

NON-FARM DIVERSIFICATION DECISIONS OF RURAL HOUSEHOLDS IN MACEDONIA

Judith Möllers⁺, Franz Heidhues⁺⁺ and Gertrud Buchenrieder⁺

*⁺ Department of External Environment for Agriculture and Policy Analysis,
Institute for Agricultural Development in Central and Eastern Europe (IAMO),
06120 Halle (Saale), Germany*

*Tel.: ++49 345 2928127
Email: moellers@iamo.de*

*⁺⁺ Department of Rural Development Economics and Policy,
University of Hohenheim (490a), 70593 Stuttgart, Germany*

**Contributed paper prepared for presentation at the International
Association of Agricultural Economists Conference, Gold Coast, Australia,
August 12-18, 2006**

© 2006 by Judith Möllers, Franz Heidhues and Gertrud Buchenrieder. All rights reserved.
Readers may make verbatim copies of this document for non-commercial purposes by any
means, provided that this copyright notice appears on all such copies.

1. Introduction

Non-farm employment has been gaining prominence in the debate on rural development since the end of the 1990s (cf. Start 2001, Lanjouw and Shariff 2002). Policies focusing on the rural non-farm sector can contribute to poverty reduction, economic growth and a more equal income distribution by offering employment options and reducing urban migration. Policy makers focus on the non-farm sector, particularly in transition countries, in their struggle to overcome structural imbalances and high levels of rural unemployment.

This empirically based research intends to contribute to a better understanding of the importance of non-farm employment in rural areas of transition countries and of the driving forces which prompt farm households to diversify their activities. The analysis focuses on diversification strategies and their determinants in Macedonia.

2. Study sites and methodology

The household survey on which this research is based includes 120 randomly selected rural households in two regions in Macedonia: one a more peri-urban and one a rural region, each of them including a less favoured and more favoured area with regard to agriculture. The choice of regions is based on the NUTS-4-Level¹. The rural region of Gevgelija is situated in the north-eastern part of the country including the municipalities of Bogdanci, Gevgelija, Miravci and Star Dojran. It is comparably well developed and suitable for specialised vegetable, fruit and vine cultivation. The peri-urban Kumanovo lies in the northeast and consists of the municipalities of Klečovce, Kumanovo, Lipkovo, Orasac und Staro Nogoričane. The local industry in this region has suffered under the economic transition, which has resulted in high unemployment rates particularly among ethnic Albanians (Andonovski 2004).

The stratified sample includes four different household types. Their shares reflect regional structures, but a minimum number of households was defined for each type. Households combining farming activities with at least one non-farm wage employment dominate with

¹ NUTS stands for Nomenclature of Units for Territorial Statistics. This is a five-level hierarchical classification with three regional and two local levels. NUTS 1 is the largest regional level. It is subdivided into a number of NUTS 2 regions etc. NUTS 4 corresponds to groups of municipalities.

more than 40%. Full-time farmers with no access to non-farm incomes and households who have abandoned farming each represent around 20% of the sample. The smallest group are households with farming activities and at least one non-farm self-employment. They account for around 17% of all households.

One difficulty in analysing diversification processes is to identify dynamics of change and directions of causality (Barrett et al. 2001). The current study – as it is not based on time-series data – also cannot adequately display dynamic processes. To overcome this problem we use an approach in which we document the current status quo and combine it with information both on past decision-making processes with regard to household diversification and on future employment strategies. For the statistical analysis of determinants of future employment strategies we utilise a multinomial logistic regression model.

3. Employment strategies in rural Macedonia: Empirical findings

3.1. Non-farm diversification: Importance, motivation and constraints

The per capita income of Macedonian rural households for 2001 is 1,408 Euro (Table 1).² Non-farm income derived from wage and self-employment accounts for 49% of all income and hence plays a crucial role. The rural non-farm economy in the researched areas is dominated by the transport sector, followed by trade and car repairs. The two regions differ significantly concerning income levels, mainly because of higher farm income due to specialised vegetable cultivation in Gevgelija compared to Kumanovo.

Table 1 Sources and amount of income

	Per capita income	Household income		Kumanovo Household income		Gevgelija Household income	
	€	€	%	€	%	€	%
Total income	1,408	5,628	100.0	3,938	100.0	7,318	100.0
Farming	583	2,261	40.2	1,012	25.7	3,510	48.0
Wage employment	423	1,702	30.2	1,540	39.1	1,862	25.5
Self-employment	255	1,083	19.2	821	20.8	1,344	18.4
Unearned income	147	583	10.4	565	14.3	602	8.2

Note: N=120. Unearned income = Pensions, social security payments, child benefits etc.

² The per capita income figure given by the European Bank for Reconstruction and Development (EBRD 2002) for the same year is 1,753 USD (1,958 Euro), significantly higher than the observed average. This difference is not surprising considering that the risk of becoming poor in a transition country is 50% larger in rural areas than in urban areas (World Bank 2000).

When asked why they decided to take up non-farm employment, over 90% of the households gave high ratings of four or five on a scale from one to five for the statement that they decided to diversify into the non-farm sector to create additional income or to maintain their standard of living. Another important driving force for non-farm diversification is clearly the intention to reduce income risk (Table 2). The reasons ‘smooth household income differentials’ and ‘compensate for unstable returns on agriculture’ were given average ratings of around four. Also, the households mentioned the wish to invest in the personal development and education of household members as a motive for diversification. Market opportunities like an incentive to start one's own business are less important. All in all, the reasons stated for non-farm diversification indicate that distress-push factors dominate, namely to supplement insufficient farm income and to offset risks. Besides, in Macedonia the rural population is inclined to work in the non-farm sector. This is demonstrated by more than 80% of all household heads having positive or very positive attitudes towards non-farm wage and self-employment activities. Macedonians are rather reserved with regard to agriculture and there is a significant group which displays a definite negative attitude towards agriculture (33%). In particular, heads of farm households which have already abandoned their farms have a low appreciation of agriculture. This corresponds with the most important objective behind the decision to abandon agricultural activities, namely ‘to change the life-style’.

Table 2 Reasons for and constraints on non-farm diversification

Reasons	Average ratings	
	wage-employment	self-employment
Create additional incomes or maintain standard of living	4.50	4.60
Smooth income differentials and compensate for unstable returns on agriculture	3.70	4.12
Invest in personal development and education	3.05	3.32
Gain prestige through non-farm self-employment	2.84	3.32
Farm or non-farm investment/ market opportunity	2.68	2.88
Lack of labour demand in agriculture	2.86	2.76
Constraints		
High regional unemployment/ high competition	4.35	3.53
Low wages	3.70	..
Job insecurity	3.67	..
Delayed or late wage payments	3.23	..
Remoteness/ Lack of demand	2.53	4.11
Lack of equity capital	..	4.77
Lack of low-priced loans	..	4.69
High financial risk	..	4.20
Lack of skills and knowledge	2.67	2.60
Lack of information on starting a business	...	3.51

Note: The different possible reasons for taking up non-farm wage and self-employment and constraints hindering it were rated by the households on a scale from 1 (unimportant) to 5 (very important).

Limited capital and loan availability are named as the most important reasons for not starting a business in the non-farm sector (Table 2). Further important constraints on diversification are the non-farm labour market, low wages, insecurity and late wage payments. Qualitative analysis results suggest that Macedonian rural people are rather risk-averse and the majority is not willing to take up a loan at all. A lack of skills, knowledge and information is seen as a less decisive constraint by the households. According to expert interviews, these factors are underrated, though, in their importance for constraining access to non-farm employment.

So far, the results presented draw on past diversification decisions. In the following we will analyse determinants of future diversification dynamics. We will discuss the most important employment strategies in rural Macedonia by analysing statements made by the researched households regarding their planned activities within a time frame of five years.

3.2. Future employment strategies of farm households

Distress-push processes dominate rural diversification in Macedonia. With only 6% of farm households stating that they do not plan to adapt their employment strategy, Table 3 clearly points at the economic distress families face and the pressure to tread new paths with regard to rural employment.³ The most important strategy is to start or expand non-farm employment in combination with agricultural activities; 43% of the households plan to pursue this strategy. Another 23% state that they will expand their farms. Not surprisingly, only 8% of these farms are located in Kumanovo, compared to 38% in Gevgelija, where farm income is significantly higher. Since it is difficult to buy or rent arable land of good quality, those families have a keen interest in acquiring or renting acreage from former state farms – also because only they offer larger plots. The share of farm families who intend to abandon their farms is high, lying at 20%. A closer look at the data reveals that two types of households can be distinguished within this group: a smaller group of households give up farming due to old-age, but the majority abandons farming in favour of an opportunity to work off-farm in the region.

³ The future employment strategies are only analysed for farm households; households which have already abandoned farming are excluded from the sample.

Table 3 Anticipated future of farms (%)

Where do you see your farm in 5 years from now?	All farm households	Kumanovo (peri-urban)	Gevgelija (rural)
Stop farming	22.9	31.3	14.6
Continue farm business, additional non-farm employment	42.7	39.6	45.8
Continue farm business, no further adjustments	6.3	10.4	2.1
Continue and expand farm business	22.9	8.3	37.5

Note: N= 96, Missing percent to 100 = "I don't know"

A multinomial logistic regression analysis pinpoints determinants affecting the probability of the choice for future employment strategies of rural households. The dependent variable reflects the three most important employment strategies: (1) diversification of income-generating activities, (2) abandoning of farming activities, and (3) expansion of the farm.

As the high Nagelkerke R^2 value of 0.844 indicates, the independent variables explain future employment strategies well (Table 4). The suitability of the model was tested by Hosmer-Lemeshow statistics in two binary models and proved to be good. The classification table of correctly predicted employment strategies shows that the model predicted nearly 90% of all observations correctly (Table 5).

Abandoning strategy. As mentioned above, we expect two different types of households in this group, pensioners who give up due to old-age and diversifiers who pursue job opportunities in the rural non-farm economy. Thus, it is not surprising to find that, on the one hand, households with elderly household heads are willing to abandon their farm. Typically, their household members are less educated. This is expressed by the positive sign of the dummy variable for low education level, indicating that the household has no members exceeding eight years elementary education. Also, they are likely to have had no specific agricultural training or to have taken part in courses in this field.

On the other hand, mobility increases the probability of abandoning the farm in the future. The dummy variable for mobility has the value one for households with members who are willing to work more than 20 km away from their farm or move away altogether. It is assumed that employment opportunities in the non-farm sector are more easily accessed by more mobile household members. Also the expectation of gaining better prestige when taking up non-farm self-employment has the same effect.

A very positive attitude towards non-farm wage employment has a significant effect on the decision to give up agriculture. Interestingly, households in which the household head has a very positive attitude towards agriculture are also among those who plan to abandon their farm. One explanation for this finding is that the elderly household heads over 55 years are known to regard agricultural activities more favourably.

The families who plan to abandon their farm are mostly small and their dependency ratio is high. Their diversification level and their capital equipment is relatively low, whereas the access to land seems to play no crucial role in the decision to give up the farm.⁴ Concerning the distance to economic and infrastructural institutions, households who give up farming tend to be located in disadvantaged and remote areas. Despite this, there is no proof that people actively looking for work face restrictive constraints when it comes to access to the labour market.

Expansion strategy. The strategy of expanding the farm is more pronounced in the region of Gevgelija than in Kumanovo. Even though the variable just misses statistical significance, it seems as if access to land influences this strategy. The more land a farm family currently has, the more likely they are to expand their farm. Again, household heads who intend to follow this strategy tend to be older. Their attitude towards agriculture is, as expected, positive. As in those households following the abandoning strategy, these household members have a rather low level of education, but here they have often had some kind of agricultural professional training or have taken part in further education in this field. The dependency ratio of households in this group is relatively low, but despite this their household members are less likely to be mobile. They also cannot draw on professional experience accumulated during a past employment in a state enterprise, which is supposed to facilitate access to non-farm employment.

Diversification strategy. The redundant group of households intending to follow a diversification strategy is not shown in Table 4. The main characteristic of this group is the younger age of its household heads. The diversification strategy is more pronounced in Kumanovo, where on the one hand the economic pressure is higher and on the other the peri-urban character of the region offers more off-farm employment opportunities compared to

⁴ Diversification was measured by an index composed of two Shannon entropies and a correction for the capacity of a household to diversify. It covers the main aspects of diversification, i.e. the abundance of income-generating activities in a household, their dissimilarity, and their balance (Möllers 2006). The diversification dummy variable has the value one for the upper tertile.

Table 4 Multinomial logistic regression model of future employment strategies of farm households

Variable	Coefficient β	Standardised coefficient β^*	Wald statistics	Odds ratio Exp(β)	Odds ratio Exp(β^*)
Abandoning strategy					
Rural region	1.762	0.885	1.062	5.823	2.422
Age of household head	0.690	8.557*	3.114	1.993	5205.3
Age square of household head	-0.009	-10.217*	3.701	0.991	3.655E-05
Low education level ^a	3.353	1.303*	2.829	5.823	3.680
Previous employment in public sector	-0.908	-0.437	0.325	0.403	0.646
Land cultivated	0.532	1.145	0.889	1.703	3.143
Prestige dummy variable ^a	4.988	2.487**	5.850	146.614	12.028
Remoteness ^a	0.784	1.894*	2.737	2.190	6.644
Family size	-1.455	-2.390*	2.886	0.233	0.092
Dependency ratio	3.131	2.175**	4.667	22.893	8.805
Very positive attitude - agriculture	5.171	2.168**	5.417	176.111	8.744
Very positive attitude - wage employment	4.818	2.332***	8.156	123.778	10.296
Gender ratio	-0.002	-0.036	0.002	0.998	0.965
Mobility ^a	2.951	1.480 ^(*)	2.665	19.131	4.393
Agricultural vocational training	-3.464	-1.413*	3.109	0.031	0.243
Labour market constraints ^a	-2.340	-1.108 ^(*)	2.072	0.096	0.330
Low access to capital equipment (tertile 1)	6.801	3.219**	5.784	898.549	25.012
Highly diversified ^a	-3.992	-1.890**	4.374	0.018	0.151
Household income tertile 1 (poor)	1.821	1.821	0.713	6.177	6.177
Household income tertile 2 (medium)	1.524	1.524	0.605	4.591	4.591
Constant	-21.666	-2.986	3.939		
Expansion of farm					
Rural region	7.355	3.693*	2.393	1563.5	40.156
Age of household head	1.543	19.138*	3.748	4.676	204931102
Age square of household head	-0.019	-21.656*	2.779	0.981	3.934E-10
Low education level ^a	5.872	2.282*	3.134	355.1	9.794
Previous employment in public sector	-3.637	-1.751*	3.310	0.026	0.174
Land cultivated	1.033	2.222 ^(*)	3.538	2.809	9.229
Prestige dummy variable ^a	0.711	0.354	2.519	2.035	1.425
Remoteness ^a	-0.211	-0.510	0.238	0.810	0.600
Family size	-0.157	-0.257	0.090	0.855	0.773
Dependency ratio	-2.760	-1.918 ^(*)	2.578	0.063	0.147
Very positive attitude - agriculture	11.603	4.865***	6.615	109415	129.7
Very positive attitude - wage employment	0.152	0.074	2.393	1.164	1.076
Gender ratio	-0.041	-0.728	0.353	0.959	0.483
Mobility ^a	-4.888	-2.451*	3.389	0.008	0.086
Agricultural vocational training	4.116	1.679**	6.363	61.3	5.359
Labour market constraints ^a	1.946	0.921	0.965	6.999	2.512
Low access to capital equipment (tertile 1)	2.021	0.957	0.403	7.547	2.603
Highly diversified ^a	-1.395	-3.868	0.697	0.248	0.517
Household income tertile 1 (poor)	-1.141	-1.141	0.200	0.319	0.319
Household income tertile 2 (medium)	-2.230	-2.230	1.370	0.108	0.108
Constant	-35.454	-3.868	2.567		
-2 Log-Likelihood	65.162	-			
Nagelkerke R ²	0.844				
Hosmer-Lemeshow statistics	0.910/0.255				

Note: β^* -coefficients are standardised by a z-transformation. The categories of the dependent variable are: 1= Abandoning of farm activities, 2 (redundant) = Combination of farm and non-farm activities (diversification strategy) 3 = Expansion of farm. N=86

^a Variables are defined in the text

Gevgelija. Moreover, the members of households following the diversification strategy are better educated. While they are less likely to have an agricultural professional background, they can draw on previous experience in state enterprises. They also seem to be more mobile compared to households who plan to expand their farm.

Smaller farms are more likely to combine farm and non-farm activities than the bigger ones. The fact that attitudes towards agriculture are less positive compared to the other groups points at a distress-push reasoning and the need to complement insufficient farm incomes with non-farm incomes. Also the dependency ratio, which is significantly higher in this group compared to those who intend to expand their farm, could be interpreted as an indication of distress-push dynamics as the families have to support more dependent members.

Table 5 Classification table of the multinomial logistic regression model

	Predicted			Percentage correct
	1	2	3	
1= Abandoning of farm activities	20	3	0	87.0%
2= Combination of farm and non-farm activities	3	35	3	85.4%
3= Expansion of farm	0	2	20	90.9%
Total percentage	26.7%	46.5%	26.7%	87.2%

4. Discussion and conclusion

Non-farm employment and diversified income portfolios are outstanding features of rural households in Macedonia. The analysis of the driving forces of the trend towards non-farm employment pointed at unfavourable economic conditions in which particularly insufficient farm income forces households to complement their incomes (distress-push processes).

The wish to tap into new income sources in the rural non-farm economy explains why education receives such high priority. Moreover, rural residents in Macedonia, particularly the younger generation, have reserved attitudes towards agriculture and the most important reason for giving up farming is the wish to change the life style. This surely has implications for the future development of rural areas in Macedonia, the more so as the economic pressure to further adapt income strategies is also high.

While hardly any farm household states that it will not adapt its employment strategy in the near future, the analysis suggested that there are three main strategies, each of which being pursued by households with clearly distinctive profiles. First of all, the level of diversification is expected to further increase as about half of the farm households intend to further diversify into non-farm employment. Second, there is a high willingness to give up agricultural activities altogether. The third group intends to expand their farming activities.

The diversification strategy typically occurs under unfavourable economic conditions, but the households following it can rely on young and well-educated household heads who are flexible and probably willing to abandon their agricultural activities in the long term.

Farm households who intend to abandon agriculture within a time-frame of five years are more likely to be located in remote areas and are not well equipped with land and capital. Two types of typical abandoners were identified. The first is old-aged, low educated and has positive attitudes towards agriculture. This group represents the phase-out of uncompetitive small-scale farms with no successor. The second group is particularly characterised by their high mobility, their positive attitudes towards wage-employment and their belief that non-farm self-employment will contribute to their prestige.

Also farm households following the expansion strategy have a distinct profile, namely more favourable economic conditions, including more land and a positive attitude towards agriculture. Their education level is relatively low, but they have often participated in agricultural training or specialised education in this field.

We conclude that there is a clear trend towards non-farm employment in rural Macedonia which should be recognised and taken up by rural development policy makers. The increase in high diversification levels can be seen more as a transitional phenomenon since the willingness to give up farming in the long run is high. The more favourable the economic development is, the faster this trend to abandon agriculture will become. To facilitate entering the rural non-farm economy particularly affordable loans need to be made available in rural areas. Education and specific consulting services are also necessary in order to encourage people to start competitive and sustainable businesses. In the longer term, rural development policies should aim at overcoming the unfavourable small-scale agricultural structure which is the main cause of distress-pushed diversification.

Acknowledgements

We gratefully acknowledge the financing of this study through a research grant from the European Union (EC-PHARE-ACE Project P98-1090-R). An additional qualitative component of the empirical research was carried out with the support of the Deutsche Forschungsgemeinschaft (DFG Project HE 1416/10-1).

References

- Andonovski, Z. (ed.), 2004. Socio-economic disparities among municipalities in Macedonia. State Statistical Office of the Republic of Macedonia (SSORM), Skopje
- Barrett, C., T. Reardon und P. Webb, 2001. Nonfarm income diversification and household livelihood strategies in rural Africa: concepts, dynamics and policy implications. *Food Policy* 26 (4): 315-331
- EBRD, 2001. Transition Report 2001 - Energy in transition. European Bank for Reconstruction and Development (EBRD), London
- Lanjouw, P. und A. Shariff, 2002. Rural Nonfarm Employment in India: Access, Incomes and Poverty Impact. NCAER Working Paper Series 81. National Council of Applied Economic Research (NCAER), New Delhi
- Möllers, J., 2006. Außerlandwirtschaftliche Diversifikation im Transformationsprozess. Diversifikationsentscheidungen und -strategien ländlicher Haushalte in Slowenien und Mazedonien. Dissertation, Universität Hohenheim, Stuttgart
- Start, D., 2001. The Rise and Fall of the Rural Non-farm Economy: Poverty Impacts and Policy Options. *Development Policy Review* 19 (4): 491-505
- World Bank, 2000. Making Transition Work for Everyone: Poverty and Inequality in Europe and Central Asia. World Bank, Washington, D.C.