularly among the part-time farm households. Furthermore, the family structure is crucial for realising the opportunity of working outside agriculture. Also, the attitudes towards farming and non-farm employment play a significant role for the decision to remain in agriculture, abandon agriculture, or expand the array of income creating activities.

## 5 Summary and conclusions

In the context of EU enlargement, the socio-economic imbalances between individual regions in CEE have been recognised as one of the most intractable problems of transition. The development of a more diversified rural economy has been stated repeatedly as one way to reduce these imbalances and thus improve the socio-economic livelihood of the rural population. The potential characteristics and determining factors of NFRE for the development of the rural economy were analysed in two case countries: Macedonia and Slovenia.

In both countries, Macedonia and Slovenia a tendency of employment diversification into wage-employment is observable. Generally, families with a greater number of active household members and especially men are more likely to start an own business. The three dominating non-farm activities in Macedonia are trade, car repair and transport (17% of mentioned activities). The composition of non-farm activities was more diverse in Slovenia. Trade was among the top three activities followed by the tourism and construction sector (12 % of mentioned activities).

The highest per capita incomes are reached by full-time farms in Slovenia and by part-time farms with self-employment in Macedonia. While the farm income is rather a function of the farm structure and size as well as of the labour productivity, the total income is clearly related to the number of non-farm activities in the household. The more non-farm activities per per-

son are carried out the higher the income level will be. This is a clear indication of the positive effect of NFRE on rural incomes in general. Yet, there is also evidence that diversification is often driven by distress-push reasons and that people turn to NFRE to complement insufficient farm income. By way of summary, employment choices are characterised by personal, demographic and income related variables. In both countries dissatisfactory incomes from agriculture seem to force households to complement their livelihood by NFRE. The final choice and composition of activities is also influenced by the attitudes towards different types of activities.

Clearly restructuring in the agricultural sector in the Balkans will continue and thus more and more people will need to find employment in the non-farm sector. The non-farm sector has been shown to work as a safety net as it concerns income generation. Nevertheless, national and ideally European development strategies for the non-farm sector are needed to cope with the existing regional imbalances as it concerns income levels and the increasing employment pressure on this sector in the future.

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