

The Rural Non-Farm Economy and Poverty Alleviation in Armenia, Georgia and Romania: A Synthesis of Findings

Junior R. Davis, Dirk J. Bezemer,
Monica Janowski and Tiago Wandschneider



Natural
Resources
Institute

DFID Department for
International
Development

**The Rural Non-Farm Economy
and Poverty Alleviation in
Armenia, Georgia
and Romania:
A Synthesis of Findings**

Junior R. Davis, Dirk J. Bezemer,
Monica Janowski and Tiago Wandschneider

The Natural Resources Institute (NRI) of the University of Greenwich is an internationally recognized centre of expertise in research and consultancy in the environment and natural resources sector. The Institute carries out research and development and training to promote efficient management and use of renewable natural resources in support of sustainable livelihoods.

Short extracts of this publication may be reproduced in any non-advertising, non-profit-making context provided that the source is acknowledged as follows:

Davis, J. R., Bezemer, D. J., Janowski, M. and Wandschneider, T. (2004) *The Rural Non-Farm Economy and Poverty Alleviation in Armenia, Georgia and Romania: A Synthesis of Findings*. Chatham, UK: Natural Resources Institute.

Permission for commercial reproduction should be sought from the Publications Manager, University of Greenwich at Medway, Central Avenue, Chatham Maritime, Kent ME4 4TB, United Kingdom.

This publication is an output from a project funded by the United Kingdom Department for International Development (DFID) under the DFID/World Bank Collaborative Programme for Rural Development. The views expressed are solely those of the authors and not necessarily those of DFID or the World Bank.

Natural Resources Institute

0 85954 559-8

University of Greenwich, a registered charity and company limited by guarantee, registered in England (Reg. No. 986729). Registered Office: Old Royal Naval College, Park Row, Greenwich, London SE10 9LS.

Contents

Acronyms and Abbreviations	iv
Acknowledgements	v
Introduction	1
Background to the Research	3
Conceptual Framework	4
Methodology	6
1 Country Background	9
2 Main Problems for the Rural Economy in Transition Countries	11
3 Livelihoods and Diversification: Overview of Findings	13
The Livelihood Context	13
Agriculture, Non-farm Activities and Poverty	13
Human, Physical and Financial Capital, and Access to Non-farm Economic Activities	14
Social Capital and Access to Non-farm Economic Activities	16
4 Analysis: Assets, Activities and Poverty	21
The Analytical Context	21
The Determinants of Households' Involvement in the RNFE	22
Non-farm Activities and Poverty Alleviation	23
5 Summary and Conclusions	25
Agriculture and Rural Diversification	25
Non-farm Activities and Employment	25
Promoting the Development of the RNFE	26
Social Capital and Assistance to Community Groups	27
Policy Interventions and Further Research	27
Institutional Change and the Case for Intervention	28
References	29
Appendixes	
Appendix 1: 'Capitals' by Regional Types, Development and Poverty	33
Appendix 2: Economic Activity Indicators by Region, Development and Poverty	37
Appendix 3: Factors in Households' Involvement in Rural Non-farm Activities	41
Appendix 4: Factors Affecting the Risk of Poverty	45
Appendix 5: Earned Income Non-Farm Shares and Sectoral Composition of the RNFE	49

Acronyms and Abbreviations

ASAL	Agricultural Sector Adjustment Loan
CAR	Central Asian Republics
CBO	Community-Based Organizations
CEE	Central and Eastern Europe
CIS	Commonwealth of Independent States
DFID	Department for International Development, UK
EU	European Union
GDP	Gross Domestic Product
IMF	International Monetary Fund
LFA	Less Favoured Area
MFA	More Favoured Area
MSME	Micro, Small and Medium Sized Enterprise
NGO	Non-Governmental Organization
NRI	Natural Resources Institute
NUTS 4	Nomenclature of Territorial Units for Statistics
RNFE	Rural Non-Farm Economy
SME	Small and Medium Sized Enterprise

Acknowledgements

This paper has been a collaborative endeavour with significant contributions from the following:

- in Armenia: Ms Astghik Mirzakhanian (UNDP), Ms Gayane Minasyan (World Bank), Mr Nairuhi Jrbashyan, Mr Paruir Asatryan, Mr Ruben Yeganyan, Mr Nelson Shahnazaryan, Dr Marc Duponcel (FAO), Mr Patrick Tateossian (formerly EU) and Mrs Kharatyan
- in Georgia: Ms Tea Khoperia, Mr Tskitishvili (IPM Georgia), Ms Darejan Kapanadze (World Bank), Mr Giorgi Meskhidze (Centre for Social Studies), Mr Tamaz Dundua (Elkana) and Mrs Nana Sumbadze
- in Romania: Mr Sebastian Lazariou (Centre for Public Opinion and Market Research), Mrs Ana Bleahu (Institute for the Quality of Life, Romanian Academy), Mrs Angela Gaburici (Academy of Economic Sciences), Mr Gabriel Ionita (World Bank) and Mr David Humphreys.

The authors would also like to thank: Ms Felicity Proctor (World Bank and DFID), Professor Paul Hare (Heriot-Watt University) and Dr Gertrud Buchenreider (University of Hohenheim) for their contributions and comments. The authors gratefully acknowledge the support of the DFID/World Bank Collaborative Programme for Rural Development, for funding this work. However, the views in this report are solely those of the authors and do not necessarily represent the official view of the agencies or individuals concerned.

Introduction

The literature on transition economies devotes relatively little attention to agriculture and the rural non-farm economy (RNFE), despite the importance of the sector and its relevance to the livelihoods of the majority of the world's poor. This paper is part of a growing volume of empirical work on agriculture in transition countries and especially on the topic of the RNFE and livelihood diversification among the poor. The empirical work presented is primarily based on large (nation-wide) rural household surveys and other field-related research activities using a broad range of methodologies.

In the Balkans and the Central Asian Republics (CAR)¹, where the research was undertaken², the agricultural sector is failing to provide a decent livelihood for its workforce, especially the poor. The rural labour force cannot be productively absorbed in the agricultural sector and poverty is growing. For example, in Romania, the poverty gap as a percentage of GDP rose to a level nearly three times that at the beginning of the 'transition' from communism to a market-based economy, despite steady GDP growth in 1993 and 1994. In this context, the non-farm sector has the potential to play an important role in poverty alleviation for the rural population. Creating more opportunities for off-farm work in the Balkans and CAR has become a formidable and important task for policy-makers, particularly when the high levels of rural unemployment and depth of poverty in the Balkans are compared with the much better situation in the EU and even in Central Europe (Milanovich, 1998).

There is growing evidence that in Central and Eastern Europe (CEE)³, rural households commonly already depend on non-farm sources for 30–50% of their income (see Davis and Gaburici, 1999; Greif, 1997), which is a similar proportion to those found by Ellis (2000) in southern Africa (on average 40%) and in South Asia and Latin America, where rural households are around 60% dependent on non-farm income (Lanjouw, 1999; Reardon *et al.*, 1999). However, the percentage of population involved in non-farm activities in CEE countries varies quite widely, ranging from around 7% in Poland to 65% in Slovenia. In countries with scattered and largely subsistence-based farms (e.g. Bulgaria, Poland and Romania), the demand for additional employment is high but opportunities are not numerous.

There has been a reasonably successful transformation of the Balkan and CAR political and economic system over the last 14 years, and this has attracted investment, leading to the realistic hope that the substantial gap in GDP per head with the EU may be bridged within a generation. However, the likelihood is that agriculture will remain relatively subsistence-oriented for the foreseeable future. There are risks to agricultural investment within these countries such as the recent unrest amongst the agricultural and rural lobbies of the Balkan and CAR countries at a time of low international agricultural commodity prices and fears of unfair treatment as potentially new members of the EU, especially over EU food exports and the

¹ Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

² Research was carried out between 1999 and 2002 in Romania, Georgia and Armenia.

³ Albania, Bosnia and Herzegovina, Bulgaria, Czech Republic, FYR Macedonia, Hungary, Poland, Romania, Slovak Republic and Slovenia.

important direct payments that are currently paid to EU farmers. In the current economic climate, with limited markets and low market prices for most agricultural produce, the strategy of mainly small farm subsistence is retained by many households as a low risk survival option. This is a rational strategy on a short-term basis and remains so in an insecure economic context. However, the high reliance on subsistence farming which currently prevails throughout the region has carried with it a low level of rural economic growth.

The non-farm sector plays an important role in employment and income in rural areas throughout the region. Rural people often have multiple sources of income generation to increase or smooth income, reduce risk (through diversification) or improve future employment prospects (by acquiring skills or capital). These income-generating opportunities may exist in rural areas, or require daily travel to rural towns, or may involve migration and remittances. Unsurprisingly, higher income groups are able to diversify into more highly paid jobs or more profitable self-employment, whilst the smaller subsistence farmers diversify into poorly paid unskilled wage labouring or various categories of often opportunistic and occasional self-employment.

There is currently a recognition amongst donors of the importance of supporting *in situ* non-farm activities in rural areas. For Romania, it is likely that the EU-SAPARD programme will reflect priorities for improving rural infrastructure and off-farm employment creation, despite the fact that these funds are earmarked mainly for agricultural activities. Proposed World Bank rural development programmes for the CAR cover all sectors and are aimed at rural unemployed people. The case for supporting non-farm activities *in situ* is that rural unemployment could well increase from already high levels if the 'pull' of a fast growing economy slows and the 'push' of low commodity prices combined with low agricultural productivity and competition from EU agriculture, continues.

There have been seismic shifts in all spheres of life for the people of the CEE and Commonwealth of Independent States (CIS) countries. Since 1989, changes in the economic (competition inside the EU and liberalization), institutional (devolution and democracy) and social environment (a more open society and available information), as well as rising expectations of standards of living (clearly demonstrated elsewhere in Balkan and CAR society as being achievable), are likely to leave all but the most well equipped, rural citizens exposed to '*future shock*' or an inability to cope with such change. Such people, situated in some of the poorest regions of Central and Eastern Europe, at the periphery of a large European community and with low levels of public services (important for their quality of life), will have few options and chances for development. Most public services – health, education and social security – are currently being reformed. These reforms are likely to result in a greater emphasis on increasing individual contributions, especially if Balkan and CAR governments position public expenditure levels according to the criteria for joining the single currency (as in the case of Romania), or on IMF conditionality for the CAR. Rural people will not be able to escape these changes and some kind of adjustment assistance is, therefore, justified.

Given the importance of the non-farm sector in the Balkans and CAR, in this paper we emphasize the importance of enabling the rural population to improve their economic situation through increased engagement with the non-farm sector within the rural areas in which they live. Although migration to urban areas is one route out of rural poverty, we maintain that increased sources of income within rural areas is an important alternative, given the growth in urban poverty, the public cost of maintaining adequate levels of urban facilities and infrastructure, and the escalating environmental costs of urbanization. In the current unstable economic climate, the fact that in rural areas, households are able to rely on subsistence agricultural production is an important consideration,

providing a vital safety net not so easily available in towns.

Much of the policy and intervention intended to improve the situation for the rural population has emphasized employment opportunities. In the transition countries, employment opportunities have focused on *creating jobs* or *creating the conditions in which jobs are created* (e.g. economic liberalization; provision of financial services; infrastructure development, particularly roads, electrification, ports, telephones; establishing small business parks; providing tax holidays, etc.). There has been relatively little focus on the factors that determine people's *capacity* to take advantage of these jobs. The factors affecting the rural population's access to non-farm rural employment in transition economies are complex and largely unexplored. Neither has there been much emphasis on the role of *small-scale self-employment* in the current climate.

We intend in this paper to look at key factors affecting the ability and motivation of rural dwellers to become involved in the non-farm economy. Literature on the RNFE highlights the role of education, health, access to finance, gender, infrastructure and social capital in rural non-farm employment⁴. Some preliminary work on these issues in a transition economy by Heidhues *et al.* (1998a), Davis and Gaburici (1999), Davis and Pearce (2001), Janowski (2003), and Breitschopf and Schrieder (1999) suggests the kinds of processes in operation. The poorest groups (small subsistence farmers) diversify into activities where wages are no higher than those in the agricultural sector, whilst higher income groups (larger farmers) also diversify, but into better-paid sectors. Two processes are thus apparent: *demand-pull*, where rural people respond to new opportunities; and *distress-push*, where the poorest are driven to seek non-farm employment for want of other on-farm opportunities. Sometimes these processes work together. The non-farm sector is thus important in

rural employment and incomes, in both stagnant and buoyant agricultural sectors.

In this paper, we focus on the importance of understanding the processes and motivations which enable individuals and households to engage in non-farm activities, and the economics and potential poverty implications of RNFE development for the rural poor.

Background to the Research

The focus of this paper is on rural non-farm livelihoods in economies in transition. It was prepared as part of the Natural Resources Institute (NRI) project entitled 'Characterization and Analysis of the Non-Farm Rural Sector in Transition Economies', undertaken for the World Bank and the Department for International Development (DFID). This programme of applied policy research began in March 2000 as a result of the Rural Non-Farm Economy workshop held at the World Bank in Washington in June 1999. This paper is intended to summarize the key findings from national surveys of the RNFE in Armenia, Georgia and Romania conducted during November 2001 to March 2002.

The intended outputs of this study are: (i) to improve understanding of the dynamics of the RNFE in providing employment and income diversification opportunities in Armenia, Georgia and Romania; and (ii) to promote mechanisms for integrating research results into relevant policy processes. Improved policy-making in this context may involve:

- a focus on improving the well-being and livelihoods of the rural population, through developing their capacity to access resources and actively participate in the RNFE and employment opportunities
- an emphasis on the diversity and diversification of income sources in the face

⁴ These are discussed more fully in Gordon (1999). Household capacity to engage in the RNFE is also discussed by Reardon *et al.* (1998).

of vulnerability to shocks and stresses, particularly on the part of the poorest members of society

- an acceptance of the need for an in-depth understanding of the context (socio-cultural, economic, agronomic) in which non-farm rural livelihood options are currently pursued and in which new options can be developed.

The paper contributes to a wider NRI project which aims to identify the institutional and policy deficiencies constraining non-farm rural livelihoods in the CEE and CIS, to analyse the determinants of infrastructural and policy factors, and to work with policy-makers to improve opportunities for the RNFE.

The findings of this study relate well to other surveys conducted by the World Bank in the region in terms of their methodology, coherence and outcomes (e.g. the 1996 ASAL survey in Romania⁵). The work presented is of particular value for at least four reasons.

- (i) Our research focused on a specific subset of the rural economy and consequently particular sections of the population involved in non-farm employment and income generating activities. These groups are often ignored or under-represented in rural surveys and thus, a clear understanding of their motivation to diversify, manage risk, migrate or enter formal employment should assist the development of appropriate rural policies, particularly poverty reduction strategies and the promotion of rural economic growth.
- (ii) Income diversification comes from a variety of sources, including agriculture, migration, remittances, daily travel to nearby urban employment, local wage-labour opportunities and self-employment. There has, however, been a lack of reliable statistical data on this issue; and the situation

is further complicated by the presence of the informal economy. A major strength of this research has been to analyse the situation in more depth, provide new empirical data and to assess the relative importance of each of these income sources. Our research provides an improved understanding of the complex social and economic factors that underlie rural livelihood diversification and poverty in transition economies.

- (iii) Key factors influencing capacity to engage in the RNFE include: household composition; education and skills; access to finance; and social capital and networks. Again, however, the empirical evidence is patchy and incomplete. A further strength of this research, therefore, has been to evaluate this in more depth.
- (iv) Policy initiatives and interventions designed to improve the situation for rural populations have tended to emphasize employment opportunities. In the transition economies, employment opportunities have focused on creating jobs or on creating conditions in which jobs are created. Conversely, people's capacity to access or create rural non-farm employment has received less attention. This has been a further important contribution of the research.

Conceptual Framework

This paper is structured around the concepts of livelihood and diversity. "A livelihood comprises the assets (natural, physical, human, financial and social capital), the activities, and the access gained to these ... that together determine the living gained by ... the household" (Ellis, 2000: 10).

Assets form households' endowment of resources with which to gain their living. In this definition, the conventional meaning of assets is expanded to include, besides material and financial

⁵ Within the Agricultural Sector Adjustment Loan (ASAL) of the World Bank, a cross-sectional micro-economic survey of more than 1000 rural enterprises was carried out in Romania during 1996 and 1997. A similar household survey focusing on private farming in Armenia was conducted in 1998. From 2000 to 2002, NRI with international partners conducted a RNFE survey in Bulgaria, Macedonia and Slovenia under the auspices of the EC-PHARE ACE programme (ACE PHARE 98-BPODRE).

resources, household members' skills and experience (human capital) and their relations within wider communities (social capital). This inclusive definition, as well as use of the term 'capital' in these senses, is not uncontroversial (Davis and Bezemer, 2003), but it serves to highlight several unifying features of diverse resources. They require investment, in terms of time or money, in order to be obtained or formed. They can (but need not) be used in an economically productive way, and in doing so, they are (imperfectly) substitutable and complement household labour.

Activities comprise all the ways in which household members utilize their non-leisure time to support their livelihoods. This broad definition includes work and care, employment and entrepreneurship, agricultural production and trade, and a range of other dichotomies (some of these are depicted in Davis and Bezemer, 2003). Engagement in activities both requires assets and may increase households' stock of assets. Households' endowment of assets and involvement in activities jointly support their level of well-being.

Another central term in this paper is *diversity*, which follows naturally from the idea of livelihood. Diversity in a household's activities and income (which is one measure of a

household's living standard) "refers to the existence, at a point in time, of ... different household income sources..." (Ellis, 2000: 14). Given heterogeneity in assets, diversity in income is almost implied. Indeed, both individual and household income normally derives from more than one source: income diversification is the norm, specialization the exception (Barrett *et al.*, 2001). Table 1 shows the average rural non-farm income shares in households in the CEE and CIS.

Typically, household income diversity is especially large in rural areas. Rural households are more often producers as well as consumers, which implies the presence of profit (from sold output) or in-kind income (if output is consumed) as income components in addition to, for instance, wages. Several other factors make it less likely that any single source of income is sufficient to meet rural household needs: larger household sizes, relatively lower remuneration of capital and labour, seasonality of agricultural revenues, and the more limited market development that often characterizes rural areas. Rural poverty, although not necessarily everywhere more serious than urban poverty, has been and is an increasing problem in many transition countries (Milanovich, 1998).

Table 1: Rural non-farm income shares in the CEE and CIS*

Country	Average share
Armenia	31
Bulgaria	68
Georgia	55
Macedonia	26
Romania	42
Slovenia	43

Source: Davis (2003); EC PHARE ACE Project No. P98-1090-R EU Accession in the Balkans: Policy Options for Diversification in the Rural Economy.

* Data based on total household income, including social transfers.

Methodology

In recent years there has been a growing recognition of the role of the non-farm sector for employment, income smoothing and income generation in rural areas in the developing, developed and transition countries (Barrett *et al.*, 2001; Lanjouw and Lanjouw, 1997). However, there has been limited focus on the factors that determine people's capacity to take advantage of or to generate these opportunities. As mentioned earlier, two processes are apparent: demand-pull and distress-push. The non-farm sector is vital for Armenia and Georgia's economic growth, as the development of remunerative and sustainable non-farm employment opportunities will have important effects in terms of poverty reduction. It is also important for Romania's EU accession, currently foreseen in 2007, as the development of remunerative and sustainable non-farm employment opportunities will have important effects in terms of the use of future structural funds, regional assistance and the implementation of the Common Agricultural Policy.

This research identifies the key socio-economic factors, resources, activities and constraints to rural households and enterprises in the RNFE. These data were collected at the micro level and analysed in the context of the sustainable livelihoods framework (Ellis, 2000), farm systems theory and contemporary econometric methodologies. The aim was to derive policy conclusions conducive to the development of sustainable rural livelihoods.

We adopted a methodology involving both quantitative and qualitative approaches. Many issues (e.g. cultural bias against particular activities), are sensitive or 'embedded' and reasons for opinions and actions are multi-layered and require discussion through focus groups, household interviews, and/or deeper examination on a case study basis. We used qualitative as well as quantitative methods throughout the research, selecting communities for closer study. Some areas or issues, however,

can be accessed effectively through formal questionnaires, and we used these in both the baseline and main phases of the research to obtain large, nationally representative samples and data which are statistically comparable. In the baseline phase, we administered an enterprise level questionnaire, and in the main, subsequent phase, we administered a household-level questionnaire more widely within the countries. Through the use of both qualitative and quantitative methods, we aimed to gather complementary data giving as comprehensive a picture as possible on social and cultural factors as well as economic and other constraints influencing RNFE preferences and constraints.

For the qualitative part of the research, nine villages were selected as field sites, representative of key criteria differentiating villages within the countries concerned (including, for example, level of access to markets and to towns, land tenure, ethnic make-up). We selected two villages in Romania (Motatei-Gara in Dolj *judet*; Rotbav in Brasov *judet*) and three villages each in Georgia (Gankari, Abasha *rayon*, Samegrelo-Zedi region; Nasamkrali, Telavi *rayon*, Kakheti region; Gurkeli, Akhaltsikhe *rayon*, Samtskhe-Javakheti region) and Armenia (Hayanist, Ararat *marz*; Shamiram, Aragatsotn *marz*; Verishen in Syunik *marz*). These were also selected to be within areas which were the focus of the questionnaire-based enterprise survey carried out during the baseline phase of the research.

In these case study villages, qualitative research was carried out in two phases over a period of about 18 months, using more formal methods such as focus groups in the baseline phase, followed up with more informal methods such as 'participant observation' in the main phase, once trust was established and key-informant households clearly identified. 'Key-informant' households were selected in each field site community, chosen as being representative of key variables differentiating households. We aimed to cover all types of household, but there was an emphasis on gathering data on the poorest

and among groups which are disadvantaged for ethnic, religious or other reasons, whether because of a shortage of land, lack of access to non-farm sources of income or shortage of labour. In Romania, we selected 14 key-informant households and additionally held interviews with a further 20 key individuals within villages and with focus groups with 46 people; in Georgia we selected 30 key-informant households and additionally carried out 49 individual interviews; and in Armenia, 39 key-informant households were selected. A close relationship of trust was built up with these households and information was gathered through informal discussion and through being present and listening in on conversations between members of key-informant households and other households.

We collected qualitative data on invisible and illegal activities, which were found to make up a significant proportion of non-farm activities. We aimed to identify the range of RNFE activity in which rural populations engaged; to carry out wealth and status ranking to differentiate categories of the local population and link this to different household involvement in non-farm activities; and to develop a typology of RNFE activities, as identified by rural people, and classify these in terms of relative status as well as relative remuneration, categorizing them as ‘distress-push’, ‘demand-pull’ or ‘beyond reach’. We analysed factors affecting people’s ability to become involved in different kinds of activities, and related these to their ability to access different kinds of capital (see below) and how this relates to their position within the social structure of the villages and, where relevant, the wider region in which they live.

The quantitative part of the research involved the administration of enterprise level questionnaires in the baseline phase, within the same areas as the field site villages for the qualitative part of the research, and conducted the household level questionnaire survey in the main phase. The main phase of the quantitative research focused on the development of nationally representative surveys

(covering 70% of regions/*judets*) for each country. In total, 900 households were selected in Armenia, 1000 in Georgia and 1100 in Romania. There were three stratification criteria: (i) location of the village/commune to the closest city, thus a categorization of peri-urban or rural (peri-urban villages/communes were defined according to the distance to the closest city – <10 km for cities of 30–100,000 inhabitants, 10–20 km for cities of 100–200,000 inhabitants, and 20–30 km for cities of >200,000 inhabitants); (ii) regional characteristics, community development (poor-rich), depth of poverty; and (iii) whether the area was of low or high economic, natural resource and agricultural potential, i.e. a less favoured area (LFA) or more favoured area (MFA).

In Armenia, the survey was conducted in six *marzes*: Ararat, Armavir, Gegharkunik, Shirak, Syunik (South) and Tavush. In Georgia, the survey was conducted in six *rayons* (regions): Kakheti (East), Qvemo Qartli (East), Samegrelo (West), Guria (West), Imereti (West) and Samtskhe-Javakheti (South). In Romania, one county was selected in each region (North Eastern (NE) – Botosani, South Eastern (SE) – Tulcea, South (S) – Calarasi, South Western (SW) – Dolj, Western (W) – Hunedoara, North Western (NW) – Salaj, Centre (C) – Covasna, Bucharest – Ilfov) (for further information on sampling see Bezemer and Davis, 2003a,b,c).

In analysing the quantitative data, the econometric modelling we utilized (multinomial logit, tobit and probit models) allowed limited data to be used effectively, which is important in incorporating micro-level information from a necessarily limited number of field sites. It is also very relevant to transition economies, where reliable data are scarce or where available data are perceived to throw up unrealistic estimates due to structural changes. The micro-level case study data (adopting anthropological methods), fed into the modelling; it was also used to illuminate and contextualize the results obtained.

The design, testing and implementation of a larger-scale formal survey serves as the basis for

the methodological framework developed in Figure 1 which provides a schematic diagram of the survey fieldwork criteria/structure. There is no standardized definition of 'rural' in the transition economies. Therefore, we have followed the OECD (1996) definition⁶:

- a population density of fewer than 60 persons/km²
- the largest city in the municipality must have a population of less than 30,000
- the share of agricultural output must be at least 20% higher than the country average
- the share of people employed in the agricultural sector must be at least 20% higher than the country average.

The formal survey structure had two tiers. The regional tier is where we disaggregated according to peri-urban and rural regions. Variability at this level is important statistically and the local knowledge of the project team was crucial, as they made the final decisions concerning peri-urban and rural designations. The second tier

comprised less favoured and more favoured areas. For reasons of complementarity, the project followed the EU definition of less favoured regions as closely as possible.

The survey focused on four types of households:

- full-time farm household
- part-time with dependent/wage employment
- part-time with self-employment
- non-farm household.

In order to ensure consistency in the approach and methodology in the different field sites where micro-level data were collected, and to ensure that the micro-level data collection and the modelling work were well-integrated, NRI organized in-country meetings and workshops with relevant research and government agencies. For a detailed explanation of the survey design and sampling frame for each country, we refer to the individual country reports listed in the References section at the end of this paper (Bezemer and Davis, 2003a,b,c).

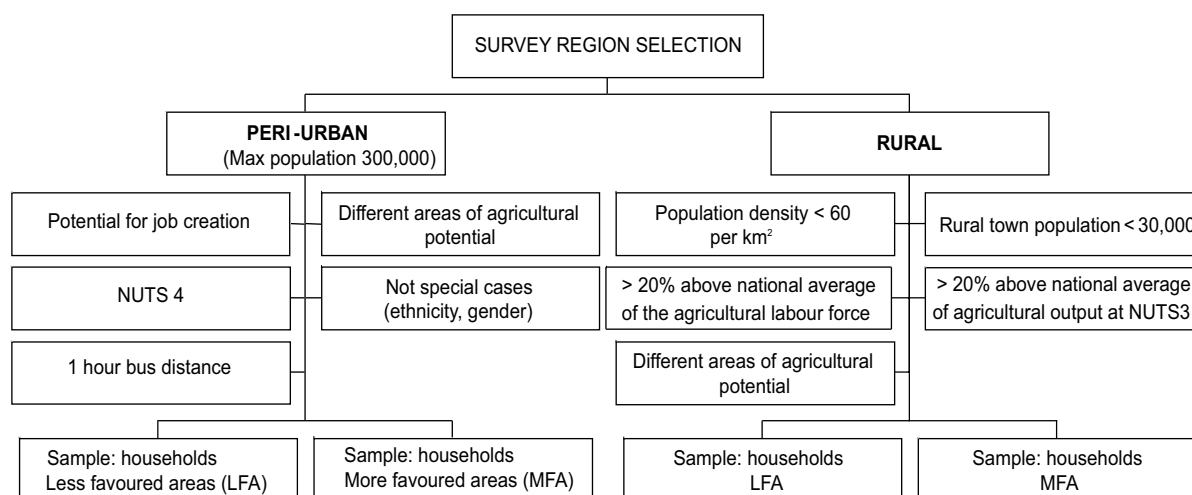


Figure 1: The fieldwork criteria/structure

⁶ Rural and urban regions are defined by the OECD (1996) as follows: (i) in a mainly rural area more than 50% of the population inhabit rural municipalities; (ii) in an area with essentially rural features between 15% and 50% of the population live in rural municipalities; and (iii) in mainly urban areas, fewer than 15% of the population live in rural municipalities. A rural municipality is classified as such if it has a population density of fewer than 150 persons per square kilometre. The idea of 'rural' also includes municipalities with fewer than 5000 inhabitants (Lanjouw and Lanjouw, 1997).

Our research focused on three countries: Armenia, Georgia and Romania. Apart from the obvious fact that each country has its own distinct culture, history and geography, there are some important differences between Romania on the one hand and Armenia and Georgia on the other. Armenia and Georgia were part of the Soviet Union before the collapse of communism and were part of a more centrally planned economy than Romania; they had also been communist for longer. However, there are also important parallels in the trajectories of change experienced since 1990 by the three countries. A major common trend is the collapse in trade, particularly cash-based trade, except in local areas. Barter has become increasingly important in all three countries. Previously, products from other areas were provided through state channels, but these have collapsed. As a consequence, the population is deprived of access to goods or food from outside except through private channels, which are so expensive that entrepreneurs do not find it worthwhile to bring many goods into villages, particularly given the absence of cash at village level, where much of the economy is currently barter-based. Households, therefore, rely largely on what they can produce themselves. Rural livelihoods in all three countries, particularly for the poor, are currently based almost exclusively on subsistence agriculture coupled with cash from small state transfers (pensions and social welfare transfers) and migration (i.e. remittances).

The territory of Armenia is administratively divided into 11 *marzes*, including the capital city Yerevan, which has also been granted *marz* status. As territorial-administrative units, *marzes*

were formed on 4 December 1995, by the Territorial-Administrative Division Act. *Marzes* are divided into rural (871) and urban (47) communities, while the capital city of Yerevan is divided into 12 districts (communities). Armenia has relatively limited agricultural resources and, in the long term, the significance of agriculture within the broader economy is likely to fall. Its current important contribution to GDP (25%) is because the sector has performed better than the rest of the economy in the first decade of transition. The large-scale distribution of land has enabled the agricultural sector to play a buffer role in the process of economic reforms, with a steep increase in agricultural employment, even if the agricultural labour force is largely under-utilized. In Armenia, rural livelihoods are made more precarious by the prevalence of natural disasters, such as drought and earthquakes. Armenia also has relatively high rates of internal and external migration.

Georgia is divided into nine districts, 65 regions, and five towns of Republic Dependence (excluding Abkhazia and Tskhinvali). It is a mountainous country extending across almost 70,000 km² with a population of 5.5 million in 1991. Around 70% of the population is Georgian, 8% Armenian and about 6% each Russian and Azeri. Georgia's capital Tbilisi comprises approximately 23% (1.3 million people) of the country's total population. Population density in Georgia is 78.4 people/km². Officially, 56% of Georgia's population is classified as urban and 44% as rural. Agriculture is a key sector in the Georgian economy as it accounts for around 28% of GDP, generates 70% of value addition in the non-service economy sectors and employs

around 50% of the labour force (latest figures for 1999). This is true, not only in rural areas, but also in small towns. Around 43% (3.2 million ha) of the territory is used for agriculture. However, yields are low, the domestic market is depressed and exports are small. The sector is dependent on irrigation infrastructure in the east and drainage infrastructure in the west. This infrastructure has virtually collapsed because of the civil war and deferred maintenance. In addition, the severe droughts of 1998 and 2002 demonstrated the fragility of rural households' coping strategies in the face of these shocks.

More than 45% of Romania's population lives in rural areas, in localities known as 'communes'. A commune is made up of several small villages, but there are also communes that consist of a single larger village. There are 2685 rural communes in the country. The communist regime left an unfortunate inheritance of vast mono-agricultural areas with a dilapidated

infrastructure in many parts of the country and with many villages deprived of elementary prerequisites for a decent standard of living (potable water, electricity, etc.). In areas where there was previously less specialization, for example, in Transylvania, and households produced more agricultural produce privately, even under communism, standards of living are better. Despite significant worsening of the terms of trade for agriculture during the period 1999–2002, it remains an important sector for the Romanian domestic economy. In 2000, the share of agricultural trade in GDP was 3.5%.

For more information on the socio-economic, RNFE and agricultural sector background to these countries, we refer to the individual country reports listed in the References section at the end of this paper (Bezemer and Davis, 2003a,b,c; Bleahu and Janowski 2002; Kharatyan *et al.*, 2003; Sumbadze 2003).

The literature (e.g. Davis and Bezemer, 2003; Davis and Pearce, 2001) indicates the following key problems and constraints to non-farm employment.

Excessive rural labour market stress due to:

- the slow expansion of the private sector which could absorb excess labour
- the low formal qualifications and high average age of the agricultural labour force
- the high market transaction costs for goods, services and production factors

Under-investment in rural infrastructure since transition:

- a gap between rural and urban areas in terms of the quality and utility of infrastructure, markets, institutional and information facilities make it harder for certain types of employment or enterprise to be developed
- central government transfers and external donor support could still play a key role in less favoured rural municipalities

Lack of opportunities on-farm:

- low returns to farming
- lack of access to farm input markets

- temporary events and shocks such as droughts and earthquakes
- absence or lack of access to rural financial markets
- marketing constraints

Significant constraints on rural non-farm small and medium sized enterprise (SME) and micro, small and medium sized enterprise (MSME) development

- a lack of capital to start a small business
- corruption and informal market entry barriers
- a lack of information infrastructure – limited information on regional prices, markets, etc.
- a lack of MSME managerial know-how or training
- a lack of an active/functioning land market
- a lack of demand
- a lack of markets for agricultural produce

Many of these constraints are relatively well known and the following sections, therefore, do not attempt to provide a comprehensive coverage. Rather the approach is to highlight the key problems in the three countries and to subsequently examine the options for policies which can mitigate or overcome such constraints.

The Livelihood Context

In most transition economies under socialism, the rural non-farm economy (RNFE) was large. Agro-industrial complexes and manufacturing co-operatives were widely located in rural areas as a means of developing and industrializing the country, which was a political objective of those regimes. At the start of transition in 1990, most of this rural industrial and manufacturing base largely collapsed because it was heavily dependent on state subsidies and the continuation of soft-budget constraints. Compared with most developing countries, transition economies have a favourable endowment of rural infrastructure and high education levels. However, this legacy from socialism is now eroding.

A striking aspect of our research was the diversity found across transition economies in terms of the structure of rural incomes, patterns of land distribution, and importance of non-farm activities for poor and non-poor households. In this section, the survey findings will be presented following the sustainable livelihoods approach of structuring livelihoods into capitals (or assets), activities, and outcomes in terms of household well-being, as measured by incomes. Appendix 1 presents the human, physical and financial capital of households in the survey, for different levels of natural and man-made capital (regional development and rurality) and by incidence of poverty.

We begin by looking at the relationship between agriculture and non-farm activities, and the way in which social capital relates to accessing RNFE activities in the three countries studied, and then

go on to look at the role of different types of capital in enabling access to non-farm activities.

Agriculture, Non-farm Activities and Poverty

Currently the national economies in all three countries have collapsed into a basic, subsistence-oriented, agriculturally based condition. The majority of the population is dependent primarily on subsistence agriculture for their livelihoods. There is little processing of agricultural produce or other natural resources, hence little employment, and there is little trade either of raw or processed produce.

Cash that is in circulation is mainly from remittances from relatives abroad or from state remittances (pensions, child benefit). Trade that takes place locally in rural areas has become largely barter-based. This is radically different from the socialist period, when the economies of all three countries, but particularly Georgia and Armenia, were centrally planned and based on high-value production, processing and long-distance trade. For the population, the change has been traumatic, since they were accustomed to a cash-based, employment-based economy, unlike the current subsistence agriculture without access to significant cash.

Agriculture is thus vital to livelihoods in all three countries (see Box 1). Data from our quantitative (nationally representative) surveys suggest that there are significant differences in the level of reliance on agriculture between the countries studied, and also in relation to levels of poverty (see below).

Box 1: The importance of agriculture as a source of income for households engaged in non-farm activities: Gurkeli in Georgia

Jemal is probably the most successful businessman in the village. He has a mill and small wood-processing workshop where he makes doors, window frames, chairs and tables. In order to support his family, however, he relies heavily on subsistence farming. His family has three small plots, where they grow potatoes and other essential vegetables. Gulo, who runs a small shop with the help of her husband, also grows vegetables in her homestead garden. Even though she only produces vegetables in amounts hardly sufficient for her own family's consumption, she told us that she often has to sell them when the household has an urgent need of cash (Source: Kobaladze, 2002).

Human, Physical and Financial Capital, and Access to Non-farm Economic Activities

In Armenia, both poor⁷ and rural households are younger on average and women head more of these households than in the other countries surveyed. In Georgia, rural households are on average larger, with an older demographic profile, more dependants and lower education levels than in Armenia and Romania. We found that Romanian households tend to be smaller, younger, better educated and less often without men.

In Georgia and Romania, access to land is not universal, but it is widespread. Landlessness in these two countries is most frequent for the poorest households. As regards capital endowments, loan uptake and access appear to be high in Armenia, particularly in rural areas and among poor households. It appears that rural credit markets are mainly used to satisfy household consumption needs rather than investments⁸. There are few formal credit facilities, and most funding comes through informal channels, utilizing kin, neighbourhood and ethnic or patronage links. The lack of access to capital makes it difficult to start and develop a

business. In all three countries, inadequate access to formal credit was singled out as a major constraint to investment and entrepreneurship (Davis and Gaburici, 2001; Bezemer and Davis, 2003a,b,c).

Lack of access to formal credit reflects a complex set of factors operating from the demand and supply sides. Poorly developed land registration systems and land markets certainly play an important role by limiting the extent to which land can be used as collateral. Aversion to debt is also common, even amongst the most specialized and commercially oriented entrepreneurs, due in part to high nominal and real interest rates and an adverse and volatile investment and business environment.

A major issue in all three countries, but particularly in Georgia and Armenia, is the absence of cash. Whereas under the communist system households had secure and regular sources of cash through employment in state enterprises, household livelihoods in all three countries nowadays are mainly based on subsistence production using manual labour. They rely increasingly on barter to provide themselves with goods which they do not produce themselves, and to pay electricity bills and land tax. Because of the lack of money, many

⁷ We define the poor or poorest households in our survey as those whose income falls within the lowest quintile of our sample.

⁸ These findings should, however, be interpreted with caution since standard deviations of loan data are large in each sample.

households have abandoned land, which they had been allocated under de-collectivization, since they could not afford the taxes. For many households, the main source of cash is state remittances (e.g. pensions, child benefit payments) (see Box 2). They also try to sell small amounts of their own produce at markets if they can reach them.

Migration for work, seasonal or long term, is important in all three countries as a source of cash. From Rotbav in Romania, people go to Germany, utilizing ties with ethnic Germans who have migrated; from Motatei-Gara in Romania, they migrate, if they can, to Italy, or, barring that, to the town of Craiova. From our field sites in Georgia and Armenia, people go to Russia. Remittances may be a vital part of the household budget, but are often under-reported (Davis and Pearce, 2001).

Appendix 2 shows indicators for households' involvement in economic activities, categorized by different levels of regional development and rurality and by incidence of poverty. The differences between the three countries are quite striking, for example, in Armenia, agriculture accounts on average for 69% of income. This is very high (higher for instance than the typical 50–60% found for poor sub-Saharan African countries). An explanation could be the combination of two

developments unique to Armenia: rapid and serious impoverishment due to natural disaster and systemic disruption of economy and society, and violent territorial conflict, combined with a highly effective land distribution.

In Armenia, poor households are less often involved in a wide range of economic activities, supply less household labour to them, and derive less of their income from such activities and relatively more from social transfers, all compared with non-poor households. Non-farm activities in particular (wage employment and non-farm enterprise) are hardly accessed by the poor. Smaller diversity in household incomes, as reflected in the diversity index, is clearly associated with poverty. This suggests that access to gainful activities, and particularly to non-farm activities, is crucial to escaping poverty.

In Georgia, the livelihoods structure is the opposite to that in Armenia, where agriculture is relatively unimportant: on average only 35% of household income comes from food production, including in-kind income (see Table A5). The percentage of households deriving income from agriculture is also relatively low. This limited importance of agriculture in the rural economy is a result of Georgia's incomplete land reforms. It is also because of its recent past as an industrialized, relatively well-developed economy compared

Box 2: Remittances as a vital source of cash: Gankari and Gurkeli in Georgia

Even relatively well-off households and individuals rely on remittances in Georgia. Mikhail, living in Gankari, owns a mill but he cannot fully operate it as the mill works on electricity. The village has electricity only 4 hours a day, so the operating hours of the mill are determined by the electricity schedule. At the same time, Mikhail cannot afford to buy a power generator, since this is relatively expensive, so he is forced to rely on remittances from his relatives abroad. Gogi from Gurkeli, an economist by education, has left for Russia, and sends back money for his family. He used to work in the Governor's office in Akhaltsikhe, but his salary of 40 lari was not sufficient to support his wife and three children. Gogi's family lived on the money generated from the sale of agricultural produce from their land. In order to improve his family's living standards, Gogi decided to leave his rather prestigious job and move to Moscow. After 6 months of working there, he managed to send 600 dollars to his family (Source: Kobaladze, 2002).

with many of the other Soviet republics in the Caucasus and Central Asia.

Romanian rural livelihood structures fall somewhere between the Armenian and Georgian cases (see Table A6). We found, in line with widespread access to land, virtually all non-poor households and three-quarters of the poor produce food. A third of all households have an additional on-farm activity, such as food processing or renting out machinery and buildings, with little variation in this incidence between rural and peri-urban areas or with levels of regional development. However, poor households undertake such activities much less often. A tenth of households engage in non-farm enterprise, mainly in services; the poor more often than the non-poor. This may suggest that operating a non-farm enterprise represents a distress-push strategy that may provide a refuge from deeper destitution. Appendix 5 presents bar graphs, which show income distribution in more detail, and provides an overview of the activities found within the RNFE.

In Appendix 5 the share of agricultural and rural non-farm income in *earned* income is displayed (see Figures A1, A3 and A5). This directly corresponds to economic activities, excluding income unrelated to activities such as social transfers. The first observation here is the overwhelming importance of agriculture in Armenia and, to a lesser extent, Romania. Non-agricultural income is largely social transfers, and does not reflect a vibrant RNFE. Second, the change in income structure over income levels is very different in Georgia compared with Romania. In Georgia, rural non-farm income rises with total income and it appears to be mainly a privilege of the rich. In Romania, the opposite is true, and the RNFE is a refuge for the poor.

Figures A2, A4 and A6 in Appendix 5 show that trade dominates both wage and self-employment in Georgia, while services dominate both in Romania. In Armenia, trade represents over 60%

of all self-employed jobs, while the state sector accounts for a similar percentage in wage employment. While these observations are understandable in view of the different countries' background, we wish to highlight the policy implications. First, fostering the RNFE as a means of growth and poverty alleviation is best achieved by taking into account both its income distributional aspect and its sectoral structure. Both are likely to vary widely between countries. Second, as wage employment is typically an important RNFE component and state involvement is often high in this area, rural non-farm policies should involve both private and public employers and entrepreneurs.

Social Capital and Access to Non-farm Economic Activities

Social networks and links (termed 'social capital' within the sustainable livelihoods framework and elsewhere), form arguably the most complex and most fundamental of the different types of 'capital' of the sustainable livelihoods framework, although this capital is also the most difficult to measure (Narayan and Cassidy 2001). It is intertwined with other types of 'capital' in chains of causation which go in both directions: for example, low levels of social capital both cause and are caused by low levels of other kinds of capital. Whilst social capital is built up through the use of other forms of capital, it is also a means to access other forms of capital. We would contend that the accumulation of social capital – the building up of links and networks, which is coupled with the generation of social status – is a major aim of all households, even the poorest. This objective can cause individuals and households to behave in ways that do not appear to make sense economically, since they do not always maximize income, at least not on an immediate basis. It is arguably the case, however, that the accumulation of social capital leads to a more sustainable and reliable livelihood, since it enables the household to rely on other households during crises.

In our study countries since 1990, the state which used to provide employment and services, has ceased to do so, and people have turned to all kinds of social links and networks instead. These can be related to kinship, ethnicity, religion, neighbourhood, religion or links through patronage or the workplace. Most of these were significant in the communist period too, but they have now become much more important.

Kinship is universally an important basis of social capital, although its importance is greater in some societies than in others. In our field site of Gurkeli in Georgia, for example, all of the employment provided in the few businesses in the village is given to kin (see Box 5). Ethnicity and religion are often relevant where there is ethnic and religious differentiation (see Boxes 3 and 4). People belonging to the same ethnic group tend to assist each other, but ties between ethnic groups are also significant. In Romania, where one of our study villages Rotbav, is situated in Transylvania, there is a significant minority of Germans. The Germans have shown themselves to be particularly good at utilizing social capital based on ethnicity, in terms of setting up enterprises and

opportunities for employment and trade in and with Germany. In Armenia and Georgia, ethnicity and religious differences are of less significance; however, the influx of refugees following the conflicts in the Caucasus region over the past decade means that differentiation between Georgians or Armenians of different geographical origin, including those repatriated from other countries, has become significant.

Social capital may be characterized as being made up of two types of capital: 'bonding' capital and 'bridging' capital. The former operates within groups to which individuals belong, while the latter operates between groups (Warren *et al.*, 1999, Narayan and Cassidy, 1999). Both are currently important in all three countries. Bridging capital in the form of patronage links, has grown in importance due to the breakdown of the state system and the need to use such networks to obtain goods and employment, and bonding capital because group solidarity becomes important in crisis situations such as exist at present in these countries. Many of the patronage links in place now derive from communist-era relationships between staff at

Box 3: Religion as a basis for social capital: Adventists in Motatei-Gara, Romania

Adventists in Motatei-Gara, one of our field sites in Romania, feel segregated by the Orthodox majority, but they benefit from the close relations which tend to exist between members of their group. They have close relationships with other Adventists outside the villages where their co-religionists have stronger communities, so that they are able to get work outside the village using these ties (Source: Bleahu and Janowski, 2002).

Box 4: Ethnicity as a basis for social capital: Rroma in Rotbav, Romania

Rroma (gypsies) in Romania were found in our study to use their kin and ethnic networks to enable them to engage in activities such as scrap metal and old clothes dealing. They were seen (and saw themselves) as not suited to agricultural activities, even though some of them do engage in agriculture. This was expressed in statements like "*one has to watch them if one wants to work one's land properly*" and "*they don't care about the land, they don't have a sense of property about it*" from informants in Rotbav. Thus they were excluded from involvement in certain activities because of their ethnic identity and links but utilized these same links to engage in others (Source: Bleahu and Janowski, 2002).

Box 5: The importance of kin networks in social capital: Rotbav in Romania and Hayanist in Armenia

In Rotbav, one of the field sites in Romania, there is a kin network which has at its core two important families of Orthodox Romanians, which have become the most important families in the village after the departure of most of the Germans in the period since the Second World War. Members of these families help other members in all aspects of their lives. In Armenia and Georgia, the disadvantages of not belonging to a core network of this kind is evident in the case of refugee families, which are excluded from core networks. In one of our field sites in Armenia, Hayanist, which is populated by ethnic Armenians from Azerbaijani cities who have been ‘swapped’ with ethnic Azerbaijanis originating from Hayanist, all of the shops and enterprises are run by local Armenians from a neighbouring village, Hobbashat, because the refugees do not have the local ties to enable them to set up enterprises (Source: Kharatyan and Janowski, 2002).

Box 6: The importance of patronage in starting a business and gaining employment: Gurkeli in Georgia

People in the village believe that it is virtually impossible to start a business without ‘a master’, someone influential, who can help with obtaining credit and important paperwork. The respondents were also convinced that the only way to receive any assistance from NGOs was to informally ‘arrange things’ with them. Business activities in the village provide a little employment for other villagers, but these are always linked by family or other ties to the owner. Thus Jemal has five employees in his workshop. Three of them are his kin, one is a neighbour and one is his friend’s son. Two persons – his brother and a cousin – work at his mill. The income of each of these men does not exceed 100–120 lari per month, but earning even this amount in the village today is considered a success (Source: Kobaladze, 2002).

state-run enterprises, so-called *nomenklatura* ties (see Box 6). During the communist period, informal and invisible networks existed which enabled people to get access to goods and services in short supply, and these have been revised and continue to be the basis of such access. Patronage links are recognized as basic to success in opening a business: for example, in Nasamkhrali, one of our field sites in Georgia, people told us that it is virtually impossible to start a business without ‘a master’, someone influential, who can help with obtaining credit and important paperwork.

Strong social ties and networks, of both the ‘bridging’ and ‘bonding’ types, make barter exchange easier, since barter, particularly that involving delayed reciprocity, is based to a large

extent on trust. While this was not evident from our questionnaire surveys, qualitative data show that barter has become a very significant part of the economy in all three countries. Social capital is important in facilitating not only local barter exchange but also long-distance barter, which was found to take place widely between different regions in Romania and Georgia.

Generally speaking, high levels of social capital of both types – well-developed networks both within the group and between groups – are associated with high levels of other forms of capital and with a higher standard of living in general on the part of individuals and households. However, this does not always apply, and the type and scope of networks is important. The Roma in Romania have high levels of

interaction and interdependency among themselves, for example, 'bonding capital', but most are not well-off because their networks do not go beyond the Roma ethnic group, which is excluded from most kinds of non-farm activities, as well as from farming itself (i.e. they lack 'bridging' capital).

We found that in all three countries social networks based on social capital, of both types,

usually have certain individuals and/or households at their cores. These tend to have long-established histories in the locality. Newer arrivals have found it much more difficult to manage because they have more restricted social networks and lower levels of social capital, and it is much harder for them to build up ties which enable them to develop livelihood activities, especially the more lucrative forms of non-farm activity.

The Analytical Context

The previous sections introduced the building blocks of rural households' livelihoods, and the distribution of these between poor and non-poor households in the countries surveyed. Some inferences on the nature of the RNFE can be made from the patterns observed in Appendixes 1 and 2. Based on this we will ask two further questions. First, what are the determinants of households' involvement in the RNFE? Second, how, if at all, do rural non-farm activities contribute to poverty alleviation?

It is useful to briefly set out some methodological decisions we made in addressing these questions. A first issue was to decide how to measure involvement in the RNFE. A number of candidates can be suggested:

- (i) involvement as a binary (yes/no) variable, as indicated by deriving income from, or allocating labour to, non-agricultural activities
- (ii) income derived from non-agricultural activities, either in money units or as a share in total income
- (iii) labour allocated to non-agricultural activities, either in time units or as a share in total household labour time.

We note that agricultural incomes can be negative since they are calculated by subtracting costs from revenues. In these cases, income shares cannot be calculated. This would exclude about a fifth of each country sample, with a strong bias towards excluding poor households. This is the disadvantage of using income shares.

When choosing between labour time and income as measures of the extent of involvement, it is useful to note that the purpose of this analysis is to provide guidance on policies fostering economic benefits for rural households from participating in the RNFE. We are not primarily interested in providing advice on how to encourage households to allocate more time to rural non-farm activities. Since the two measures will largely, but not completely overlap we, therefore, selected as the binary variable, the incidence of income from specific non-agricultural activities.

A further methodological choice was whether to use a binary or continuous measure for non-agricultural income (options (i) or (ii) above). The latter is more informative since it reflects not only participation itself, but also the extent in income terms. Further exploration showed that the data allowed us to estimate with some significance, participation in non-agricultural activities, but not its extent, as measured in a continuous income variable. Hence, option (i) was selected. The logistic specification, appropriate for binary dependent variables, was then employed (the 'probit' specification yielded similar results).

The variables reflecting natural, human, physical and financial capitals, presented in Appendixes 1 and 2, were used as independent variables. Locational variables included dummies for development level and for rural or peri-urban location (DEVELOPED and RURAL). Independent variables representing human capital included household size (HHSIZE), dependency ratio and male/female ratios

(DEPRATIO and M_F_RATIO), average age (AGE), highest level of education (MAXEDU) and a dummy denoting households without adult men (WOMENHEAD). Variables representing wealth included the area of land (LAND), the value of equipment (ASSETS), the number of livestock (ANIMALS) and amount of credit taken up in 2001 (LOAN). Possible synergies or trade-offs between agricultural and other activities were taken into account by including farm size in revenue terms (AGREV), and labour allocated to other activities (MIGLABOUR, ENTLABOUR, JOBLABOUR and AGLABOUR). Dependent binary variables are the incidence of income from farm-based non-agricultural activities, from non-farm wage employment, from non-farm enterprise, and from migration labour. For more detailed information on the methodology employed, we refer to the individual country reports listed in the References section (Bezemer and Davis, 2003a,b,c).

Tables A7–A9 in Appendix 3 present the results of the four logistic regressions for each of the three countries. In interpreting the findings, it is useful to note that coefficient estimates reflect the statistical association between independent factors and households' involvement in the three non-agricultural activities analysed. Since there are scale unit differences between independent factors, comparisons between coefficient values are not meaningful. The discussion is, therefore, presented in terms of comparisons between the signs of the various coefficients.

The Determinants of Households' Involvement in the RNFE

We found that in all three of the countries, there do not appear to be trade-offs between labour allocated to the various non-agricultural activities and labour allocated to agriculture. The coefficient estimates for AGLABOUR equal zero or are insignificant. This implies that households in the sample are not labour-constrained in

agriculture, indeed they may be under-employed. In Armenia and Romania, location matters to the incidence of farm-based, non-agricultural activities and wage employment, which are more frequent in better-developed areas.

Again, in each country, it appears that households with more land and animals are less likely to have a non-farm enterprise. This could be because better-endowed farms generate more income (above the reservation wage), which would lessen the need to seek additional non-farm income. But concentration on subsistence farming on very small plots may increase the risk of poverty. We found that wage employment is mainly determined by human capital factors, and is more likely among households that have fewer dependents, larger households and better education levels.

In Armenia, to a greater extent than the other countries, the incidence of migration labour is positively associated with both the age and dependency ratio. This suggests that families without children are better able to generate income from (temporary) work outside the locality, in or outside Armenia. More land and livestock binds people to their locality, decreasing the probability of migration; better education makes migration more likely.

Overall, the general importance of education for non-farm activities is clear. Those with higher education levels more often engage in all three types of off-farm activities, plausibly because education is better rewarded off-farm. We found that education played a role in enabling individuals to involve themselves in non-farm activities, not only where there was a direct link between the subject(s) studied and the work, but because being educated seemed to generate a sense of confidence. People who had been educated and had lived in town and then returned after the collapse of communism, were significantly over-represented amongst those who had opened businesses.

Being educated makes it more likely that individuals will be able to obtain employment with the state, for example, as clerks at the town hall or as teachers. However, the salaries which are currently paid are very small, and the status of being employed is perhaps as important in terms of generating social capital as it is in generating cash income (see Box 7).

Although access to education under the communist system was relatively equal, and rural dwellers could get a good education, this has changed radically. Nowadays, it is more difficult for any rural dweller to get an education than it is for a town dweller, and it is difficult to get a good education without money and contacts. Social capital, in other words, may have become important in determining access to education.

The analysis also serves to underline the differences, over non-farm activities, in conditioning factors. Location is important for wage employment and farm-based activities, but not for non-farm enterprise. The nature of the

farm as indicated by land, animals and assets, is relevant to non-farm enterprise, but hardly to wage employment.

Non-farm Activities and Poverty Alleviation

We now address the second analytical question. How, if at all, do rural non-farm activities contribute to poverty alleviation? This possible connection, and its complex nature, has been the rationale for much recent research into the RNFE. We will analyse it by looking at the association of a household's assets and economic activities with its risk of poverty. The appropriate analysis is again a binary logit regression, where the dependent variable reflects whether (1) or not (0) a household is in poverty. Since we study cross-country poverty, it is defined relatively in terms of the per capita income level in the lowest quintile. We note that this is a much stricter definition for poverty than most conventional, absolute measures. The pattern of a households' economic activities is captured by variables indicating their having income (1) or not (0) from non-farm enterprise (ENTERPRISE), wage employment (JOB) and migration (MIGRATE). We include the 'capital' variables reported on above, which plausibly also bear on the risk of poverty, and the number of income sources. The findings should be interpreted as follows: the coefficients with a negative sign imply that the presence of (or increase in) the associated factor decreases the risk of poverty. Again, it is the sign rather than the value of the coefficients, which we discuss below. For more detailed information on the methodology employed, we refer to the individual country reports listed in the References section (Bezemer and Davis, 2003a,b,c).

Tables A10–A12 in Appendix 4 present our findings on the risk of poverty in four areas: human capital, economic activities, location and the structure of agricultural holdings.

In Armenia, in common with Georgia and Romania, we found that households in better-

Box 7: Low remuneration for the educated: teacher-farmers in Gurkeli in Georgia

Four members of the Zazadze family are school teachers. As their salaries are negligible (40 lari a month), they rely heavily on farming. They told us that these days they are farmers and can hardly be considered to be any kind of 'village intelligentsia'. *"Actually, we make our living by working on the land. This is because the state only pays us half of our salary, and the remaining half is 'frozen' (the term 'frozen money' is used in Georgia to describe wage and pension arrears). The principal of the village school, 43-year-old Mariam, whose monthly salary was 21 lari, said that she and her husband were ready to do any kind of work to earn some more money (Source: Kobaladze, 2002).*

developed areas have a lower risk of poverty. Somewhat counter-intuitively, those with higher education levels are more at risk of poverty. However, both the coefficients are only weakly significant (see Table A10). More sources of income are associated with lower poverty risk. This is particularly due to the effects of wage employment and enterprise employment, both of which enter with highly significant coefficients. Migration is also concentrated among the better-off households, but its incidence is too low for it to appear statistically significant in this analysis. Households engaged in farm-based, non-agricultural activities have higher risks of poverty. In addition, other farm-connected variables such as the number of livestock and stock of assets have this effect. The interpretation suggests that these bind household members to farm work, excluding opportunities for more remunerative activities. It is only high farm revenues, not larger farms in other terms (such as land or labour), which decrease poverty risk.

Also in Georgia, larger farms, in revenue terms, imply a smaller risk of poverty. This intuitively clear finding underlines the importance of viable farming structures in alleviating poverty.

Larger households in the Georgian sample are more at risk from poverty, which is a finding common to many studies on poverty. Better education helps reduce the risk of being impoverished. We also found some evidence that having more dependants is weakly associated with a lower risk of poverty. One possible explanation of such a result could be the access to pension payments or child benefits that a pensioner or young child implies, lifting some households out of income poverty (as we have defined it). Since more household members also require higher consumption levels, it is open to question as to whether a higher dependency ratio also implies an increase in (not only income, but also) consumption and well-being more broadly interpreted.

In Georgia, we found that there is no additional effect on the risk of poverty from being more heavily involved, in terms of labour allocation, in

either wage employment or agriculture. In the case of agriculture, this is understandable because there is hardly any difference in labour allocation to agriculture between poor and non-poor households. In the case of wage employment, there is a large difference, but the effect of wage employment on risk of poverty is likely to be already captured by human capital variables.

In Romania, we found that households with a higher average age (fewer or no children) and those with better education are less often found in the lowest income quintile. Non-farm enterprise and migration labour are found to be positively associated with a higher risk of poverty. Such activities may still play a role in the reduction of deep poverty, by allowing poor households to prevent deeper destitution. But it does not help reducing poverty as defined by our relative poverty line. Such non-agricultural activities appear to be of a distress-push nature. The fact that, despite these findings, having more sources of income is still linked to a reduced risk of poverty may be due to the main non-agricultural income sources, wage employment and social transfers.

Romanian households with livestock-orientated farm operations are less at risk of poverty, because of the generally higher returns to livestock production compared with crop production.

It is interesting to note that location does not have a statistically significant relation to the risk of poverty in Romania. This is not to say that less developed areas, or more rural areas, do not have a higher incidence of poverty; but rather that any location-specific effects are incorporated in the other variables. This is desirable in an applied study, since policies cannot influence locality, but they can affect those other factors that may make households, and indeed localities, vulnerable to poverty. In Romania's rural economy, characterized by high levels of subsistence food production, low levels of savings, and faltering financial markets, it could be argued that it is mainly the physical and human capitals that determine income and poverty levels.

Agriculture and Rural Diversification

The radical changes that have occurred in the Armenian, Georgian and Romanian economies during the last decade have created new pressures on these countries' rural areas. Increasing industrial unemployment generated an urban-rural migratory flow. The collapse of the agri-industrial processing and industrial sector has increased rural unemployment. Since the collapse of the former Soviet Union, land reforms have also generated new relationships in rural areas, and a massive redistribution of land. However, agriculture continues to function inefficiently, and is unable to provide a decent and sustainable standard of living for most rural inhabitants. Therefore, many donors and multilateral agencies are focusing on the potential of the rural non-farm economy (RNFE) and more specifically, non-farm diversification, to reduce rural under-employment. There are several reasons underlying the decision to diversify including low on-farm incomes or returns to labour, the existence of a surplus of resources (land, capital, labour or knowledge), as a strategy to spread risk, or to smooth the impact of fluctuations in a single source of income (e.g. agriculture).

In Armenia, agricultural growth (particularly in terms of generating higher farm revenues) has an important role to play in reducing poverty in rural areas. This is all the more so as subsistence agriculture is by far the most important activity present in rural areas, accounting for around 80% of household incomes on average. There is also under-employment in agriculture and it is,

therefore, important to increase the use of labour by enhancing production in off-farm activities in rural areas. Increased agricultural efficiency may both release farm labour and raise farm incomes. Our findings suggest that to be most effective in reducing poverty in rural areas, agricultural development should not be confined to medium-sized or large farms only, which are in a minority.

Non-farm Activities and Employment

There is an increasing awareness of the importance of non-farm employment activities in the Georgian rural economy among multilateral donors and NGOs. In Georgia, a sizeable proportion of the population derives a living from agriculture, but its contribution to total income is relatively low. The rural households in our study depend on non-farm sources for 65% of their income on average. The role of local non-farm rural activities should increase, as there is still an acute dependence on social welfare payments in many households for livelihood security. In Armenia, labour in agriculture and other activities in rural areas is under-utilized and it is, therefore, important to increase the use of labour by enhancing production in the agricultural sector and in off-farm activities in rural areas.

Our survey of Romania shows that rural non-farm activities are important in supporting poor households' livelihoods, complementing farming activities. The reasons for involvement in non-farm activities varied according to the level of different types of capital. Overall, poor households are most involved in non-farm

activities due to distress-push factors; better-off, higher-status households tend to be involved due to demand-pull factors.

In Armenia, Georgia and Romania, our surveys have highlighted the importance of social transfers as a source of non-farm income in supporting the livelihoods of the rural poor. Non-farm sources of wage and enterprise income are important for Georgian households, but much less so in Romania and Armenia, mainly because of the prevalence of social transfers and better access to land, respectively. More land and livestock tend to bind people to their locality, decreasing the probability of migration; better education makes migration more likely.

Promoting the Development of the RNFE

Our investigations of the current RNFE situation in Armenia, Georgia and Romania have provided different pictures of types of employment or income generating activities, the distribution of time to these activities and incomes earned. These differences need to be interpreted in the context of the respective stage of reform and economic development reached – both for the rural sector and the wider economy. The differences in activities and context also imply different potential growth patterns. In Romania in particular and in Armenia to some extent, current RNFE development potential may be less constrained by the business environment and more constrained by farm structure and the influence this has on the commercialization of agriculture and investment in rural non-farm activities; RNFE development in Georgia is constrained by both factors. For more information on these issues and the policy implications of our research findings we refer to the individual country reports listed in the References section (Bezemer and Davis, 2003a,b,c). Taking a more general view, the following factors may be crucial in promoting RNFE development and employment.

- Reform of exchange rates, tariff and enterprise taxation policies will be required to develop a sound enabling environment for RNFE growth.
- Measures taken to promote land consolidation, a key element of which is the stimulation of the land market. This will help create conditions for the use of collateral for loans and investment in viable on-farm and non-farm activities.
- Large processing factories and SMEs encouraged to open branches in rural areas. This would enable the development of marketing, procurement and distribution chains through firms from the core to the peripheral rural areas. As the poor in many countries are most often involved in wage employment, this is also a job creating strategy that directly supports the poor.
- Improvement of community infrastructure, particularly roads, railways, information technology systems and telecommunications. The integration of credit with training and technology extension programmes should also be developed.
- Promotion of farmers' associations, co-operatives and credit clubs to conduct consultations in farms regarding marketing, purchase of various services, using extension services, receiving credits and other matters relating to the development of co-operatives or farming/producer associations. Collective action makes sense where it can achieve more than could be obtained by individual initiative alone. In most transition economies, we feel that rural collective action could achieve economies of scale in the RNFE that individuals cannot currently reach, particularly in terms of buying and selling when scale confers more power to negotiate prices and terms. Collective action in rural areas also enables the supply of public goods and services which support RNFE growth that no private business would supply since they would not be able to obtain payment from all who benefited (e.g. roads, etc.). Support for social capital systems and networks is also

important, since these can provide basic services and sustenance for the poorest in rural communities.

- Special programmes for rural areas which support RNFE growth should also be considered: for example, employment and resource centres, a national co-ordination council, vocational training for secondary school drop-outs, encouragement of investment in storage and processing facilities for perishable products, and modern transport with refrigeration facilities.
- Greater co-ordination and integration between NGO activities with public sector programmes in rural areas is necessary, particularly in terms of micro-credit provision.
- Local governance institutions need real fiscal power to better generate/retain local tax revenues and increase investment in local communities and resources.

Social Capital and Assistance to Community Groups

Our qualitative research has pointed to the strength of kin, ethnic and religious networks and to the fact that *not* belonging to these networks can exclude individuals and households from participation and obtaining benefits. Social capital is vital to enable individuals and households to become involved in economic activities, and to gain access to other forms of capital. However, access to social capital is not equally distributed across the social spectrum, since leaders have much greater access than the rest of the population. ‘Bridging’ capital, between social groups, tends to be under the control of respective group leaders, who also tend to have control over ‘bonding’ capital within groups (Warren *et al.*, 1999; Narayan 1999). Group members tend to turn to leaders as brokers of social capital, which is in turn the gateway to other forms of capital. Leaders, then, may be crucial in determining access to improving livelihoods.

Assistance to develop social capital could be targeted not only at leaders/entrepreneurs but also at groups – community-based organizations (CBOs) and co-operatives. Through groups, support can be explicitly given to networks of individuals and households and the social ties and links between them can be supported and strengthened, thus benefiting a broad range of households. Although groups may have different origins and aims, they can be harnessed to provide assistance to develop new activities oriented specifically towards the development of non-farm activities. Decisions to target assistance towards groups within communities should be made on a community-wide basis, taking into account the various sub-groups of different types which could be assisted. There are two issues which need to be analysed in making a decision to target assistance to groups within a given community: (i) internal group dynamics and leadership roles; and (ii) the ways in which groups are embedded in the community around them.

Policy Interventions and Further Research

Although we have shown that the RNFE may have potential for rural poverty alleviation, conceptually the RNFE remains complex (Davis and Bezemer, 2003a,b,c). The multifarious economic activities with differing pro-poor growth potential and implications for policy intervention make it important to focus on key issues and activities (e.g. tourism, construction, transport services, etc.) which have growth potential. At the same time, the importance of linkages and multiplier effects in the rural economy implies that governments and multilateral agencies need to move away from traditional sectorally compartmentalized thinking of rural areas towards more ‘joined-up’ models of multi-sectoral, mutually symbiotic growth.

There remain key areas for further RNFE research depending upon the specific circumstances of individual countries and regions. Issues of relevance in transition countries

include: identifying drivers of rural economic growth, the social cost of demographic change, possible trajectories of economic transformation, and how to facilitate market and enterprise development. We need to improve our understanding of how degrees of rurality with respect to market access, agricultural productivity and other variables affect the stage and mode of the RNFE and thus its potential for pro-poor growth. We also need an improved understanding of the nature and routings of the main linkages in rural-urban space, both backwards and forwards from agriculture. There are also important globalization aspects to this in terms of domestic and international demand for rural exports (whether labour, commodities or capital).

We have tried to make the case for improved rural job creation in our study, and further research will need to consider whether and how much public subsidy may be required to compensate the private sector for the potential costs of locating value-adding activities in rural areas. Is there scope for government and multilateral agencies to provide incentives to the private sector, perhaps through intervening (in a non-distortionary way) in existing commodity chains and enterprises to be more pro-poor? Again, interventions could be promoted via tax breaks, training and infrastructure; but also on a sub-sectoral basis (producer associations, marketing support) or spatial basis (enterprise clusters, around rural towns, etc.). Research and future investigations on the RNFE would also need to consider whether businesses in general, could viably do more out-contracting to rural areas (by investigating the cost implications of this)?

Institutional Change and the Case for Intervention

Macro-economic factors have an important impact on the RNFE, as they affect general employment opportunities and the institutional framework within which the RNFE functions, in particular, the education system, financial institutions and credit market, factors which influence the

development of MSMEs, and the land market and farm structure. Reforms within the agriculture sector also have a major impact on the RNFE because of the linkages between the two sectors, both of a positive and negative nature. In general terms, growth in the farming sector has a positive influence on the RNFE and vice versa, but it is vital that the RNFE is expanded in order to improve rural livelihoods in the long-run when the farming sector is expected to contract.

With the resumption of economic growth, as incomes rise, there will be a need to allow for a shift in patterns of demand towards industry and then services. This does not mean that agriculture declines as the economy grows, but that the share of agricultural output in total output will decline. Since agricultural productivity starts at a very low level, it can be expected to rise, probably faster than in some other sectors, so constant or slowly rising output (in agriculture) will continue to be accompanied by major job losses. In the short-medium term, the growth of the rural non-farm private sector will exacerbate current economy-wide trends of higher income dispersion than that in the former state sector. Therefore, many of the low-paid in the new non-farm MSMEs earn less than state employees (when they are paid). A dualistic economic structure is developing where good jobs in the new RNFE private sector require better-educated and skilled people than most former state employees, which displace backward industries and agriculture. The long-term unemployed throughout the region are becoming a large reserve of less-employable labour.

There remains a question as to whether the RNFE should be left to itself, with national governments and their agencies merely ensuring that the institutional and other reforms continue to progress, or whether it requires positive intervention. The arguments provided in this paper suggest that the latter would be helpful, possibly even essential. The RNFE in transition economies should be viewed as an integral part of a growth strategy for the economy and not only as a defensive survival strategy (Davis and Bezemer, 2003).

References

- ACE-Phare (1998) EU Accession in the Balkans; Policy Options for Diversification in the Rural Economy, (Project acronym BPODRE) Project No. P98-1090-R. Final Report.
- Barrett, C., Reardon, T. and Webb, P. (2001) Non-farm income diversification and household livelihood strategies in rural Africa: Concepts, issues, and policy implications. *Food Policy*, **26** (4).
- Bezemer, D. and Davis, J. R. (2002) The rural non-agricultural economy in transition countries: Findings from Armenia. In: *Transition, Institutions, and the Rural Sector*. Spoor, M. (ed.). In series *Rural Economies in Transition* Lerman, Z., Csaki, C. and Swinnen, J. (eds). Lanham, MD: Lexington Books.
- Bezemer, D. J. and Davis, J. R. (2003a) The Rural Non-farm Economy in Armenia: Overview of Findings. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Bezemer, D. J., and Davis, J. R. (2003b) The Rural Non-farm Economy in Georgia: Overview of Findings. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Bezemer, D. J., and Davis, J. R. (2003c) The Rural Non-farm Economy in Romania: Overview of Findings. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Bleahu, A. and Janowski, M. (2002) Rural Non-farm Livelihood Activities in Romania: A Report on Qualitative Fieldwork in Two Communities. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Breitschopf, B. and Schreider, G. (1999) Rural development in transition economies – the cases of two counties in Romania. Paper presented at the *48th International Atlantic Economic Conference, Montreal, 7–10 October*.
- Davis, J. and Gaburici A. (2001) Non-Farm Employment in Small-scale Enterprises in Romania: Policy and Development Issues. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Davis, J. and Pearce, D (2001) The rural non-farm economy in Central and Eastern Europe: Characteristics, importance and policies. In: *The Challenge of Rural Development in the EU Accession Process*. Lerman, Z. and Csaki, C. (eds). *World Bank Technical Publication*. Washington DC: World Bank.
- Davis, J. R. (2003) The Rural Non-Farm Economy, Livelihoods, and Their Diversification: Issues and Options. Report 1. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Davis, J. R. and Bezemer, D. J. (2003) Key Emerging and Conceptual Issues in the Development of the Rural Non-farm Economy in Developing Countries and Transition Economies. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)

- Davis, J. R., Bezemer, D. J. and Wandschneider, T. (2003) The Rural Non-farm Economy in Armenia, Georgia and Romania: A Synthesis of Findings. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Davis, J. R. and Gaburici, A. (1999) The economic activity of private farms in Romania during transition, *Europe-Asia Studies*, **51** (5):843–869.
- Ellis, F. (2000) The determinants of rural livelihood diversification in developing countries. *Journal of Agricultural Economics*, **51** (2): 289–302.
- Gordon, A. (1999) Diversity in rural incomes: Issues affecting access at household level. Paper presented at a *World Bank Seminar on the Rural Non-farm Economy*, 7 June 1999. Washington: World Bank. (unpublished)
- Grootaert, C. (1997) Social capital: The missing link? In: *Expanding the Measure of Wealth: Indicators of Environmentally Sustainable Development*. Washington DC: World Bank.
- Heidhues, F., Davis, J. R. and Schrieder, G. (1998a) Agricultural transformation and implications for designing rural financial policies in Romania. *The European Review of Agricultural Economics*, **25** (3).
- Heidhues, F., Schrieder G., Hare, P. G., Davis, J. R. and Gaburici, A. (1998b) Empirical research on the financial market in Romanian private farm sector. *Romanian Economic Research Observer*, Nos. 3–4. Romanian Academy, the National Institute of Economic Research. ACE Phare 95.
- Janowski, M. (2003) Rural Non-farm Activities in Romania, Georgia and Armenia: A Synthesis of Findings from Fieldwork Carried Out at Village Level 2001–2002. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Kharatyan, H., Babken B. and Janowski, M. (2003) Sustaining Rural Livelihoods: A Report on Farming and Non-farming Activities in Three Communities in Armenia. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Kharatyan, H. and Janowski, M. (2002) Factors Affecting Involvement in the Non-farm Economy in Armenia. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Kobaladze, K. (2002) Non-farm Livelihood Activities in Three Villages in Different Regions of Georgia: Results of Qualitative Fieldwork Carried Out During Baseline Phase of Research. Chatham Maritime, UK: Natural Resources Institute. (<http://www.nri.org/rnfe/papers.htm>)
- Lanjouw, P. (1999) Rural nonagricultural employment and poverty in Ecuador. *Economic Development and Cultural Change*, **48** (1): 91–122.
- Lanjouw, J. O. and Lanjouw, P. (1997) The rural non-farm sector: an update. Paper presented at the *XXIII International Conference of Agricultural Economists (IAAE) on Food Security, Diversification and Resource Management: Refocusing the Role of Agriculture*, 10–16 August 1997, Sacramento, USA.
- Lerman, Z. and Mirzakhanian (1999) *Private Agriculture in Armenia*. Washington DC: World Bank.
- Milanovich, M. (1998) *Income, Inequality, and Poverty during the Transition from Planned to Market Economy*. *World Bank Regional and Sectoral Studies*. Washington DC: World Bank.
- Narayan, D. (1999) Bonds and Bridges: Social Capital and Poverty. Washington DC: World Bank. (unpublished)

References

- Narayan, D. and Cassidy, M. F. (2001) A dimensional approach to measuring social capital; development and validation of a social capital inventory. *Current Sociology*, **49** (2): 59–102.
- Reardon, T., Stamoulis, K., Cruz, M-E., Balisacan, A., Berdegue, J. and Banks, B. (1998) *Rural Non-Farm Income in Developing Countries. The State of Food and Agriculture 1998: Part III*. Rome: Food and Agricultural Organization of the United Nations.
- Sumbadze, N. (2003) *The Non-farm Economy in Post-Soviet Georgia: A Study of Three Rural Communities*. Chatham Maritime, UK: Natural Resources Institute.
(<http://www.nri.org/rnfe/papers.htm>)
- Warren, M. R., Thompson, P. and Saegert, S (1999) *Social Capital and Poor Communities*. Fordham University.
<http://www.worldbank.org/poverty/scapital/library/narayan.pdf>

'Capitals' by Regional Types, Development and Poverty

Appendix

1

Table A1: Armenia: 'Capitals' by regional types, regional development and poverty incidence

Capitals	By rurality (mean)		By development level (mean)		By poverty incidence ⁴ (mean)		Total sample (mean, SD)	
	Peri-urban	Rural	Low	High	Non-poor	Poor		
<i>Human capital</i>								
Household size (persons)	5.1	5.0	5.0	5.1	5.0	5.2	5.0	1.7
Dependency ratio ¹	0.35	0.36	0.34	0.37	0.36	0.36	0.36	0.25
Average age (years)	34.1	31.8	32.9	32.2	33.3	29.5	32.6	11.1
Maximum education level ²	6.9	6.6	6.9	6.5	6.7	6.5	6.7	1.7
% women-headed households ³	2.0	4.1	3.4	3.5	3.3	4.0	3.6	
<i>Physical capital</i>								
Access to land (%)	100	100	100	100	100	100	100	
Land cultivated (ha)	2.3	2.9	3.5	1.9	2.6	3.2	2.7	7.9
Cattle (head)	2.7	2.9	2.3	3.4	3.1	1.8	2.8	3.7
Pigs (head)	1.1	1.8	1.1	2.1	1.6	1.6	1.6	4.6
Sheep, goats (head)	2.3	1.7	1.1	2.6	2.0	1.3	1.9	5.0
Poultry (head)	10.7	8.5	9.0	9.5	9.9	6.6	9.2	8.7
Productive assets (Euro)	399	493	459	466	464	455	462	513
<i>Financial capital</i>								
Loan uptake (%)	30	40	38	36	34	50	37	48
Average loan (Euro)	118	116	120	113	113	132	117	282

Source: Survey findings

1. The dependency ratio is defined as $(1 - (\text{number of household members aged over 15 and under 66})/\text{household size})$.

2. The education level is defined on a 9-point scale:

No studies and cannot read or write	0
No studies but can read or write	1
Elementary school	2
Vocational school	3
Secondary school, gymnasium	4
College	5
Graduate studies (university B.Sc.)	6
M.Sc. studies (university)	7
Ph.D. studies (university)	8
Other occupation-specific higher education	9

3. Female-headed households are defined as households without male members aged over 18.

4. Poverty is defined relatively, with those households in poverty, which are in the lowest population quintile.

Table A2: Georgia: 'Capitals' by regional types, regional development and poverty incidence

Capitals	By rurality (mean)		By development level (mean)		By poverty incidence ⁴ (mean)		Total sample (mean, SD)	
	Peri- urban	Rural	Low	High	Non- poor	Poor		
<i>Human capital</i>								
Household size (persons)	3.8	3.9	4.0	3.6	3.8	4.0	3.9	1.8
Dependency ratio ¹	0.32	0.37	0.35	0.40	0.36	0.34	0.36	0.31
Male/female ratio	1.06	0.99	1.07	0.98	1.05	1.02	1.0	0.8
Average age (years)	39.3	41.7	40.5	43.7	41.7	39.7	41.2	15.9
Maximum education level ²	5.9	4.8	5.0	5.0	5.1	4.7	5.0	1.9
% women-headed households ³	14	11.5	10.3	17.6	12.1	12.3	12.1	32
<i>Physical capital</i>								
Access to land (%)	40	82	72	77	74	65	73	44
Land cultivated (ha)	0.3	0.8	0.7	0.8	0.7	0.7	0.7	1.7
Cattle (head)	0.3	1.4	1.0	1.6	1.3	0.7	1.2	1.9
Pigs (head)	0.2	0.6	0.4	0.9	0.6	0.1	0.5	1.7
Sheep, goats (head)	0.0	1.1	0.9	0.6	0.8	0.6	0.8	6.7
Poultry (head)	1.3	2.5	1.9	3.7	2.5	1.1	2.3	4.2
Productive assets (Euro)	176	155	118	298	169	128	160	1031
<i>Financial capital</i>								
Loan uptake (%)	20	17	17	20	16	25	18	38
Average loan (Euro)	90	73	75	85	74	93	77	336

Source: Survey findings

1. The dependency ratio is defined as $(1 - (\text{number of household members aged over 15 and under 66})/\text{household size})$.

2. The education level is defined on a 9-point scale:

No studies and cannot read or write	0
No studies but can read or write	1
Elementary school	2
Vocational school	3
Secondary school, gymnasium	4
College	5
Graduate studies (university B.Sc.)	6
M.Sc. studies (university)	7
Ph.D. studies (university)	8
Other occupation-specific higher education	9

3. Female-headed households are defined as households without male members aged over 18.

4. Poverty is defined relatively, with those households in poverty, which are in the lowest population quintile.

Table A3: Romania: 'Capitals' by regional types, regional development and poverty incidence

Capitals	By rurality (mean)		By development level (mean)		By poverty incidence ⁴ (mean)		Total sample (mean, SD)	
	Peri-urban	Rural	Low	High	Non-poor	Poor		
<i>Human capital</i>								
Household size (persons)	3.1	3.3	3.0	3.3	3.1	3.9	3.2	1.6
Dependency ratio ¹	0.41	0.38	0.43	0.37	0.42	0.31	0.40	0.35
Average age (years)	49.0	46.5	49.6	47.0	50.7	33.3	48.2	18.3
Maximum education level ²	3.7	4.0	3.7	3.9	3.8	3.8	3.8	1.6
% women-headed households ³	6.0	4.9	7.2	4.3	5.6	5.3	5.6	
<i>Physical capital</i>								
Access to land (%)	89.7	83.8	90.5	85.3	92.0	62.4	87.7	
Land cultivated (ha)	2.5	2.2	2.6	2.3	2.7	1.1	2.4	2.3
Cattle (head)	0.9	0.7	0.9	0.8	0.9	0.0	0.8	1.2
Pigs (head)	1.2	1.1	1.2	1.2	1.3	0.4	1.2	2.0
Sheep, goats (head)	1.2	1.4	1.4	1.2	1.4	0.2	1.3	3.6
Poultry (head)	16.6	14.2	16.5	15.1	17.5	5.8	15.7	13.8
Productive assets (Euro)	587	900	573	796	699	672	696	1519
<i>Financial capital</i>								
Loan uptake (%)	7.4	15.5	9.5	11.0	9.7	14.3	10.3	
Average loan (Euro)	12	29	18	18	17	26	18	79

Source: Survey findings

1. The dependency ratio is defined as (1 - (number of household members aged over 15 and under 66)/household size)).

2. The education level is defined on a 9-point scale:

No studies and cannot read or write	0
No studies but can read or write	1
Elementary school	2
Vocational school	3
Secondary school, gymnasium	4
College	5
Graduate studies (university B.Sc.)	6
M.Sc. studies (university)	7
Ph.D. studies (university)	8
Other occupation-specific higher education	9

3. Female-headed households are defined as households without male members aged over 18.

4. Poverty is defined relatively, with those households in poverty, which are in the lowest population quintile. Their income is below Euro 21 per capita nominally, which corresponds to US\$ 22.4.

Economic Activity Indicators by Region, Development and Poverty

Appendix 2

Table A4: Armenia: Economic activity indicators by region, development level and poverty incidence

	Rurality (mean)		Regional development (means)		Income poverty (means)		Total sample (mean, SD)	
	Peri-urban	Rural	Low	High	Non-poor	Poor		
<i>Involvement in ... (%)</i>								
Agriculture	81	77	81	75	82	62	78	
Other farm-based	24	11	18	13	16	11	15	
Non-farm enterprise	19	18	19	18	22	2	18	
Wage employment	23	20	22	20	24	9	21	
Migration labour	4	4	4	4	5	0	4	
Social transfers	47	43	43	45	47	33	44	
<i>Labour allocation (hours per year per household)</i>								
Agriculture	4389	3817	3967	4040	4196	3189	4003	2870
Non-farm enterprise	428	408	383	447	506	21	415	1090
Wage employment	539	465	468	511	572	147	489	1198
Migration labour	316	177	200	245	235	168	222	702
All active household labour	5672	4867	5018	5243	5509	3525	5145	3092
<i>Share of household income from different sources (%)¹</i>								
Agriculture	66	66	65	67	65	81	69	34
Other farm-based	0	0	0	0	0	0	0	1
Non-farm enterprise	10	10	11	9	11	2	9	24
Wage employment	9	11	11	10	11	0	9	22
Migration labour ²	1	1	1	1	1	0	2	10
Social transfers	12	11	12	11	11	18	10	20
No. income sources	2.0	1.7	1.9	1.8	2.0	1.2	1.8	0.9
Diversity index ³	0.23	0.24	0.24	0.23	0.25	0.07	0.23	0.21

Source: Survey findings

1. Agricultural income is calculated on the basis of reported revenues and costs (including depreciation) associated with crop and livestock products. Agricultural income includes both marketed and non-marketed produce, and can take negative values. This was the case for 21% of households in the sample. Such households are more often poor: of 173 poor households, only 55 had non-negative agricultural incomes. The poor/non-poor comparison is, therefore, biased towards larger income shares from agriculture, since the negative values were excluded. There is no such bias in regional comparisons.

2. Income from migration includes remittances in money, food and other goods sent by household members resident in other parts of the country or abroad.

3. Diversity of income is measured as $1 - \sum_{j=1,2,\dots,i} S(\text{income share } j)^2$, with $j=1,2,\dots,i$. With one source of income, the index equals zero, approaching 1 as i increases. It is based on non-negative income shares.

Table A5: Georgia: Economic activity indicators by region, development level and poverty incidence

	Rurality (mean)		Regional development (means)		Income poverty (means)		Total sample (mean, SD)	
	Peri-urban	Rural	Low	High	Non-poor	Poor		
<i>Involvement in ... (%)</i>								
Agriculture	34	78	67	74	71	56	69	
Other farm-based	1	4	2	8	4	2	4	
Non-farm enterprise	18	16	17	15	17	16	17	
Wage employment	58	41	44	47	52	15	44	
Migration labour	31	19	18	33	22	18	22	
Financial assets	16	6	5	18	10	1	8	
Social transfers	48	29	30	43	38	13	33	
<i>Labour allocation (hours per year per household)</i>								
Agriculture	694	2419	1982	2268	2058	1963	2048	2393
Non-farm enterprise	393	347	359	351	420	14	1267	1987
Wage employment	1740	1137	1240	1355	1377	764	357	985
Migration labour	488	350	302	634	403	142	379	1085
All active household labour	3315	4253	3882	4608	4258	2883	4051	3414
<i>Share of household income from different sources (%)¹</i>								
Agriculture	4	43	36	29	31	68	35	40
Other farm-based	0	0	0	1	0	0	0	3
Non-farm enterprise	12	9	10	9	11	0	10	25
Wage employment	44	24	29	26	31	4	28	37
Migration labour ²	16	10	10	16	12	7	12	27
Financial assets	6	3	2	8	4	1	4	14
Social transfers	17	10	12	11	11	20	12	25
No. income sources	2.1	2.0	1.9	2.6	2.3	0.9	2.0	1.2
Diversity index ³	0.27	0.25	0.23	0.31	0.27	0.03	0.25	0.23

Source: Survey findings

1. Agricultural income is calculated on the basis of reported revenues and costs (including depreciation) associated with crop and livestock products. Agricultural income includes both marketed and non-marketed produce, and can take negative values. This was the case for 21% of households in the sample. Such households are more often poor: of 173 poor households, only 55 had non-negative agricultural incomes. The poor/non-poor comparison is, therefore, biased towards larger income shares from agriculture, since the negative values were excluded. There is no such bias in regional comparisons.

2. Income from migration includes remittances in money, food and other goods sent by household members resident in other parts of the country or abroad.

3. Diversity of income is measured as $1 - \sum (income\ share\ j)^2$, with $j=1,2,\dots,i$. With one source of income, the index equals zero, approaching 1 as i increases. It is based on non-negative income shares.

Table A6: Romania: Economic activity indicators by region, development level and poverty incidence

	Rurality (means)		Regional development (means)		Income poverty (means)		Total sample (mean, SD)	
	Peri-urban	Rural	Low	High	Non-poor	Poor	1101	
<i>Involvement in ... (%)</i>								
Agriculture	93	92	94	92	96	75	93	
Other farm-based	28	38	29	33	35	13	31	
Non-farm enterprise	6	15	6	11	8	11	9	
Wage employment	29	37	24	38	31	37	32	
Migration labour	7	8	8	7	8	2	7	
Social transfers	88	87	88	88	91	68	88	
<i>Labour allocation (hours per year per household)</i>								
Agriculture	3068	2852	3388	2668	3232	1612	2993	2600
Wage employment	827	1282	695	1222	952	1170	984	1712
Migration labour	170	418	214	289	253	267	255	792
Non-farm enterprise	274	629	257	511	381	489	397	1429
<i>Share of household income from different sources (%)¹</i>								
Agriculture	57	54	62	51	58	37	56	
Other farm-based	1	3	2	2	2	1	2	
Non-farm enterprise	0	1	0	1	1	2	1	
Wage employment	4	4	4	5	3	18	4	
Migration labour ²	1	2	1	2	2	1	2	
Social transfers	36	35	31	39	35	42	35	
No. income sources	2.5	2.8	2.5	2.6	2.5	2.9	2.6	2.0
Diversity index ³	0.31	0.34	0.31	0.33	0.33	0.21	0.32	0.18

Source: Survey findings

1. Agricultural income is calculated on the basis of reported output levels valued based on price data collected in a separate farm survey. Annual agricultural income is the difference between these revenues and the sum of reported variable costs and 10% nominal depreciation of the asset stock. Agricultural income includes both marketed and non-marketed produce, and can take negative values.

2. Income from migration includes remittances in money, food and other goods sent by household members resident in other parts of the country or abroad.

3. Diversity of income is measured as $1 - \sum_{j=1}^i (\text{income share } j)^2$, with $j=1,2,\dots,i$. With one source of income, the index equals zero, approaching 1 as i increases. It is based on non-negative incomes.

Factors in Households' Involvement in Rural Non-farm Activities

Appendix 3

Table A7: Armenia: Factors in households' involvement in non-agricultural activities

Independent variables	Coefficient	Estimates	Standard errors	Regression statistics
Farm-based non-agricultural activities				
AGLABOUR	0,000	**	0,000	Number of obs = 813
ANIMALS	0,108	***	0,028	LR chi2(6) = 8.83
DEVELOPED	0,577	***	0,205	prob > chi2 = 0.0000
FARMSIZE	-0,001	***	0,000	Log likelihood = -332.83806
MIGLABOUR	0	*	0	Pseudo R2 = 0.0812
RURAL	-0,976	***	0,203	
CONSTANT	-1,77	***	0,248	
Waged employment				
AGLABOUR	0,000	***	0,000	Number of obs = 815
DEPRATIO	-1,125	**	0,446	LR chi2(7) = 171.97
DEVELOPED	0,475	**	0,201	Prob > chi2 = 0.0000
ENTLABOUR	-0,001	***	0,000	Log likelihood = -330.02349
LAND	0,067	*	0,038	Pseudo R2 = 0.2067
M_F_RATIO	0,238	**	0,118	
MAXEDU	0,579	***	0,067	
CONSTANT	-4,917	***	0,591	
Non-farm enterprise				
AGE	-0,02	*	0,011	Number of obs = 803
AGLABOUR	0,000	***	0,000	LR chi2(8) = 106.58
ANIMALS	-0,064	*	0,035	Prob > chi2 = 0.0000
ASSETS	0,001	***	0,000	Log likelihood = -327.4426
DEPRATIO	-0,733	*	0,436	Pseudo R2 = 0.1400
JOBLABOUR	-0,002	***	0,000	
LAND	-0,139	**	0,061	
MAXEDU	0,193	***	0,065	
CONSTANT	-1,014		0,637	
Migration labour				
AGE	0,025	*	0,015	Number of obs = 791
ANIMALS	-0,158	*	0,082	LR chi2(6) = 18.51
DEPRATIO	1,765	**	0,783	Prob > chi2 = 0.0051
FARMSIZE	0,000	***	0,000	Log likelihood = -118.33295
LAND	-0,23	*	0,133	Pseudo R2 = 0.0725
MAXEDU	0,222	*	0,118	
CONSTANT	-5,691	***	1,189	

Source: Survey findings and authors' calculations

Note: *** statistically significant, $P < 0.01$; ** statistically significant, $P < 0.05$; * statistically significant, $P < 0.10$.

Table A8: Georgia: Factors in households' involvement in non-agricultural activities

Independent variables	Coefficient	Estimates	Standard errors	Regression statistics
Farm-based non-agricultural activities				
AGLABOUR	0.000	***	0.000	Number of obs = 965
ANIMALS	-0.330	*	0.128	LR chi2(5) = 100.95
DEVELOPED	1.454	*	0.450	Prob > chi2 = 0.000
FARMSIZE	0.001	***	0.000	Pseudo R2 = 0.3593
GEORGIAN	2.067	**	1.053	Log likelihood = -89.9925
M_F_RATIO	0.555	**	0.275	
MAXEDU	-0.268	***	0.141	
WOMENHEAD	1.173	*	0.691	
CONSTANT	-6.601	***	1.324	
Waged employment				
AGLABOUR	0.000	***	0.00	Number of obs = 965
ANIMALS	-0.098	**	0.04	LR chi2(5) = 211.13
DEPRATIO	-1.418	***	0.28	Prob > chi2 = 0
ENTLABOUR	0.000	*	0.00	Pseudo R2 = 0.159
GEORGIAN	0.431	**	0.18	Log likelihood = -558.235
HHSIZE	0.242	***	0.05	
MAXEDU	0.339	***	0.04	
MIGLABOUR	0.000	***	0.00	
CONSTANT	-2.438	***	0.31	
Non-farm enterprise				
AGLABOUR	0.000	*	0.000	Number of obs = 965
M_F_RATIO	0.329	***	0.104	LR chi2(5) = 11.79
CONSTANT	-1.827	***	0.161	Prob > chi2 = 0.0027
				Pseudo R2 = 0.0135
				Log likelihood = -432.364
Migration labour				
DEVELOPED	0.771	***	0.182	Number of obs = 966
GEORGIAN	-0.578	***	0.189	LR chi2(5) = 35.83
RURAL	0.511	***	0.188	Prob > chi2 = 0.000
CONSTANT	-1.200	***	0.163	Pseudo R2 = 0.0359
				Log likelihood = -481.391

Source: Survey findings and authors' calculations

Note: *** statistically significant, $P < 0.01$; ** statistically significant, $P < 0.05$; * statistically significant, $P < 0.10$.

Table A9: Romania: Factors in households' involvement in non-agricultural activities

Independent variables	Coefficient	Estimates	Standard errors	Regression statistics
Farm-based non-agricultural activities				
ASSETS	0.000	***	0.000	Number of obs = 1075
ENTLABOUR	0.000	**	0.000	LR chi2(5) = 103.60
LAND	0.197	***	0.031	Prob > chi2 = 0.000
MAXEDU	0.143	***	0.042	Pseudo R2 = 0.0695
RURAL	0.499	***	0.129	Log likelihood = -692.995
CONSTANT	-1.439	***	0.194	
Waged employment				
AGE	-0.021	***	0.005	Number of obs = 1081
AGLABOUR	0.000	***	0.000	LR chi2(5) = 253.66
ANIMALS	-0.412	***	0.076	Prob > chi2 = 0.000
ASSETS	0.000	***	0.000	Pseudo R2 = 0.1718
ENTLABOUR	0.000	**	0.000	Log likelihood = -611.312
HHSIZE	0.132	**	0.059	
M_F_RATIO	-0.155	*	0.089	
MAXEDU	0.294	***	0.049	
ROMANIAN	-0.471	**	0.228	
CONSTANT	0.102	*	0.483	
Non-farm enterprise				
AGLABOUR	0.000	***	0.000	Number of obs = 1077
ANIMALS	-0.442	***	0.089	LR chi2(5) = 114.06
ASSETS	0.000	***	0.000	Prob > chi2 = 0.0000
MAXEDU	0.180	***	0.045	Pseudo R2 = 0.0892
CONSTANT	-1.262	***	0.197	Log likelihood = -581.995
Migration labour				
AGLABOUR	0.000	***	0.000	Number of obs = 1079
ANIMALS	-0.527	***	0.096	LR chi2(5) = 115.10
ASSETS	0.000	***	0.000	Prob > chi2 = 0.000
ENTLABOUR	0.000	***	0.000	Pseudo R2 = 0.093
MAXEDU	0.140	***	0.046	Log likelihood = -561.261
CONSTANT	-1.347	***	0.204	

Source: Survey findings and authors' calculations

Note: *** statistically significant, $P < 0.01$; ** statistically significant, $P < 0.05$; * statistically significant, $P < 0.10$.

Factors Affecting the Risk of Poverty

Appendix 4

Table A10: Armenia: Factors affecting the risk of poverty

Variables	Logit coefficient estimates (SE)	
DEVELOPED	-0.400*	0.240
EDUMAX	0.138*	0.079
AGE	-0.033***	0.012
SOURCES	-0.874***	0.197
FARMBASED	0.828**	0.399
JOB	-1.687***	0.390
ENTERPRISE	-3.329***	0.647
FARMSIZE	-0.007***	0.001
ANIMALS	0.178***	0.058
ASSETS	0.001***	0.000
CONSTANT	1.868***	0.704

Regression statistics:

797 observations

chi2(8) = 326.34

Prob > chi2 = 0.000

Log likelihood = -233.700

Pseudo R2 = 0.411

Source: Survey findings and authors' calculations

Note: *** statistically significant, $P < 0.01$; ** statistically significant, $P < 0.05$; * statistically significant, $P < 0.10$.

Table A11: Georgia: Factors affecting the risk of poverty

Variables	Logit coefficient estimates (SE)	
DEVELOPED	-1.272***	0.346
RURAL	-0.567**	0.272
AGREV	-0.006***	0.001
HHSIZE	0.236***	0.062
DEPRATIO	-0.614*	0.336
MAXEDU	-0.137**	0.060
AGLABOUR	0.000***	0.000
ENTLABOUR	-0.003***	0.001
JOBLABOUR	0.000***	0.000
CONSTANT	0.190	0.373

Regression statistics

Number of obs = 947

LR chi2(5) = 298.51

Prob > chi2 = 0.000

Pseudo R2 = 0.3241

Log likelihood = -311.299

Source: Survey findings and authors' calculations

Note: *** statistically significant, $P < 0.01$; ** statistically significant, $P < 0.05$; * statistically significant, $P < 0.10$.

Table A12: Romania: Factors affecting the risk of poverty

Variables	Logit coefficient estimates (SE)	
MAXEDU	-0.292***	0.088
AGE	-0.076***	0.008
ENTERPRISE	1.278***	0.480
MIGRATE	1.191**	0.549
SOURCES	-0.466***	0.143
ANIMALS	-2.166***	0.343
ASSETS	0.000**	0.000
CONSTANT	3.613***	0.547

Regression statistics

Number of obs = 298.26

LR chi2(5) = 0.000

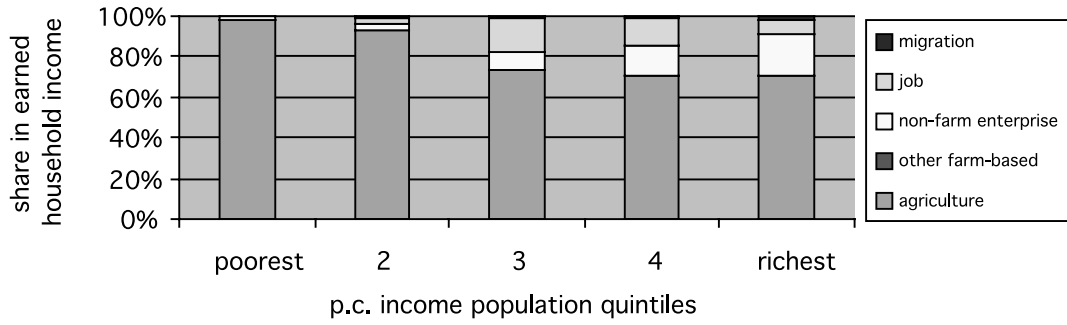
Prob > chi2 = 0.3366

Pseudo R2 = -293.9819

Log likelihood = 298.26

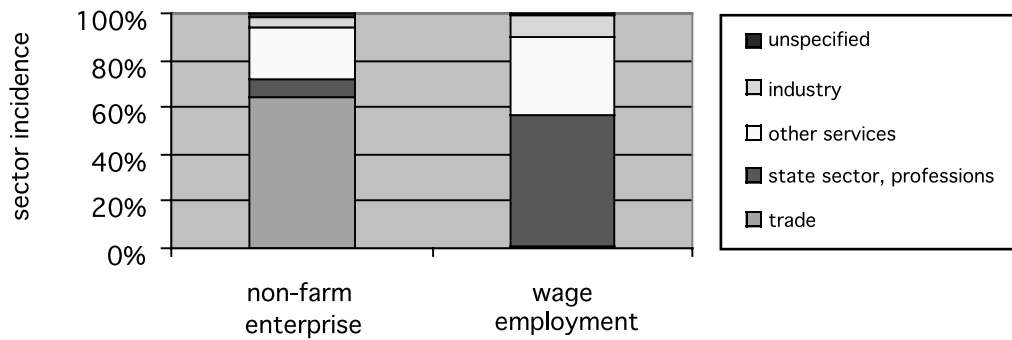
Source: Survey findings and authors' calculations

Note: *** statistically significant, $P < 0.01$; ** statistically significant, $P < 0.05$; * statistically significant, $P < 0.10$.



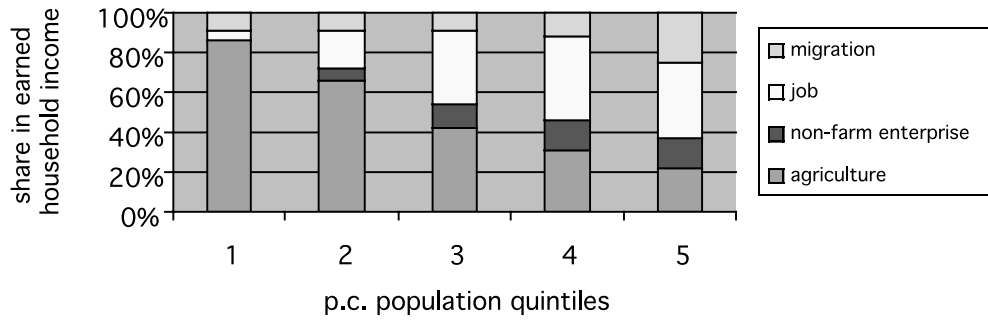
Source: Survey findings

Figure A1: Earned income non-farm shares in rural Armenia



Source: Survey findings

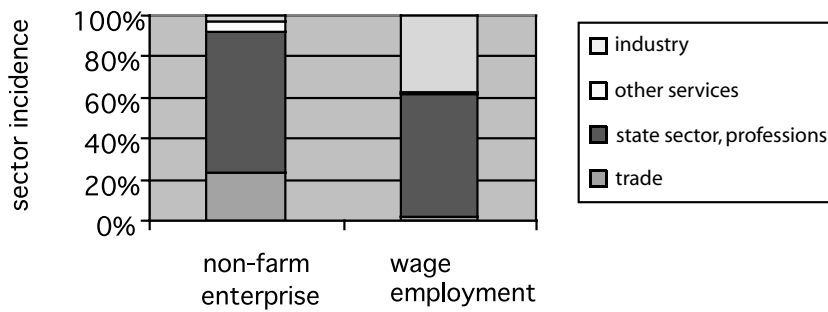
Figure A2: Sectoral composition of the rural non-farm economy in Armenia



Source: Survey findings

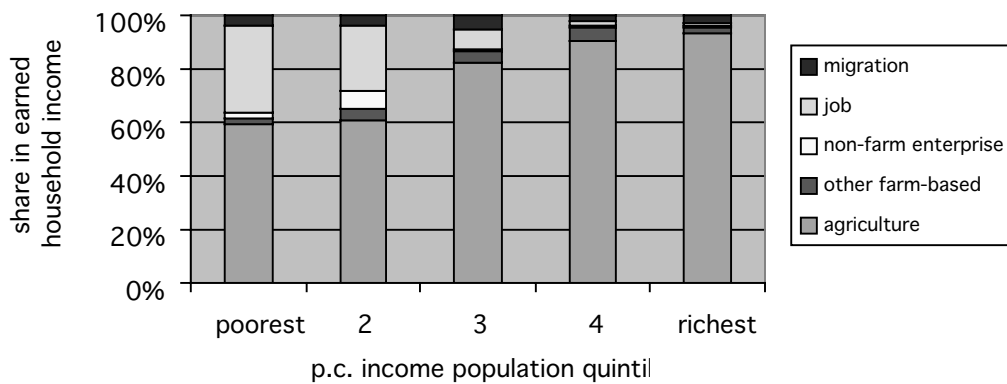
Note: Earned income excludes assets income and social payments. Non-agricultural farm-based activities were negligible and not included.

Figure A3: Earned income non-farm shares in rural Georgia



Source: Survey findings

Figure A4: Sectoral composition of the rural non-farm economy in Georgia



Source: Survey findings

Figure A5: Earned income non-farm shares in rural Romania



Source: Survey findings

Figure A6: Sectoral composition of the rural non-farm economy in Romania

Enterprise development, trade, finance, and empowerment are central to the improvement of people's livelihoods in developing and transition countries. The Enterprise, Trade and Finance Group together with the Livelihoods and Institutions Group at the Natural Resources Institute apply practical solutions to rural and economic development through research, consultancy and training activities. Our teams have a substantial experience in agricultural and development economics, marketing and market research, commodity and international trade, financial service development, and social and institutional development. Core areas of expertise include:

- Microfinance, Enterprise Development and Poverty Reduction
- Ethical Trade and Corporate Social Responsibility
- Improving the Performance of Agricultural Markets
- International Marketing and Trade
- Community Participation in Policy Formulation
- Social Impact Assessment
- Institutional Analysis and Capacity Building

The Institute is also able to arrange the following services: programmed study tours; training courses; seminars; communication for development; and CD Rom design and production.

For further information please contact:

Enterprise, Trade and Finance Group
Natural Resources Institute
Chatham Maritime
Kent
ME4 4TB
United Kingdom

Email: nri@greenwich.ac.uk

Internet: <http://www.nri.org/rnfe/>

Tel: + 44 1634 883199

Fax: + 44 1634 883706

ISBN: 0 85954 559-8