Preferences for Rural Credit Systems and their Impact on the Implementation of Credit Unions in Georgia

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In the Georgian agricultural sector, the main development constraints are insufficient access to rural credit institutions, the absence of marketing chains for agricultural products and limited application of advanced farming technologies. This dissertation addresses these constrains by investigating ways of improving the credit supply for Georgian famers. For this purpose a representative survey (n=406) was conducted in winter 2007/2008 in the region of Shida Kartli. The survey included a stated choice experiment investigating farmer's preferences regarding the characteristics of particular credit schemes. Results show that segments of the farmer population differ in their preferences for certain loan attributes. Furthermore, farmers expressed a very high demand for small credits with individual liability, and one-third of them have experience with loans. These findings provide useful information for the implementation of future credit unions, which can be a reasonable alternative to the credits with high interests and short durations offered by those banks and NGOs with credit schemes involving individual liability. The advantage of credit unions lies in their member-based, democratic governance structure (one member–one vote), which leads to greater independence from other financial institutions. Moreover, credit unions can integrate poorer members and thus can provide them with access to financial services. However, credit unions and other cooperatives are not widespread in Georgia. Due to the compulsory collective agriculture in the Soviet period before 1991, Georgian farmers are reluctant to join any kind of cooperative since they put them on a level with the former Soviet *kolkhozes*. The Soviet agricultural system generated strong distrust among farmers, so that they have almost no incentive to found common ventures, like credit unions. To advance the implementation of credit unions in Georgia, information campaigns and training courses for the rural population are essential.

Präferenzen für ländliche Kreditsysteme und ihre Auswirkung auf die Einrichtung von Kreditgenossenschaften in Georgien

Mangelnder Zugang zu ländlichen Kreditinstitutionen, das Fehlen von Vermarktungswegen für Agrarprodukte und eingeschränkte Anwendungsmöglichkeiten moderner landwirtschaftlicher Technologien sind die Haupthindernisse für die Entwicklung der georgischen Landwirtschaft. Thema der vorliegenden Dissertation ist die Verbesserung der Versorgung der georgischen Landwirte mit Krediten. Zu diesem Zweck wurde eine repräsentative Haushaltsumfrage (N=406) im Winter 2007/2008 in der Region Shida Kartli durchgeführt. Die Umfrage enthielt ein Auswahlexperiment für die Untersuchung der Präferenzen von Landwirten für bestimmte Kreditsysteme. Die Ergebnisse zeigen, dass die Befragten hinsichtlich ihrer Präferenzen für Krediteigenschaften differieren und daher in unterschiedliche Gruppen von Kreditpräferenztypen unterteilt werden können. Weiterhin zeigte sich, dass die befragten Landwirte eine große Nachfrage nach kleinen Krediten mit individueller Haftung haben und dass ein Drittel von ihnen über Erfahrung mit Krediten verfügt. Die Ergebnisse liefern wertvolle Informationen für die Einrichtung von zukünftigen Kreditgenossenschaften. Diese können eine sinnvolle Alternative zu den Krediten mit hohen Zinsen und kurzen Laufzeiten von Banken und Nichtregierungsorganisationen sein, wenn sie Kreditsysteme mit Einzelhaftung anbieten. Der Vorteil von Kreditgenossenschaften liegt in ihrer demokratischen Verwaltungsstruktur (ein Mitglied – eine Stimme), die zu größerer Unabhängigkeit von anderen Finanzinstitutionen führt. Außerdem können Kreditgenossenschaften ärmere Bevölkerungsschichten mit einbinden und ihnen somit Zugang zu finanziellen Dienstleistungen gewährleisten. Dennoch sind Kreditgenossenschaften wie auch andere Kooperativen in Georgien kaum verbreitet. Aufgrund des Zwangs zur kollektiven Landwirtschaft in der Sowjetära bis 1991 stehen die georgischen Landwirte jeglichen Kooperativen ablehnend gegenüber, da sie diese mit den früheren sowjetischen Kolchosen gleichsetzen. Das sowjetische Landwirtschaftssystem führte zu großem Misstrauen der ländlichen Bevölkerung untereinander, so dass der Wille zu gemeinsamen Aktivitäten kaum vorhanden ist. Um die Einrichtung von Kreditgenossenschaften in Georgien zu fördern, sind Informationskampagnen sowie Schulungsangebote für die ländliche Bevölkerung erforderlich.

სასოფლო – სამეურნეო საკრედიტო სისტემის უპირატესობა და მისი ზემოქმედება საქართველოში არსებულ საკრედიტო გაერთიანებებზე

არასაკმარისი გზა სასოფლო – სამეურნეო საკრედიტო გაერთიანებებისადმი, აგრარული პროდუკტების გასაღები გზის არქონა და თანამედროვე სასოფლო – სამეურნეო ტექნიკის შეზღუდული გამოყენება არიან ქართული მეურნეობის ძნელად განვითარების მთავარი მიზეზები. მოცემული დისერტაციის თემაა, ქართველი გლეხების კრედიტით მომარაგების გაუმჯობესება. ამ მიზნით 2007/08 წლის ზამთარში, საქართველოში, შიდა ქართლის რეგიონში განხორციელდა კომლების რეპრეზენტატიული გამოკითხვა. გამოკითხვა შეიცავდა ექსპერიმენტს, თუ რომელ საკრედიტო სისტემას ანიჭებენ უპირატესობას ქართველი მეურნეები. შედეგებიდან გამომდინარე ჩანს რომ, გამოკითხული ხალხი, იმის და მიხედვით თუ რომელ საკრედიტო სისტემას ანიჭებს უპირატესობას, ერთმანეთისგან განსხვავდებიან და აქედან გამომდინარე ერთმანეთისგან განსხვავებულ ჯგუფებში იქნან განთავსებულნი. ნათელი გახდა ისიც რომ, გამოკითხულთა შორის დიდი მოთხოვნილებაა პატარა ე.წ. მცირე კრედიტების მიმართ, კერძო დაზღვევით. ნათელი გახდა ისიც რომ, გამოკითხულების ერთ მესამედს უკვე აქვს გამოცდილება კრედიტების მიმართ. შედეგებს მოაქვთ საჭირო ინფორმაცია მომავალი საკრედიტო გაერთიანებების შეჰქმნის შესახებ. ასეთი გაერთიანებები იქნებოდნენ აზრიანი ალტერნატივა იმ ბანკებისა და არასამთავრობო ორგანიზაციების მიმართ, რომლებიც მაღალ პროცენტიან და მოკლე ვადიან კრედიტებს კერძო დაზღვევით იძლევიან. საკრედიტო გაერთიანებების უპირატესობა მის დემოკრატიულ სამმართველო სტრუქტურაში, (ერთი წევრი – ერთი ხმა) რომელიც უფრო დიდ, სხვა ფინანსურ ინსტიტუტებისგან განსხვავებით, დამოუკიდებლობისკენ მიისწრაფვის. გარდა ამისა საკრედიტო გაერთიანებებს შეუძლიათ ღარიბი მოსახლეობის ჩართვა და მათთვის ფინანსური დაწესებულებებისადმი გზის გარანტირება. თუმცა უნდა ითქვას

რომ, საკრედიტო გაერთიანებები და სხვა კოოპერატივები საქართველოში არც თუ ფართო მასშტაბით არიან გავრცელებულნი. იძულებითი კოლექტიური მეურნეობის გამო, საბჭოთა რეჟიმის ზეგავლენის ქვეშ 1991 წლამდე, ქართველი გლეხობა უარყოფითადაა განწყობილი ყოველგვარი კოოპერატივების მიმართ, რადგან ისინი ყველანაირ ამდაგვარს საბჩოურ კოლხოზებს ადარებენ. საბჭოურ სასოფლო – სამეურნეო სისტემამ სოფლის მოსახლეობა ერთმანეთის მიმართ დიდ უნდობლობამდე მიიყვანა, რამაც ერთიანი აქტიურობის სურვილი მთლიანად ჩაახშო. საქართველოში საკრედიტო გაერთიანებების შეჰქმნის და მისი ხელშეწყობისთვის საჭიროა საინფორმაციო კომპანიები და სწავლა – განათლების შეთავაზება სოფლის მოსახლეობისათვის.

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List of abbreviations

ACDI/VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
ASA	Large microfinance institution in Bangladesh, founded in 1978
ASC	Alternative Specific Constant
BRI	Bank Rakyat Indonesia
CARE	Cooperative for Assistance and Relief Everywhere
CBA	Cost-benefit analysis
CE	Choice Experiment
CEE	Central and Eastern European Countries. Former communist states in Europe comprising Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro, Czech Republic (EU since 2004), Estonia (EU since 2004), Hungary (EU since 2004), Latvia (EU since 2004), Lithuania (EU since 2004), Poland (EU since 2004), Slovakia (EU since 2004), Slovenia (EU since 2004), Romania (EU since 2007), and Bulgaria (EU since 2007).
CIDA	Canadian International Development Agency
CIS	Commonwealth of Independent States. Member countries are Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.
CM	Choice Modelling
CU	Credit Union
DFID	Department for International Development
EBRD	European Bank for Reconstruction and Development
EU	European Union
FDI	Foreign Direct Investment
FINCA	Foundation for International Community Assistance, US-American village banking organization
GMSE	Georgia Microfinance Stabilization and Enhancement
GTZ	Gesellschaft für Technische Zusammenarbeit
ha	Hectare
IFAD	International Fund for Agricultural Development

IPC	Internationale Projekt Consult (German Development Consulting firm)
MFI	Microfinance Institution
NABARD	National Bank for Agricultural and Rural Development
NGO	Non-governmental organization
p.a.	per annum (per year)
PCB	ProCredit Bank
PPP	Purchase Power Parity
SELP	Small Enterprise Lending Programme
SHARE	SHARE Microfin Ltd., large Indian microfinance institution, founded in 1989
SHG	Self-Help Group
UGB	United Georgian Bank
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
US	United States of America
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WOCCU	World Council of Credit Unions
WTA	Willingness to accept
WTP	Willingness to pay

A Georgian farmer works on his land with a spade in his hand. He takes a rest and smokes a cigarette. While smoking, he reads the warning on the cigarette pack: 'Smoking kills.' He thinks to himself, 'Why didn't they write this warning on my spade? '
Georgian joke

1 Introduction

This chapter provides an overview of the background and research objectives of this study, including previous studies, methods and major results (section 1.1). This is followed by a discussion of Georgia's history and its political and agricultural situation (section 1.2). Section 1.3 provides an overview of the research region, Shida Kartli, while section 1.4 outlines the subsequent chapters. Chapter 1 closes with a summary (section 1.5).

1.1 Background account and research objectives

Georgia is a country with high agricultural potential, favourable climatic conditions and a large share of agricultural land (43 percent) (Ebanoidze 2003 p. 125). In spite of these advantages, Georgian agriculture suffers from rural poverty and low agricultural efficiency, a situation that results from several antecedents. One major problem lies in the small, fragmented agricultural land surfaces, characterized by private family farms averaging just one hectare in size. The small areas only allow for subsistence farming, thus impeding commercial agriculture. The farmers who possess these small surfaces lack access to input supply, farm machines, marketing channels, extension and finance. Notwithstanding these difficult conditions, private family farms contribute the highest share to Georgia's overall agricultural output. Amongst the numerous problems in agriculture, lack of access to finance has been identified as one major constraint for smallholder farmers. In recent years, several formal financial institutions, such as banks and NGOs, began rural lending, but their loan conditions—short term loans with high interest rates—are not suitable for agriculture. Experiences from numerous countries show that credit unions (CUs) could allow farmers to obtain loans under reasonable conditions and thus avoid the unsuitable loans offered by formal institutions. Moreover, they can promote sustainable agriculture since they enable farmers, as members and customers of their CUs, to make long-term instead of short-

term profit-oriented decisions (Dzirkvadze 2008). International organizations, like the International Fund for Agricultural Development (IFAD), implemented rural CUs in Georgia, but the project failed. The Georgian population has a deep-rooted distrust of any cooperative system due to the long abuse of the cooperative concept during the Soviet period, when the rural population was forced into collective agriculture on *kolkhozes* and *sovkhozes*. Georgian farmers confound cooperatives with collective agriculture since the 'Western' or 'genuine' cooperative concept is new and unknown to them. The first 'genuine' cooperatives for agriculture, input and marketing were implemented in Georgia as recently as 2003.

Despite newly implemented agricultural credit systems in Georgia designed to enhance farmers' access to financial means, the share of agricultural loans compared to all loans remains low. This severely limits the availability of suitable loans for Georgian farmers (Brown et al. 2000; IFAD 2007a p. 53; Kortenbusch & Cervoneascii 2003), thus impeding agricultural development, amongst other sectors (Baramidze 2007; Kortenbusch & Cervoneascii 2003; Swinnen 2002). To investigate this problem, information is required on the supply of credit schemes and barriers for the provision of credit to the rural population and on farmers' preferences with regard to the various rural credit systems. Focusing on the demand side, the overall aim of this study is to assess farmers' preferences for various rural credit systems and to discuss the findings in light of the implementation of credit unions or credit cooperatives that are seen as a viable solution for farmers' credit problems (IFAD 2007b; Revishvili & Kinnucan 2004; Zeller 2003). To research farmers' preferences for rural credit systems, in early 2008, a household survey of smallholders (n=406) was conducted in the Georgian region of Shida Kartli. The household survey included stated preference methods to elicit farmers' preferences for various rural credit systems. A choice between two general types of credit systems was followed by repeated choices among credit options that differed in certain loan characteristics or attributes. The characteristics were loan size, interest rate and collateral, as well as maturity of instalments, commission and loan duration.

The credit programmes already offered by NGOs and banks do not take into account farmers' loan needs or their perceptions of rural credit schemes, leading to an incomplete client—in this case, farmer—profile. Despite the well-documented advantages of CUs, these organizations failed in Georgia, and almost no new efforts

have been undertaken to implement them within a different framework. The principle aim of this study, therefore, is to examine farmers' needs and wishes regarding rural credit schemes and to provide information on ways to implement CUs.

Previous research

Rural finance systems in Georgia were investigated by Kortenbusch & Cervoneascii (2003), who indicate that farmers in Georgia have almost no access to financing. These findings are supported by a number of other authors (e.g., Hirche & Kortenbusch 2005; Pytkowska & Gelenidze 2005), and are reflected in the very low share of formal credit supply (1 percent) granted to the agricultural sector (NBG 2006 pp. 46-48). Formal financial institutions are reluctant to lend to farmers since agricultural output is not predictable (insecure climatic conditions) and information on the client is imperfect (rural-urban distance), which may lead to an adverse selection effect (Stiglitz & Weiss 1981) for the lender. To overcome the financial constraints farmers face, CUs are seen as a viable solution. Credit unions are for-profit organizations with a democratic governance structure that take into account the concerns of weaker members. This is expressed through the one-member, one-vote rule (Zeller 2003). However, as a result of the negative experiences Georgian farmers had with compulsory collective agriculture in the Soviet Union, they are reluctant to become involved with any type of cooperative system (Baramidze 2007). Notwithstanding these experiences, a few cooperatives have emerged in Georgia in the last few years (Dzirkvadze 2008).

Methods and hypotheses

According to the study results of Kortenbusch & Cervoneascii (2003), access to loans for smallholder farmers is very limited in all three researched regions (Kakheti, Samtskhe Javakheti and Shida Kartli). Based on Mr Kortenbusch's advice, the region of Shida Kartli was chosen for the present study. To analyse the rural credit demand in Shida Kartli, a questionnaire for a household survey was designed. The core method of this study is the choice experiment, which is 'a structured method of data generation' (Hanley et al. 1998 p. 415) based on accurately designed choice tasks to detect the factors that influence choice. In a choice experiment, individuals are given a hypothetical scenario in which they are to choose their preferred alternative from several alternatives in a choice set. Each alternative has a number of attributes, or

characteristics, one of which should include a monetary value. During the decision-making process, individuals make trade-offs between the alternatives and their respective levels (Alpizar et al. 2001). Respondents' preferences are derived from their choices. Furthermore, it is possible to estimate from the responses the marginal rate of substitution for the attributes and the marginal willingness to pay (WTP) for the attributes, provided that a monetary attribute is included (Carlsson & Martinsson 2003).

In this study the choice experiment was implemented to quantify respondents' relative preferences regarding certain credit characteristics. This will allow the calculation of the influence of credit characteristics on the probability that farmers will take a certain kind of loan. Choice experiments (e.g. Louviere et al. 2001) were first developed in the fields of transport and marketing and have found increasing popularity for the purpose of environmental valuation in recent years (e.g., Bateman et al. 2002; Pearce & Özdemiroglu 2002). Dufhues (2007) applied a related technique, conjoint analysis, to assess the factors that impede or support the access of rural households in Northern Vietnam to formal financial systems. This method is applicable to numerous other fields of research. As Fischer (2004 p. 15) states, 'insights gained in CV [contingent valuation] research can easily be transferred to research on other stated preferences techniques'.

Before the choice task, respondents were asked whether they would prefer a group loan with joint liability or a loan with individual liability. After choosing between two loan types, each respondent received four choice cards depending on whether they preferred loans with joint liability or loans with individual liability. The choice cards for both loan types show the same attributes: 1) loan amount, 2) monthly interest rate, 3) collateral, 4) instalment periods, 5) commission and 6) loan duration. These attributes were chosen because they describe the most relevant loan characteristics that the farmer would face in a real loan uptake situation at a financial institution. The use of a hypothetical choice situation allows for an ex ante assessment of demand for products that are not yet available on the market or are not yet available to a target population of consumers. With regard to the choice experiment, two attributes—interest rate and commission—reflect the expected cost of the credit. Each attribute has four levels, except for collateral, which has only two levels in each loan type. The variation of attributes or characteristics (levels) was based on information on

the real loan characteristics of loans granted by a Georgian NGO and a Georgian bank. Following the choice task, respondents received several supporting questions on the choice experiment. The questions involved a subjective assessment of respondents' certainty regarding their choices, an importance rating of credit attributes, general credit demand and past credit experience, as well as socio-economic and household characteristics. The following four hypotheses were examined and tested in this study:

- Hypothesis H_{01}: Smallholders in Shida Kartli prefer the status quo (no rural credit system).
- Hypothesis H_{02}: The majority of smallholders in Shida Kartli prefer loans with individual liability to those with joint liability.
- Hypothesis H_{03}: Smallholders' past credit experience does not influence the demand for a rural credit system.
- Hypothesis H_{04}: Smallholders' choice between the status quo and different rural credit systems is not influenced by their socio-economic factors.

Data analysis was conducted using the statistical and econometric software SPSS 13.0, NLOGIT 3.0 and Latent Class Gold Choice—SPSS 13.0 for the socio-economic data, and NLOGIT 3.0 and Latent Class Gold Choice for the choice experiments.

Major results

The major findings of this research show that one-third of respondents had taken a loan, while over two-thirds of them did not have any credit experience. Out of those without credit experience, one-third stated that they did not need a loan. Nonetheless, the implementation of a rural credit system was rated to be very important or important by the great majority of farmers, indicating that overall credit demand is high. One central research question concerned the kind of rural credit system farmers prefer in the region of Shida Kartli. In the sample, farmers strongly preferred loans with individual liability (87 percent) to loans with joint liability (8 percent), which is in line with previous findings from a number of authors (see Aghion & Morduch 2000; Derflinger et al. 2006; Vigenina & Kritikos 2004). Only a small group did not want any rural credit system (5 percent). The single most important reason for the choice of loans with individual liability was distrust amongst villagers. Another question concerned the actual past and the projected future loan investment of respondents, both with and without credit experience. The results show that smallholders in Shida Kartli

prefer to invest borrowed money first in agriculture and second in their houses; investment for consumption purposes ranks third. Another important field of investment is trade and transportation. Many farmers chose a twofold investment strategy: agriculture and a second income source. This indicates that agriculture alone is not perceived as sufficient to generate income due to the small plots and the lack of (export) markets. Analysis of the choice experiments (CE) shows that, overall, respondents prefer, as expected, lower interest rates, lower commissions and longer loan durations. The preferred instalment is two months. With respect to collateral, respondents favour real property to secure their loans. Regarding loan size, from the amounts denoted on the choice cards, the surveyed population prefers a minimum loan of 8000 lari[1]. Interestingly, only a few respondents chose the option 'none of the above' (none of the loans shown on the choice card), which indicates that the majority feel they would benefit more from one of the loan options offered than from remaining without a loan. These findings give a precise picture of smallholder farmers' perceptions of loans and their attributes and specify which types of investment farmers would make as potential borrowers. Thus, the results contribute to the field of rural finance research and may serve to formulate policy recommendations that can help improve access to financial services for smallholders in Shida Kartli.

To improve agricultural development in Georgia, much is needed, including rural credit, savings and insurance systems, farm machinery, inputs like fertilizer and pesticides, seed material, agricultural extension, veterinary services, new marketing chains and new markets to address the problem of the Russian trade embargo. This thesis focuses on rural credit systems and the possible implementation of CUs in the central-eastern region Shida Kartli. The survey results clearly show that farmers prefer the individual lending system and that they distrust others, thus impeding the implementation of any cooperative system. Nevertheless, CUs using the individual lending scheme could be a possible solution to rural finance constraints because farmers, as owners and customers of the CU, manage their own financial institution and are thus more independent of other financial institutions (banks and NGOs).

One important study result is that preferences for loan attributes are not homogeneous. Analysis of the data of the choice experiment using a latent class model

[1] One lari equals 0.44 euros (NBG 2008)

shows that respondents can be grouped into four classes that have different preferences for loan attributes. Thus, the ideal CU should comprise elements that serve these four credit preference classes. With respect to the individual classes, respondents in class 1, the biggest class, prefer small loans and have a relatively low aversion against higher interest rates. Class 2 is the second largest group and shows a prefence for long loan durations; it has a relatively low aversion against higher interest rates too. Class 3, which is the third class in terms of size, prefers lower interest rates and movable assets as collateral type. Class 4 is the smallest class and has a single preference for big loans. To give a more complex picture of respondents' socio-economic characteristics and their opinion on different aspects regarding financial affairs in relation to the four classes computed with the latent class model, a Waller-Duncan test (see section 6.4) was conducted. This statistical test is used for calculations with groups of respondents that differ significantly from each other. Major results of the Waller-Duncan test suggest that members of class 1 have the highest educational level of all classes with 32 percent of them having earned a university degree. Class 1 has the lowest share in self-employed members in comparison to all other classes (10 percent), and unemployment counts for 11 percent in this class. Self-employement means a second income source besides (subsistence) farming. With respect to decision making of the use of household money, decisions in class 1 are made predominantly by the head of the household (male or female) (23 percent). Class 2 has the second highest percentage of members with a university degree (31 percent). Class 2 has a share of 15 percent of self-employed respondents, which is the highest percentage of self-employed members together with class 3. Class 2 is the group with a low percentage of unemployed persons (10 percent). The main decision makers on the use of the monetary houselhold income are either the heads of household, whether male or female, (20 percent), or all household members combined (10 percent). With regard to education, class 3 ranks third after class 1 and 2 with 29 percent of its members possessing a university degree. Class 3 has a self-employment rate of 15 percent and an unemployment rate of 19 percent, which is a high percentage of unemployed people. The decisions for the use of the household's money are predominantly made by the head of household (male or female) (30 percent), and by the parents (6 percent). Class 4 has the lowest percentage of members with a university degree (26 percent). Eleven percent are self-employed and only 6 percent are unemployed that is the lowest percentage of unemployed

persons. Decisions on use of households' financial means are made by all members of the family together (8 percent). Twenty-three percent report that the head of household (male or female) makes the financial decisions.

The following four hypotheses were tested with different statistical methods:

- Hypothesis H_{01}: Smallholders in Shida Kartli prefer the status quo (no rural credit system).
- Hypothesis H_{02}: The majority of smallholders in Shida Kartli prefer loans with individual liability to those with joint liability.
- Hypothesis H_{03}: Smallholders' past credit experience does not influence the demand for a rural credit system.
- Hypothesis H_{04}: Smallholders' choice between the status quo and different rural credit systems is not influenced by their socio-economic factors.

Significant results indicate that farmers have a demand for a rural credit system (hypothesis 1), that a large majority of them prefers loans with individual liability (hypothesis 2), that their demand for a rural credit system is not influenced by their past credit experience (hypothesis 3) and that their decision-making process is not influenced by any of their socio-economic characteristics (hypothesis 4).

How to convince farmers of the benefits of CUs and cooperatives remains an open question. To this end, image and information campaigns (such as advertisements and village training courses on cooperatives) are helpful. Furthermore, experience with Georgian cooperatives before the Soviet revolution in 1917 (Baramidze 2007) can also serve as a key ingredient in the successful establishment of CUs.

If we suppose that farmers are convinced that credit unions can help at least to a small extent to develop agriculture and rural living conditions, an implementation project for credit unions could be started. For this purpose, two models for the implementation of CUs and two business models for CUs that fit the preferences of the four credit preference classes were developed. The models can be found in section 7.2.1.

During the research for this study, new issues emerged, and it is clear that CUs are not the final answer to the problems Georgian farmers face. Thus, the question remains: Can service cooperatives alleviate rural poverty by integrating smallholder farmers in the agribusiness chain? If the answer is yes, what products should be marketed? Are, for instance, high-value ecological products suitable for export? Do

service cooperatives support sustainable agriculture? These topics need to be examined in further research.

1.2 Georgia: A short introduction to the country

Georgia is a small, multiethnic country in the West Caucasus. In the north is the High Caucasus, which, with its 5000 m high mountains, forms the border with Russia. In the west lies the Black Sea, and in the southwest, south and east, Georgia borders Turkey, Armenia and Azerbaijan. Five climate zones make Georgia favourable for agriculture with diverse products, including wine, citrus, tea, fruits and hazelnuts. The country is considered one of the origin areas of Homo sapiens, and it has a very long history. In Greek times, Georgia was well known through its kingdom of Colchis, which was situated on the eastern coast of the Black Sea. The eastern part of Georgia belonged to the ancient kingdom of Kartli-Iberia.

After a period under Roman influence, the Christian religion was adopted as the state religion in the early fourth century. In the course of the next few centuries, Georgia was dominated by Persians, Arabs and Turks. Then, from the eleventh to the thirteenth century, the country enjoyed a golden age and freedom from foreign domination. However, in 1236 the Mongols put an end to the golden age, and, subsequently, both the Ottoman and the Persian empires tried to take control over the country. In the nineteenth century, Georgia became part of the Russian Empire. This was followed by a brief three-year period of independence from 1918 to 1921, during which time Georgia was a democratic republic. Georgian independence came to an end when the Soviet Union forced the country to join it as a Soviet Socialist Republic, which it remained until the Soviet Union broke down in 1991. In that year, Georgia became independent, and, in 1995, the country adopted a new constitution, becoming a presidential republic. In 2003, under Eduard Shevardnadze, president since 1995, the government tried to manipulate national legislative elections, which lead to mass protests and Shevardnadze's resignation. Since 2004, Mikheil Saakashvili and his National Movement party have been in power (CIA 2006). Also, after independence, the economic system changed from communism to a market economy.

Today, one of the biggest problems Georgia faces is internal ethnic conflict, which threatens territorial integrity. The Ossetian and Abkhazian minorities declared independence of their autonomous regions without internal acknowledgement or

acknowledgement by the international community[2]. The political status of these two regions remains unclear (Kortenbusch & Cervoneascii 2003), and the situation worsened with the war between Georgia and Russia in August 2008. The secessionist regimes of the two breakaway regions are backed by Russia control of 15 percent of Georgian territory (Freedom House 2006 p. 2). Despite the political changes after the peaceful Rose Revolution of 2003, poverty still remains strong, with over 51 percent of the population living below the official poverty line and 17 percent under the extreme poverty line (UNDP 2005 p. 7).

Regarding employment, only 11 percent of the working-age population receives regular salaries (DS 2008b p. 24). This situation is forcing a large part of the population into subsistence farming or into informal economic activities, which limits the amount of tax income the government can raise. In addition, Georgia suffers severely from corruption. In 2003, Georgia ranked 124th out of 133 surveyed countries on an index developed by Transparency International (Kortenbusch & Cervoneascii 2003 p. 20). Since then, the corruption rate has dropped considerably. In 2008, Georgia was in 67th place out of 180 countries (TI 2008). Demographically, the country is characterized by the emigration of young, working-age people and by a low birth rate, with an average of 1.44 births per woman (CIA 2009). Life expectancy is high—70 for men and 79 for women (DS 2008a p. 35). Furthermore, rural areas show a high proportion of pensioners (Kegel 2003). Emigration, low birth rate and a relatively high share of pensioners have led to a constant decrease in population. In 1996, the total population was 4.7 million; by 2007, it had decreased to 4.4 million (DS 2008b p. 77). Official statistics indicate that 55 percent of the working age population is employed in the agricultural sector (DS 2008a p. 44). In this sector, 80 percent are self-employed (EIU 2003 p. 19). The average farm size is 0.9 hectare (Lerman et al. 2003 p. 15; SDS 2005 p. 55). The small surfaces are used for subsistence farming, on which 84 percent of the rural population depends, and 80 percent of the produce is consumed by the farm families themselves (Heron et al. 2001 p. 9). Agricultural output declined from 40 percent of total GDP in 1995 (Dzirkvadze 2008 p. 2) to 13 percent in 2008 (CIA 2009). With regard to land ownership, 25 percent of all agricultural land is privately owned (DS 2005a p. 20). At the same time, the rural population increased

[2] Russia, Venezuela and Nicaragua acknowledged Abkhazia and South Ossetia officially after the war between Georgia and Russia in August 2008.

considerably—from 48 percent in 2004 (DS 2005a p. 8) to 57 percent in 2005 (DS 2005b table 9.1). This increase was ascribed to ongoing long-term unemployment, which pushed people into subsistence farming (see Lerman et al. 2003). According to Kegel (2003), the Georgian government is not able to provide food security, thus further increasing the tendency towards subsistence farming to ensure food security in rural areas. Dzirkvadze (2008 p. 5) enumerates the problems faced by the rural population:

- Increasing food prices.
- Higher costs for transportation, input and fuel.
- Price increases due to agro-climatic conditions like floods, droughts and frost periods.
- Increasing rural poverty due to a deterioration of prices for agricultural products; many rural dwellers are absolute or net food buyers.
- A shift to consumption of lower quantity and quality of foodstuffs in order to lower expenses (as customers).
- Withdrawal from the market and reversion to low-input, low-output production for home consumption (as producers).

In an effort to enhance Georgian agricultural productivity, international organizations have created various projects and programmes. One of these is AgVantage, a project created by the US NGO ACDI/VOCA. AgVantage identifies new markets for specific Georgian products, provides training and introduced leasing to improve access to agricultural equipment. It has helped to establish four associations and three cooperatives (ACDI/VOCA 2007 p. 2). The project advises the Georgian Ministry of Agriculture on the development of a long term national strategy for the food and agricultural sectors (ACDI/VOCA 2007). AgVantage has also introduced new crop varieties, including apples, onions, greens, berries and grapes stemming partly or totally from the U.S. (ACDI/VOCA 2007; Karchava 2006). The problem with the new varieties is that old, partly endemic Georgian varieties may become extinct, which will decrease biodiversity and will damage the cultural heritage, especially with regard to winegrowing. Given the fact that over 500 grape varieties grow in the country, wine can be regarded as a symbol of Georgian culture.

The reason for the high incidence of poverty lies in the change from communism to a market economy. The market economy requires the production of competitive

products with modern technologies and in line with high standards. As Georgian farmers do not have access to better technologies, their products are not competitive on local and international markets. Agricultural work is predominantly performed with the 'spade and hoe' technology. The lack of input supply is the legacy of communism, which was characterized by an absence of markets for these production factors (Mathijs & Swinnen 1998). The opportunity to work in the cities also decreased rapidly, due to the closure of almost all manufacturing facilities after the breakdown of the Soviet Union (Dzirkvadze 2008). Furthermore, the unstable political situation since the 1990s has damaged the agricultural sector. The government has not been able to provide technical and financial support to farmers due to the civil war. Consequently, banks do not trust the Georgian economy, especially not agriculture (Dzirkvadze 2008), which has entailed a severe lack of access to credit (Brown et al. 2000; Gardner & Lerman 2006; Kortenbusch & Cervoneascii 2003). To summarize, the main constraints for Georgian farmers are lack of access to credit, lack of marketing opportunities and lack of input supply (Brown et al. 2000; Heron et al. 2001). In addition, there is no nationwide agricultural extension system (Kemkhadze 2008).

1.3 Description of the research area, Shida Kartli

Shida Kartli is one of ten Georgian provinces (leaving aside the breakaway provinces Abkhazia and North Ossetia) and is situated in the centre of the country. The province's capital is Gori, Stalin's birthplace, a city with 50,400 inhabitants (DS 2008d p. 36). In Shida Kartli, 74 percent of rural households use land for agricultural purposes (SDS 2005 p. 33). The average lot size is 0.8 hectares per household (SDS 2005 p. 33). The households own 99 percent of these small agricultural surfaces (SDS 2005 p. 33), which they obtained from the government when sections of state-owned land were privatized in the 1990s. Apples, grapes, wheat and maize are the main crops produced in Shida Kartli. Of these crops, wine and flour are the most important processed products. With respect to livestock, households in the research area own small numbers of livestock. The average number of animals per household is four head of cattle, two pigs, and four sheep (SDS 2005 p. 45). The main processed livestock products are smoked meat, sour milk and cheese (SDS 2005 pp. 33-35). In line with the fact that a large part of the rural population lives from subsistence farming, the rate

of economically active population[3] in the rural areas of Shida Kartli is low. In 2003, only 9 percent of women and 10 percent of men were economically active compared to 1998, when the rates were as high as 13 percent for both genders (DS 2004 p. 25). The overall educational level is high in rural Georgia. Results of this study show that, in Shida Kartli, 28 percent of the rural population have a university degree, 28 percent have completed a specialized technical post-secondary education, 42 percent possess a general secondary education and over 2 percent have a ninth class degree.

The specialized technical post-secondary education and the general secondary education are equivalent to the British Vocational Certificate of Secondary Education (VSCE) and the General Certificate of Secondary Education (GSCE), respectively. Both degrees permit recipients to study at a Georgian university. The ninth class degree is conferred after the successful completion of nine school years, the minimum education required in Georgia.

1.4 Structure of the thesis

As the main topic of this thesis is rural finance, it begins with a chapter on microfinance. Chapter 2 presents a review of the literature on microfinance, looking at its definition and aims in section 2.1 and how it works in different parts of the world in section 2.2. In section 2.3, microfinance is examined with respect to rural finance in the Soviet Union and in the transition period, which is the basis for rural finance systems in transition countries and in Georgia today. Section 2.4 describes the development of microfinance institutions in Georgia, including access to rural finance in the research area, Shida Kartli. Chapter 2 closes with a summary in section 2.5. Chapter 3 discusses the second main topic, which is cooperation. Section 3.1 describes the theoretical background of cooperative systems, which comprise agricultural production cooperatives, service cooperatives and credit unions. Agricultural production cooperatives are purely production oriented; service cooperatives include input supply, as well as marketing and financial services, while credit unions are solely financial in nature. All three are discussed with respect to Georgia in the last subsection of 3.1. Section 3.2 examines landownership before and after independence

[3] The economically active population comprises the total employed and unemployed men and women of 15 years of age and above in the week studied (DS 2004 p. 8).

in Georgia. This section is included because farming systems depend on landownership schemes. A summary in section 3.3 closes Chapter 3.

In Chapter 4, the theoretical foundations of the applied choice experiment method are presented in a conceptual framework. From a historical perspective, this method is a cost benefit analysis, as is discussed in section 4.1. Section 4.2 describes economic valuation and stated preferences methods. This discussion leads to a description of the choice modelling method in section 4.3. Finally, section 4.4 provides a summary of Chapter 4.

Chapter 5 presents the research methodology of the empirical study. It begins by introducing the research questions and hypotheses in section 5.1, moves on to the questionnaire design in section 5.2 and addresses the sampling procedure and target population in two districts of Shida Kartli in section 5.3. Section 5.4 describes the household survey, which is followed by a description of the choice experiment in section 5.5. Section 5.6 provides a summary of Chapter 5.

Chapter 6 addresses the data analysis methodology. This comprises two analysis methods, logit analysis (section 6.1.) and latent class analysis (section 6.2). For both methods the theoretical background is provided. Section 6.3 demonstrates the application of logit analysis and latent class analysis with regard to the choice experiment (CE) and explains the related model. Section 6.4 concerns the analysis of the household survey data. In this case, besides descriptive statistics, the methodology involves an analysis with the Waller-Duncan test, one of the Analysis of Variance (ANOVA) tests. Section 6.5 presents the analysis of the research questions, which was carried out using a variety of methods, including the calculation of interactions. Section 6.6 again summarizes the chapter.

Chapter 7 addresses the study results and their interpretation. Section 7.1 examines i) the frequencies of socioeconomic variables, ii) an analysis of the CE with a multinomial logit model, iii) an analysis of the CE with a latent class model, iv) the calculation of interactions between socioeconomic variables and CE attributes, v) the calculation of interactions with dummy coded socioeconomic key variables, vi) the calculation of elasticities between loan attributes, vii) a Waller-Duncan test for socioeconomic variables, and viii) an analysis of research questions. In section 7.2, the question if credit unions are a possible solution to farmers' problems is discussed, and business models for credit unions are presented. Section 7.3 addresses the question

whether credit unions are a possible solution to farmers' problems. Chapter 7 is concluded by a summary in section 7.4.

In Chapter 8, conclusions are drawn from the study results, emerging new research issues are examined and a number of recommendations are made. Section 8.1 provides a summary of Chapter 8.

1.5 Summary of Chapter 1

The introduction describes the agricultural situation in Georgia and highlights several problems this sector faces. One major constraint impeding the development of agriculture is the lack of access to credit. Credit unions (CUs) are seen as a viable solution to agricultural finance problems. Their implementation was tried in Georgia, but failed. Georgian farmers confound cooperatives with the former compulsory collective agriculture in the Soviet period, and therefore they are reluctant to wholeheartedly join cooperative systems. The aim of this thesis is to research farmers' preferences for rural credit systems and the impact of results on the possible implementation of CUs, which have numerous advantages over other rural finance systems (such as membership-based democratic governance structure and the one-member, one-vote rule). A short literature review on previous studies is followed by a description of the methods used in the empirical study. With respect to the empirical study, four hypotheses, which are related to the research questions, are presented, and a summary of the main research results is provided, which includes new research issues that emerged during the composition of this thesis. To give an overview on Georgia, the country's history is briefly highlighted, and the socioeconomic conditions of the rural population are discussed, with particular attention given to the problems in rural areas. Finally, the research area, Shida Kartli, is described with emphasis on agriculture und socio-demographic aspects.

2 Microfinance and rural lending

Chapter 1 introduced the background and research objectives of this thesis. It also briefly sketched Georgian history along with the country's current political and agricultural situation and followed this with a characterization of the research region, Shida Kartli, and a preview of the thesis's structure. Chapter 2 will explore microfinance. Section 2.1 will define microfinance, explore its purpose and history, and introduce its subcategories. Section 2.2 presents a literature review. Section 2.3 describes the development of microfinance institutions and rural lending in Georgia, and Section 2.4 depicts access to rural finance in the research area, Shida Kartli. Section 2.5 closes this chapter with a summary.

2.1 Purpose and definition of microfinance

More than one billion people in this world have only US$1 per day to live on (Terberger 2002 p. 1). Among other approaches, one efficient tool for alleviating poverty is microfinance systems with their micro-credit, savings, and other financial services. Worldwide, there are around three thousand microfinance institutions (MFIs), which were formally financial institutions without the status of a real bank. Their tasks are limited to the disbursement of credits, intake of savings (Kropp 2001 p. 3) and the offering of micro-insurances (Morduch 2006). The main goal of microfinance systems is the supply of poor households with financial services. Access to loans enables people to improve their income through self-employment. This is based on the assumption that profitable self-employment could be extended if financial means were available. According to this approach, lack of capital is the main reason for poverty. Thus, microfinance programmes target the further development of people's entrepreneurial skills (Kropp 2001 p. 2). One example of an important microfinance institution is Grameen Bank in Bangladesh, whose reputation was built on this approach. Grameen Bank was founded in 1976 by Muhammad Yunus and today (as of April 2009) has over 2.4 million borrowers, of which 95 percent are women (GB 2009). The cumulative amount of loans disbursed since inception is €2.75 billion (GB 2009). It is the largest bank in terms of credit volume in Bangladesh.

2.1.1 History of microfinance

The history of microfinance dates back to the Middle Ages. The earliest source of microfinance was found in Japan in the thirteenth century (Izumida 1992). In Europe, microfinance started in Ireland as a response to increasing poverty after the sixteenth century. Loan funds on a charity basis were set up in the 1720s and used peer monitoring to enforce repayment of the interest-free loans (Seibel 2003 p. 2). In 1823, the charities were changed by law into financial intermediaries that were allowed to charge interests on their loans and to collect deposits (Seibel ibid. p. 2). In Germany, community-owned financial institutions emerged in the late eighteenth century. This led to the establishment of the first savings bank society in Hamburg in 1778 and the first communal savings fund (*Sparkasse*) in 1801 (Seibel ibid. p. 2), which included agricultural lending among its financial services. After the famine in 1846-47, Friedrich Wilhelm Raiffeisen created rural savings and credit cooperatives (*Raiffeisenbanken*), and Hermann Schulze-Delitzsch implemented urban savings and credit cooperatives (*Volksbanken*) (Seibel ibid. p. 2). Both initiatives turned into a movement and, from 1889 on, were regulated by the Cooperative Act of the German Reich, the first cooperative law in the world (Seibel ibid. p. 3). Informal self-help microfinance systems also existed in other parts of the world, such as in Africa, where, in the case of Nigeria, they date back to the fifteenth and sixteenth centuries (Seibel ibid. p. 4). These systems were brought by the slaves to the Caribbean and still exist there today under their original Yoruba name, *susu* (Seibel 2003).

2.1.2 Microfinance and its subcategories

Microfinance is a concept that includes '[…] Both borrowing (micro-credit) and deposit-taking (micro-savings) aspects of financial services for the poor' (Bastelaer 2000 p. 6). In addition to credits and savings, microfinance comprises the supply of insurances as well. Kargbo (2006) indicates that the prefixes 'mini' and 'micro' are normally applied to denote the small, numerous and often localized nature of the financial transactions involved. The following section depicts the three financial services that make up microfinance.

Micro-saving

Saving related to monetary income can be defined as '[…] Making the decision not to consume cash' (Rutherford et al. 1999 p. 11). It is a crucial and necessary step towards money management that provides the basis for the delivery of financial services. Furthermore, the poor want and try to save money, and they can save — except for those who are not involved in a monetary economy (Rutherford et al. 1999). Besides saving in terms of money and physical assets, saving to enhance human capital through investment in education, nutrition and health is important for the poor to increase their ability to create future income (Zeller & Sharma 1998). From a macroeconomic point of view,

> the provision of micro-saving is relevant for economic growth in developing countries, which are often suffering from a very low savings rate. If micro-credit borrowers or other poor people deposit a share of their (new) disposable household income at a micro-credit bank, this MFI is able to grant additional loans. Since this may result in an increase of disposable household incomes, micro-saving can induce the local and the national economy to spiral upward. (Glotz 2004 p. 10)

Furthermore, savings can serve to replace collateral, which most very poor borrowers cannot provide. In such cases, the lender includes an insurance premium with the interest rate in the form of a compulsory savings requirement (Hulme & Mosley 1996).

Micro-insurance

As many of the poor are exposed to livelihood risks, such as death, physical disability, unemployment, or illness (Loewe et al. 2001), insurance is an important financial service, which can help to reduce these risks[4]. Micro-insurance can be seen as voluntary risk pooling by means of affordable insurance products that meet the demand of low income groups (Loewe et al. 2001). There are numerous types of insurances, like crop and livestock insurance, insurance for production assets (farmers), life insurance for those working in risky environments (e.g. fishermen and miners), health insurance, accident insurance, and housing insurance (ILO 2003; Mahajan 2003; Morduch 2006). Persistent poverty and the lack of insurance are closely related. Despite the fact that this relationship is well known, the insurance market targeting low-income households remains problematic (Morduch 2006). Especially insurances in agriculture, like crop insurance, present difficulties because

[4] For an overview on all kinds of micro-insurances in low-income countries, see Morduch (2006).

costs may be higher than revenues for the insurance provider due to unpredictable events, such as climatic catastrophes or pests destroying the harvest. One promising type of insurance covering weather risk is rainfall insurance, which pays in times of drought. With respect to life insurance, there are traditional systems like 'burial societies' (e.g. in India), which collect a very small amount of money from their members and pay for the burial if a family member dies (Morduch 2006). More elaborate systems are found in other places, such as China, where customers set up a deposit account. Instead of receiving interest, they obtain insurance. In some cases, MFIs, such as FINCA in Uganda, offer a 'credit life insurance' (Morduch 2006), which keeps a percentage of the disbursed loan and, should the borrower die, pays off any outstanding debt.

Micro-health insurance, which faces the biggest risk, is seen as a viable option for providing access to basic health care to the ultra poor in order to break the vicious cycle of poverty, illness and vulnerability. Problems micro-health insurances can face are moral hazards and adverse selection. The risk for the insurer may be so large that established partners are not able to provide reinsurance. Morduch (2006) found that health insurance can reduce the vulnerability of low-income households but that they should be coupled with health education and an emergency fund to cover temporary non-health crises in order to make the insurance more effective for both clients and providers.

To effectively design micro-insurance solutions, three issues must be considered: Reinsurance, data on which to calculate premiums, and the need to decrease the costs of small scale transactions (i.e. small cash). Finally, many poor households rely on savings as their primary source of insurance, which can be seen as the best insurance strategy (Morduch 2006). According to Loewe et al. (2001), micro-insurance suppliers should be designed on the 'partner-agent model', in which a decentralized organization, like a micro-finance institution (the agent), cooperates with an institution with experience in the insurance business and access to investment opportunities (the partner). With this model, information asymmetries that constitute a major obstacle to the provision of low-premium micro-insurance to the poor could be resolved.

Micro-credit

According to Mahajan (2003 p. 2), micro-credit is usually defined as 'minimalist credit for self-employment for the poorest'. This definition does not account for the fact that, in many cases, the poorest are not able to successfully take out a micro-credit because their primary needs — basic services like health care, education and infrastructure — have not been met. And not everyone wants to be self-employed. A high percentage of poor people have two or more jobs; one of them is often wage employment, while the other may be on a self-employed basis. Therefore, micro-credit should be defined as 'financial services and technical assistance for agro- and non-farm enterprises for generating large amount of wage-employment for the poor' (Mahajan ibid. p. 2-3). This definition includes the wish of many poor people to have wage-employment instead of (only) being self-employed. As micro-credit is the most important financial service delivered to the poor, it is useful to divide it into different categories. Kargbo (2006) suggests the following classification:

By time or duration:

- Very short term credit: Loans of less than three months duration.
- Seasonal credit: Three to seven months duration; usually following an agro-climatic calendar.
- Medium-term credit: For one up to three years.
- Long-term credit: Loans for more than three years.

By purpose or utilization:

- Productive credit: Enables and improves the productive input of real production factors, as in the case of credit for the purchase of farm inputs.
- Consumption credit: Serves to maintain the status quo and is used to finance other purposes than production.

By source or supplier:

- Formal credit: Loans from organizations that are subject to government and central bank regulation such as commercial banks, parastatal development banks, agricultural banks, cooperatives, and NGOs.

- Informal credit: Loans from sources that are neither from organizations nor subject to government or central bank regulation. These loans are mainly disbursed by friends, relatives, neighbours, self-help groups, moneylenders, pawnbrokers, landowners, employers, and traders (Zeller 2006).
- For-profit or non-profit supplier: The suppliers of financial services can be further subdivided into non-profit (e.g. NGOs, self-organized credit unions) and for-profit (e.g. banks, moneylenders) MFIs [category added by the author].

By size:

- Micro-credit or mini loans: This usually refers to small loans targeting small farmers or small [micro-] enterprises. When the credit is offered in combination with savings and/ or insurance services, then it is better described as microfinance.
- Macro-credit: This term may be used to describe medium-sized or large loans that run into thousands or millions of US$. As macro-credit is far beyond the scope of small-scale poverty alleviation interventions, this term is rarely used in the microfinance context.

In addition to the different credit types, micro-credit includes different lending technologies, which can be distinguished into four main lending systems:

i) Individual lending

Individual lending is the classic lending technology, where a single borrower obtains a loan from a formal or an informal source. In most cases, the borrower has to pledge collateral as security for the loan and is personally responsible for its repayment. With individual lending, a bilateral relationship between the lender and the borrower is established. Individual lending is the main lending technology used by commercial banks, development banks, and agricultural banks. However, several MFIs use individual lending together with other lending technologies as well.

ii) Solidarity credit groups with joint liability

In contrast to individual lending, members of solidarity credit groups are jointly responsible for the repayment of loans that are disbursed to a single member of the group. This technology is based on mutual trust and uses group pressure to enforce

repayment. Joint liability of solidarity credit groups for single loans substitutes physical collateral, which has to be pledged for individual loans. The group size lies between four and eight members, with each member investing the loan in his or her individual income-generating activity (Kargbo 2006). The use of joint liability in solidarity credit groups is an important innovation with respect to lending technology. The most prominent MFI associated with the joint liability of solidarity credit groups is Grameen Bank in Bangladesh (Hossain 1988). Other major rural MFIs employing the solidarity credit group approach are ASA, SHARE, and the SEWA bank in India, which is owned and operated by women. All four institutions, including Grameen Bank, have been very successful in reaching poor women (Zeller 2003). Solidarity credit groups are often referred to as group lending; however, group lending actually describes a different lending technology (see Subsection iii) below).

iii) Group lending

This lending technology implies that a group of borrowers obtain one loan that is invested into one collective income-generating activity. The group may decide to divide the original loan into single loans for individual group members, but the financial institution that disburses the loan is only involved with the group as a unit (Kargbo 2006). This lending technology was not very successful (for Grameen Bank see Hossain 1988 p. 9). Group lending can be used successfully with any well-established group, which forms in itself a kind of separate entity (for Sierra Leone see Kargbo 2006 p. 44).

iv) Village banking

Another important lending technology is village banking, which was introduced in the 1980s in South America by FINCA (Morduch 1999 p. 1579). Village banks are independent rural institutions set up by NGOs in cooperation with local groups. The NGO then serves as intermediary between the new financial institution and local commercial banks in order to establish a bilateral relationship targeting sustainable institutional structures. Similar to the Grameen Bank, the majority of borrowers and members of the village banks are poor women. The donor disburses a loan to the village bank, which is afterwards distributed among its thirty to fifty members on an individual basis (Morduch 1999).

These lending technologies are of varying importance in the microfinance world. According to a study conducted by Cull et al. (2006) on the financial performance and outreach of leading micro-banks, the main lending categories are lending with group liability, village banking with group liability, and individual-based lending. Which lending technology will be appropriate for the rural poor depends on many factors, especially on the [agri]cultural and the country context. Table 2.1.1 shows the various lending technologies.

Table 2.1-1: Lending technologies

Recommendations	**Details**
Use a variety of strategies to reduce the lending costs and risks of low income clients: use individual and joint liability lending technologies.	
Generally prefer individual lending	**Advantages of individual lending**
	Loan products fit the clients' demand and loan repayment capacity.
	Encourages closer lender-borrower relationship.
	Strengthens mutual trust between lender and borrower.
	May increase compliance with contractual loan obligations.
	Problems of individual lending
	A lower number of clients is served.
	Minimum guarantee requirements may still remain beyond the capacity of most low-income households and prevent loan approval.
Use lending with joint liability in order to increase the breadth and depth of outreach	**Advantages of lending with joint liability**
	Can increase the lender's outreach capacity (by using insider information and peer borrower screening).
	Problems of lending with joint liability
	Group formation and group maintenance is costly.
	Borrower risk is greater since every group member bears his/her own risk and that of other group members.
	Negative solidarity: The exposure to pay for fellow member loan defaults encourages borrowers to apply for the same loan size rather than fitting loans to individual repayment capacity. If one member fails, the whole group defaults.
	Less flexible terms and loan repayment instalment
	Lack of written records hampers individual loan appraisal.
	Group information advantages and peer pressure works less well in heterogeneous groups and/ or where members live dispersed.
	Homogeneous groups may result in covariant risks to the lender.
	A powerful group leader may misuse his/ her position.
	A group may be severely impaired if a good group leader leaves.

Source: Table adopted from Zeller (2003)

These lending technologies are applied by different microfinance institutions. In the following section, microfinance institutions and their main features are presented according to Zeller (2006).

Credit unions or credit cooperatives (CU)

This type of microfinance institution exists in many countries. In developing countries credit unions consist of newly formed groups of 100-200 members, and they are often implemented by large NGOs or banks such as World Council of Credit Unions (WOCCU) or the Raiffeisen bank, a credit union with bank status in Germany. To become a member, people have to buy equity shares in the democratically organized (one member, one vote) and member-owned CU. In some cases, only members of a social group (e.g. women) or of a profession (e.g. dairy farmers) are eligible for membership in the CU. The main source of funding and credit is members' savings, on which the CU is more focussed compared to the disbursement of loans. Credit unions have a bottom-up structure with small local CU-units that are organized in larger regional unions with a (nationwide) federation at the top. Main collateral type for credits is members' savings. CUs are managed by salaried employees and voluntary, elected members. With regard to the lending technology, they employ both types of lending: lending with individual liability and lending with joint liability. In the latter case, no physical collateral is necessary because CU members guarantee personally for the pay-back of the loan of another member.

Village Bank

Village banks were implemented by international NGOs such as the Foundation for International Community Assistance (FINCA) or governmental development agencies like the Canadian International Development Agency (CIDA). Village banks are created by the set up of a new group consisting of 30 -50 members. Members are owners of the village bank's equity. Village banks have a bottom-up structure with respect to the decision-making process, which is democratic at the member level. Their link to commercial banks is supported by NGOs. Membership is based on payment, and only village inhabitants can become members. Village banks start with external loans as the main funding source. As members' savings on their accounts in the village bank grow over time, savings become the main source of funding. The focus of village

banks is on the disbursement of credits and less on the deposit of savings. With regard to structure, village banks are decentralized units at village level, but may be linked to banks, credit unions, or may form a federation of village banks. They employ the individual lending technology (Morduch 1999). Collateral for loans consists of members' savings, and social pressure. Village banks are managed by elected members who are paid for their work in some cases.

Microbanks

There are numerous microbanks all over the world, e.g. BancoSol in South America, Bank Rakayat Indonesia (BRI) or the ProCredit Bank in Georgia, a subsidiary bank of a holding joint stock company in Germany consisting of several German and European investors. Microbanks, like formal banks, have an individual relationship with their clients, and are owned by investors that provide equity (donors, private companies, individuals, foundations or governments). The decision-making process is top-down, and clients' creditworhiness is assessed by gathering information on them. The primary source of funding of microbanks is savings deposits, equity from investors, and commercial loans. They focus both on credit and savings services. Microbanks are centralized with local branches. Clients who wish to take a loan have to provide conventional collateral. In some cases, new forms of collateral are accepeted: The ProCredit Bank in Georgia disburses loans without collateral if the client showed a very good repayment performance of previous loans. Microbanks employ salaried staff and disburse loans with the individual lending technology.

Solidarity Group Retail Model

Solidarity groups are set up by either NGOs (e.g. ASA in Bangladesh) or banks (e.g. Grameen Bank, Bangladesh) or other types of microfinance institutions (MFIs), which implement a new group centre including five to six groups of five to ten members each. Members are equity owners while the decision-making process is top-down. With regard to eligibility, new solidarity group members are accepted as members by peers. Solidarty groups are funded by external loans and grants, and focus on credit with some of them offering micro-insurance products. The deposit of savings is compulsory in most cases. The structure of the solidarity group retail model is pyramidal with the funding institution at the top. No physical collateral is demanded

for loans. Instead, personal repayment guarantees by members of the solidarity group serve to enforce the repayment of a loan one member of the group took. The solidarity group retail model uses joint-liability lending technology. Management of solidarity groups is performed by salaried staff.

Linkage retail model

This microfinance institution is promoted by governmental or international organizations (Gesellschaft für Technische Zusammenarbeit (GTZ) in Germany, International Fund for Agricultural Developmen (IFAD), and the National Bank for Agricultural and Rural Development (NABARD) in India). The linkage retail model comprises either a pre-existing informal group or groups with variable size. They obtain loans and save as a group with banks; members are owners of the linkage retail model's equity. The structure of the decision-making process is mixed with bottom-up and top-down approaches. To become a member in such a group, the specific person has to be a member in a pre-existing self-help group (SHG) and will be approved by peers, by the NGO or by the bank. The linkage retail model obtains its funding from external loans and members' savings deposits, and is focused on savings. It has a decentralized structure at the village level with village groups linked to the closest bank branch. The collateral pledged for loans is made up of members' savings deposits, social pressure and NGO intermediation. Linkage retail models are managed by salaried employees from the formal instution.

Table 2.1.2 shows the different microfinance institutions and their features.

Table 2.1-2: Types of microfinance institutions and their major characteristics

	Size of the local organization	Ownership of equity	Rules/ decision-making	Eligibility/ screening	Main source of funding	Relations Savings/ Credit	Structure	Main type of guarantee	Management
1. Credit Unions (e.g. supported by WOCCU, Raiffeisen, Desjardins)	New group, on average 100–200 members	Member (equity shares)	Democratic (One person = one vote)	Purchase of shares: Sometimes type of occupation or social group	Member savings	Focus on savings, credit mostly from savings	Pyramidal structure unions or federations/ local branches Bottom-up	Savings	Salaried-staff and elected, voluntary members
2. Village Bank (e.g. supported by FINCA or CIDA)	New group On average, 30–50 members	Member	Bottom-up/ democratic (members), links with banks supported by NGO/state	Village member Payment for membership	External loans Later member savings through growing internal account	Focus on credit, less on savings	Decentralized at the village level (linkage with a formal bank, credit union or federations of village banks possible)	Savings, social pressure	Elected members (self-managed); some may be remunerated
3. Microbanks (e.g. BancoSol, BRI village banks, IPC-supported banks)	Individual relationship with the client	Investors: donors providing equity, private firms or individuals, foundations, or state (e.g. BRI)	Top-down	Information on the client	Client savings, equity (partially provided by donors or state), and commercial loans	Focus on both credit and savings services	Centralized with local branches	Conventional collateral as well as innovative collateral substitutes	Salaried staff
4. Solidarity Group Retail Model either by NGOs (e.g. ASA, SHARE) or Banks (Grameen Bank), but lately also by other MFI-types used	New group Centre (5–6 groups of 5–10 members each)	Members	Top-down	Accepted as a member of a group by peers or (worse) by supporting institution	External loans and grant	Focus on credit; mainly compulsory savings, some with micro-insurance products	Pyramidal structure, mostly top-down	Group pressure	Salaried staff

5. Linkage retail model (for example promoted by GTZ/ IFAD and NABARD in India)	Pre-existing informal group or groups with variable size that can obtain loans and save as a group with a public or private bank	Member	Mixed bottom-up and top-down approaches (supporting agency members)	Member of a pre-existing SHG Peers, bank or NGO approval	External loans Member savings	Saving first (but just as collateral)	Decentralized at the village level, linkage with closest bank branch	Saving, social pressure, NGO intermediation	Salaried worker from the formal institution may be NGO staff

Source: Zeller (2006)

2.2 Different aspects of microfinance

This section presents the different aspects of microfinance, such as impact on poverty reduction, examples of various lending technologies, outreach, repayment performance, management aspects, linkages between formal and informal financial institutions, and credit use.

Impact

Generally speaking, microfinance systems have had considerable success in alleviating poverty worldwide:

'Well-designed lending programmes can improve the income of poor households and for a proportion of cases can move the income of poor households above official poverty lines in large numbers' (Hulme & Mosley 1996 p. 109) .

Based on the good results of microfinance systems, the International Year of Micro-credit 2005 was officially launched on 18 November 2004 by UN Secretary General Kofi Annan. The German Development Minister Wieczorek-Zeul (2004) said in this regard that 'the UN Year of Micro-credit underlines the enormous significance of micro-credit for people in the developing countries. Access to the financial sector is an important prerequisite for development and an essential contribution towards poverty alleviation'.

A meta-analysis on the reported impact of microfinance programmes in developing countries was conducted by Kargbo (2006). As to the effects of microfinance on food security according to the organizational type of the programme provider, Kargbo (2006) found that microfinance programmes provided by government and national NGOs produced negative effects on food security. He stated that the lending technology impacted food security in various ways. In general, individual loans had a negative, but not significant impact. Solidarity credit group or 'mixed' loans performed best in Asia and Latin America. In Africa, no lending technology produced a positive impact on food security with members of solidarity credit group loan programmes performing even worse as compared to non-members of such programmes. Concerning the subjective statements of participants in microfinance programmes with regard to wellbeing, all organizations except international NGOs had a positive impact. Solidarity credit group loan participants,

especially in Africa, reported negative effects of this lending technology on their wellbeing. All in all, the study found that microfinance has a positive impact on poverty, in especially on wellbeing and, to a smaller degree, on income security (Kargbo 2006).

The predominantly positive effect of microfinance is supported by Kropp's research (2001). He states that in 2001, microfinance institutions in India, Bangladesh, Nepal, and Indonesia reached more than one hundred fifty million people (Kropp ibid. p. 4) and that the majority of these clients managed to cross the poverty line. Women are the main clients of micro-credit programmes due to their key role in the household's food security. The positive impact of microfinance can be measured in the higher income and the higher self-employment rates of credit users compared to non-users. Major challenges in the domain of microfinance are instable markets (e.g. competition, breakdown of prices), natural catastrophes, duplicate credits acquired from different sources, and — in the case of female borrowers — strong patriarchal societies that do not allow women to use credits for their own business plans (Kropp 2001).

Mixed impact results were found in a research study carried out by Schott (2001) in Madagascar that evaluated the impact of women's savings and credit cooperatives on members' quality of life in rural areas. The researched institution was the Caisse Féminine, a local credit and savings cooperative for women that was attached to and financed by a Canadian microfinance NGO, which employed a cooperative bank system similar to the German Raiffeisen banks. According to the results, members of the Caisse Féminine stated that they

1. Enlarged and improved their micro enterprises.
2. Learned how to save money.
3. Had more money at their own disposition.
4. Became more self-confident.
5. Experienced changes in thinking.
6. Learned how to calculate profits and losses of micro enterprises (Schott ibid. p. 62).

Members of the Caisse Féminine assessed the economic aspects of the programme positively, which was reflected in higher monetary income and enhanced food security. Other positive effects included members' increased self-confidence and new solidarity

within a credit group (not in the sense of joint liability). These results can be traced back to the compulsory education programme provided by the Caisse Féminine for its members. The economic success of the Caisse Féminine is reflected in its achieving financial independence from the Canadian NGO three years after its set-up. Nevertheless, the programme had several shortcomings. Members especially criticized the weekly instalments because this repayment interval was too short for them. The credit programme was not flexible and did not correspond to members' special needs regarding agricultural seasons. In the selling season, for instance, members needed higher loan amounts for intermediate trade with agricultural products, while in the idle season they did not want to take a loan, but the programme prescribed the acceptance of a new loan every four months (Schott 2001). With the new or improved income sources, an additional livelihood strategy was obtained, which was predominantly combined with or in sequence with agriculture. Hence, membership in the Caisse Féminine can function as an income insurance alternative to agriculture in the face of regular cyclones, declining yields of the staple crop (rice), and a steady impoverishment. Natural hazards, bad living conditions, and competition between members due to similar income-generating activities limit economic growth. Moreover, without improvement of the infrastructure, especially with respect to schools and roads, no further improvement of quality of life and living standard is possible in the study region in Madagascar (Schott 2001).

Microfinance does not always help to reduce poverty directly. To evaluate whether microfinance really alleviates poverty, Morduch (1998) conducted a cross-sectional survey on 1800 households in Bangladesh that were served by various microfinance programmes. The results show that microfinance programmes had reduced vulnerability but did not reduce poverty. Microfinance did not help to increase consumption, but it did help to smooth consumption due to the diversification of labour supply across seasons, which led to smoothed income. Hulme & Mosley (1996) showed the converse in their study by revealing that financial services can only contribute a limited share to reducing the vulnerability of poor households to a sudden dramatic decline in income and consumption levels. The events that drive down income and consumption include illness or death of a member of the household, medical expenses, funeral costs, crop failure, theft of a key asset, dramatic change in prices, and the payment of a dowry (Hulme & Mosley 1996). Thus it can be concluded

'[…] that such schemes are not the panacea for poverty-reduction that has been claimed' (Hulme & Mosley 1996 p. 114). Moreover, many poor people are credit averse, which narrows the scope of microfinance as an instrument for reducing poverty. Johnston & Morduch (2007 p. 15) observe that 'the incidence of debt aversion [conditional on being creditworthy] is only weakly related to income and assets, and suggests a limit to microfinance as a policy tool'.

A partly positive impact and outreach of microfinance on the income of credit users was indicated by Terberger (2002). However, a selection bias may exist within microfinance institutions by selecting only clients who are credit-worthy. Terberger (2002) points out that the establishment of financial services for very poor people is costly, especially in light of the costs of administering such services relative to the small credit sizes demanded by this group. Interest rates may amount up to 40 percent p.a., which does not affect the demand side because informal money lenders are more expensive (Terberger ibid. p. 3). On the other hand, micro-credits are not adequate for the poorest of the poor (Johnston & Morduch 2007; Terberger 2002) due to lack of opportunities for them to create income. Micro-credits are mainly given to households that are able to pay them back. This indicates that microfinance clients are the 'better off' among the poor (Terberger 2002). These conclusions are supported by Hulme & Mosley (1996), who found that the impact of a loan on borrowers' income is related to their level of income. They state that credit schemes are more likely to benefit the income of the 'middle' and 'upper' poor.

A successful microfinance programme was set up by the Mennonite Economic Development Associates (MEDA) in Tajikistan. Jones (2007) conducted a case study on MEDA's organizational approach to the development of sustainable financial services for rural households in Tajikistan in 2004. At that time, the country was among the poorest of the Soviet republics in the Soviet Union. After independence in 1991, civil war and economic collapse had driven 84 percent of the population into poverty (Jones ibid. p. 6). More than 70 percent of the population lived in rural areas, which had suffered severely from floods and from a major draught in 2000–2001 (Jones ibid. p. 6). MEDA implemented a four-year agricultural development programme in the fruit and vegetable sector in cooperation with an already functioning local MFI. The integrated programme in Northern Tajikistan combined finance and market development activities. Borrowers' income sources and agricultural cycles

played an important role in the programme design. Within eighteen months, operational sustainability was reached due to very successful disbursement and repayment of loans with pay-back rates of almost 100 percent. Due to the programme's success, the local MFI became the leader in rural finance in Tajikistan (Jones 2007).

The agricultural development programme focused on smallholder farmers who grow fruits and vegetables. Before the programme was implemented, these farmers had no access to credit (Jones 2007; for Georgia see Kortenbusch & Cervoneascii 2003; for Algeria see Roesch 2003) and only restricted access to markets. They worked on small plots of own or on leased land. Despite the absence of a formal organization of horticulturalists in Northern Tajikistan, the farmers were interested in cooperation. They already collaborated in digging wells and showed interest in working together for mutual benefit (Jones 2007; Roesch 2003). As small processors of horticultural products, the farmers worked by hand and under primitive conditions. The quality of their products was suitable only for home consumption or for local or regional markets. With respect to programme design, MEDA emphasized the following:

1. Providing access to traditional and new production knowledge.
2. Supporting the adoption of up-to-date technologies, improved inputs, and better services.
3. Strengthening farmers' ability to work cooperatively and take collective action.
4. Establishing a viable rural credit programme.

The programme was also active in the creation and growth of small and medium enterprises (SMEs) that process and market the agricultural output of the rural population (Jones ibid. p. 9).

For the programme design, it was necessary to find a strong local partner to evaluate potential clients' capacity and their contexts, especially with regard to attitudes towards credit in Muslim communities, and to integrate finance with value chain programming for smallholder farmers (Jones ibid. p. 10). The local partner identified was the National Association of Business Women of Tajikistan (ABW), a successful organization with experience in microfinance. ABW had not previously provided smallholder farmers with financial services, but was willing to enter the new financial market. As farmers had no previous experience with microfinance, their commitment to repaying loans was very high. Repayment was supported by their large

families, who lived together and monitored repayment. Furthermore, income diversification reduced repayment risks (Jones 2007). The new microfinance programme included the following ABW principles:

- Individual and joint liability lending.
- Interest rates at market rates.
- Simple application procedures and fast turn-around times for loan disbursements.
- Assistance with documentation for clients with little or no education.
- Short loan terms and frequent small repayments to ensure on-time and complete loan repayment.
- Training components to further build borrowers' competence in developing financial statements and business plans. (Jones ibid. p. 16)

The programme introduced special incentives for clients with good repayment histories in the form of monthly instead of bi-weekly reimbursements and a longer grace period (three to six months) for agricultural loans as compared to loans for other purposes. During the grace period, interest for agricultural loans still had to be paid. As the rural finance portfolio was operationally sustainable, ABW, together with Mercy Corps, created a microfinance foundation that disposes over US$6 million in loan funds (Jones ibid. p. 20). This foundation primarily disburses loans for production inputs and for livestock. An important aspect in the set-up of an agricultural lending programme is the capacity of the local partner MFI. The partner institution should have good record keeping and should monitor its portfolio and the sustainability of its products with regard to clients' needs. Moreover, agricultural lending should focus on a portfolio that includes individual and joint liability lending schemes, as well as suitable loan sizes to reduce risk. Information on agricultural cycles and understanding of the overall agricultural context are important issues for the loan design, too (Jones 2007). On the basis of its experience with agricultural finance in Tajikistan, MEDA formulated a number of general principles:

- A programme should plan in advance for investment in institution building with special regard to agricultural lending.
- Local services should be involved in programme design to ensure that clients have access to growing subsectors.
- Organizations should plan to grow slowly.
- Production should be diversified to reduce risk.

- Market changes should be factored into lending to farmers involved in commodity markets to reduce the risk in investment into products that are difficult to sell.
- Integrated programmes can support the agricultural production loan portfolio through financing in the supply and value chains, including input suppliers, equipment providers, and marketing agents. (Jones ibid. pp. 22-23)

Another area of impact is the effect of micro-credit programmes on people's coping capacity in the face of adverse events. Doocy et al. (2005) studied credit programme outcomes regarding coping capacity and nutritional status in Ethiopia. They found that microfinance is not only an economic development strategy but can also serve as a survival strategy in disaster situations. Microfinance is a better long-term option compared to humanitarian assistance because it creates employment. The main results of the study suggest that microfinance programmes may have an important impact on the nutritional status and the well-being of female clients and their families, especially in the context of drought and food insecurity (Doocy et al. 2005).

Outreach

Good performance of microfinance programmes alone does not help per se; the programmes must reach the poor where they live. A study conducted by Sharma & Zeller (1999) examined the outreach of micro-credit programmes in Bangladesh. The authors show that there are several problems when trying to reach the poorest with microfinance organizations. One major obstacle lies in the remoteness of villages and homesteads. Sharma & Zeller (1999) indicate that a microfinance organization needs proximity to a police station for security reasons if handling cash and proximity to a commercial bank for depositing money. Moreover, it is difficult to find employees who want to work in lonely and remote areas. Last but not least, there is the risk of micro-enterprises having a low marginal return and the risk of natural disasters, both of which can lead to diminishing repayment rates (Sharma & Zeller 1999). But there are also positive effects from community- or village-based microfinance programmes, which was proved in an earlier study by Zeller (1994). Results indicate that community-based groups have an information advantage over far away formal bank agents: They obtain and use information about the credit-worthiness of the credit applicant in a way similar to that of informal lenders (Zeller 1994).

Lending technology

In addition to loans with individual or group liability provided by formal organizations, tontines are important semi-formal finance systems and are very common in Cameroon. About 90 percent of the population uses them for their financial transactions (Sika & Strasser 2000 p. 316). Tontines are membership-based savings and credit systems. There are two main types of tontines in Cameroon. The first employs a rotating savings system. All members of such a tontine usually meet once a week and contribute a predetermined sum of money to a general fund. The collected sum is given once a month to one member. Every month, the same sum is distributed, without interest, to a different member until all the members have received a payout. The second type of tontine is credit-oriented. The members do not pay a predetermined amount; instead, each pays according to his or her own financial capability, which builds up a common credit cash fund that can be used by all members. In each tontine round, the sums paid and the credit payback rates are divided into money packages. The number of money packages depends on the number of interested members and their credit needs. The credits in this type of tontine are short term (usually up to one month) with interest of 5 to 10 percent per month (Sika & Strasser ibid. p. 317). The tontine cycle ends on a predetermined date. At this time, all savings, including interest, are paid back to the members (Sika & Strasser 2000).

In each type of tontine, the members, who are, at the same time, the managers, adapt the tontines to their current financial needs, which creates many different credit and savings alternatives. The high flexibility of the tontines in a world of economic and social insecurity is one of the reasons for their success. Tontines are the only financial system for the majority of the Cameroonian population, which has no access to a formal banking system. Based on the mutual trust of their members, tontines show a high payback rate. If a tontine member fails to pay back a credit, he or she will be not only excluded from his or her tontine but from the whole tontine system.

However, despite the advantages of tontines, they have several shortcomings on the financial side as well. One of these lies in the fact that it is impossible to change short-term savings into long-term credits. The reason for this is the short duration of a tontine cycle, which never exceeds twelve months. A second problem is the low credit sums and the high interest, which give no incentive to use tontine credits for long-term projects. The short tontine cycles imply low saving opportunities because, at the end of

each cycle, every member is paid back his or her savings including the interest. Then, the new cycle starts with no money. These weaknesses make tontines inappropriate for the economic development of Cameroon (Sika & Strasser 2000).

Repayment performance

Another important issue in microfinance is repayment performance, which was investigated by Godquin (2004) in a study of several MFIs in Bangladesh. She showed that the main factors influencing repayment are information asymmetries, adverse shocks affecting the borrower, and the low performance of institutions like justice and law. The main findings of the study indicated that a grace period of twelve months given to borrowers who did not pay back their loans in time increased the repayment rate from 50 percent to 94 percent (Godquin ibid. p. 1914) and that access to basic literacy had a positive effect on repayment performance. Regarding the gender of the borrower, women did not show better repayment performance (Godquin 2004), but lending to women had a positive impact on household expenditures and girls' schooling (Pitt & Khandker 1998). In Bangladesh, like in many other countries, microfinance institutions use the lending technology of solidarity credit groups with joint liability, which was developed by Grameen Bank. The group is jointly responsible for the repayment of credits and uses social pressure to force group members to pay back their loans. With this very efficient tool, payback rates amount to 95 percent compared to the 20 percent payback rates on credits disbursed by state-owned agro-credit institutions (Kropp 2001 p. 3). According to Hulme & Mosley (1996), the lending technology (individual or joint liability) does not have a direct impact on the rate of repayment. What does have a positive influence on the repayment rate is that the lending scheme includes intensive loan collection, savings and insurance facilities, and incentives to repay, such as increased benefits (e.g. increasing the credit limit) for loan repayment.

Management aspects

Within the rich body of literature on microfinance, there are only a few studies focusing on the management of MFIs. Hatarska (2005) showed that, in Central and Eastern European countries, the microfinance board is very important. According to her findings, the board consists of three groups: 1) independent (unaffiliated) directors,

2) insiders with a monetary interest in the firm, such as employees, and 3) representatives of donors, investors, etc. Hatarska (2005) points out that the board performs better if the proportion of unaffiliated directors is large; thus, independence of the microfinance board should be promoted. Furthermore, the greater the financial skills of the board members are, the greater the sustainability of the MFI.

Linkages between formal and informal institutions

The aspect of linkages between formal and informal financial institutions in the Philippines was investigated by Floro & Ray (1997; see Zeller 2003). In the Philippines, the demand of small farmers for financial services was not being met by the formal credit sector. To fill this gap, the Philippine government implemented subsidized credit programs, credit quotas, and targeted loan policies, but these reached only a small number of informal rural borrowers. However, an expansion of the formal credit sector to informal rural borrowers would not create better lending conditions for them because intermediate informal lenders who obtain formal credits might form strategic alliances (Floro & Ray ibid. p. 36). To prove this hypothesis, the authors studied Philippine rice millers and traders who both lend and trade. Rice millers obtained loans from formal banks and lend money on to paddy traders, who bought a share of the small farmers' paddy harvest at quoted prices. To secure their production, small farmers could obtain loans from the traders. Each informal lender operated in a specific zone of influence. If formal credit were to be expanded to informal lenders, it could either increase the competition between them or enhance collusive arrangements. In the case of competition, the incentive for one informal lender to invade another's zone of influence might increase. The invasion would quickly be detected and lead to punishment of the invader. As the cost of punishment for the invader would be higher than that of strategic alliance, the informal lenders might prefer the latter. Based on the assumption of strategic cooperation, Floro & Ray (1997) concluded that governmental credit subsidies might only increase the opportunity for informal lenders to derive higher profits from such subsidized credit programmes.

Credit use

Do borrowers always use their loans for their planned economic activities? Data from a household survey conducted by Johnston & Morduch (2007) in Indonesia show that

half of the poor borrowers did not use their loans for business purposes but invested in home improvement, non-business land or building purchase, school tuition, medical treatment, loan repayment, meeting daily needs or retirement needs, vehicle purchase, buying household goods, ceremonial or social expenditure, holiday needs, or jewellery purchase. Borrowing for business was strongly related to already existing businesses. But, even if a business did exist, a quarter of the surveyed households used the loan for household purposes (Johnston & Morduch 2007).

2.3 Rural finance in the Soviet Union and in the transition period

To understand the current situation with regard to microfinance and rural lending in countries that belonged to the economic system in the former Soviet Union, it is useful to consider the historical development of credit markets in Central and Eastern European countries (CEE). In these countries, access to credit for agricultural enterprises was severely constrained by imperfect and costly information in financial markets and by low enterprise profitability in agriculture. Lack of access to credit caused a high level of rural unemployment and poverty. To solve this problem, governments intervened by means of subsidized loans and credit guarantee funds. In most cases, these instruments did not lead to the development of sustainable financial institutions (Swinnen & Gow 1999). Credit in centrally planned economies differs from credit in market economies in its main monetary policies. In the former, the predominant monetary policy instrument was credit allocation, while in market economies it is the control of the total money supply, leaving the allocation of credit to independent financial institutions. In central planning, loans were disbursed with negative interest rates and, in many cases, to enterprises that did not work efficiently. As interest rates were very low, farmers insisted on preferential loans with nominal interest rates. With the transformation of centrally planned economies into market economies, credit prices — that is, the interest — rose. Swinnen & Gow (1999 p. 26) observed that

‘[therefore], addressing the “credit issue” includes, besides the economic allocation problems, a psychological/ educational factor in explaining the role of credit in an economy, and that the use of credit has a price, i.e. the interest rate’.

Banks under central planning had a fiscal rather than an economic function. They distributed subsidies und supported the production plan. Due to a lack of trained and

experienced staff, banks did not successfully accomplish financial tasks. Because a well-developed accountancy and bookkeeping system did not previously exist, in order to improve financial efficiency, monitoring costs have to increase. Another problem many CEE countries have is that financial resources are inefficiently allocated as a result of political decisions and not as a result of economic criteria. Bureaucratic corruption and political rent-seeking occur in a number of transition economies, which impedes efficient credit allocation through the financial sector (Swinnen & Gow 1999).

In the first years of transition, agricultural productivity declined tremendously, but it recovered slowly in some of the CEE countries. Terms of trade deteriorated as a result of price liberalization, falling domestic and international demand, reduced domestic subsidies, and the breakdown of the former trading system. In the agri-food chain, long payment delays by first-stage processors for farmers' products caused severe cash-flow problems. During the transition period, agricultural enterprises were marked by low financial efficiency and therefore had low profitability, thus reducing loan repayment capacities (Swinnen & Gow 1999). In CEE countries, governments intervened in the agricultural financial markets by setting up special agricultural credit institutions, loan guarantees for banks, and credit subsidies. With respect to loan guarantees, in most countries they amount to 50 percent of lending for agricultural investments. In case of repayment default for long- and medium term loans, government pays a share of the debt and thereby minimizes the risk for the bank. Loan guarantee funds may lead to low repayment incentive for borrowers (Swinnen & Gow 1999).

Another type of governmental intervention into the agricultural financial market is credit subsidies, which exist in all CEE countries in a variety of forms. Credit subsidies have caused many difficulties because they are paid directly from the governmental budget and hence increase the budget deficit or provoke increased borrowing by the government. In many cases, credit subsidies reach only large farm owners with political influence. This distorted allocation does not help the small-scale farmers out of their restricted access to credit. In addition, subsidized loans may actually represent an incentive to invest the money into other, more profitable economic activities than agriculture (Swinnen & Gow 1999). The agricultural sector in CEE countries was dominated by one specialized agricultural credit institution, which

was privatized in the course of transition. This institution was used by governments as their exclusive intermediary for the allocation of governmental loan guarantees and credit subsidies. Since agricultural producers viewed them as quasi-governmental institutions, loans from these banks were often treated like government subsidies and not as commercial products one has to pay for. This resulted in a high rate of loan repayment default, which frequently led to the financial collapse of agricultural banks (Swinnen & Gow 1999). Swinnen and Gow (1999 p. 45) finally emphasize that

> […] Some of the CEE credit programs focus on symptom policy. Part of the agricultural credit problem is caused by high inflation, uncertain property rights, ineffective land markets, low profitability in farming, and high transaction costs in financial intermediation. Therefore, optimal government policy should address the causes of the problems by reducing the budget deficit and cautious monetary policies, speeding up the land reform and privatization process, by developing regulations and institutions for a land market to develop, by creating the environment for a private agriculture to function and by investing in rural infrastructure and agricultural research, and by creating an environment in which the commercial rural financial institutions can develop.

2.4 Development of microfinance institutions in Georgia

Between 1996 and 1998, internationally supported NGOs developed the microfinance supply in Georgia. The main founding and funding institutions for these NGOs were the United States Agency for International Development (USAID), the Canadian International Development Agency (CIDA), the Department for International Development (DFID), the United Nations Development Programme (UNDP), and United Nations High Commissioner for Refugees (UNHCR). The non-profit microfinance organizations follow the Georgian Civil Code for foundations or unions. The most important non-profit microfinance NGOs are Constanta, FINCA Georgia, World Vision's MED programme, and ACDI/VOCA. These NGOs extended their geographical outreach between 2001 and 2003. Approximately two-thirds of small entrepreneurs took up a loan with joint liability from these NGOs, which disburse about one-third of the total loan sum by volume. The loan sizes were roughly located between US$50 (loan with joint liability) and US$900 (loan with individual liability) (Kortenbusch & Cervoneascii 2003 p. 70). The majority of these NGOs offer two alternative loan types:

- Loans with joint liability (without collateral) and a duration up to ten months
- Individual loans with collateral and a duration up to twenty-four months

Separate from NGOs providing microfinance products, credit unions (CU) are important microfinance institutions. They are based on the membership of clients, who administer their deposits themselves. Credit unions emerged in Georgia in the 1990s (Kortenbusch & Cervoneascii 2003 pp. 68-70). To support the development of the microfinance sector, in 2003 USAID funded the Georgia Microfinance Stabilization and Enhancement Activity (GMSE) with a planned duration of four years. With technical assistance and capital grants, the goal of the GMSE was to establish a sustainable microfinance sector and initiate a legal framework for microfinance institutions in Georgia.

Not only NGOs but also banks are involved in microfinance. The most important bank offering microfinance products is ProCredit Bank (PCB). It was established by international shareholders in 1999. In 2002, PCB changed from a pure microfinance bank to a universal bank and today manages increasing volumes of client deposits to refinance the credit transactions independently of the shareholders (Kortenbusch & Cervoneascii 2003). In 2005, the bank had branches in nineteen countries (PCB 2005), of which fifty-nine branches were distributed in cities across Georgia (PCB 2007). In 2003, over half of all formal credits were issued to the trade sector. Only a small percentage of credits were disbursed in the agricultural sector, the food processing industry, and the transportation sector. Credit volumes may reach US$10,000 with maturities up to one year; only in exceptional cases are they extended to two years (KfW Entwicklungsbank 2004 pp. 2-3).

The Georgian government did not take broad measures to implement credit systems via state owned banks due to the high degree of market liberalization after independence in 1991. The only state-owned bank serving the rural credit market was the Agro-Business Bank of Georgia (ABG), which was established in 2000 by the Georgian government in cooperation with the European Commission (Kortenbusch & Cervoneascii 2003 p. 75). In spite of the high credit demand in rural areas, ABG's success on the rural credit market was very limited due to problems in its corporate governance (Kortenbusch & Cervoneascii 2003). In 2003, a strategy for privatization and takeover of ABG by institutional investors was prepared (Kortenbusch & Cervoneascii 2003). The bank was eventually sold to a private shareholder in the summer of 2005 and was renamed Standard Bank.

With regard to the agricultural sector, Kortenbusch & Cervoneascii (2003) report in their study that the surveyed farmers finance roughly 90 percent of the various inputs, like seeds, fertilizers, farming equipment, fuel, labour, etc., with their own funds. Only a small number of the respondents were familiar with credit institutions and mentioned PCB or ABG. This indicates the very limited outreach of these financial institutions to rural areas. In addition to the lack of access to finance (Dzirkvadze 2008), farmers are afraid of raising a loan due to the danger of losing their land and their houses, which are usually demanded as collateral (Johnston & Morduch 2007; Kortenbusch & Cervoneascii 2003). Another reason for not taking a loan is unfavourable credit conditions (Dzirkvadze 2008).

2.4.1 Rural finance systems in Georgia

The supply of microfinance in Georgia comprises four microfinance systems:

- NGOs delivering micro-credit.
- Specialized microfinance banks.
- Downscaling programmes in commercial banks.
- Membership-based financial institutions, such as credit unions (CUs) and credit cooperatives.

To meet the microfinance demand, in 2000 a number of commercial banks started downscaling projects in order to offer microfinance products to all target groups. The only downscaling project for commercial banks is run by the Small Enterprise Lending Programme (SELP), which was established by the European Bank for Reconstruction and Development (EBRD). SELP cooperates with various banks, assists them technically with downscaling, and provides them with EBRD funds. The SELP partner banks expanded their outreach geographically by establishing MSE lending outlets in a number of Georgian regions. In 2003, the number of lending outlets increased from three to seven; one of them is situated in Gori, Shida Kartli's capital (Kortenbusch & Cervoneascii 2003 p. 74). The following table shows the micro-credit supply in Georgia by NGOs, CUs, and the banking sector:

Table 2.4-1: Micro-credit supply in Georgia

Institution	Outstanding loan portfolio as of 30 September 2003	
	US$	Percent
NGOs	10,750,000	35.2
CUs	500,000	1.6
Banking sector	19,250,000	63.2
Total	30,500,000	100.0

Source: Kortenbusch & Cervoneascii (2003 p. 16)

The following section gives an overview of rural credit systems in Georgia, covering i) loan institutions and their outreach, ii) access to loans, iii) loan uptake, and iv) lending systems.

i) Loan institutions and their outreach

The United Georgian Bank (UGB), called VTB Bank since 2006, is one of the few Georgian commercial banks that has recently become involved in agricultural lending. As competition between the increasing numbers of banks in Georgia rises, UGB is extending its business into the rural financial market with special credit offers for farmers. A study by Derflinger et al. (2006) describes the experiences of UGB with agricultural lending. Contrary to the widespread assumption that agricultural micro-lending cannot be profitable due to higher risks and costs compared to urban micro-lending, UGB has experienced the opposite. After only two years, the bank found agricultural micro-lending to be successful, less risky, and more profitable than urban micro-loans (Derflinger et al. 2006). This was attributed to the following causes: 1) average loan sizes are smaller, which reduces the loan risk; 2) farmers prefer 'express' loans even though they have to pay higher interest rates and upfront fees; 3) farmers have fewer financing choices, and, therefore, they are more loyal to the bank and readily offer information about themselves and others in the community; 4) loan officers' productivity is high due to the so-called cluster approach and because most farmers in a particular location are engaged in the same kind of agricultural activities, enabling loan officers to partly standardize the loan appraisal (Derflinger et al. 2006).

In contrast to other countries, such as Bangladesh (Yunus 2008) and Cameroon (Sika & Strasser 2000), agricultural micro-lending via loans with joint liability was not possible in Georgia. There are hardly any farmer organizations in Georgia (Derflinger et al. 2006 p. 9), and credit unions failed for the reasons mentioned above (IFAD 2007b). Therefore, UGB had to employ an individual lending scheme, which is very

expensive in rural areas because loan officers have to travel to each individual farmer. Using a cluster approach simplifies the procedure through the selection of villages with good agricultural potential. The village head is informed beforehand about the loan scheme, and discussions with all relevant groups in the village follow. Without the cluster approach, UGB would never have been so successful in agricultural micro-lending (Derflinger et al. 2006). Alternatively to the cluster approach, the bank sends out its credit-mobile (Derflinger et al. ibid. p. 10), a re-equipped mini-bus designed to conduct initial interviews at farmer markets with potential loan clients. The credit-mobile has turned out to be a very useful tool with regard to agricultural micro-lending. The overall delinquency rate on agricultural loans is very low, and growth rates of 100 percent are targeted (Derflinger et al. 2006 p. 10).

ii) Access to loans

Until recently, the rural population in Georgia had little or no access to microfinance services (Hirche & Kortenbusch 2005; Kortenbusch & Cervoneascii 2003; Pytkowska & Gelenidze 2005), which is reflected in how little formal credit (1 percent) is supplied to the agricultural sector (NBG 2006 pp. 46-48). Notwithstanding their recent involvement in agricultural lending, PCB and UGB (VTB Bank since 2006), two of the biggest banks in Georgia, have very lean agricultural loan portfolios. In 2004, ProCredit Bank disbursed 7–9 percent of all credits to the agricultural sector (KfW 2004 pp. 2-3), and United Georgian Bank (UGB) disbursed just 4 percent (Derflinger et al. 2006 p. 6). The share of agricultural loans provided by PCB declined still further to 2 percent in 2005 (PCB 2005 p. 20). As already mentioned, UGB has sought to increase its share through its successful new agricultural lending scheme. This positive development is supported by Revishvili & Kinnucan (2004), but they remark that, notwithstanding the beneficial impact of agricultural lending, smallholders are hardly affected at all. To improve access to loans for Georgian smallholders with limited collateral, Revishvili & Kinnucan (2004) note that it is crucial to promote the implementation of village credit unions that focus on enhancing living conditions and improving farm activities.

iii) Loan uptake

Generally, the rural loan uptake rate has developed positively in the last few years in a number of Georgian regions, which is reflected in the increasing proportion of farmers with credit experience, which was 16 percent in 2003 (Kortenbusch & Cervoneascii 2003 p. 57) and 30 percent in 2008 (Pavliashvili 2008). One-third of the farmers in Shida Kartli who took a loan obtained it from banks (99 percent) (Pavliashvili 2008). Only one percent of them obtained a loan from an informal source (family or friends) (Pavliashvili 2008). The recent involvement of formal financial institutions in the rural credit sector is contrary to the experience in many developing countries, such as Cameroon, where 90 percent of the rural population depend on informal credit sources (Sika & Strasser 2000 p. 316). In addition to loans from the formal credit sector, Georgian smallholders also take loans from the informal sector, which, in Georgia, consists primarily of pawn shops. These are called 'Lombardi' in accordance with the type of loan they disburse. The number of pawn shops has increased greatly in the past couple of years, and they serve the urban as well as the rural poorer population, especially women. Borrowers predominantly put up jewellery or domestic appliances as collateral. Moneylenders, who dominate the informal loan sector in other countries (see Dufhues 2007 for Vietnam), are not very common in Georgia.

iv) Lending systems

Aghion & Morduch (2000) examined whether Eastern Europeans prefer loans with individual liability or loans with group liability. They state that, contrary to many other countries, where loans with joint liability prevail, individual lending is the dominant lending type in Eastern Europe. These findings are supported by the results of the present study, which indicate that nine out of ten farmers favour individual loans over loans with joint liability. Counter to these findings, joint liability lending plays a significant role in rural lending in Armenia (Kasarjyan & Buchenrieder 2008). According to Aghion & Morduch (2000), in some cases, individual lending systems contain features of joint liability lending systems, like regular repayment schedules, which serve to sort out undisciplined borrowers. Armendáriz de Aghion & Morduch (2000) argue that individual lending in Eastern Europe could be installed without demanding collateral from the clients if mechanisms like direct monitoring, regular

repayment schedules, and the use of non-refinancing threats were implemented. These new features could help lenders target low-income clients.

In the Georgian city of Batumi, Vigenina & Kritikos (2004) investigated the incentive mechanism of individual micro-lending contracts offered by a bank and compared its key factors with those of joint-liability loan contracts offered by a NGO. Vigenina & Kritikos (2004) point out that borrowers chose the individual lending approach if they were able to pledge the collateral, planned to start a business with a dynamic development perspective, and had a demand for relatively high or increasing loan sizes. Borrowers with business plans that had a more static development perspective and those who needed relatively low loan amounts preferred the joint-liability approach. Within this group a number of wealthier borrowers deliberately chose the joint-liability approach despite their ability to pledge collateral and even though the interest rate on the individual-liability loan was lower. These borrowers were willing to provide peer support within the group as a kind of insurance against repayment problems (Vigenina & Kritikos 2004). This also occurred in Japan, where rich merchants guaranteed the repayment of poorer members' loans in a *kou*, a traditional semi-formal group savings and credit association (Izumida 1992). Vigenina & Kritikos (2004 p. 175) conclude that 'a combination of both approaches is necessary if it is aimed to reach all creditworthy borrowers irrespective of their initial wealth status and their ability to provide collateral and irrespective of the expected dynamics of the client's business'.

2.4.2 Access to rural finance in the research area

As in most regions of Georgia, farmers in Shida Kartli suffer from financial constraints (Dzirkvadze 2008), which is the main obstacle to improving their agricultural and small micro-business activities. With respect to the agricultural sector, the most important microfinance institutions were ACDI/VOCA, a US NGO, and ABG (Standard Bank since 2005). ACDI/VOCA's microfinance programmes were organized in the form of credit cooperatives, whilst ABG provided individual credits between US$750 and US$3500 for all types of agricultural activities (Kortenbusch & Cervoneascii 2003 p. 75). According to Kortenbusch and Cervoenascii (2003), almost two-thirds of surveyed rural households in four Georgian regions, including Shida Kartli, could not name any credit institution which provides credits to farmers. In the

years since 2003, several banks, like the former UGB (VTB Bank since 2006) and PCB, started agricultural and micro-lending. As proposed by Aghion & Murdoch (2000), both banks and FINCA began to issue individual loans without collateral in Shida Kartli. The loans are called 'individual express loans' (PCB 2005). The 'express micro-loan' offered by PCB has an upper limit of 7000 lari (approximately €3056) and is disbursed without collateral to micro entrepreneurs within one day of application (PCB ibid. p. 20). At the end of 2005, 46 percent of all outstanding loans were express micro-loans (PCB ibid. p. 20). For clients with a successful credit history, ProCredit Bank provides automatic micro-loans for which only a new application form and the client's signature are necessary. With respect to agricultural loans, PCB (2005) points out that the bank disburses loans to small farmers in several regions of Georgia, which often represent the only source of external finance for them. According to ProCredit Bank's annual report, the average loan size for agricultural loans is 2340 lari (approximately €1060) (PCB 2005). The agricultural loan repayment schedule is tailored to the business cycle of the borrower: thus, if repayment in equal instalments is not convenient, farmers can opt for instalments that vary in size according to the season (PCB ibid. p. 20).

2.5 Summary of Chapter 2

Microfinance systems are regarded as an efficient tool for alleviating poverty by providing poor households with financial services. It is assumed that access to financial means creates profitable self-employment, leading to higher income. Microfinance has a long history, dating back to the Middle Ages. One successful example is the credit unions implemented in Germany and in other European countries. There are various categories of microfinance, including micro-credit, micro-saving, and micro-insurance, with micro-credit having a high number of sub-classifications. The main differentiation among micro-credit varieties regards the lending type: Individual lending, solidarity credit groups with joint-liability, group lending, and village banking. How does microfinance reach its clients? This issue requires a close look at impact, outreach, lending technology, repayment performance, management aspects, and linkages between formal and informal institutions. The efficiency of microfinance programmes depends on the country context, including cultural, historical and political aspects. With regard to Georgia, microfinance is a new concept

that entered the country after independence in 1991 with NGOs delivering micro-credit, microfinance banks, and other projects and programmes. Despite efforts to implement functioning microfinance systems, rural areas and agriculture almost do not profit from them. The agricultural lending portfolios of banks and NGOs remain slim, constituting only around 1 percent of all loans. Recently, several banks began to have some success with agricultural lending by developing a special screening system for future clients. As for lending type, loans with joint liability are not well received; thus, the individual lending scheme prevails. In Shida Kartli, agricultural lending has developed positively since 2003, but loan conditions are not suitable for poorer clients since interest rates are high and loan durations are very short. On the other hand, clients with good repayment records receive follow-up loans without collateral from several banks and from one NGO. However, the outreach of agricultural lending in Shida Kartli remains quite low, reaching only small numbers of clients.

3 Cooperation and landownership in Georgia

In Chapter 2, microfinance and rural lending in the international and in the Georgian context was presented and discussed. This chapter examines cooperative institutions in transition countries, in Israel, and in Georgia. The overall aim of this chapter is to show the possibilities and limitations of rural cooperatives. To this end, Section 3.1 defines the term *cooperative* and discusses the various types of cooperative systems. As cooperative systems are closely linked to farmers' production conditions, landownership in Georgia before and after independence is depicted in Section 3.2. Section 3.3 summarizes the chapter. For an overview on agriculture in the research area, Shida Kartli, see Chapter 1. With respect to terms on financial cooperation, *credit union* (CU) and *credit cooperative* depict the same organizational type.

3.1 Definition and types of cooperation

The notion *cooperative* refers to voluntary, politically independent, user-owned, and user-controlled businesses created to provide their members with material and social benefits in a market environment (Couture et al. 2002 pp. 1-2). This definition denotes 'genuine' cooperatives as opposed to socialistic, state-controlled cooperatives. Genuine cooperatives are based on a number of principles (Couture et al. 2002 p. 2): members' democratic control (generally 'one-member, one vote'), voluntary and open membership, members' economic participation (on the basis of equity provided by members, limitation of individually held equity, distribution of surpluses as patronage refunds, limited dividend on equity capital, etc.), autonomy and independence, education, training and information, cooperation among cooperatives, and concern for community.

Two different types of cooperatives can be distinguished (Gardner & Lerman 2006): i) agricultural production cooperatives and ii) input and marketing cooperatives (service cooperatives). To these, financial cooperatives (credit unions or credit cooperatives) can be added. The literature shows that the opinion of cooperatives in the majority of CEE and CIS countries is very low (Baramidze 2007; Derflinger et al. 2006; Dzirkvadze 2008; Gardner & Lerman 2006; Golovina & Nilsson 2008; IFAD 2007b). This attitude is rooted in the fact that, under Soviet control, membership in

large-scale collective farms (*kolkhozes* and *sovkhozes*) was compulsory, which led to lack of trust among farmers.

3.1.1 Agricultural production cooperatives

In agricultural production cooperatives, all members work together on conjointly owned soil and share the income stemming from selling their agricultural produce. Agricultural production cooperatives as organizations are not viable in the majority of transition countries due to the problems they face (Gardner & Lerman 2006). The first set of problems consists of finding incentives for managers and workers in allocating on-farm effort, mobilizing members' savings, distributing the cooperative's net returns, and dealing with members' off-farm income. The second set comprises raising capital for investments and reaching the collective decisions needed to adopt innovations (e.g. a new technology) or change the product mix to meet market trends. All these problems are well-known to agricultural production cooperatives in Western countries as well, and they are the reason for the low occurrence of this type of cooperative in the Western economies. However, farmers in Armenia, which neighbours Georgia, cooperate in the areas of irrigation, joint use of machinery and equipment, and joint sale of products or professional consultation (Bezemer & Lerman 2003).

Often, agricultural cooperatives are quantity and not quality oriented. As customers' quality demands rise worldwide, cooperatives find themselves having to supply high quality products to meet customers' requirements. To do so, they need to market high-quality products under a well designed brand (Hanf & Török 2008). If they concentrate on high-quality products, cooperatives are capable of integrating small farmers into the vertical agribusiness supply chain (Hanf & Török 2008). Thus, in order to sort out members who are not willing to produce high-quality products, cooperatives have to offer strictly supervised production contracts to their members. Furthermore, to ensure well coordinated quality management, they have to group members with the same business aims. Last but not least, restricted membership through limited contracts is crucial to increase product quality (Hanf & Török 2008). For cooperatives to successfully integrate into the supply chain, it is recommended that they deal with leading retail chains. However, in many CEEs, the leading retail chains are shifting towards the use of centralized procurement systems, cross-border

procurement systems, specialized wholesalers, globalized multinational logistics companies, preferred supplier systems, and private quality standards (Dries et al. 2004 p. 544). One crucial aspect for the success of cooperatives in the vertical supply chain is members' commitment because it is a measure of how well a cooperative is able to differentiate itself from an investor-owned firm. The greater the cooperative's ability to differentiate itself from such firms, the easier it is for the cooperative to retain its market share as borders disappear and multinationals move into markets they have traditionally ignored (Fulton 1999). As in CEEs and the CIS, in the Russian federation, attitudes towards cooperatives also tend to be negative (Golovina & Nilsson 2008). The main reason for this is lack of trust. Golovina and Nilsson (2008) found in their study on Russian farmers that socio-psychological aspects play a major role with regard to cooperatives. Attitudes are crucial to matters such as farmers' choice between cooperatives and privately owned companies.

The current cooperative systems in CEEs and the CIS emerged from the former Soviet agricultural organizations, the *kolkhozes* and *sovkhozes* (large 'farm enterprises'), which were the collective farming systems in the former Soviet Union. The Russian word *kolkhoz* is an abbreviated form of the words *kollektivnoye khozyaistvo* ('collective farm')[5] (Britannica 2009b), while *sovkhoz* is an abbreviation of *sovyetskoe khozyaistvo* ('soviet farm')[6] (Britannica 2009a). According to Gardner & Lerman (2006 p. 6), collective farms can be defined as 'large-scale horizontally integrated multifunctional entities operating in a centrally controlled environment

[5] *Kolkhoz:* In the former Soviet Union, a cooperative agricultural enterprise operated on state-owned land by peasants from a number of households who belonged to the collective and who were paid as salaried employees on the basis of quality and quantity of labour contributed. Conceived as a voluntary union of peasants, the kolkhoz became the dominant form of agricultural enterprise as the result of a state program of expropriation of private holdings embarked on in 1929. Operational control was maintained by state authorities through the appointment of kolkhoz chairmen (nominally elected) and (until 1958) through political units in the machine-tractor stations (MTSs), which provided heavy equipment to kolkhozy in return for payments in kind of agricultural produce. Individual households were retained in the kolkhozy, and in 1935 they were allowed garden plots (Britannica 2009b).

[6] *Sovkhoz:* State-operated agricultural estate in the U.S.S.R. organized according to industrial principles for specialized large-scale production. Workers were paid wages but might also cultivate personal garden plots. Its form developed from the few private estates taken over in their entirety by the state in the original Soviet expropriations. The number of sovkhozy increased during the period of collectivization beginning in 1929 and spurted again during the 1950s, when a number of kolkhozy, or collective farms, the more prevalent form of agricultural enterprise, were converted to sovkhozy. The Virgin and Idle Lands Campaign initiated in 1953 relied mainly on the sovkhozy. In 1973 the total area of sovkhozy was greater than that of kolkhozy for the first time. In 1990 the Russian government began encouraging the gradual conversion of sovkhozy to private farms (Britannica 2009a).

which had a responsibility for both economic and social aspects of rural communities and whose members were largely treated as hired hands.'

In the 1930s, the Soviet Union began to implement collective agriculture after having eliminated all private land ownership in October 1917 (Gardner & Lerman 2006 p. 6). Collectivization in the CEEs and the Baltic countries started after 1945 (Mathijs & Swinnen 1998 p. 21). Despite the forced collectivization of farms, the agricultural sector was not able to produce enough food for the growing population in the Soviet Union, which led to food shortages. Thus, the government subsidized food (Lerman et al. 2003). Couture et al. (2002 p. 2) describe the Soviet era with regard to farming as follows:

> The State-controlled period was characterized by government interference in cooperative affairs at all levels. Most of the time, member registration was compulsory, and the directors and staff were not appointed or elected by the members, but directly appointed by the State. In many countries, cooperatives were not particularly concerned about profitability since they were subsidized by the government and received preferential treatment. In the same way, they were subjected to rigid State planning, which did not provide them with the possibility to develop their own entrepreneurial strategies. Their business affairs were often restricted to a small range of products and services, and State control extended to instructions and directives concerning, for example, the number of employees and their wages. In many countries, cooperatives were in actual fact instruments of the State, and were used to help meet the nation's — and not the members' — needs.

With the breakdown of the Soviet Union in 1989-91, the former command system disappeared almost overnight, creating a vacuum with regard to the large collective farms (Gardner & Lerman 2006). In the following years — the transition period in the 1990s — agricultural output declined rapidly, which can be partly assigned to the difficulties the countries had in creating new laws with respect to landownership. At this time, the so-called 'decollectivization process' (Mathijs & Swinnen 1998 p. 1) started, based on the decision of collective farm members to abandon collective agricultural production and start individual farms. The transformation of the former collective farms into private farms took different courses in the various countries that had been within the sphere of Soviet influence. Mathijs & Swinnen (1998) indicate that Albania and Armenia had the highest proportion of 'decollectivization', whereas Slovakia and Kazakhstan had the lowest; that is, in the latter two countries, even today almost only collective farms exist. It can be concluded that decollectivization occurs in countries where the productivity of individual farming is higher than that of collective farming. This is especially the case for agriculture with low mechanization, such as

fruit production or animal husbandry (Mathijs & Swinnen 1998). In many transition countries, agricultural cooperatives are mandated by law as the successors of former collectives (Gardner & Lerman 2006). In Russia, Ukraine, and Moldova, agricultural cooperatives are not cooperatives in the Western sense since they do not differ from other corporate farms (Gardner & Lerman 2006). Today, there are three types agriculture in all former Soviet republics: i) the small household plots of rural residents on corporate farms (former *kolkhozy* and *sovkhozy*), ii) plots cultivated by urban residents near cities, and iii) new individual farms outside collective or corporate enterprises (Lerman et al. 2003 pp. 14-15). The first two types are successors of the traditional Soviet agricultural system. The most productive type is the first group, individual farms run by rural residents.

A special case among agricultural production and service cooperatives is Israeli *moshavim* and *kibbutzim* (the plurals of *moshav* and *kibbutz*), which are mentioned here because they are an example of an organizational type that dominates the agriculture of an entire country. Moshavim and kibbutzim are not only methods of agricultural production; behind them stands an ideology that postulates farming as a way of life (Kimhi & Rekah 2008). Lecker & Shachmurove (1999 p. 539) define a kibbutz as a small, collective rural community in Israel based on voluntary membership. The persons working and living in a kibbutz derive income from agricultural production to which they contribute different amounts of labour. Income is distributed according to the individual needs of the kibbutz members. The moshav is organized differently. It is a cooperative village in which usually forty to eighty moshav member households operate their own farms (Haruvi & Kislev 1984). Cooperation in the moshav differs widely, with some of them having joint cash management, central planning, and strong public services. Others are less organized communities in which farms are run individually. The predominant type of cooperation in moshavim is financial (Haruvi & Kislev 1984); thus, they can be seen as service cooperatives, in contrast to kibbutzim, which are production cooperatives. Moshavim have a long tradition, dating back to the year 1921 (Haruvi & Kislev 1984 p. 55), and were set up with clear aims: maximum self-sufficiency in food, cooperation in services, mutual aid in farm cultivation, handling without hired labour or off-farm work, and democratic government of the cooperative. The farm land belongs to the government and was distributed in equal-sized plots. Initially, moshavim were

implemented to settle large numbers of immigrants in rural areas and to give them the means to make their living. The egalitarian principles of the moshav, were designed to prevent the accumulation of national resources, like land and capital, in the hands of only a few individuals (Haruvi & Kislev 1984 p. 55). A third type of cooperation is the *moshav shitufi*, which is a combination of a kibbutz and a moshav. Agricultural production is performed collectively, while consumption is an individual matter. Today, 60 percent of villages are organized as kibbutzim and moshavim and cultivate roughly 75 percent of all crops (Kimhi & Rekah 2008 p. 11).

3.1.2 Service cooperatives

Service cooperatives provide farm support services to their members (Gardner & Lerman 2006). Ideally, their services comprise farm inputs like machinery, seed material, and pesticides, as well as training, processing, packaging, marketing of products, and the provision of credit. Depending on the laws in the country in which it operates, a service cooperative may include both individual and corporate farms as members, and it may therefore employ hired labour (Gardner & Lerman 2006). In many transition countries, cooperation is quite strong but, nevertheless, excludes processing and credit (Lerman 2004). Experiences in the Armenian dairy sector show that formal marketing channel access (both private and cooperative) provides a regular cash flow and known requirements and demand; thus, farmers gain greater business confidence relative to cash crop producers selling into a highly volatile and uncertain market place (Gow & Shanoyan 2008 p. 5). The formal marketing channel was not created by Armenian dairy farmers but was implemented by the United States Department of Agriculture (USDA) Market Assistance Program (MAP) in the late 1990s (Gow & Shanoyan 2008). Examples like this and the urban and rural credit unions set up by Raiffeisen and Schulze-Delitzsch in Germany in the 1850s indicate that public agencies or private entrepreneurs can benefit small farmers by establishing appropriate institutions. Interestingly, the Armenian example indicates that only with a dual market linkage development including both cooperatives and private marketing channels were small-scale low income farmers able to improve their economic and social situations (Gow & Shanoyan 2008). The difficulties faced by farmers in transition countries today include low prices for their products, poor access to markets, transport problems, and insufficient output quantities. Additionally, there is a shortage

of machinery and restricted access to credit (Lerman 2004). One solution to these problems is the implementation of farmers' service cooperatives, which have the following duties and benefits (Lerman 2004):

- If farms are spatially dispersed, a potential entrepreneur is reluctant to come to this region. A service cooperative can represent farmers' needs and deal with the entrepreneur.
- Small farm sizes are detrimental. With a service cooperative, small farms can reach collective operational size through access to supplies and markets for their members.
- Cooperative machinery pools mean that farmers do not have to buy very expensive machines on their own.
- Risk is reduced by portfolio diversification, which helps farmers to become more powerful with regard to banks. Service cooperatives can negotiate bank loans with suitable conditions for their members.

It is important to bear in mind that cooperation in services does not mean cooperation in production. This is particularly relevant in transition countries, where there is a strong psychological resistance to cooperation due to misuse of the cooperative concept by the Soviet regime.

3.1.3 Credit unions

In developing countries, credit unions play an important role with regard to lending. In Asia, Africa and Latin America, their share in all microfinance institutions (MFI) is 12 percent (Lapenu & Zeller 2001 p. 19). The loan volume of credit unions amounts to 60 percent of all loans disbursed by MFI (Lapenu & Zeller ibid. p. 19).

The cooperative banking sector is also successful in many developed economies, for example, the *Volks*- and *Raiffeisenbanken* in Germany, the Desjardins system in Canada, and credit unions (CUs) in the USA (Pham-Phuong 2001). Examples of traditional CUs are the German CUs that emerged in the first half of the nineteenth century following the industrial revolution. German farmers in that period were in a similar position to farmers in transition countries today. The economic system changed from feudalism to capitalism after the abolition of serfdom. At the same time, farmers were granted economic freedom. To invest in their farms, they needed capital, but there was no opportunity for them to obtain loans because banks did not consider them

creditworthy. The only way out was to take loans from rich individuals, who charged very high interest rates. In order to alleviate the hardship of the poor population, Schulze-Delitzsch and Raiffeisen founded CUs (Zeller 2003), which were strictly separated into urban and rural unions (Pham-Phuong 2001). In 1864 Raiffeisen founded the first CU for farmers, which was called the Heddesdorfer Darlehensverein ('credit association of Heddesdorf') (Pham-Phuong 2001 p. 8). The concept of the CU was to group farmers together so as to enhance their creditworthiness and their ability to obtain favourable credit conditions. Members of the CU had to commit themselves to unlimited liability. To receive monetary inflow, the CU issued bonds. Only five years after its founding, the CU was responsible for the procurement of production equipment and the marketing of agricultural products. Fifty years later, in 1914, approximately every German village had a CU, and there were some 18000 CUs in the country as a whole (Pham-Phuong 2001 p. 8). Today, these institutions have full bank status, which is regulated by law.

The credit cooperative concept has been successful in numerous countries. One interesting historical example is Japan, where urban and rural self-help credit and savings associations (*kou*) have a history, dating back to the thirteenth century. While the original *kou* disappeared in the middle of the last century (Izumida 1992), these associations influenced the evolution of the formal rural associations that are involved in financial transactions today. Rural credit cooperatives emerged after the Industrial Association Law was enacted in 1901 (Izumida 1992 p. 177). Long before this law was in effect, however, the rural population had already acquired knowledge of group activities, cooperation, the benefits of saving, and the need for repayment of debts through their participation in *kou*. The formal cooperative structure only provided an institutional framework for their traditional financial activities. Based on the great success of the credit cooperatives, the Norinchukin Bank, which is the bank used by the agricultural cooperatives in Japan, has become one of the largest banks in the world (Izumida 1992).

The idea behind CUs or credit cooperatives is to help the rural population become independent from moneylenders and to increase their welfare through a financial institution owned and controlled by its members (Zeller 2003). Only through the integration of individual stakeholders can their individual strengths be combined in order to enhance their economic situation and the bargaining power of all participants

(Dzirkvadze 2008; Pham-Phuong 2001). One important feature of CUs is the reinvestment of profits, or their distribution amongst members (Dzirkvadze 2008; Zeller 2003). Credit unions are for-profit organizations with a democratic governance structure that take into account the concerns of weaker members. This is expressed through the one-member, one-vote rule (Zeller 2003). The system of cooperative financial institutions is based on three principles (Pham-Phuong 2001): self-help, personal responsibility, and self-management. Self-help means that, through the organizational involvement of self-interested individuals in a cooperative banking system, the economic situation of all members improves. According to the principle of personal responsibility, all members are simultaneously both owners and customers of the cooperative bank, which implies that they are responsible for their organization's success or failure. Self-management of the cooperative bank is conducted through boards, in which members of the cooperative formulate corporate policy. Kasarjyan & Buchenrieder (2008) state that CUs have the potential to reach credit-constrained smallholder farmers and small businesses in rural areas. Credit unions are a suitable solution for rural credit problems in transition countries, but, if they use the joint-liability approach, the loans, with sums between US$50 and US$100, are too small to meet farmers' credit needs (Lerman 2004 p. 475).

In a number of CEE countries, CUs have emerged that provide loans to small-scale farmers. A number of these cooperatives are very successful, which is reflected in their high repayment rates. Credit unions are an appropriate financial institution in countries with a strong cooperative tradition, like Albania and Romania (Swinnen & Gow 1999). They offer two services to their members: the opportunity to save and access to credit. Loans can be disbursed with joint liability or with individual liability. In the case of joint liability, the traditional form of physical collateral is replaced by social collateral, which means that credit union members who form a group are responsible for the repayment of any loan taken by one member of the group. In this way, screening, monitoring, and repayment enforcement is delegated to group members (Kasarjyan & Buchenrieder 2008).

3.1.4 Agricultural, service, and credit cooperatives/ credit unions in Georgia

Cooperatives of every kind except CUs are regulated in Georgia by the Act of Georgia on Consumer Cooperation, issued in 1997 (Shevardnadze 1997). The term *consumer cooperation* can be defined as follows:

> […] The unity of diversified consumer cooperatives and their unions carry out activity for satisfaction of requirements of their members and population as allowed by the Act. For such purpose the consumer cooperative societies provide retail and wholesale trade, public catering and personal everyday services, production of consumer goods and agricultural products, as well as they execute purchase, treatment and sale of the said products. (Shevardnadze ibid. p. 1)

Agricultural and service cooperatives in the Soviet period and today in Georgia

The current agricultural situation in Georgia, along with its implications for cooperatives, has its roots in the Soviet era and the transition period. During Soviet times, Georgia was the most productive of the Southern Soviet republics[7] (Lerman et al. 2003). This can be attributed to the favourable weather conditions: warm summers, sufficient rainfall and rivers providing water for agricultural purposes, and varied climatic zones, enabling a wide range of crops to grow. Under Soviet rule, Georgia had an important food processing sector based on fruit, vegetable, and wine production, but it collapsed after the breakdown of the Soviet Union (Kegel 2003). In the collective agricultural system of the *kolkhozes*, all activities were dictated by the central government in Moscow, which inhibited the development of community and business life in Georgia. Farmers working in *kolkhozes* were not satisfied because all members received the same salary irrespective of their real work performance (Dzirkvadze 2008). After independence in 1991, Georgia, together with its neighbours Armenia and Azerbaijan, turned from large-scale collective farming to small-scale individual farming. Immediately following independence, Georgian agricultural output declined dramatically (approximately 40 percent by the mid-1990s) (Lerman et al. 2003 p. 10). One major reason for this was the abolition of subsidies. However, after the mid-1990s, agricultural output and agricultural labour in Georgia grew because, as urban unemployment increased, many people moved from the cities to the countryside to work on the land. Until the end of the 1990s, agricultural productivity improved by 33 percent (Lerman et al. 2003 p. 12).

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[7] The Southern Soviet Republics consisted of Georgia, Azerbaijan, Armenia, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan.

The concept of cooperatives in the Western ('genuine') sense of the word is new to Georgian farmers because the first 'genuine' cooperatives were implemented as recently as 2003 in the form of agricultural production and marketing (service) cooperatives (Dzirkvadze 2008 p. 6). Due to the lack of information, small farmers do not understand the meaning of cooperatives, which they mix up with the former *kolkhozes* and *sovkhozes* (Dzirkvadze 2008; Gardner & Lerman 2006). As farmers do not understand the cooperative concept, cooperative managers tend to dictate the decision-making process, which causes members to lose interest in cooperatives (Dzirkvadze 2008). Moreover, one principal obstacle to the setup of cooperatives is the lack of trust between farmers, which is rooted in their experiences with *kolkhoz* farming. According to Dzirkvadze (ibid. p. 5), agricultural cooperatives in Georgia face the following problems:

- Poor management.
- Lack of capital resources.
- Inadequate training, extension, and education programmes.
- Lack of communication and participation among members.
- Feudalistic social characteristics.
- Unclear and inadequate government policies on the development of agricultural cooperatives.
- High fragmentation of land holdings.
- Weak links between the activities of cooperatives and those of other organizations.

Nonetheless, Dzirkvadze (2008) indicates that agricultural production and service cooperatives show numerous advantages from which Georgian farmers could profit. One principal advantage is the ability to act as a group in order to improve bargaining power with suppliers and banks, who will be more inclined to sell their products at reasonable prices if they have a group of organized customers. The larger the group of cooperative members, the higher their savings potential is. Another advantage lies in the cooperative's ability to manufacture its own supplies and construct its own processing facilities by hiring experts for technical support. Moreover, joint marketing of agricultural products enhances members' power on the market and decreases distribution costs. They can share information and can negotiate with customers on the basis of a more powerful position. To be organized in a cooperative also gives members the possibility of taking political action through discussing and developing

strategies in order to achieve political ends. The larger the group that expresses the wish for a specific change or action, the more likely the government is to respond to this call. Another important aspect of agricultural cooperatives is that they can protect the local economy through anticipating the migration of working-age people to the cities. This is due to the fact that cooperatives can create jobs, and thus income, for the rural population (Dzirkvadze 2008).

Dzirkvadze (ibid. p. 7) explains the difference between companies and cooperatives as to their distribution of profit. A company will retain its profits and distribute a portion of them as dividends to its shareholders in accordance with the amount of stock each investor owns. The cooperative, on the other hand, will distribute its profits among its members on the basis of the each member's business turnover. For example, if the cooperative has net benefits of 10,000 lari per year and one member has a share of 5 percent of the 10,000 lari, he or she receives 500 lari, which is 5 percent of 10,000. This amount, the patronage refund, is not paid completely in cash because one part is added to the equity account the member holds in the cooperative (Dzirkvadze 2008). Cooperatives have the following advantages over other types of organizations with regard to the improvement of quality of life:

- They can help build up social capital and community life by developing opportunities for decision-making and effective action at the local level.
- They provide opportunities for mutual aid and cost-effective service provision tailored precisely to people's needs.
- They encourage local and individual self-reliance and thus offer significant alternatives to globalized, investor-driven businesses.
- They have a positive impact on the environment by downplaying strategies like short-term profit maximization. They encourage sustainable development by helping communities create income from their own local resources.
- Cooperatives have proved to be efficient and cost-effective in circumstances where other forms of business barely survive (Dzirkvadze ibid. p. 9).

According to Baramidze (2007 p. 1), the following five concerns are barriers to the development of all types of cooperatives in rural areas of Georgia: 1) Peasants and small-scale farmers are unfamiliar with the benefits of cooperation; 2) farmers are not well informed about the principles of community resource management; 3) there is no concrete plan for the development of small farm cooperative markets in rural

communities; 4) villagers distrust each other too much to work together effectively; 5) there is a lack of financing for agricultural development.

If we examine the psychological resistance to cooperatives in Georgia (and in other transition countries), it turns out that the main obstacle is the lack of trust. What exactly does *trust* mean? A widely accepted definition of *trust* indicates that 'Trust is a psychological state comprising the intentions to accept vulnerability based upon positive expectations of the intentions or behaviour of another' (Rousseau et al. 1998 p. 395). Transferred to the cooperative context, it signifies that members are dependent on the cooperative with respect to their incomes, which makes them vulnerable. They may have more or less trust in members of their cooperative. Trust within membership and members' trust in the leadership are essential elements in the field of cooperatives (Golovina & Nilsson 2008). Generally, the social and cultural system of the Soviet period reduced trust in almost all countries that belonged to the Soviet Union or its sphere of influence. Without trust and without a positive attitude towards cooperatives, it is not possible to promote the cooperative movement in Russia (Golovina & Nilsson 2008) or in Georgia. Golovina & Nilsson (2008) conclude that socio-psychological factors significantly influence farmers' propensity to be members of agricultural cooperatives. Thus, trust can be seen as the basis for any type of cooperation in rural areas. With respect to Georgia, trust among rural inhabitants could not grow after independence due to civil wars, political turmoil, and the negative expriences, farmers made with Soviet kolkhozes. Another reason for the lack of trust in cooperatives lies in the failure of a nation-wide CU project implemented by the International Fund for Agricultural Development (IFAD) in 1997 that lasted eight years (IFAD 2007c ix). Therefore, long term measures must be undertaken to build up trust in rural areas. These could include the construction of buildings that serve as community centres at the village level, the establishement of a village council, and the proposition of common social events; the organization of partnerships with European associations and cooperatives on the village level, and the offer of advanced training in areas like agriculture, handicraft, and business.

Credit unions in Georgia

With regard to CUs in Georgia, a project carried out by the International Fund for Agricultural Development (IFAD) from 1997 to 2002 intended, among other things, to

provide the basis for the legislative regulation of CUs (IFAD 2007b). In the final year of the IFAD project, 2002, The Law of Georgia on Non-Bank Depository Institutions — Credit Unions was passed to regulate the activities of CUs (Shevardnadze 2002). In Article 1, Section A, of this law, CUs are defined as follows:

> Non-bank depository institution — credit union — an enterprise registered in an organizational-legal capacity of a cooperation, which receives deposits from its members only, provides lending to its members, undertakes banking activities allowed under this Law, and the ultimate goal of which is not to gain profit. (Shevardnadze 2002 p. 1)

Despite a negative attitude towards cooperatives among Georgian farmers (Derflinger et al. 2006; IFAD 2007b), CUs that employ the individual lending scheme could be a viable alternative to loans with short-term duration and high interest rates offered by banks or NGOs. The advantage of CUs lies in their low operating costs and in a member-based governance structure, which leads to a higher degree of independence than loans provided by banks, NGOs, and pawn shops. In addition, CUs are reported to be the most suitable financial institution for reaching vulnerable groups (IFAD 2007b; Zeller 2003).

Notwithstanding their advantages, CUs do not prevail in Georgia. This is reflected in the low number of CUs, which account for only 1.6 percent of all financial institutions in the country (Kortenbusch & Cervoneascii 2003 p. 16). There are several reasons for this. Firstly, one country-wide project funded by IFAD to implement CUs between 1997 and 2005 failed after a promising start due to management problems. In addition to management problems, the programme did not reach the very poor (IFAD 2007b). Secondly, many farmers seem to confound CUs with the former Soviet *kolkhozes*, although they clearly differ in their organizational structure and management. Credit unions are voluntary associations that are governed by their members, who are customers and owners at the same time. One member has one vote.

To improve access to loans for Georgian smallholders with limited collateral, Revishvili & Kinnucan (2004) feel that it is crucial to promote the implementation of CUs in villages that focus on enhancing living conditions and improving farm activities. Sustainable village-owned CUs are feasible and desirable if there is appropriate management, training programmes, and a high level of commitment to the institution (IFAD 2007b). According to government sources, there have been political efforts to encourage the development of rural CUs and to strengthen the functioning of rural financing (IMF 2006b), but it remains unclear how successful they have been and

how broadly these efforts were implemented. After all, access to credit is not the only remedy required for the problems Georgian agriculture faces because CU loans will never be large enough to finance more expensive agricultural equipment (IFAD 2007a). One solution to the problem of small loans could be a service cooperative providing larger loans, agricultural inputs, training, processing, and marketing.

3.2 Landownership before and after independence

Of the total land surface in Georgia, a high proportion consists of agricultural land (43 percent), and a high proportion is forests (another roughly 43 percent) (Ebanoidze 2003 p. 125). Of the agricultural land, about 70 percent is arable or planted with perennials (Heron et al. 2001). In the Soviet period, all agricultural land was in the hands of the central government, including the small plots of 0.25 hectare each rural household received for family production (Ebanoidze ibid. p. 126). The first step in land reform was to legalize private ownership of agricultural land (Sedik & Lerman 2008). Land reform started in Georgia in 1992 (Ebanoidze ibid. p. 126) with the Land Privatization Decree, which distributed agricultural land free of charge to all rural families, even to families where none of the members were employed in agriculture. The maximum plot size was 1.25 hectares (Ebanoidze ibid. p. 126; Kegel 2003 p. 148) in the lowlands and up to 5 hectares in mountainous areas (Ebanoidze ibid. p. 126). The purpose of the land reform was to redistribute the land to the entire rural population in an equitable manner and to ensure local subsistence needs (Lerman 2005).

In every village, elected land reform committees administered the land allocation. In the lowlands, land was distributed to three categories of people (Ebanoidze ibid. p. 126):

- Farmers: Up to 1.25 hectares per household
- Other rural dwellers: Up to 0.75 hectares per household
- Urban dwellers: Up to 0.25 hectares per household

The land reform, guided by the State Department for Land Management, was intended to generate two types of ownership: i) private ownership with surfaces of up to 1.25 hectares (Brown et al. 2000 p. 18; Ebanoidze ibid. p. 126; Heron et al. 2001 p. 9), and ii) state-owned land for leasing to agricultural enterprises. The goal of the land reform was to create a subsistence sector for small farmers and a market-oriented sector with

large leaseholders (Ebanoidze 2003; Giovarelli & Bledsoe 2001). The land reform was assisted by the USAID Land Privatization Project, by Booz and Allen Hamilton, by the Terra Institute (US NGO), and by the German Kreditanstalt für Wiederaufbau (Bank for Reconstruction and Development) (Ebanoidze 2003; Heron et al. 2001). The decision to adopt this type of land reform was influenced by the important role household plots played under Soviet rule. Even with only half a hectare, they accounted for the highest share of production in the whole Soviet Union (Kegel 2003). Today, for most households, small-scale agriculture is essential for survival. According to Kegel (2003), there are two main categories of farms: Family-owned and operated farms and private agricultural enterprises, which rent privately owned farmland or state-owned land.

Table 3.2-1: Land privatization rate

	Land (in percent)	**Agricultural land (in percent)**
Total	100	100
Private ownership	12.5	25.4
State ownership	87.5	74.6

Source: Department of Statistics (DS 2005a p. 18), author's calculations

Table 3.2.1 shows that only a small part of all land is in private hands. With respect to agricultural land, a quarter belongs to households. These individually held household plots can be bought, sold, or leased (Sedik & Lerman 2008). They constitute a small share of the total agricultural land and contribute the highest output to overall agricultural production.

Table 3.2-2: Holding type, average area, and number of farm parcels in Georgia

	Share of all types of holdings in percent	**Average area in hectares**	**Number of parcels**
Family farms	99.8	1.1	2.3
Agricultural enterprises	0.1	110.1	3.1
Other type holdings	0.1	-	-

Source: Department of Statistics (DS 2005b tables 1.1 and 2.3.1)

Table 3.2.2 shows that almost all holdings are family farms (99.8 percent) operating on small surfaces (1.1 hectares) with a high degree of fragmentation (2.3 parcels), while only a very small number of agricultural enterprises (0.1 percent) dispose over large areas (110.1 hectares) with a low degree of fragmentation (3.1 parcels). The size of

agricultural area used per one rural household differs widely, ranging between 0.4 and 2.9 hectares in the ten regions of Georgia (SDS 2005 p. 33). The high degree of fragmentation of family farm land results in lower productivity (Lerman 2005). About three-quarters of agricultural land (see Table 3.2.1) is held by the state, of which approximately half is leased (Heron et al. 2001 p. 9). The leased land is composed of arable, perennials, pasture, and hay land, while the half that is not leased and not allocated consists primarily of pasture (Heron et al. 2001). Compared to the small areas family farms cultivate, agricultural enterprises operate on much larger, predominantly leased surfaces, but their productivity is very low (Ebanoidze 2003; Kegel 2003), so they only can pay their employees in kind and they have to purchase the necessary input by barter. Furthermore, they suffer from the same high degree of de-mechanization that affects all agriculture in the country, resulting in uncultivated arable land (IFAD 2007a; Kegel 2003). In 2001, this was the plight of over half the land leased by agricultural enterprises (Giovarelli & Bledsoe 2001 p. 20).

With respect to legislation, Georgia can be considered successful in the establishment of a legislative and regulatory environment for a weak but still operating land market. The major problem has been land registration. Despite the law on land privatization enacted in 1992, as recently as 1999, a decree on registration and registration certificates was issued. Private ownership of non-agricultural land has been possible since 1997. Before that year, land owned by private persons was considered state-owned (Ebanoidze ibid. p. 127). The Law on Agricultural Land Ownership, in effect since 1996 (Ebanoidze ibid. p. 127; Mathijs & Swinnen 1998 p. 16), i) ensures that legal farms are organized based on rational use of land and improve agrarian structure and ii) prevents the fragmentation and irrational use of land parcels. The law prescribes that agricultural land can only be transferred into the ownership of Georgian citizens (Ebanoidze 2003; Giovarelli & Bledsoe 2001). All persons without Georgian citizenship have to lease land (Ebanoidze ibid. p. 129).

The Law on Agricultural Land Ownership enables farmers to increase their agricultural surfaces by purchasing land. Results from a survey conducted in 2520 households in forty Georgian villages show that only 1 percent of them dispose over areas larger than 10 hectares (Lerman 2005 p. 2). Private farms, with their high fragmentation, impede commercial agriculture due to the small surfaces involved. To develop agriculture, the state-owned surfaces need to be privatized (Ebanoidze 2003;

Heron et al. 2001). But the land privatization process has developed slowly. Before 1998, only 7 percent of the total agricultural area had been privatized (Kortenbusch & Cervoneascii 2003 p. 9). Notwithstanding the legal framework, there were major shortcomings with regard to land registration in 1998. Farmers officially owned the land, but could not use it as collateral for credits, because no registration system existed (Kortenbusch & Cervoneascii 2003). This problem was solved by 2003, and, since then, land and real estate play an important role as security for loans (Ebanoidze 2003). Other sources state that financial institutions hesitate to accept agricultural land as collateral due to the small property sizes and low value (Giovarelli & Bledsoe 2001).

3.3 Summary of Chapter 3

Since the former Soviet Union forced the rural population to work on collective farms managed under the label ‘cooperative’, many people in transition countries do not have positive associations with this type of organization. Gardner & Lerman (2006) note, for instance, that there is a strong psychological resistance to cooperation, bred from the years of abuse of the whole concept by socialist regimes. Nevertheless, service cooperatives survived in several former socialist countries, like Hungary. This type of cooperative can be seen as having good prospects in transition countries (Lerman 2004), while agricultural production cooperatives are not a viable solution (Gardner & Lerman 2006). Service cooperatives should include a credit component, which could be a CU or the provision of loans under good conditions. The former collective agricultural land was privatized in Georgia, but only up to the relatively small degree of 25 percent. The remaining surfaces are still state-owned, of which half are not cultivated due to a lack of input supply. Since the individually owned agricultural surfaces are very small (1.25 hectares), no economies of scale could be reached with respect to agricultural output. They only guarantee the survival of the rural population through subsistence farming. Given that the majority of Georgian farmers lack input supply, credit, marketing channels, mechanization, processing facilities, and agricultural extension, incomes from agriculture remain low, and rural poverty is widespread. One solution would be to privatize portions of the 75 percent of agricultural land the state owns.

4 Conceptual Framework

In Chapter 3, the definition and types of cooperatives were discussed. Landownership in Georgia before and after independence was also covered in Chapter 3. Chapter 4 will address the theoretical principles of the empirical study, which are cost benefit analysis (CBA) and economic valuation with stated preferences techniques. As CBA constitutes the basis from which economic valuation emerged, it is explained in Section 4.1. This is followed by economic valuation with stated preferences techniques in Section 4.2. Choice modelling, the method used in this study, is a form of economic valuation and is therefore described in the last section (Section 4.3). Section 4.4 provides a summary of Chapter 4.

4.1 Cost benefit analysis

Cost benefit analysis (CBA) is based on welfare and utility theories. Early attempts to construct a theory of utility date back to the end of the eighteenth century. Jeremy Bentham was among the first scholars to define the principles of utility by suggesting a measurement of quantities of pleasure and pain through four dimensions: 1) intensity, 2) duration, 3) certainty, and 4) propinquity (Stigler 1950 p. 308). Furthermore, Bentham introduced the measurement of pleasure through money and established a set of propositions on the utility of income. According to the economist David Ricardo, a contemporary of Bentham, wealth is indicated by 'the necessaries, conveniences, and amusements' one can afford. However, their value is not measured in monetary terms but in terms of the amount of labour necessary to produce a commodity (Stigler 1950).
The notion of welfare is closely related to that of utility. Based on the definitions of several authors, Fischer (2004) describes welfare as a concept associated with the ideas of utility, happiness, and benefit, or wellbeing. A benefit can be defined as 'any gain in human wellbeing ('welfare' or 'utility') and cost is defined as any loss in wellbeing' (Pearce 1998 p. 86). Moreover, welfare economics is concerned with the identification of actions that increase social utility. This is similar to utilitarian theory, which determines the welfare of human beings according to the completion of their concerns (Marggraf & Streb 1997). The economist Arthur C. Pigou (1924 p. 10) puts forward two propositions of welfare: The first defines the elements of welfare as 'states of consciousness', and the second assumes that welfare belongs to 'the category of

greater and less'. The question is how changes in the welfare of an individual or of groups can be measured. According to Pigou (ibid., p. 11), money is the measurement instrument in social life. Hence, only those elements of changes in social welfare can be measured that are directly or indirectly related to the benchmark of money. These areas of social welfare are called economic welfare. The aim of increasing social or economic welfare is related to the concept of economic efficiency, the Pareto efficiency (Fischer 2004 p. 20), which describes a social state in which the betterment of one person is only possible if at least one other person suffers a disadvantage (Schäfer & Ott 1986 p. 24).

This principle did not prove to be useful for political decision making because it does not include the comparison of utility between individuals (Fischer 2004). Based on the Pareto efficiency, Kaldor and Hicks developed an extended decision rule for the choice between two social states. The Kaldor-Hicks criterion states that a decision that favours one member of a society and discriminates against another should only be made if it is possible to redistribute parts of the gain made by the favoured individual to the other person. The gainer still should have an advantage after compensation of the loser (Schäfer & Ott 1986 p. 30). If the consequences of an economic transaction imply that gainers are better off after compensation of the losers, then this state can be considered as Pareto-superior and the decision should be made accordingly. Briefly, if benefits related to an economic transaction are larger than costs, the action can be seen as efficient (Fischer 2004). The Kaldor-Hicks criterion should be taken as a hypothetical test for the outcomes of political decisions because it does not require the real compensation of the losers. The execution of these hypothetical tests helps the decision-maker to quantify the positive and negative effects of a project and compare these quantities by means of a single metric. This procedure simplifies the evaluation of projects to a great extent compared to the rather intuitive evaluation procedures used previously. Thus, compensation tests could be seen as the basis of modern CBA. It is important to note that Kaldor-Hicks and CBA vary in terms of their metric: the former does not use money as a yardstick, while the latter does (Adler & Posner 1999).

Despite its convincing central idea, the Kaldor-Hicks rule has some major shortcomings. The first is that it leaves out distributive justice because it treats one unit of money as having the same value to everyone. This does not comply with reality, where the marginal utility of income is different to different individuals (Posner 2001).

Secondly, the rule is not practicable because compensating the losers is, in some cases, hardly feasible due to high administrative costs. It is, therefore, more a conceptual ideal than a practical instruction for compensating individuals for their losses (Fischer 2004).

The CBA approach was probably first applied by the French engineer and economist Jules Dupuit (1844), who postulated the principle that investment decisions should meet a criterion that benefits exceed costs (Pearce 1998 p. 85). Still today, the basic rationale of CBA is that 'things are worth doing it if the benefits resulting from doing them outweigh their costs' (Sen 2001 p. 98). Furthermore, Dupuit founded the marginal utility theory, distinguished total and marginal utility, and discovered the 'consumers' surplus' (Stigler 1950). Consumers' surplus is an important basic notion, in this context representing one of the two components of consumers' willingness to pay (WTP) for a good or a service. In a marketplace situation, one component is the price of the good and the other is the excess WTP over the price, which is the consumers' surplus. Thus, WTP measures the net gain or utility from the purchase of a marketed good (Pearce & Özdemiroglu 2002). For choosing between different alternatives of a marketed good, individuals use certain criteria that are linked to their personal preferences. Pearce & Özdemiroglu (2002 p. 18) state in this regard that 'any appraisal requires criteria for choosing between alternatives. Different criteria may entail trade-offs, such as between cost and quality or performance […]'.

Next, money is introduced as a weight that can be used to measure willingness to pay and willingness to accept:

> Cost benefit analysis uses money values as weights, because they express people's willingness to pay (WTP) or willingness to accept compensation (WTA). This produces the important characteristic that benefits and costs can be directly compared, and specific actions can be compared with doing nothing (i.e. the base case scenario). (Pearce & Özdemiroglu ibid. p. 18)

Willingness to pay measures how much an individual is willing to pay to secure a gain in wellbeing (the benefit) or how much an individual is willing to accept in compensation if he or she loses a gain. Thus WTP and WTA are measures of human preferences (Pearce 1998). However, not only costs and benefits form the basis of decisions as CBA also takes into account the net benefits after deducting costs from benefits (Sen 2001).

To measure the preferences of individuals, a monetary value is attached to non-marketed goods, for example, the environment. The United States and the United

Kingdom in particular employ CBA to investigate people's preferences for different monetary levels in situations such as the introduction of a new tax for the preservation of an environmental good. Despite the popularity of CBA within regulatory agencies in both countries, there is opposition to the use of the method. Pearce (1998 pp. 96) discusses three main objections to CBA.

The first criticism implies that CBA is based on neoclassical economies, which presume that individuals are motivated by self-interest and that social decisions should reflect what individuals want. However, today it is believed that social decisions should be based on the common public good, and indeed, individuals have various motives for their preferences — including the feelings of 'warm glow' or 'moral satisfaction'. The second objection derives from the argument that nature has 'intrinsic' value independent of individual's preferences. Nonetheless, in some studies, respondents indicated having intrinsic value as their motivation but were at the same time unwilling to pay anything for nature conservation. In one study, almost all respondents said that, if nature conservation costs nothing, wildlife and wilderness areas have a right to exist. As soon as costs were introduced for nature conservation, the percentage of respondents in favour of preserving wildlife and wilderness areas dropped by approximately 50 percent. Thus, it was suggested, individuals made a trade-off in their preferences, but at a high price to the environment. The third criticism is that the use of money as a metric debases the environment in that it is treated as a supermarket good.

On the other hand, environmental conservation does have its costs, and, furthermore, monetary valuation of nature conservation does not debase nature but can help to preserve it. Nussbaum (2001 p. 195) says in this regard that assigning 'a monetary value to an option does not, however, imply that we have reduced the good so valued to nothing but the common coin of cash'. However, CBA has its limits with regard to policy decisions concerning social or moral issues. There are, for instance, several religious and ethnic groups who wish to keep their children out of school, such as the Amish people in the United States and the Roma in Romania[8]. If we were to

[8] The US government does allow children to be educated at home rather than at school—as long as certain educational standards are met (von Schoff, 2009 personal communication). The Roma (gypsies) in Romania do not want any school or education for their children at all. Nussbaum (2001 p. 190) says in this regard: 'We can give people an acceptable level of liberty of conscience while insisting on compulsory primary education.'

conduct a CBA, the stated preference of parents belonging to these groups would be 'no school for our children'. Should the government follow their stated preference and allow these parents to keep their children out of school? The answer must be 'no' (for a discussion of moral implications see Nussbaum 2001). An overview on the most important critiques of the method is given by Frank (2001). Apart from the pros and cons regarding CBA, it is a one of several useful tools for assessing people's preferences, which form the basis for decisions governments and other administrations have to make. If CBA is 'taken as [a] pragmatic instrument, agnostic in the deep issues and designed to assist people in making complex judgements where multiple goods are involved' (Sunstein 2001 in Adler & Posner 2001 p. 321), then its practical value is great because people have cognitive limitations and therefore may have difficulty thinking clearly. Cost-benefit analysis can overcome these limitations as it is a rational discipline that helps in decision making (Adler & Posner 2001). In this pragmatic sense, CBA is used in the frame of the present study.

4.2 Economic valuation and stated preferences techniques

The framework of economic valuation is cost benefit analysis (see the previous section), that is, a comparison of all the advantages and disadvantages of a range of alternative solutions in monetary terms. If a good or service contributes positively to human wellbeing, it has an economic value. In economic valuation, willingness to pay (WTP) serves as a weighing method to state the trade-off required for the policy options being appraised. Economic valuation helps governments to make decisions on environmental protection or other policies based on people's statements. Moreover, it is a method used to investigate people's WTP for a benefit, or their willingness to accept (WTA) payment in exchange for losses. With regard to the notions used in economic valuation,

> The term 'choice' is equivalent to 'decision', 'stated preference' or 'economic transaction'. Rational, preference-based decisions increase individual welfare. This means the respective transactions are efficient. The individual demand can be inferred from a measurement of the increase in welfare caused by an increased provision of a particular good. (Fischer 2004 p. 28)

There are three categories of economic valuation: Benefits transfer (BT), revealed preferences (RP), and stated preferences (SP) (Bateman et al. 2002). Hanley et al. (2006) describe benefits transfer as a method for taking value estimates from original

studies, adjusting them, and transferring them to a new context. The revealed preferences method, which is also known as indirect valuation, depicts the ways in which a non-marketed good influences actual markets for other goods through a proxy market. An example of revealed preferences would be the measurement of the economic value of noise disturbance as reflected in house prices. Houses in noisy areas are supposed to be cheaper compared to houses in quieter, but otherwise comparable areas. Stated preference methods are direct valuation methods and were developed to value environmental resources that are not traded in any market, including proxy markets (Birol et al. 2006). Stated preference methods use a hypothetical choice scenario, which is based on what people say rather than on what they do (for a theory of preference see Russell & Wilkinson 1979). People are asked in a questionnaire to attach an economic value to goods and services in the constructed or hypothetical market (Pearce & Özdemiroglu 2002). The stated preference method was employed in the current study. However, there is a question as to how reliably stated preferences express the true preferences of an individual. One important problem WTP (or the stated preferences method) faces is that

> it does not omit preferences based on ignorance and haste, preferences deformed by malice, resentment or fear […]. Still less does it ask or permit its users to ask […] as to whether even corrected preferences could give us a reliable way of ranking social alternatives. (Nussbaum 2001 p. 193)

This leads us to ask how, in fact, preferences emerge. Slovic (2003 p. 500) researched the construction of preferences and found that, if the choice task is complex and important, 'decision making is a highly contingent form of information processing, sensitive to task complexity, time pressure, response mode, framing, reference points, and numerous other contextual factors'. Hence 'truth ultimately resides in the process, rather than in the outcome' (Slovic ibid. p. 500). In short, preferences and values are not discovered by stated preference studies, but they are actively constructed during the choice process (Schkade & Payne 1994; Slovic 2003; Svedsäter 2003). In addition to the issue of preferences being constructed on the spot, one must also question whether peoples' choice behaviour is rational (see e.g., Fischer et al. 1999). McFadden (1999) states that choice behaviour can be described as a decision process produced by beliefs and perceptions based on available information and influenced by affect, attitudes, and preferences. And to what extent does the available information affect choice behaviour? It was found that the nature of information provided in stated

preference studies can strongly influence WTP estimates. If a message is relevant to the respondent, the information is carefully processed. If respondents lack prior knowledge on the good in question, information bias may occur. Detailed information on the planned transaction provided in the questionnaire cannot eliminate the problem of information bias (Ajzen et al. 1996). Despite these findings, stated preferences can be considered a useful method for eliciting peoples' views on planned economic transactions such as the implementation of a credit system. It clearly should not be the only method relied on, but it is one that yields valuable information on individuals' opinions. In the area of marketing, discrete choice models have been demonstrated to be a valuable method for predicting market share for new products based on consumers' expressed preferences between choice alternatives (Magidson et al. 2003). There are two main stated preference techniques:

- Choice modelling (CM) seeks to elicit people's preferences for the individual characteristics of non-marketed goods or services. This technique is suitable for determining WTP or acceptance of changes in the characteristics of the item in question. It focuses on rankings, which are easier for respondents to deal with. Money values are introduced into each choice option in order to provide a common base.
- Contingent valuation (CV) concentrates on a non-marketed good or service as a whole. This technique is appropriate if there is a clear need for analysis based on the whole good rather than on its attributes. With contingent valuation, respondents are asked direct questions about their maximum or minimum WTP for a good or service. The context is a hypothetical but realistic scenario that includes a description of the item in question and the proposed payment vehicle (for instance, a tax or donation) (Pearce & Özdemiroglu 2002).

The results of a stated preference study serve to estimate welfare changes from the proposed scenario.

The overall aim of this study is to assess farmers' relative preferences for different loan characteristics, and the impact of those preferences on the implementation of credit unions. The choice modelling method was chosen over the contingent valuation method because relative preferences for the attributes (different loan characteristics) of the good in question (the loan) had to be assessed, and not preferences for the whole good (the loan). As loans are a marketed good, the concept

of economic valuation does not entirely apply because it is primarily concerned with non-marketed goods, such as the environment. Nevertheless, of the various types of economic valuation, stated preference techniques may be considered the most appropriate methodology for this study if we use it in the sense of marketing research (see Magidson et al. 2003). For this purpose, a hypothetical credit market has been created, so that respondents can directly express their WTP for different loan schemes. The outcomes of the stated preference analysis show which loan characteristics the population in the research area prefer. Stated preference techniques were chosen because in the research region, Shida Kartli, local residents' preferences with regard to credit systems and loan characteristics had not previously been investigated in detail. The constructed rural finance market consists of two rural credit systems: loans with individual liability and loans with joint liability. Respondents had to choose between the two credit systems, and their preferences for the different loan attributes of the chosen loan type were examined. The value attached to a good or item — in this case, the rural credit system selected — was revealed through the hypothetical credit market, which contained different prices for different credit systems. Prices were expressed in interest and commission paid for loans. Respondents' preferences with regard to the two possible rural credit systems and their various attributes were investigated through a survey containing a choice experiment.

4.3 The choice modelling method

Choice modelling comprises four alternatives (see Table 4.3.1). Of the four choice modelling approaches, choice experiments, which is also referred to as conjoined analysis (Carlsson & Martinsson 2003), were identified as the most suitable method for the investigation of farmers' preferences for rural credit systems. The reason for choosing choice experiments as the method lies in the fact that their estimates are consistent with welfare economics, which is not the case for the other three choice modelling alternatives (see Table 4.3.1). Choice experiments, with their underlying discrete choice model, are discussed in this section.

Table 4.3-1: Choice modelling alternatives

Approach	Tasks	Estimates consistent with welfare economics?
Choice experiments	Choose between two alternatives versus status quo	Yes
Contingent ranking	Rank a series of alternatives	Depends (one option must currently be feasible)
Contingent rating	Score alternative scenarios on a scale of 1 to 10	Doubtful
Paired comparisons	Score pairs of scenarios on similar scale	Doubtful

Source: Pearce & Özdemiroglu (2002 p. 55)

The theoretical foundations of discrete choice models for choice experiments date back to the 1960s, when Lancaster (1966) developed a new consumer theory. The core concept of his theory is that goods do not have a utility per se to individuals. Utility is in fact derived from the characteristics or attributes of the good. Discrete choice models depict people's, households', or other decision makers' choices among alternatives. The alternatives might comprise competing products, environmental services, or other options that are appropriate for making choices. The set of alternatives, or choice set, has to have three characteristics to fit into a discrete choice model. The first characteristic is mutual exclusiveness of choices; that is, the respondent may choose only one alternative in the choice set and not several. Secondly, the choice set has to be exhaustive; that is, it must include all possible alternatives. Thirdly, the number of alternatives must be finite, or countable (Train 2003). Based on these three criteria, the discrete choice model can be deduced under the assumption that the decision maker demonstrates utility-maximizing behaviour. The utility maximization rule states that an individual will select the one alternative from a set of available alternatives that maximizes his or her utility (Koppelman & Bhat 2006 p. 14). Discrete choice models are based on random utility models (Carlsson; McFadden 1974; Train 2003 p. 18). Random utility models contain elements that are unobservable for the researcher although the utility function is clear to the respondent or decision maker. Thus, the unobservable elements are treated as random variables and express characteristics of the decision maker and/or attributes of the good (Hanemann 1984). In order to link the deterministic model with a statistical model of human behaviour, the random utility approach is used by introducing a random disturbance term (Alpizar et al. 2001). According to McFadden (1974), the utility function of an individual can be written as

$$U = V(s,x) + \varepsilon(s,x),$$

where V is non-random and reflects the evident preferences of the individual and ε is random and stands for the unobservable preference components of the individual with regard to the attribute x. S is the vector of measured attributes.

Choice experiments have their origin in the areas of transport and marketing, where they have been employed to investigate the trade-offs between the features of transport projects and private goods (Alpizar et al. 2001; Bateman et al. 2002). Since the 1990s, they have been applied to other areas as well, such as the environment (e.g., Adamowicz et al. 1994; Hanley et al. 1998). A choice experiment is 'a structured method of data generation' (Hanley et al. 1998 p. 415) based on accurately designed choice exercises to detect the factors that influence choice. In a choice experiment, individuals are presented with a hypothetical scenario and choose their preferred alternative from several alternatives in a choice set. Each alternative shows a number of attributes or characteristics, of which one attribute should include a monetary value. During the decision-making process, individuals make trade-offs between the alternatives and their various levels (Alpizar et al. 2001). Levels of attributes can be, for instance, a low, middle and a high number of plant species for the attribute 'plant' in a choice experiment on biodiversity. Respondents' preferences are derived from their choices. Furthermore, it is possible to estimate from the responses the marginal rate of substitution for the attributes, and the marginal WTP for the attributes, provided that a monetary attribute is included (Carlsson & Martinsson 2003). The decision-making process can be divided into two parts: i) which good to choose and ii) how much to consume of the chosen good (Alpizar et al. 2001 p. 86). According to Hanemann (1984), this can be called a discrete/continuous choice. This means that the decision process can be seen as occurring in two stages, for example, which forest to visit and how long to walk in it.

The preferred alternatives in a choice experiment represent the individual utility gain of the decision-maker. As the dependent variable in the related econometric model — the decision maker's utility gain — is qualitative in nature, the model is non-linear. To obtain the highest amount of information, it would be reasonable if respondents could rank all possible attribute level combinations. As the number of combinations is normally very high in the full factorial design, this task would be too demanding, time consuming, and cognitively complex for the participants in a choice

experiment (Carlsson & Martinsson 2003). The full factorial design consists of all possible combinations of attribute (factor) levels. For example, if we have five attributes with four levels (denoted 5^4), there are 625 combinations. Thus the number of choices has to be reduced by means of a fractional factorial design (see Chrzan & Orme 2000; Kuhfeld et al. 1994) so that respondents compare only a small number of alternatives in a choice set. With repeated choices, the amount of information can be increased.

But how can one best combine the alternatives from the full factorial design to obtain choice sets that are able to supply the maximum amount of information (Carlsson & Martinsson 2003)? Based on a non-linear model, Zwerina et al. (1996 p. 51) identify four principles of efficient choice design: orthogonality, level balance, minimal overlap, and utility balance. Orthogonality exists when the levels of each attribute vary independently of one another. Level balance exists when the levels of each attribute appear with equal frequency. Minimal overlap exists when the alternatives within each choice set have non-overlapping attribute levels. Utility balance exists when the utilities of the alternatives within the choice sets are the same; that is, the design will be more efficient as the expected probabilities within a choice set C_n among J_n alternatives approach $1/J_n$. A design that satisfies these principles has a maximum D-efficiency, which is a common measure of efficiency. Alpizar et al. (2001) found that these four requirements are difficult to meet since they demand prior knowledge about the true distribution of parameters. Even if not all of the four requirements are satisfied, an efficient design can still be developed (e.g., Kuhfeld et al. 1994).

If we are to minimize the number of choice sets so that respondents can easily cope with them, what number of choice sets would be optimal? Carlsson & Martinson (2008) investigated this issue by asking Swedish households about their marginal WTP to reduce power outages. They conducted a split sample with twelve and twenty-four choice sets for two groups of respondents in order to research whether the number of choice sets and/or the design of the first choice set has an impact on the estimated marginal WTP. Their findings indicate that neither the number of choice sets nor the design of the first choice set has a significant impact on estimated marginal WTP.

After this short overview on choice experiments, one question remains: How reliable are the results of this method? Alpizar et al. (2001) state that choice

experiments generally pass external tests of validity if the actual and the hypothetical behaviour of respondents is compared. This is especially true in transport economics. However, it is not obvious that these results carry over to hypothetical experiments on non-marketed goods (Alpizar et al. 2001). The present study seeks to research the financial market with marketed goods (i.e. loans). Hence, choice experiments can be considered a valid method to employ in this study.

In 2003, Kortenbusch & Cervoneascii conducted a demand analysis of the credit situation in Shida Kartli. Study results indicate that there is a strong demand for rural finance systems in the rural areas of Georgia. At time of their research, there were almost no functioning institutions providing rural credits to farmers, and there was no detailed information available on the preferences of the rural population regarding rural credit systems. For downscaling financial products and for creating credits that fit the economic circumstances of the rural population, it is necessary to investigate the exact demand of the future clients, in this case, the rural population of Shida Kartli. Furthermore, it has to be determined what kind of rural credit institution would be appropriate for the population in question. To explore the credit demand in Shida Kartli, it was decided to employ the stated preference method.

Of the choice modelling alternatives, choice experiments (see table 4.3.1) with two alternative choices (A and B) versus neither (the status quo) serve to explore smallholder farmer's preferences for a rural credit system in Shida Kartli. 'Neither' stands for the status quo and means no benefits and no costs compared to the alternatives A and B (Pearce & Özdemiroglu 2002). The information obtained through choice experiments represents the demand on a market, in this case, the rural credit market. The results of the choice experiment may help financial organizations and other stakeholders in Georgia to design rural credit systems as well as other financial products that correspond exactly to the needs of the population in question. Moreover, they may serve to assess the chances of implementing credit unions.

Carlsson & Martinsson (2008) state that the length of the survey may i) affect the response rate, ii) result in respondents using simpler decision rules, such as ignoring certain parts of the information provided, iii) facilitate learning, and iv) result in respondents answering more or less randomly, especially at the end due to fatigue. Theoretically, we obtain more information if respondents answer more choice sets. Thus, a high number of choice sets would be preferable. But, in reality, this is not

feasible due to time and budget constraints. In the context of rural Georgia, where the population is unfamiliar with stated preference methods, it was decided to restrict the number of choice sets to four per respondent to avoid random choices caused by fatigue. An additional argument for the restriction of the choice sets to four is the long, detailed questionnaire, which was thought to be time consuming. The choice experiment in this study is designed as a two-stage process: In the first step, respondents choose one of two credit systems. In the second step, they are presented with four loan options available from their preferred credit system. The loans contain several attributes, of which each has different levels. Each choice card offers a choice between loan A, loan B, and 'neither loan', which represents the status quo. The status quo in our scenario implies that there are no suitable loans available to farmers in Shida Kartli. With respect to the design of the choice experiment, Train (2003) points out that it is useful to include an alternative-specific constant for each alternative that captures the average effect of the utility of all factors not included in the model. With alternative-specific constants the unobserved part of utility, ε, has a zero mean. To create a benchmark for the alternative-specific constants, one of them has to be normalized to zero. Any of the constants can be normalized to zero because the other constants are interpreted as being relative to the one that is set to zero. Transferred to the design of the present choice experiment, the status quo alternative was chosen to be the alternative-specific constant, which was set to zero.

4.4 Summary of Chapter 4

Cost benefit analysis, the foundation of economic valuation with stated preference techniques, is based on the theories of welfare and utility. Utility theory was constructed at the end of the eighteenth century. At that time, Bentham defined the principles of utility by measuring quantities of pleasure and pain through four dimensions. Welfare in a wider sense is related to utility, happiness, benefit, or wellbeing. If we take the concept of benefit, it can be defined as any gain in human wellbeing. An important notion with respect to CBA is 'consumers' surplus', which describes consumers' excess willingness to pay over the price of a given good. The core technique of CBA is the measurement of individuals' preferences by attaching a price to a non-marketed good, such as environmental items. This technique is widely

used in the USA and the UK, but it is not free of criticism (e.g. neoclassical approach based on self-interested individuals). Despite the controversy surrounding CBA, it remains a rationale discipline that helps in decision making, and, in this sense, it is employed in the present study.

Economic valuation is based on CBA and compares all the advantages and disadvantages of a range of alternative solutions in monetary terms. If a good contributes positively to human wellbeing, it has an economic value. Economic valuation helps governments make decisions on environmental protection and on other policies based on people's statements, which are investigated in light of their willingness to pay (WTP) for a benefit or their willingness to accept (WTA) a payment for losses. There are two stated preference techniques: choice modelling and contingent valuation. Choice modelling was applied in this study. It comprises four alternatives: choice experiments, contingent ranking, contingent rating, and paired comparison. Of the four alternatives, choice experiments were found to be most consistent with welfare economics and thus were used to research farmers' preferences for rural credit systems.

5 Research methodology for the empirical study

The previous chapter discussed the conceptual framework for the research, including the theories of cost benefit analysis and of economic valuation and stated preferences. It also detailed the choice modelling method, which is one of two stated preference techniques. Choice modelling comprises four alternatives; the one of these used for the present study was choice experiments. The first section of this chapter deals with the research questions involved in the current study and the related hypotheses. In Section 5.2, the questionnaire design is illustrated, and Section 5.3 addresses the sampling approach and the target population. In Section 5.4, the household survey is described. Section 5.5 explains the choice experiment. The last section, Section 5.6 contains a summary of Chapter 5.

5.1 Research questions and hypotheses

This study was designed with the following research questions in mind:

1. What are the perceptions of smallholder farmers in Shida Kartli regarding rural credit systems?
2. What kind of rural credit system do farmers prefer?
3. Does smallholders' past credit experience influence their demand for a rural credit system?
4. Which factors determine smallholders' choice between the status quo and different rural credit systems?

Listed below are the possible hypotheses associated with each of these questions.

Hypotheses related to research question 1:

- Null hypothesis H_{01}: Smallholders in Shida Kartli prefer the status quo (no rural credit system).
- Alternative hypothesis H_{11}: Smallholders in Shida Kartli have a demand for rural credit systems.

According to the theory of hypotheses testing (see Zucchini et al. 2009), the null hypothesis is the one we want to test. The literature on rural credit supply in Georgia and in Shida Kartli shows that the rural population does not have sufficient access to credit. Therefore, the null hypothesis H_{01} tests whether smallholder farmers in Shida

Kartli in fact want any rural credit system at all. Hypothesis H_{11} is the alternative hypothesis to the null hypothesis H_{01}. Thus, H_{11} supposes a demand for rural credit systems in the research area Shida Kartli.

Hypotheses related to research question 2:

- Null hypothesis H_{02}: The majority of smallholders in Shida Kartli prefer loans with individual liability to those with joint liability.
- Alternative hypothesis H_{12}: The majority of smallholders in Shida Kartli prefer loans with joint liability to those with individual liability.

The null hypothesis H_{02} is also derived from the literature. Several sources indicate that Georgian farmers have a strong preference for loans with individual liability (see Aghion & Morduch 2000; Derflinger et al. 2006). The null hypothesis H_{02} is based on these findings. Accordingly, the alternative hypothesis H_{12} states the opposite of H_{02}.

Hypotheses related to research question 3:

- Null hypothesis H_{03}: Smallholders' past credit experience does not influence the demand for a rural credit system.
- Alternative hypothesis H_{13}: Smallholders' past credit experience influences the demand for a rural credit system.

Only a small number of smallholder farmers in Shida Kartli have ever taken a loan (Kortenbusch & Cervoneascii 2003). The null hypothesis H_{03} is derived from this fact and tests whether farmers' past credit experience influences their general demand for a rural credit system by postulating that past credit experience does not influence that demand. The alternative hypothesis H_{13} supposes the opposite.

Hypotheses related to research question 4:

- Null hypothesis H_{04}: Smallholders' choice between the status quo and different rural credit systems is not influenced by their socio-economic factors.
- Alternative hypothesis H_{14}: Socio-economic factors like age, sex, education, land size, and income influence smallholders' choice between the status quo and the different rural credit systems.

Numerous studies on microfinance systems and rural lending in different parts in the world show that socio-economic factors influence the willingness of poor farmers to

participate in microfinance programmes. It has been found that, in many cases, poorer households do not benefit from such programmes and that microfinance programmes do not reach out to them (Morduch 1999). In some cases, it is better to invest in education, health care, and improvements in infrastructure in order to reduce poverty (Zeller & Sharma 1998). Based on these studies, it can be concluded that very poor farmers are not willing to participate in a rural credit programme and that they are against such programmes. Therefore, the null hypothesis H_{04} examines whether socio-economic factors influence smallholder farmers' choice between no rural credit system and different rural credit systems by stating that socio-economic factors do not influence the choice. The alternative hypothesis H_{14} postulates the opposite.

5.2 Questionnaire design

To analyse the rural credit demand in Shida Kartli, a questionnaire for face-to-face interviews in a quantitative survey was designed. One section contains a choice exercise to quantify respondents' relative preferences for certain credit characteristics. This will allow the calculation of the influence of credit characteristics on the probability that smallholders would take up a given loan. Following the choice task, respondents were asked several questions supporting the choice experiment. The questions involved the subjective assessment of certainty regarding choices and an importance rating of the credit attributes. These questions enable the researchers to better understand how people made their choices, how they perceived the choice task, and how to assess the reliability and validity of model estimates. In another section of the questionnaire, respondents were asked about general credit demand and past credit experience. These questions provide useful information on the level of credit demand in the research region and on ways in which past credit experience and demand are related. In 2003, Kortenbusch & Cervoneascii analysed credit uptake for the region of Shida Kartli (amongst others), which permits the assessment of the changes that have occurred between 2003 and 2008, when the current research was conducted. The final section comprises questions with respect to socio-economic and household characteristics. These are intended to provide a general, representative impression of the researched population in Shida Kartli and support an analysis of their possible influence on credit demand, choice of credit system, and preference of loan attributes. The questionnaire was designed in both English and German. The German version was

translated into Georgian. The questionnaire's draft version was tested with a focus group of six persons, of which three had credit experience and the other three had no credit experience. The questionnaire was then adjusted according to the comments of the focus group. This was followed by a pilot test with sixty-five households in villages in Gori's region. The final questionnaire version was then applied to the full sample of 406 households. Both the English and the Georgian version of the questionnaire can be found in the appendix.

5.3 Sampling procedure and target population

A three-stage random sampling approach was employed. To draw villages and households for the pilot test and the survey, a list from the year 2006 containing the four regions (Khashuri, Gori, Kaspi, Kareli), districts, villages, and households in Shida Kartli was acquired from the town hall in Gori, Shida Kartli's provincial capital. After a focus interview with six local residents, a pilot test with sixty-five interviews was carried out in the district of Gori, which was randomly selected. Within this region, one district with sixteen villages was randomly drawn from those districts which had not already been selected for the main survey. A complete list of the villages and population figures of the two districts was then used to randomly choose four villages for the pilot test of sixty-five rural households with agricultural areas of approximately one hectare. The population figures for the four villages were weighted in percent with respect to the total number of interviews (sixty-five). The number of interviews to be conducted in each village was calculated based on the percentages. The sixty-five interviews for the pilot test were then conducted in these four villages. Households were randomly chosen within the villages using a random walk procedure with intervals between target households determined by the total number of inhabitants/number of interviews in the respective village. The first number of a banknote number on a randomly drawn lari banknote served as a starting point.

The survey was composed of two parts. The first part consisted of the main survey (n=360) based on a multi-stage random sample, while the second part included a quota sampling approach (n=46). All in all, 406 interviews were conducted. For the first part, the main survey, two of the four administrative regions of Shida Kartli were randomly drawn. All four regions contain a number of districts. In the two selected regions, Gori and Kareli, there are twenty and eighteen districts, respectively. From the

eighteen districts in Kareli's region, three districts with twenty-three villages in total were randomly drawn. From the twenty districts in Gori's region, three districts with thirteen villages were randomly drawn. Finally, from the twenty-three villages in Kareli's region, seven were randomly selected, containing 1388 households. From the thirteen villages in Gori's region, seven villages were randomly drawn, containing 5530 households. In all, 6918 households were drawn for the main survey, which comprised 360 interviews. To select the number of households for the interviews in each village, the village was weighted. For this purpose, the percentage of the total number of households in each village was calculated with regard to the total number of all households (6918). The household percentages in each village were then recalculated into numbers of interviews to conduct relative to the total number of interviews, which was 360. For example, if a village has 261 households, this is 4 percent of the total, or 6918 households. Four percent of 360 interviews is fourteen interviews; thus, that is the number that have to be conducted in the village with 261 households. Initial analyses of the 360 interviews showed that the sampled population was, to a high degree, homogeneous with respect to its socio-economic characteristics, but its socio-demographic composition did not reflect all sections of the population in Shida Kartli. For this reason, a randomized quota-sampling approach (see Hanley et al. 2006) was added to the random sample (n=360) in order to obtain a representative sample for the region of Shida Kartli. This was the second part of the survey. As to statistical analysis, quota-sampling can be applied if the sampled population does not show large differences in its characteristics (for a discussion of sampling methods see Diekmann 1995). The quota sampling contained forty-six respondents, which is 10 percent of the total number of respondents (n=406). Using census data for Shida Kartli, the population characteristics were weighted in proportion to the initial random survey sample (n=360). The underrepresented sections of the population (see Table 5.3.1) were then included in the quota sample (n=46). Two villages in Gori's region where these sections were expected to live were used to select the households for interviews. Households in these two villages were chosen by a random walk.

Table 5.3-1: Sections of the population in the quota sample

Type	Number
Ossetian	1
Armenian	2
Russian	2
Azerbaijani	2
Azerbaijani and Muslim	4
Other religion	3
Single	25
Widowed	4
Divorced/ Separated	3
Total	46

Source: Author's calculation

5.4 Household survey

Two types of data were collected in the household survey:

- Data on the farm household's socio-demographic characteristics, land use systems, and economic data.
- Stated preferences of farm households regarding the status quo and different rural finance options.

In the selected households, it was the head of household or the spouse who was interviewed. The questionnaire was employed to investigate farm households' socio-demographic characteristics, land use systems, and economic data. Such data permit a comparison of farm households with and without past credit experience regarding formal or informal credit institutions. Furthermore, they provide an overview of the living conditions of the sampled population and are used to calculate interactions between socio-economic and opinion variables, on the one hand, and preferences for loan characteristics, on the other. In the questionnaire, respondents were asked which kind of rural credit system they generally prefer: individual liability or joint liability. This was followed by the questionnaire section including the choice experiment (see Section 5.5).

5.5 Choice experiment

One section of the questionnaire contains a choice experiment to quantify respondents' relative preferences for certain credit characteristics. This section was designed as a stated choice experiment (e.g., Louviere et al. 2001), which was developed in transport

and marketing and has found increasing popularity for the purpose of environmental valuation in recent years (e.g., Bateman et al. 2002; Pearce & Özdemiroglu 2002). Conjoint analysis, a related technique, was applied by Dufhues (2007) in Vietnam to assess the factors that impede or support the access of rural households in Northern Vietnam to formal financial systems. The use of a hypothetical choice situation allows for an ex ante assessment of demand for products that are not yet available on the market or are not yet available to a target population of consumers.

Based on information from Georgian financial institutions, six loan attributes, of which five have four levels and one has two levels[9], were assessed. The attributes are i) loan size, ii) interest, iii) collateral, iv) instalments, v) commission, and vi) loan duration. Collateral is the attribute with two levels. The attributes interest and commission reflect the expected cost of the loan. With respect to the experimental design, an orthogonal [uncorrelated] design plan was created in SPSS (e.g., Alpizar et al. 2001; Glenk et al. 2006). A fractional factorial design (Chrzan & Orme 2000; Hanley et al. 2006) served to select an orthogonal fraction of thirty-two out of 5^4 and 1^2 possible combinations of attribute levels. For this purpose, each attribute level (except collateral, which has two levels) obtained a code number from one to four, and a block variable with four levels was created to subdivide the thirty-two choice cards into manageable smaller units of eight cards per block. As the choice cards have to have two choice possibilities, A and B, a second set of thirty-two cards had to be established. To do this, the attribute codes were first recoded in SPSS with the 'mix & match' method (see Chrzan & Orme 2000) as different code numbers, and then orthocodes (Hensher et al. 2005 p. 132) were generated for all sixty-four alternatives. The experimental design allows for the estimation of all attribute main effects and is based on percentage values for the attributes interest and commission, which represent the credit cost. Prior to the final design, correlations between the single attributes had to be excluded. This was done with Excel, and, as the calculation results showed no correlations, the design was used to create the final choice cards. From the thirty-two choice cards, eight choice sets with four cards apiece were assembled. Each respondent received four choice cards with three alternatives: two loans (A and B) and the status

[9] Attribute levels for loans with group liability were taken from Constanta Foundation, and for loans with individual liability from TbilUniversalbank and United Georgian Bank (Kortenbusch & Cervoneascii 2003 Annex E).

quo alternative (that is, neither of the loans on the cards). This makes altogether 3^4 choices. The following table (Table 5.5.1) shows all the attribute levels for both credit systems.

Table 5.5-1: Attributes and levels of two loan types

Attribute	**Loan with joint liability**	**Loan with individual liability**
Loan size (lari) Four levels	1000 2000 3000 4000	8000 16000 24000 32000
Monthly interest rate (percent) Four levels	1 2 3 4	0.5 1 1.5 2
Collateral Two levels	Joint liability/group size: 2-4 members 5-8 members	Movable assets Real estate
Instalments (months) Four levels	0.5 1 1.5 2	1 1.5 2 2.5
Commission (percent) Four levels	0.5 1 1.5 2	0.5 1 1.5 2
Loan duration (months) Four levels	4 6 8 10	12 18 24 30

Source: Table created by author. 1 lari = 0.44 euros (NBG 2008)

As mentioned above, each respondent received four choice cards depending on the general credit system he or she had selected. Thus, if the respondent chose loans with individual liability, he or she received four cards with attributes of two alternative individual loans and the alternative 'neither of the loans on the choice card'. After the choice task, the results of the four choices were entered in the questionnaire.

The choice cards were divided into four categories:

1. Individual loans with attributes in percentages (interest, commission).
2. Individual loans with attributes in the Georgian currency, lari (interest, commission).
3. Loans with joint liability with attributes in percentages (interest, commission).

4. Loans with joint liability with attributes in the Georgian currency, lari (interest, commission).

The division into four categories makes it easier to explore whether choices differ between choice cards showing percentages or lari. Both card types within one loan category contain the same attribute levels, like loan size, interest, and so forth. The only difference between them is the expression of interest and commission in lari or in percent. All interviews were conducted as in-house surveys by trained local interviewers. Figure 5.5.1 provides an example of a choice card with attributes for a loan with individual liability. A respondent would receive four choice cards and had to choose between loan A, loan B, and 'neither loan', which implies that he or she chose four times between three possibilities. After the choice task, the interviewer noted the four choices in a table on the questionnaire. In many other studies, more than four choice cards are employed. Carlsson & Martinsson (2008) did a choice experiment in Sweden using twelve and twenty-four choice cards with two groups of respondents and found that the higher number of choices did not tire out the sampled population. Despite these findings, a design with only four choice cards seemed more appropriate in the context of rural Georgia because, in addition to the choice experiment, respondents had to answer a high number of questions in the questionnaire.

After testing the choice cards with the focus group of six persons and with the sixty-five respondents in the pilot test, it was clear that respondents had difficulty with interest and commission expressed in percent instead of lari. A number of financial institutions in Georgia display interest and commission in figures and not in percent. For this reason, it was easier for the sampled population to deal with figures. Consequently, only choice cards with lari were employed in the choice experiment for the final survey.

Figure 5.5-1 Choice card for a loan with individual liability (English version)

Choice card loan with individual liability

Attributes	Loan with individual liablitiy A	Loan with individual liablitiy B
Loan size (lari)	16000	8000
Monthly interest (lari)	240	160
Collateral	Real estate	Movable goods
Instalments (months)	2.5	2
Commission (lari)	320	80
Loan duration (months)	12	24

Neither loan

Source: Card designed by author

5.6 Summary of Chapter 5

The empirical study design contains four research questions, all of which are related to farmers' perceptions of rural credit systems and the factors that influence their choice of such systems. To analyse the research questions, four null hypotheses and four hypotheses were formulated. In order to examine farmers' preferences for rural credit systems, a household survey was conducted. To this end, a questionnaire was designed. The questionnaire contains a choice exercise to quantify respondents' relative preferences for certain credit characteristics. Other sections include questions on respondents' general credit demand and past credit experience, and on their socio-economic and household characteristics. After a pre-test with a focus group of six persons, the questionnaire was employed in a pilot test with sixty-five respondents before using it with the final sample of 406 respondents. With regard to sampling, a three-stage random sampling approach was employed. A list containing four regions in

Shida Kartli with their districts, villages, and households served as the respondent pool from which to draw the households polled in the survey. The questionnaire was used in face-to-face interviews exploring farm households' socio-demographic characteristics, land use systems, and economic data, while the choice exercise was conducted using choice cards offering various loan options. The loans depicted on the choice cards included following attributes with different levels: i) loan size, ii) interest, iii) collateral, iv) instalments, v) commission, and vi) loan duration. One respondent received four choice cards and had to choose between loan A, loan B, and 'neither loan'.

6 Data analysis methods

The previous chapter presented the research questions, the survey design, and the choice experiment of this study. This chapter describes the methods used to analyse the data gathered in the survey and choice experiment and their application. The methods used include logit analysis, latent class analysis, descriptive statistics, and ANOVA with the post hoc Waller-Duncan test. First, logit analysis and latent class analysis are explained in Sections 6.1 and 6.2. Their application, including a description of the Waller-Duncan test, is discussed in Section 6.3. In Section 6.4, the data analysis of the household survey using descriptive statistics and the Waller-Duncan test is detailed. Section 6.5 addresses the analysis of the research questions, which was conducted using statistical tests and the calculation of interactions. Chapter 6 closes with a summary in Section 6.6. To denote the X and Y variables, the terms 'independent variable' for the X-variable and 'dependent variable' for the Y-variable are employed.

6.1 Logit analysis

Logit analysis is one appropriate method (Urban 1993) for calculating the influence of a variety of factors on a qualitative dependent variable. Logit models are a part of general, linear statistics and can be differentiated into the following types:

- Polytome logit models, which comprise binary, multinomial, and ordinal models.
- Conditional logit models.
- Variations of the conditional logit model: nested, ordered, and mixed logit models.

These models are widely used in empirical studies. For instance, mixed logit models were applied to investigate unobserved heterogeneity in the Sardinian wine market (Lai et al. 2008) and to research long distance car travel in New Zealand (Hensher & Greene 2003). The demand for rock-climbing in Scotland was analysed with a multinomial logit model by Hanley & Koop et al. (2001). Multinomial logit models were also used to examine the differential influences of relative poverty on preferences for ecosystem services in rural Indonesia (Glenk et al. 2006). Nested logit was employed to examine the value of Atlantic salmon fishing sites to anglers in the United States (Morey et al. 1993).

Logit models are multivariate statistic models, which are used to estimate several influencing factors simultaneously. Moreover, non-linear relationships, like effects

with changing strengths of influence, can be analysed with logit. For instance, the variable 'age' in the age group 18 to 30 has a different meaning to the election of a certain party as compared to the age group 60 to 70 (Urban 1993 p. 9). Another advantage of logit models is that they can be developed in direct reference to theoretical social science models. However, logit models do have some disadvantages; for instance, they need large sample sizes (n > 100) (Urban 1993 p. 13) to estimate the strength of effects, and the interpretation of results is difficult.

Logit analysis researches the dependency structure of one qualitative [dependent] variable with two or more values. Binary logit analysis calculates the dependency structure of a qualitative variable with only two values or alternatives, like the election of party A and the election of a different party. The co-domain of the dependent variable lies between 1 (election of party A) and 0 (election of a different party), which can be written as 0 percent and 100 percent (Urban 1993 p. 24). With this change, the qualitative variable is transformed into a continuous variable but still has its upper and lower limits. If these limits are omitted, the qualitative variable becomes a 'real' continuous variable on which statistical analysis can be applied. Several steps are necessary in order to establish the logit model with its continuous but restricted co-domain. If the upper and lower boundaries of the percent scale of the dependent variable are deregulated, the values can increase or diminish arbitrarily without breaching the upper and lower boundaries of 0 percent and 100 percent (Urban 1993 p. 25). Such deregulation requires two transformations. First, the upper boundary (100 percent) becomes meaningless if the percentage of the likelihood of the incidence of an event is divided by the percentage of the likelihood of the non-incidence of the event[10]:

$$P'_i = P_i / (1 - P_i) \ .$$

In the formula above, P'_i depicts the incidence of an event. Second, the lower boundary of 0 percent is deregulated by taking the logarithm[11] of P'_i:

$$P''_i = \ln \left[P_i / (1 - P_i) \right].$$

[10] All formulae in this section are taken from Urban (1993)

[11] The natural logarithm of any figure x equals the exponent n with which the constant basic figure e (= 2.718) has to be risen to get back the chosen figure x. For example: Take the figure 100. Its natural logarithm is 4.605 or: ln = 4.605 because $2.718^{4.605} = 100$. This is equivalent to $e^n = x$ (Urban 1993 p. 25).

After the two transformations, the incidence of an event lies between minus and plus infinity:

$$-\infty < P_i^n < +\infty$$

The result of this double transformation is referred to as logit. Logit also denotes the natural logarithm of the odds (Gujarati 2003 p. 596; Urban 1993 p. 25) of the realization of an event. The binary logit model is written as follows:

$$\ln\left[P_i/(1-P_i)\right] = \alpha + \beta \cdot (X_i).$$

In the binary logit model above, α is a constant parameter that comprises all influences on the dependent variable Y that are not expressed by the independent variables X in the model. β stands for a parameter that describes the strength and direction of the influence of the independent variables X with respect to the dependent variable Y. The binary logit model can be enlarged to become a multivariate logit model by adding more independent variables:

$$\ln\left[P_i/(1-P_i)\right] = \alpha + \beta_1 \cdot (X_i) + \beta_2 \cdot (X_j) + \beta_3 \cdot (X_k).$$

The binary model and the multivariate logit model each contains a dependent variable with only two values. Another type of logit model is the multinomial logit model (MNL), which is used in polynomial analysis. In an MNL, the dependent variable has at least three values: P_1, P_2, and P_3. A MNL can be divided into several binary logits by dividing each value P by each other value P.

$$L_{13} = \ln(P_1/P_3) = a_{13} + \sum \beta_{k13} X_k$$

$$L_{23} = \ln(P_2/P_3) = a_{23} + \sum \beta_{k23} X_k$$

$$L_{12} = \ln(P_1/P_2) = a_{12} + \sum \beta_{k12} X_k$$

These are redundant because L_{13} could be derived from the other two logits. Hence, $\ln(P_1/P_3)$ could be written as follows:

$$\ln(P_1/P_3) = (\alpha_{23} + \alpha_{12}) + (\beta_{23} + \beta_{12}) X_k.$$

When analysing results, the algebraic sign of the logit coefficient is important. The following example may demonstrate this. Let one binary pair of logits consist of party A versus a third party. Party A is middle-left oriented. In addition to this logit pair, there is an ideological left-right scale. If the logit coefficient of the left-right scale for the logit pair of party A versus a third party has a negative algebraic sign, it means that

a shift towards the right on the left-right scale of x units will negatively influence the probability of party A being elected (Urban 1993).

For the analysis of discrete choice models including choice experiments, conditional logit analysis[12] is the preferred method. Conditional logit analysis is able to determine the influence of the characteristics of alternatives (independent variables) on decision result(s) (dependent variable[s]). Take for example the election of political parties. Several attributes of the alternatives (parties), like credibility or professional competencies, influence the election decision. This means that conditional logit analysis does not examine the attributes of the deciding stakeholders but the attributes of the alternatives (Urban 1993 p. 120). In other words, while MNLs concentrate on the stakeholders and their characteristics, the conditional logit model researches the characteristics of the alternatives. Unlike the MNL, the conditional logit model contains only one equation even if there is more than one different alternative to choose from. This leads to the estimation of only one, constant logit coefficient for each attribute of the various alternatives.

Central to the MNL and the conditional logit model is Luce's axiom of irrelevance of independent alternatives (IIA assumption) (for definitions, see Alpizar et al. 2001 pp. 90-91.; Koppelman & Bhat 2006 pp. 38-39; Urban 1993 pp. 86, 131). According to Koppelman & Bhat (2006 p. 38), 'the IIA property states that for any individual, the ratio of the probabilities of choosing two alternatives is independent of the presence or attributes of any other alternative.'

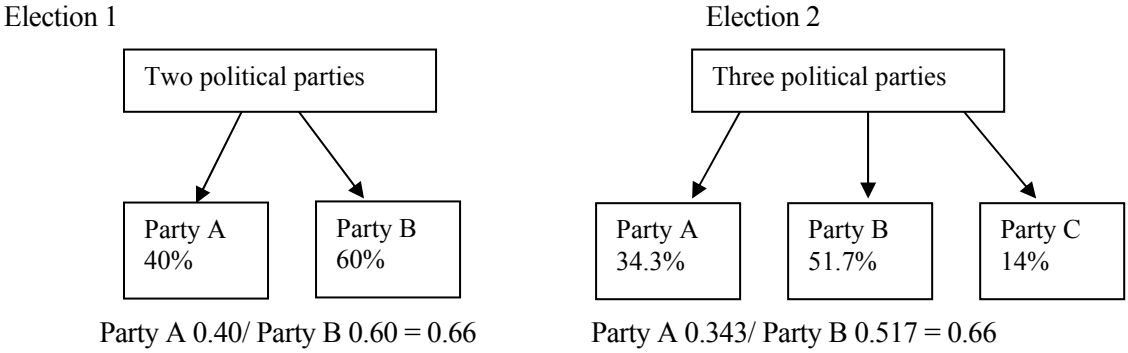
With regard to the MNL, this signifies that a third alternative does not influence the choice between a pair of alternatives. To remember, in an MNL, the various alternatives that could be chosen are broken down into binary logit models with pairs of alternatives. In some cases, the presence of a third alternative changes the ratio between the given pair of choice alternatives. This is especially true for elections. The logit coefficients change if a third party is introduced as an alternative. In short, the IIA assumption is a restriction that is difficult to maintain in many MNLs because it demands equal competition between all pairs of alternatives. The IIA assumption is not valid, for instance, if two out of three alternatives are similar. In such a case, the

[12] In some cases, conditional logit models are referred to as multinomial logit models; this is true, for example, of NLOGIT 3.0 software. Therefore, the output in the current research is based on a multinomial logit model, a name applied by NLOGIT 3.0, but the calculation is that of a conditional logit model.

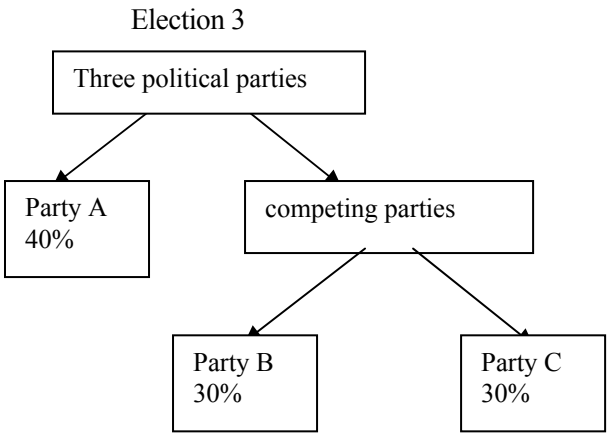
unobserved attributes (the error terms) of the alternatives have a high correlation (Koppelman & Bhat 2006; Urban 1993). Figure 6.1.1 gives examples of a valid and an invalid IIA assumption.

Figure 6.1-1: Example of a valid and of an invalid IIA assumption

a) Example of a valid IIA assumption



b) Example of an invalid IIA assumption



Party A 0.40/ Party B 0.60 = 1.33

Source: Graph adopted from Urban (1993 p. 132) (translated by the author)

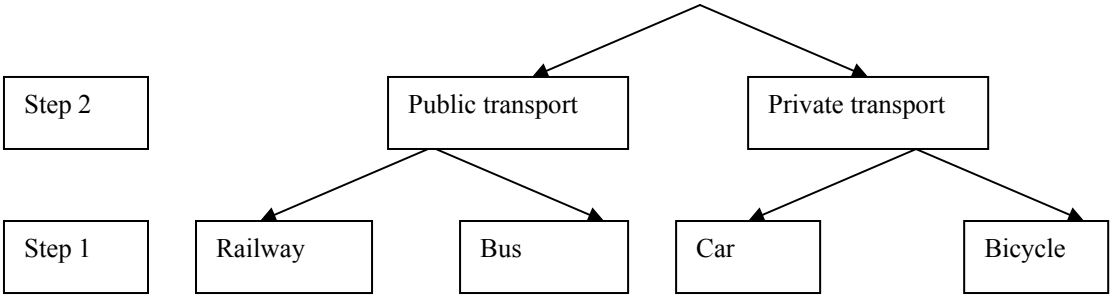
The IIA assumption does not hold in practice (Magidson et al. 2003), and tests of the IIA assumption that are based on the estimation of a restricted choice set are disappointing for applied work (Cheng & Long 2007). This was also found by McFadden (1974 p. 113) with respect to his own proposed model: 'The primary limitation of the model is that the independence of irrelevant alternatives axiom is implausible for alternative sets containing choices that are close substitutes.'

Since the MNL model limits the applicability of logit analysis through the IIA assumption, other models with different assumptions were derived. One of these is the

nested logit (NL) model, which assumes 'that some of the alternatives share common components in their random error terms' (Koppelman & Bhat 2006 p. 159).

In contrast to the MNL model, the NL model allows similar alternatives to be grouped [nested] in subsets (Koppelman & Bhat 2006; Train 2003; Urban 1993). The NL model examines choices in a series of steps and thus avoids the IIA assumption. These steps are variable in their number, order, and chronology. Figure 6.1.2 depicts an example of a nested logit model with its clusters of alternatives.

Figure 6.1-2: Example of a two-stage nested logit model



Source: Graph adopted from Urban (1993 p. 140) (translated by the author)

With regard to model estimation, the appropriate technique for logit models is the maximum likelihood method (MLM). As the residuals in logit models do not follow normal distribution, the ordinary least square (OLS) estimation that is widely used in linear regression models cannot be applied. OLS demands homoscedasticity[13] of residuals. In logit models, heteroscedasticity of residuals leads to the use of MLM for model estimation. MLM employs an iterative technique to elect those coefficients as optimal estimators that could produce the observed sample values with the highest probability. The underlying assumption is that the coefficients are identical with the true parameters. Briefly, MLM asks which parameters in the population could have produced the observed data with the highest probability. For measuring the approximation of the MLM to the maximum, the negative log-likelihood value (LL) serves as an approximation criterion for the estimation. The maximum estimation is reached with the smallest possible LL-value (Urban 1993).

[13] Homoscedasticity means that all error terms [residuals] have a similar distribution above and below the regression line. The mean of their variance is therefore zero. Heteroscedasticity describes error terms with an irregular distribution.

In the next step, the model estimation is assessed. For this purpose, different significance tests for estimating the model effects can be employed. The null hypothesis in significance tests states that the influence parameter β_k of an independent variable in the population is equal to zero: $H_0 : \beta = 0$. Additionally, the logit estimation (logit coefficient) b_k should not deviate from zero. To assess the model estimation, two tests are predominantly used. The first is the Wald test, which is equivalent to the t-statistic significance test, in which the computed t-value is compared to the limits of the confidence interval belonging to a certain number of degrees of freedom and a determined significance level. If the t-value is larger than the confidence interval limits, the null hypothesis can be rejected, and the estimated coefficient is statistically significant. The Wald test examines the null hypothesis with the asymptotical chi-square distributed test statistic 'W'. It determines whether independent variables with zero influence ($\beta = 0$) and independent variables with influence ($\beta \neq 0$) belong to the same population. The second test is the likelihood-ratio test, which compares two MLM estimations of two logit models with the G-statistic. In this case, one of the ML models forms the reduced version of the other by containing a smaller number of independent variables. The G-statistic compares both models with the chi-square test based on a null hypothesis, which states that there is no difference between the two models. The chi-square test compares observed with estimated frequencies. The outcome of the likelihood-ratio test contains a chi-square value for a significance level of 5 percent and one degree of freedom (if both models differ in one parameter only). If the G-values are larger than the chi-square value on the 5 percent significance level, then the likelihood ratio values confirm those found by the Wald test (Urban 1993).

After assessment of the model estimation, the significance of the whole model has to be examined. Significance tests of the whole logit model postulate the null hypothesis that all independent variables are meaningless. This implies that the observed distribution of the dependent variable differs only randomly from its expected value and that the dependent variable is not influenced by any independent variable. To test this null hypothesis, the likelihood-ratio test can be employed once again. The reduced model comprises only an estimate of the constant α, which is written as follows: $L(Y) = a$. If the test results allow the null hypothesis to be rejected, it means that the logit model with independent variables permits a far better model

estimation than the reduced model. The results of the likelihood-ratio test can be used to calculate the pseudo-R^2 index. Pseudo-R^2 indicates the degree of the estimation improvement through the complete logit model in comparison to the reduced model. The values of pseudo-R^2 lie between 0 and 1. Pseudo-R^2 reaches 1 if the complete model of the maximum-likelihood estimation has the greatest possible log-likelihood value of 0.00. Pseudo-R^2 values between 0.2 and 0.4 already represent a good model estimation (Urban 1993).

Finally, the adjustment performance of the model estimation has to be analysed. To check the strength of congruence between the observed distribution and the estimated distribution of dependent variables, the adjustment performance of the estimated logit model has to be monitored with specific tests. One of these tests is the goodness-of-fit statistic. The main idea of the goodness-of-fit statistic is based on an estimation error 'E' that calculates the difference between observed and estimated dependent variables:

$$E_i := Y_i - P_i(Y = 1) .$$

This is the defined error term that serves to compute the goodness-of-fit statistic 'G'. If the variance of the estimated probabilities becomes smaller, 'G' becomes larger. The underlying assumption is that a small variance will facilitate the estimation of the dependent variable. Therefore, when a small variance occurs, a possible estimation error indicates that the observed distribution of the dependent variable is not congruent with the estimated distribution of the dependent variable (Urban 1993).

6.2 Latent class analysis

With the above-described analysis methods, we obtain one result for all the data. In some cases, the data suggest that there are different classes of respondents or parameters since '[…] The standard aggregate model fails to take into account the fact that preferences (utilities) differ from one respondent to another (or at least from one segment to another)' (Magidson et al. 2003 p. 1). One appropriate analysis method for determining whether respondents can be grouped is latent class analysis (LCA) (Goodman 1974; McDonald 1962), which seeks to model latent classes or categories underlying observed relationships (Loehlin 1998). Latent class analysis is closely related to two other methods that investigate latent elements in a model. The first is factor analysis, a latent variable method in which the factors are unobserved

hypothetical variables that underlie and explain the observed correlations. The second is item response theory, or latent trait theory, in which a latent variable (the underlying trait being measured) is fitted to responses in a series of test items (Loehlin 1998). All three methods are primarily used in psychology and social sciences. LCA has its origins in the latent structure analysis of Lazarsfeld (1968), which is concerned with the probability relation between the set of observed indicators and the inferred position of the units involved in an empirical study. The principal goal of this method is the division of heterogeneous groups into homogeneous and statistically unrelated subgroups (Reunanen & Suikkanen 1999 p. 6). Central to this goal is the principle of local independence. Lazarsfeld & Henry (1968) indicate that the relation between the latent classes and the observable items is defined by the axiom of local independence, which states that, within a class, the items are all independent of one another. In other words, this definition states mathematically that the latent variable explains why the observed items are related to one another: The association of two items is expressed by a third observable variable (Lazarsfeld & Henry 1968). If we transfer the principle of local independence to individual people, it signifies that they are similar with regard to a certain latent property or latent continuum if they produce a statistically unrelated distribution in tests measuring this continuum. The latent continuum (the third observable variable) expresses a general attitude of coding units (persons) towards several questions on a particular subject, for example, renewable energies. The general attitude towards renewable energies is the continuum along which a respondent is positioned at a certain point (Reunanen & Suikkanen 1999).

A statistically unrelated distribution implies that the ratio of ‘yes’ and ‘no’ answers stays the same for different questions. For example, the first group consists of 108 respondents of whom 90 respondents answer ‘yes’ to the first question and, of the 90 ‘yes-respondents’, 75 answer ‘yes’ to a second question and 15 answer ‘no’ to the second question. This is a ratio of 75:15. In a second group of 18 respondents, 15 answer ‘no’ to the first question and 3 also answer ‘no’ to the second question. The ratio here is 15:3, which is the same as 75:15 (Reunanen & Suikkanen 1999 p. 4). Statistically unrelated means if we add up more questions, the ratio of ‘yes’ and ‘no’ answers will stay the same. The answer to the first question does not affect the answer to the second question. This kind of unrelated distribution is homogeneous with regard to the latent property measured by the variables. Variables are questions, in this

example ‘attitude towards renewable energies’. Additionally, statistically unrelated distribution means that the mathematical probability of joint occurrence of certain answers is the same as their real percentage in the observed data (Reunanen & Suikkanen 1999 p. 4).

The first step in LCA is to compute a one-class solution for the data. It means that the total ratio (probability) of answers to, say, three different questions (variables) is calculated. In a hypothetical example, the first variable has a ratio of 0.861 for the statements ‘I agree’ (0), 0.056 for ‘I cannot say’ (1), and 0.083 for ‘I disagree’ (2) (Reunanen & Suikkanen 1999 p. 7). For each coding unit, there is a coding pattern that displays the structure of answers one respondent gives to different questions. For example, 000 (‘I agree with all three statements’) is a coding pattern. A second respondent has 020 as coding pattern (‘I agree with the first and third statement, but I disagree with the second one’). From the coding patterns, the log-likelihood index is computed describing the probability of the whole data set under the one-class solution. To do this, the logarithms of each coding unit’ probabilities are added up. The coding pattern of coding unit 1 is 000:

$$\ln(0.861) + \ln(0.750) + \ln(0.556) .$$

The figures in brackets are the probabilities of ‘I agree’ answers (=0) for all respondents with regard to three questions. The greater the probabilities of coding units are, the better is the log-likelihood index and the more homogeneous is the group. If the sum of the coding pattern probabilities (p) is smaller than one, the variables are statistically related. The log-likelihood index expresses the degree of the variables’ relatedness (Reunanen & Suikkanen 1999 p. 7).

In the second step, LCA calculates a solution for several classes from the data. As mentioned above, the aim of LCA is to divide the data into subgroups in such a way that the variables in each group are as unrelated as possible. To reach this goal, the data are first divided into two randomly formed groups. Next, an iterative grouping follows until the log-likelihood index for the two-class solution is as good as possible. Then, more and more classes are computed, which improves the log-likelihood index. The greater the number of classes, the more homogeneous they are. It is important to note that LCA seeks to determine the structure of data and not which coding unit belongs to which class because one coding unit may belong to different classes. For instance, one class may be in favour of the use of renewable energies (in our example,

the variable/question concerns investment into the research and development of renewable energies), while the second class is against the use of renewable energies and the third one chooses neither-nor (Reunanen & Suikkanen 1999 pp. 7-8).

The reverse of the one-class solution is the saturated model. In this model, the homogeneity of classes is perfect if the variables in each class are unrelated. Homogeneity can be improved by increasing the number of classes. If each coding pattern has its own class, then perfect homogeneity within the class is reached (saturated model). For example, if there are eleven coding patterns (000, 010, 220, etc.) and eleven classes, the classes' homogeneity would be perfect (Reunanen & Suikkanen 1999 p. 11). This is not advisable because a high number of classes are too complex to interpret.

Ultimately, the goal is to find the right number of classes between the one-class solution and the saturated model. Several indices can help determine the optimal number of classes:

- BIC: best information criterion
- AIC: Akaike's information criterion
- CIC: flattest multiplier

If all three indices suggest the same number of classes, this would be the best solution. BIC is the strictest index because it suggests the smallest number of classes. This holds for all three indices: the smallest number in the output of AIC, BIC, and CIC indicates the best suggested number of classes. After having computed the best number of classes, a chi-square distributed test statistic is used to compare the log-likelihood index of the respective class solution (H_0) with the saturated model (H_1). However, Reunanen and Suikkanen (1999 p. 13) conclude 'that all these indexes are just supporting devices, and they must not be obeyed blindly.' This statement refers to a data set in which all three indexes suggest different numbers of classes: for example, BIC suggests the one-class solution, and AIC and BIC support a two-class solution. Normally, the smallest number of classes — which, in our example, is one class — is the best one. But perhaps the researcher prefers the two-class solution of AIC and CIC based on the specification of his or her data set.

6.3 Data analysis of the choice experiment

Two types of data were gathered during the field research in Shida Kartli, Georgia: i) socio-economic data and ii) data obtained with the choice experiment. This section depicts analysis methods of the choice experiment. Programmes used for the analysis were Excel, NLOGIT 3.0, SPSS 13.0, and Latent Gold Choice. Besides a section on the socio-economic situation in Shida-Kartli, another section of the questionnaire contained the choice experiment. In the choice experiment, each respondent received four choice cards offering two loan alternatives and a status quo alternative, for a total of twelve alternatives per respondent. Before completing the choice experiment, respondents had to choose between two types of loans: loans with joint liability and loans with individual liability. Only a small share of respondents (8 percent) chose loans with joint liability; therefore the choice experiment for this loan type was not analysed. The outcomes of the choice experiment were put in an Excel file in order to prepare these data for the first analysis with NLOGIT 3.0. The choice data set was then transferred to NLOGIT 3.0 for analysis. The first step was to examine the data with logit analysis. The following model, an indirect utility function, was used to analyse the data:

U(c1, c2) = bASC*ASC + bLOS*inlos + bINT*ininte + bCOL*incoll + bINS*ininst + bCOM*incomm + bLOD*inlod

U(c3) = bASC*ASC

U in the first model stands for the utility, which is produced by the two choice alternatives c1 and c2. The choice alternatives c1 and c2 stand for the two loan alternatives A and B depicted on each choice card. U is the dependent variable. Each choice alternative has six attributes written as independent variables and multiplied by their related influence parameters bASC and bLOS, etc. The influence parameters are the betas. U in the second model signifies the utility coming from choice alternative c3, the alternative-specific constant (ASC), which is multiplied by its influence parameter bASC. ASC is the status quo or 'neither loan on the choice card' alternative. Train (2003 p. 24) defines the ASC as follows:

> The alternative-specific constant for an alternative captures the average effect on utility of all factors that are not included in the model. Thus they serve a similar function to the constant in a regression model, which also captures the average effect of all unincluded factors.

The complete model is written

U(c1,c2) = bASC*ASC + bLOS*inlos + bINT*ininte + bCOL*incoll + bINS*ininst + bCOM*incomm + bLOD*inlod /U(c3) = bASC*ASC

The single attributes or independent variables are

- ASC: Alternative-specific constant
- Inlos: Loan with individual liability, loan size
- Ininte: Loan with individual liability, interests
- Incoll: Loan with individual liability, collateral
- Ininst: Loan with individual liability, instalments
- Incomm: Loan with individual liability, commission
- Inlod: Loan with individual liability, loan duration

Several types of logit analysis were executed with the model presented above. The first was multinomial logit analysis, which was conducted in NLOGIT 3.0. According to Hensher & Greene (2003), the multinomial logit model (MNL) should always be used as starting point for empirical investigation. First of all, it was necessary to determine whether independence from irrelevant alternatives (IIA assumption), a precondition for the MNL, exists in the given choice data set. The IIA assumption states that the ratio of the probabilities for any two alternatives stays independent if any or all of the remaining alternatives are removed or added. Independence from irrelevant alternatives exists if the result of model estimation with reduced alternatives does not deviate from the complete model. To test for violations of the IIA assumption, Hausman-McFadden (1984) tests were performed. They estimate first the complete model with all alternatives and next a restricted model with a smaller number of alternatives (Hensher et al. 2005 p. 519; Urban 1993 p. 133). As independence from irrelevant alternatives of two alternatives is assumed, the Hausman-McFadden test permits the simultaneous removal of more than one alternative in the restricted model (Hensher et al. 2005). While systematically comparing the complete model to the reduced model, the Hausman-McFadden test calculates whether the logit results will be influenced significantly by the model specification (complete or reduced model). To run the test, a null hypothesis is employed stating that there is no difference between the complete model and the reduced model. If the null hypothesis cannot be rejected, the IIA assumption holds. For hypothesis testing an asymptotically chi-square

distributed test statistic that can be verified with a significance test (Urban 1993) is used.

In addition to analysis of the preferences of all respondents in one group with the multinomial logit model, respondents' preferences for loan attributes were grouped into classes. For this purpose, a latent class model (LCM) was estimated. The classes were calculated with Latent Gold Choice, a latent class modelling software. Four classes of preference types were distinguished.

After the multinomial logit analysis and the estimation of the latent class model, interactions between selected socio-economic and opinion variables and the seven CE attributes were calculated. The following variables were chosen:

1. Whether the respondent took a loan or not
2. How the borrowed amount was invested
3. Loan size of an individual loan according to respondent's free statement
4. Whether respondent is familiar with financial systems or not
5. Respondent's degree of certainty with regard to his/ her choice in the CE
6. Importance of loan size for respondent
7. Importance of implementation of a rural credit system
8. Likelihood of implementation of a rural credit system
9. Respondent's gender
10. Respondent's age
11. Respondent's maximum level of education
12. Respondent's main job
13. Respondent's main income source
14. Kind of agriculture respondent engages in
15. Person in the household who owns the land
16. Area of agricultural land
17. Monthly household income
18. Person who decides on money use in the household
19. Expectation of income development
20. Importance of individual loan's size for the respondent
21. Importance of individual loan's interest for the respondent
22. Importance of individual loan's collateral for the respondent
23. Importance of individual loan's instalment frequency for the respondent

24. Importance of individual loan's commission for the respondent
25. Importance of individual loan's duration for the respondent

Each of these variables was interacted with all the loan attributes of an individual loan, as well as with the 'neither loan' alternative (ASC). The attributes were as follows:
1) Loan size, 2) interest, 3) collateral, 4) instalments, 5) commission, and 6) loan duration.

As only a small number of interactions were significant, six socio-economic key variables were re-coded into dummy variables to test whether the original code system, which included up to seven code numbers per variable, was responsible for the deficiency of significances. From the list above, the following socio-economic variables were re-coded:
11) respondent's maximum level of education, 12) respondent's main job, 13) respondent's main income source, 14) kind of agriculture respondent engages in, 17) monthly household income, and 19) expectation of income development. The new codes were for variable 11) 'university degree or other degree', for variable 12) 'farmer or off-farm economic activity', for variable 13) 'agriculture or off-farm income', for variable 14) 'fruits or vegetables', for variable 17) 'up to 200 lari or more than 200 lari', and for variable 19) 'increasing or falling expectation of income development'.

To measure respondents' tendencies with respect to their willingness to pay for a loan, point elasticities for the attributes 'interest' and 'commission', which make up the cost of a loan, were calculated with regard to choice alternatives 1 and 2. Point elasticities are direct elasticities that measure the percentage change in the probability of choosing a particular alternative in the choice set with regard to a given percentage change in an attribute of that same alternative (Hensher et al. 2005). For example, if the interest in Alternative 1 increases by 1 percent, how much does the possibility of choosing Alternative 1 change in percent?

6.4 Data analysis of the household survey

This section describes the analysis of the socio-economic household data. First, frequencies for all 166 socio-economic variables were computed in SPSS 13.0. Next, the socio-economic data were analysed in SPSS 13.0 with the Waller-Duncan test, a post-hoc test in the group of one-way ANOVA (analysis of variance) tests. This test

was used to group the respondents with regard to socio-economic variables by comparing the variance within groups to the variance between groups. If the variance between two groups is larger than the variance within one group, both groups are significantly different and two groups or more are established. Waller-Duncan assigns the four classes of respondents calculated by latent class analysis to new homogeneous groups [subsets] with regard to the different parameter values of the socio-economic variables. The following example illustrates how Waller-Duncan works.

Table 6.4-1: Output of the Waller-Duncan test

B3reano1_b

Waller-Duncan

		Subset for alpha = .05	
@_j	N	1	2
1	361	.09	
2	210	.13	.13
3	129	.15	.15
4	168		.17

Means for groups in homogeneous subsets are displayed.
a Uses Harmonic Mean Sample Size = 189,212.
b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.
c Type 1/Type 2 Error Seriousness Ratio = 100.
Source: Author's survey data analysis (2008)

B3reano1_b stands for the variable 'Reason no loan' with the parameter value 'No possibility to take a loan'. The numbers 1 to 4 in the first column are the four classes of respondents computed with latent class analysis for the choice experiment variables. The N in the second column indicates the number of respondents belonging to each of the four classes. It is obvious that the total number of respondents in column N is larger than 406, the number of surveyed households. The reason for this is that every respondent was multiplied by four for the purpose of latent class analysis. The third and fourth columns comprise the groups calculated with the Waller-Duncan test. The variance between the two groups is significant at a 5 percent level (subset for alpha = .05). In this example, we have two groups: 1 and 2. The numbers in the columns for group 1 and group 2 are the percentages for the four classes. In our example, class 1 is represented in group 1 with a low percentage (9 percent). This means that 9 percent of respondents in class 1 stated that their reason for not taking a loan was that there was

no possibility of taking a loan. As we can see in the table above, classes 2 and 3 are represented in both group 1 and group 2. Furthermore, for these two classes, there is no significant difference between group 1 and group 2. Class 4 belongs to group 2 only. Thus, for the value parameter 'No possibility to take a loan', Waller-Duncan sets up group 1 and group 2 by dividing them according to their percentages into low (9 percent) and high percentages (17 percent). What do the numbers mean? For class 1, which is represented in group 1 by just 9 percent, it means that this class mainly has other reasons for not taking a loan than 'No possibility to take a loan'. Note that besides 'No possibility to take a loan', respondents could choose between five other value parameters (answers), which form five different variables. For each variable, a Waller-Duncan table was computed. All socio-economic variables were analysed with Waller-Duncan at a 0.05 and at a 0.001 significance level. Neither result showed any difference with respect to significance level. Finally, four tables containing the different Waller-Duncan groups were created for the four classes to show the specific 'class profiles' with respect to socio-economic characteristics. These tables are in the appendix.

6.5 Analysis of research questions

Chapter 5 presented the following research questions:

1. What are the perceptions of smallholder farmers in Shida Kartli regarding rural credit systems?
2. What kind of rural credit system do farmers prefer?
3. Does smallholders' past credit experience influence their demand for a rural credit system?
4. Which factors determine smallholders' choice between the status quo and different rural credit systems?

To examine these research questions and their appropriate hypotheses, different statistical analyses were conducted. Choice experiments were used to explore research question 1 and its related hypotheses, $H_{01,}$ and H_{11} (for the hypotheses, see Chapter 5, Section 5.1). The results of the choice experiments were examined with logit analysis (see Section 6.3). Research question 2 was first investigated by means of descriptive statistics to calculate the frequencies for farmers who chose loans with individual

liability, loans with joint liability, or no loan. Next, a significance test, in this case a binomial test, was conducted to determine whether the null hypothesis H_{02} holds or must be rejected. Research question 3 and its hypotheses, H_{03} and $H_{13,}$ were analysed by calculating interactions between the variable for loan uptake and the choice alternative 'neither of the loans on the choice card', which is the status quo or alternative specific constant (ASC). Hypotheses H_{04} and H_{14}, which relate to research question 4, were explored by calculating interactions between socio-economic variables and the three choice alternatives loan 1, loan 2, and the status quo (ASC).

6.6 Summary of Chapter 6

In this chapter, different methods of data analysis were presented. The first one was logit analysis, a method that serves to calculate the influence of different factors on a qualitative dependent variable. Logit models are part of multivariate statistic models, which serve to estimate several influencing factors simultaneously. They are widely used in empirical studies. For the purpose of this study, logit analysis was employed to examine the data of the choice experiment. The results suggest that respondents form different classes with respect to their preferences for loan attributes. Thus, latent class analysis was chosen to test for different classes of respondents. The main goal of this method is the division of heterogeneous groups into homogeneous and statistically unrelated subgroups. After the theoretical background of logit analysis and latent class analysis, their application with respect to the choice experiment was described, and the related model, an indirect utility function, was presented. Analysis of the socio-economic household data frequencies for all 166 socio-economic variables were computed in SPSS 13.0. Then, the socio-economic data were analysed in SPSS 13.0 with the Waller-Duncan test, which is a post-hoc test belonging to the group of one-way ANOVA (analysis of variance) tests. To summarize, the research questions were analysed using choice experiments, logit analysis, descriptive statistics, a binomial test, and the calculation of the interactions between a set of socio-economic and opinion variables and the loan attributes.

7 Results and interpretation

The previous chapter presented the theoretical background of the data analysis methods used (logit analysis, latent class analysis), and their application with regard to the stated choice experiment (CE). Chapter 6 also documented methods used for analysis of the socio-economic survey data (Waller-Duncan test) and the research questions (binomial test, interactions). This chapter addresses the following topics: Section 7.1 presents and discusses the analysis results. Section 7.2 addresses the role of credit unions as a possible solution to farmers' financial problems including business models for credit unions. Chapter 7 closes with a summary (Section 7.3).

7.1 Results and interpretation

The following data processing analyses were executed: i) frequencies of socio-economic variables, ii) analysis of the CE using a multinomial logit model, iii) analysis of the CE using a latent class model, iv) calculation of interactions between socio-economic variables and CE attributes, v) calculation of interactions with dummy coded socio-economic key variables, vi) calculation of elasticities between loan attributes, vii) conduct of a Waller-Duncan test for socio-economic variables, and viii) analysis of research questions. The following subsections discuss the results of these analyses and their interpretation.

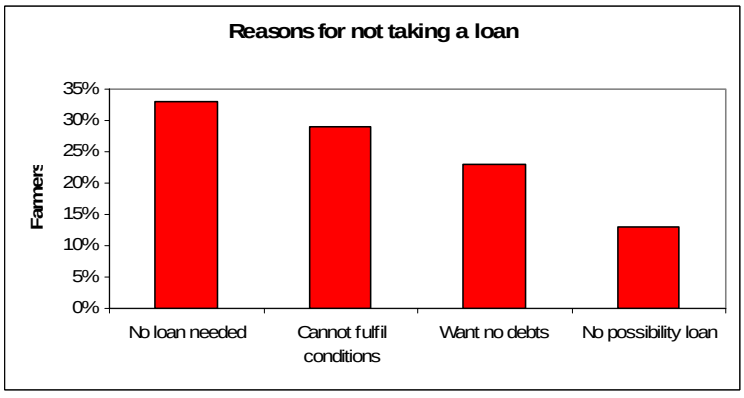
i) Frequencies of socio-economic variables

Examining the frequencies of all socio-economic and opinion variables provides a detailed picture of the sampled population. In the following interpretation of the most important results, percentages are presented as rounded-up figures. First to be analysed are the frequencies for the variables of loan access, loan uptake, type of loan investment, and satisfaction with the financial institution. With respect to credit access, 8 percent of respondents state that they are unable to obtain a loan, while 91 percent say that loans from banks and NGOs are available.

Figure 7.1-1: Loan experience

Regarding loan uptake, one-third of respondents took a loan (30 percent, of those, 99% took loans from a formal souce and 1% from an informal source) and over two-thirds of them had no previous loan experience (70 percent) (see Figure 7.1.1). This result is in accordance with previous studies, which indicate that the loan uptake rate is low amongst farmers, but has shown growth in Shida Kartli in recent years. In 2003, loan uptake was 16 percent (Kortenbusch & Cervoneascii 2003 p. 57), and increased to 30 percent in 2008.

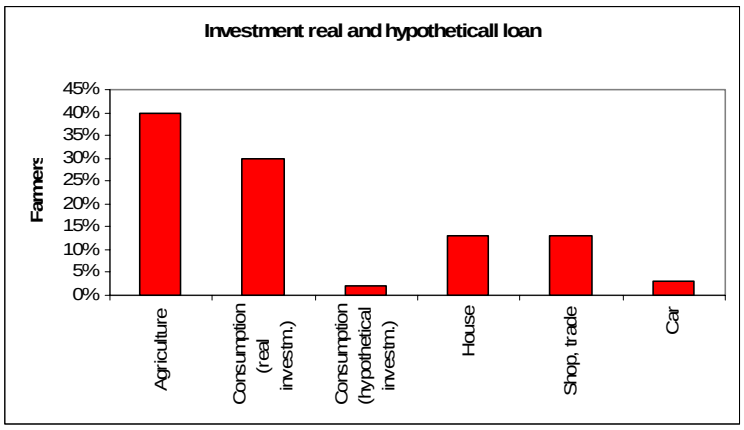
Figure 7.1-2: Reasons for not taking a loan



Of the respondents with no loan experience, about one-third (33 percent) stated that they did not need a loan. Other stated reasons for not taking up a loan include 'I do not want to incur debts' (23 percent), 'I could not fulfil the loan conditions' (29 percent), and 'it was not possible for me to obtain a loan' (13 percent) (see Figure 7.1.2). In short, over half of the respondents without loan experience are reluctant to obtain

loans, and 42 percent do not have access. It is not clear, whether the statement 'I did not need a loan' reflects the true circumstances if we take into account the respondents' small plots, lack of farm machinery, and low agricultural productivity. It can be assumed that this statement is another way to express a fear of loans, disappointment with respect to agricultural policy, and distrust in financial institutions in most of the cases. However, not all farmers are in need of a loan. Despite this, the implementation of a rural credit system was rated 'very important' or 'important' by a great majority of farmers (77 percent). Over half of the respondents (55 percent) said that they would foresee the implementation of such a system to be very likely or likely. These findings show that overall credit demand is very high.

Figure 7.1-3: Preferred investment of a real and a hypothetical loan



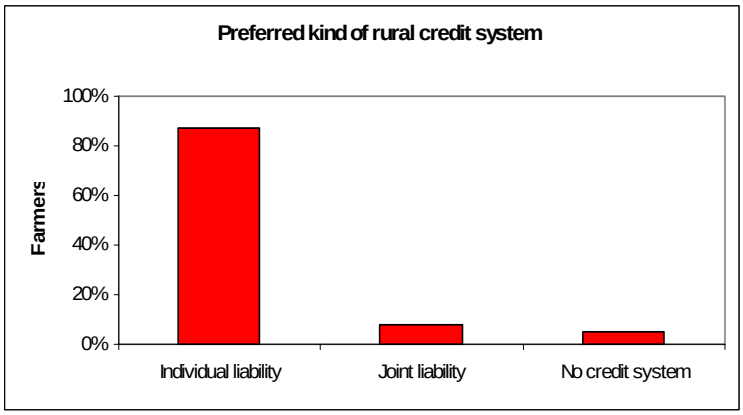
Another question concerned respondents' actual past and stated future loan investment – for those with and without credit experience. Figure 7.1.3 shows actual and envisioned loan investment together because the investment shares are very similar except in the consumption category. Loans for agriculture are the primary preference for smallholders in Shida Kartli (40 percent real investment, 40 percent hypothetical investment). Their other preferred loan investments include their homes (13 percent real investment, 14 percent hypothetical investment), consumption purposes (30 percent real investment, 2 percent hypothetical investment), and investments in a shop or in trade (13 percent real investment, 12 percent hypothetical investment). The smallest share is dedicated to investments in a car (3 percent real investment, 3 percent hypothetical investment). Of those without loan experience, 28 percent stated that they

would never take up a loan. The discrepancy between real (30 percent) and hypothetical (2 percent) expenditure of loans on consumption shows that respondents dislike spending their loans on consumption. The necessity of doing so illustrates the high incidence of poverty in the research area. Loans spent on houses show that these are in urgent need of repair. For agricultural purposes, respondents would use loans for the purchase of farm machinery, fertilizer and pesticides, land, seed, forage for cattle, and investment in bee-keeping. Trade and transportation are important areas of investment for these respondents. Many farmers chose a twofold investment strategy: agriculture and a second income source. This indicates that due to the small plots and the lack of (export) markets, agriculture alone is not perceived to be a sufficient source of income. Investment in multiple streams of income generation could be a viable step towards the development of Shida Kartli's rural areas.

Smallholders with loan experience took up loans ranging from 100 lari to more than 2000 lari. Over half of the loans obtained (56 percent) fall within the range of 500 to 2000 lari. Roughly one-fifth of those taking up loans borrowed sums of 500 lari or less, and another one-fifth took up loans in excess of 2000 lari. The average loan size is 1000 lari, which is equivalent to approximately ten times the average monthly household income. Contrary to Lerman's findings (2004), which indicated that farmers in transition countries borrow from relatives and friends rather than from formal financial institutions, 100 percent of smallholders in Shida Kartli who took up loans obtained the funds exclusively from a bank or a NGO. With respect to distance to the financial institution, almost all respondents indicate a distance greater than 8 km (95 percent). Asked how they rate loan conditions, over half of respondents (57 percent) say obtaining the loan was either 'very easy' or 'easy'. Almost two-thirds (67 percent) rate loan costs — interest and commission — as being 'very acceptable' or 'acceptable,' while one-fifth (20 percent) state that loan costs are only 'moderately acceptable'. Nearly all respondents (98 percent) rated financial institution employees as 'very friendly' or 'friendly'. Some 92 percent found loan conditions to be 'very understandable' or 'understandable,' and 70 percent found it was 'very easy' or 'easy' to fulfil loan requirements. It seems that those who took up a loan were content with loan conditions. The good rating may have another reason, too. Many respondents had the impression that the interviewers were sent by a bank and thus may have rated the financial institution more positively than they might have thought it really was. The

interviewers clearly explained that they had no connections to any financial institutions, but some farmers remained nonetheless sceptical.

Figure 7.1-4: Preferred kind of rural credit system



One central research question concerned the kind of rural credit system farmers prefer in Shida Kartli. In the sample, farmers strongly prefer loans with individual liability (87 percent) to loans with joint liability (8 percent) (see Aghion & Morduch 2000; Vigenina & Kritikos 2004) and a small percentage of respondents do not want any rural credit system at all (5 percent) (see Figure 7.1.4). As only a small segment of respondents chose loans with joint liability, this was not explored further. The single main reason for the choice of individual loans was distrust amongst villagers (see e.g., Dzirkvadze 2008). This outcome corresponds to Baramidze's findings (2007). Baramidze states that farmers do not trust each other and are not familiar with the advantages of cooperative institutions. An additional cause for the widespread distrust can be traced to the compulsory collective agriculture and political monitoring system of the Soviet period, which pitted one neighbour against another. In indicating a preference for loans with individual liability, respondents said that they prefer to be responsible for themselves rather than being responsible for others — as in the case of loans with joint liability. Those who did not want any rural credit system said that they do not trust financial institutions, that they do not need a loan, and that they are reluctant to incur debts.

Table 7.1-1: Ideal loan attributes according to farmers' statements

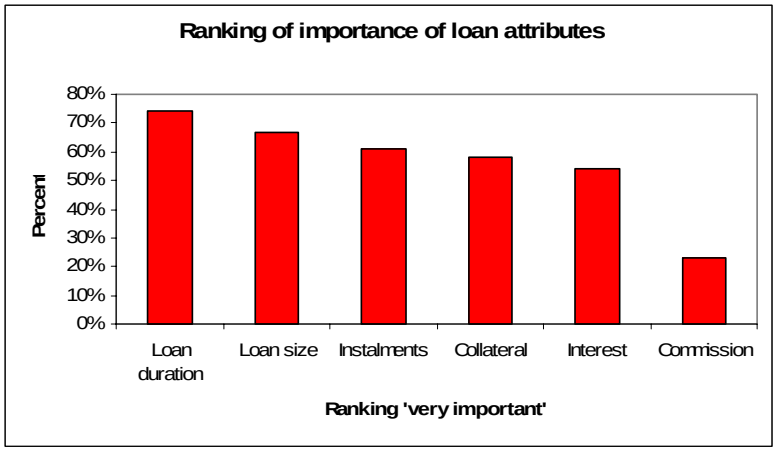
Loan size (lari)	Interest (lari)	Collateral	Instalments (months)	Commission (lari)	Loan duration (months)
500	10	House	1	5	6
1000	20	Real estate	2	10	12
2000	30	Movable property	3	20	24
5000	50		6	50	36
10000	120			100	60

The figures in this table are the most frequently mentioned amounts regarding upper and lower limits for every loan attribute.

Smallholders gave detailed information on the attributes of an ideal loan, including loan size, interest, collateral, instalments, commission, and duration (see Table 7.1.1). For these attributes they indicated upper and lower limits. A relatively high percentage of respondents (42 percent) was unable to specify attributes of an ideal loan. For those who stated upper and lower limits of their ideal loans, the upper limit for loan size ranges between 500 and 300000 lari. The loan amounts that figure most prominently (57 percent of respondents) are 1000, 2000, 5000 and 10000 lari. Loans greater than 10000 lari are mentioned by 18 percent of respondents. At the low end of the scale, that is loans of between 100 and 10000 lari, the sums of 500, 1000, 2000 and 5000 lari are the most favoured loan sizes (63 percent). Loans greater than 5000 lari amount to 12 percent. The most frequently mentioned loan sizes do not differ to a great extent from the actual loans respondents took up, which can be seen as an indicator that respondents state realistic loan sizes. Interest rates range widely — from 2.5 to 7000 lari (upper limit), and from 5 to 5000 lari (lower limit). Frequently mentioned interest rates are 50 and 120 lari (32 percent) for the upper limit, and 10, 20, 30, and 50 lari (50 percent) for the lower limit. These also are realistic figures. When it comes to collateral, smallholders offer their houses, movable property, real estate, vehicles/agricultural machines, and salary as loan security. These represent the upper collateral limit, with the most favoured collateral assets being houses (55 percent), and real estate (31 percent). The same types of collateral are mentioned for the lower collateral limit, with movable property (49 percent) and real estate (30 percent) being the preferred collateral types. Instalments ranged from one month to seventy-two months (upper limit) and between one week and thirty-six months (lower limit). Within this range, smallholders prefer three and six months as upper limits (61

percent), and one, two, and three months as lower limits (86 percent). As an upper limit for commission, respondents most frequently stated the amounts of 50 and 100 lari (41 percent). At the lower range of commission limits — between 0 and 2000 lari — 5, 10, 20, and 50 lari are the amounts most favoured by respondents (60 percent). The last attribute is loan duration. Upper loan duration limits range between 2 and 144 months. The durations most mentioned by respondents are twelve, twenty-four, thirty-six, and sixty months (71 percent). The range for loans of short duration is between 1 month and 100 months and respondents favoured durations of six, twelve, and twenty-four months (65 percent). The attribute levels of these 'ideal loans' are, in fact, close to those of actual loans. Respondents, therefore, have a realistic vision of loan conditions. This is reflected in the high share (70 percent) of smallholders who rate themselves as familiar with financial systems. After the CE, respondents were asked to rate their degree of certainty with respect to the selections they made between the four choice cards presented to them. Two-thirds (67 percent) say that they are 'very certain' or 'certain,' an indicator that the task of making a choice was not too demanding for them. This result reinforces their stated familiarity with financial systems.

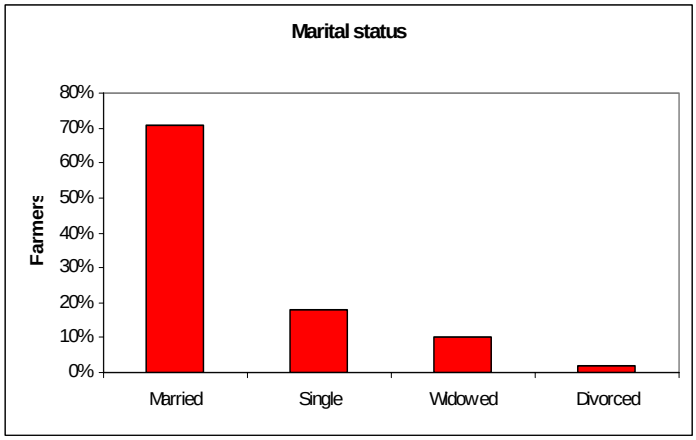
Figure 7.1-5: Ranking of loan attributes with the ranking 'very important'



Examining the loan attributes that smallholders rate as 'very important' (see Figure 7.1.5) reveals that loan duration has the highest share (74 percent), followed by loan size (67 percent), instalments (61 percent), collateral (58 percent), interest (54 percent), and commission (23 percent). The high percentage of respondents ranking loan duration as 'very important' is reflected in the significant preference for long loan

durations in class 2 (see section iii), one of four CE classes computed by latent class analysis. According to this ranking, it is not loan cost (interest and commission) but the other loan features that play a great role for smallholders in the research area. This is confirmed by the other results (see sections below).

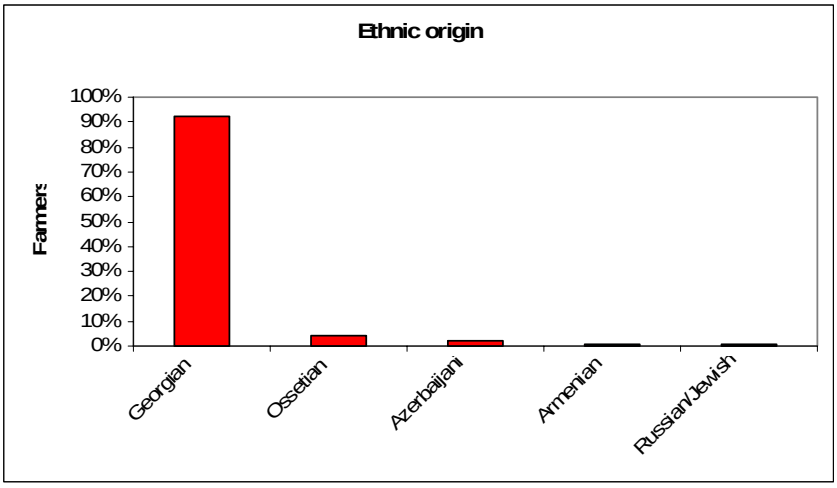
Figure 7.1-6: Marital status of farmers



In this section, the socio-economic characteristics of the sampled population are presented. With regard to respondents' marital status, 18 percent are single, 71 percent are married, 10 percent are widowed, and 2 percent are divorced (see Figure 7.1.6). Half of the respondents are heads of households, while 23 percent are their wives, husbands, or partners. Approximately one-fifth (19 percent) are sons, daughters, grandsons, or granddaughters of the household head, 1 percent are parents of the household head, and 6 percent are other relatives. The gender breakdown of the sampled population consists of 57 percent male and 43 percent female respondents — a relatively high percentage of women. The average family size is relatively small, consisting of 4 persons; 5 percent of the surveyed households consist of a sole individual. The age of the persons interviewed ranges between 17 and 86 years, with a mean of 45 years. The age relationship between married persons in the households shows that, in some cases (n=31), the husband is significantly older than his wife with a seniority of between ten and twenty-four years. In addition, a number (n=37) of female household members gave birth to their first child at the age of eighteen or younger. The lowest stated age at maternity is thirteen. Although these figures do not add up to a major percentage, they are too large to ignore. These statistics reflect the

patriarchal society structure prevalent in Georgia[14]. The marriage of women under the official age of eighteen also indicates economic poverty. The bride's family has one mouth less to feed after the daughter moves to the house of her husband's family. It is significant that in Georgia, many marriages are traditional, informal unions which are not officially registered at governmental institutions. The patriarchal society structure is confirmed by Dzirkvadze (2008) who states with respect to management that although the role of women in management and leadership is important worldwide, it is not so in Georgia, where the business climate is governed by a traditional patriarchal view of women's role in society.

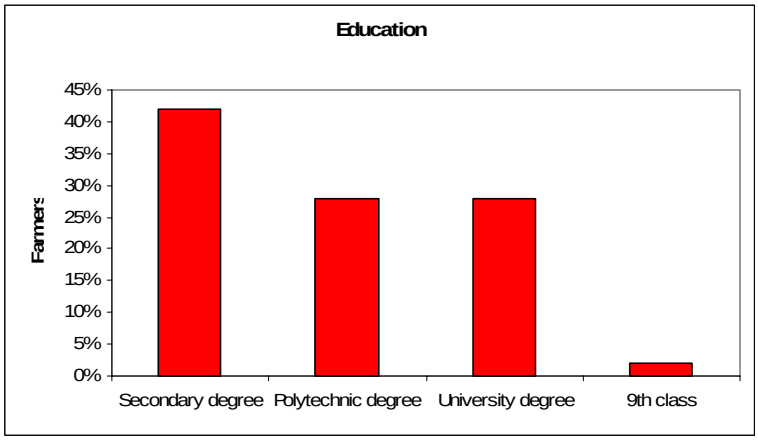
Figure 7.1-7: Ethnic origin of farmers



With regard to ethnic composition (see Figure 7.1.7), 92 percent of individuals in the sampled population are Georgians, 4 percent are Ossetians, 2 percent are Azerbaijani, 1 percent are Armenians, while Russians and Jews represent 0.5 percent and 0.2 percent respectively. Farmers' religious affiliations break down as orthodox Christian (97 percent), Muslim (1.5 percent), no professed religion (1 percent), Jehovah's Witnesses (0.7 percent) and Jewish (0.2 percent). These ethnic and religious breakdowns are representative of Shida Kartli, and reflect the multi-ethnic consistency of the Georgian population.

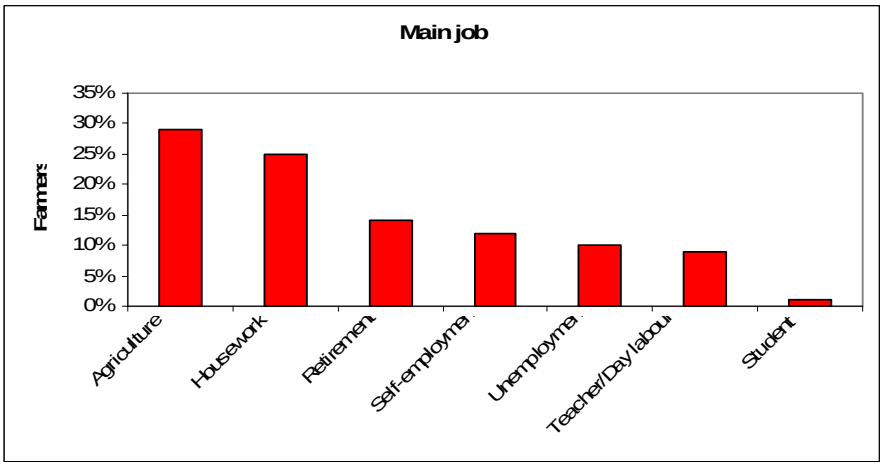
[14] In Georgia, the majority of women are subjugated by the patriarchal society. In rural areas they are not allowed to ride a bicycle, to smoke cigarettes, to drive a car, or to have a partner before marrying. Additionally, violence toward women is tolerated by Georgian society, and married women have to accept their husbands' liaisons with other women.

Figure 7.1-8: Education of farmers



Overall educational level in the research region is high (see Figure 7.1.8), with only 2.5 percent of respondents having the lowest school degree, a ninth class degree, which comprises 9 school years. This is the minimum compulsory education in Georgia. Seventy percent of respondents completed school, of which 42 percent had a general secondary education and 28 percent a specialized technical post-secondary education, which is also composed of eleven classes. The specialized technical post-secondary education and the general secondary education are equivalent to the British Vocational Certificate of Secondary Education (VSCE) and the General Certificate of Secondary Education (GSCE), respectively. Approximately one-third (28 percent) of respondents have a university degree. Several factors account for the high educational level in rural areas in Georgia. One is that under the old Soviet school system access to free, basic education was provided in rural villages, which farmers to study. This is particularly true for the older respondents. Another reason is that university-educated young people cannot find work in the cities. To survive, they live with their families in the countryside. In contrast to developing countries, people in Georgia moved to rural areas in order to make a living from subsistence farming. The civil war of the 1990s caused a breakdown in Georgia's education system, thus damaging the educations of students during that era. In Gori, the capital of Shida Kartli, the university was largely corrupt, and many students bought their exams (Anonymous 2008).

Figure 7.1-9: Farmers' main jobs



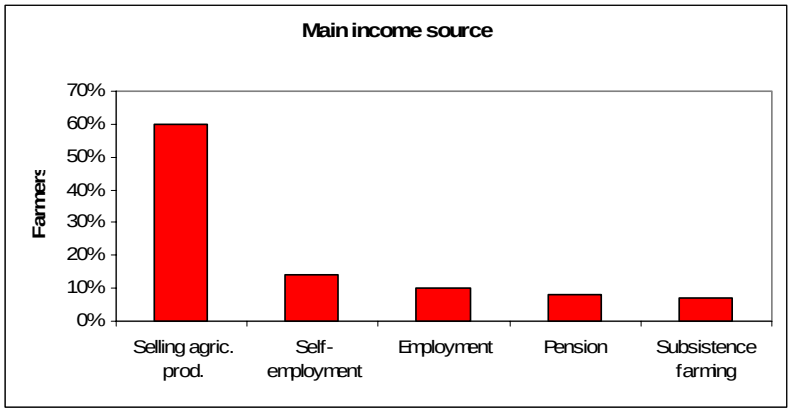
Respondents state their main job as follows (see Figure 7.1.9): agriculture on their own land (29 percent), housework (25 percent), retirement (14 percent), self-employment (12 percent), unemployment (10 percent), and employment as teacher or day-labourer (9 percent). Students represent a very small share of respondents (0.5 percent). The second household member, who was usually the head of household (47 percent) or the husband, wife, or partner of the head of household (37 percent), spends 32 percent of his or her time working in the house. The main job of the second member in a household is reported as agriculture on the family's own land (26 percent) followed by retirement (22 percent). 'Housework' does not mean exclusively tasks executed by female household members. Some male respondents say that they perform housework such as household repairs, painting, or cutting firewood. Self-employment predominantly involves running a shop, or other trade, or driving a vehicle for public transport. Only a small share of respondents state that their main job is agriculture. This may be explained by their self assessment, which Kegel (2003 p. 154) describes as follows:

> In the present case study of one district, it was found that most (over 80 percent) households interviewed — especially those whose members were formerly employed in other fields — do not consider themselves to be farmers. They regard farming as a temporary necessity to help them survive until finding employment.

Kegel conducted her study in the Khashuri district, which is close to the districts of Gori and Kareli where this research took place. In the present study, 10 percent of respondents say that they are unemployed. Unemployment is often understood as not working for someone else, for instance, not working for the state as a teacher or not

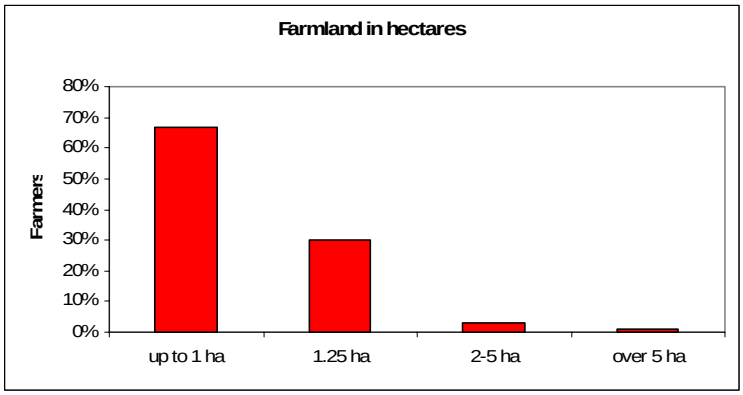
being employed by a company. As almost all sampled households are located on agricultural land, every household member is involved in (subsistence) farming (Heron et al. 2001), but this is not perceived as a job. Thus respondents regard themselves as being unemployed. It is therefore difficult to define unemployment in the research area. Farming depends on the seasons and in spring, summer, and early autumn, male and female household members are involved in agricultural activities. In late autumn and winter, primarily the female household members are occupied in processing agricultural products for home consumption and for selling at local markets. Year round it is primarily female members who are responsible for the domestic work of the household (washing clothes by hand, cooking, cleaning, fetching water from the well, etc.). Men are unemployed in winter, with the exception of a few tasks that are performed sporadically during this period. These tasks consist predominantly of slaughtering livestock for food, cutting firewood, and preparing hard liquor from fruits and the grape residue that remains after wine pressing. Hard liquor is prepared by women as well. A proportion of men in rural areas spend their days in winter meeting with other men on the so called *birdsha*, a central place in the village. At the *birdsha* they pass the time talking and drinking. A great number of households in the research area need additional income sources because agriculture does not provide them with the necessary monetary income to overcome severe poverty. As there are no additional jobs, there is often nothing left for male farmers to do in winter, so many of them pass their time drinking alcohol.

Figure 7.1-10: Main income source of farmers



Analysing the percentages of income sources (see Figure 7.1.10), shows that 60 percent of respondents live through the sale of agricultural products. The second main income source is self-employment (14 percent), employment other than farming (10 percent), pension (8 percent), and subsistence farming (7 percent). Most of the respondents do not regard subsistence farming as an income source because it creates no cash flow. Those respondents who state subsistence farming as their main income source are classified as being very poor. With respect to agriculture, nearly all respondents produce more than one type of crop or product. The majority (59 percent) grow fruits and produce wine. The second biggest mix of agricultural products produced consists of vegetables, fruits and wine. This is followed by small quantities of livestock, vegetables, and wine (4 percent), and livestock, fruits, and wine (3 percent). A small number of respondents (3 percent) say that their land is idle and that they are currently not actively involved in agriculture. Growing fruits, especially apples, is a quintessential form of agriculture in Shida Kartli. Before the Russian trade embargo of 2006, farmers from this region exported their fruits to Russia. Now they sell them predominantly in local markets at very low prices per bucket[15] rather than per kilo. Growing grapes for wine production is extremely important in the Georgian culture. All farmers and city dwellers with available land cultivate grapes for this purpose.

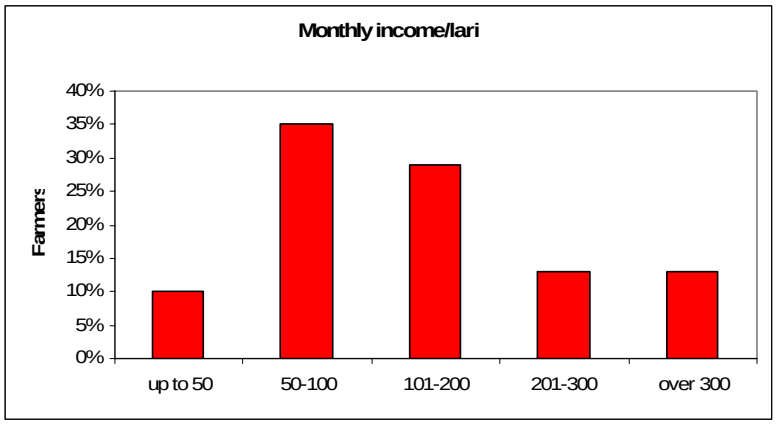
Figure 7.1-11: Farmland in hectare per household



[15] One bucket of apples weighs approximately 6 to 7 kilos. In the winter of 2007/2008 a bucket of apples sold for 3 lari, or 1.32 euro. In comparison, farmers wishing to sell their apples in the city would incur return expenses of 2 lari, bringing them a net income of only 1 lari per bucket.

The area of farmland held by the majority of households (see Figure 7.1.11) consists of one hectare or less. One-third of smallholders possess plots of 1.25 hectares. There are almost no differences in the quantity of land held by farmers in the research area, due to the repartition of land after the breakdown of the Soviet Union (see Heron et al. 2001; Kegel 2003). Following the Soviet Union's breakdown, the new Georgian government granted land to farmers in the amounts of 1 hectare or 1.25 hectares. In some cases, the former *kolkhoz* managers (collective farm managers) allocated themselves plots of two hectares or more. Some farmers bought additional land. Thus 4 percent of respondents own more than two hectares. The land is owned by different persons in the household. In more than half of the cases, the respondent is the landowner (53 percent), followed by respondents' husbands (24 percent), and respondents' fathers, grandfathers, or sons (16 percent). A small number of respondents' mothers/mothers in law/grandmothers (5 percent) are landowners. All in all, four-fifths (81 percent) of the sample's landowners are male and one-fifth (19 percent) are female.

Figure 7.1-12: Monthly household income in lari



The final questions in the questionnaire concerned the monthly household income (see Figure 7.1.12). For the 76 percent of respondents who answered this question, the per household income is very low. Over 10 percent of respondents stated a monthly income of 50 lari or less and 36 percent said that their income is between 51 and 100 lari per month. These two categories together make up almost half of the households,

bringing in an income up to 100 lari[16] per month (46 percent). Approximately one-third of respondents report between 101 and 200 lari (29 percent) at their disposal, while 13 percent have between 201 and 300 lari per month and another 13 percent bring in more than 300 lari. In the sample, the average monthly household income is 100 lari, which is three times lower than the Georgian average. According to official statistics, subsistence level income per consumer was 113 lari in March 2008 (DS 2008b p. 79), while the average monthly income per household amounted to 300 lari in 2007 (DS ibid., p. 79). These figures show that only 13 percent of rural households in Shida Kartli reach the average Georgian household income. Approximately half of the rural households do not earn even the per capita subsistence level income of 113 lari. With the monetary income of rural households being so low, people strongly depend on subsistence farming. Asked to project development of their household incomes over the next two years, the majority of respondents report being faintly optimistic — stating that their income will increase moderately (59 percent). Only 17 percent state that their income will stay the same, and a smaller number believe that their income will decrease moderately or radically (13 percent).

ii) Analysis of the choice experiment using a multinomial logit model

A basic assumption for the multinomial logit model (MNL) is the axiom of independence from irrelevant alternatives (IIA assumption). To test for the IIA assumption, the Hausman-McFadden (1984) test was conducted. It examines if all three choice alternatives in the model are independent of each other. Test results for the data of the present CE are inconclusive because they lead to the acceptance of the IIA assumption if single alternatives are omitted, but the assumption cannot be accepted if all alternatives are omitted. As noted earlier, the IIA assumption is difficult to maintain for many models, and it is a doubtful assumption, since it is too strict (e.g., Cheng & Long 2007). In this research, results are based on a latent class model which weakens the IIA assumption (see Magidson et al. 2003) and leads to an improved model fit compared to the multinomial logit model (likelihood-ratio test: p-value = 0.00). Moreover, the latent class model is favoured because it provides information on the heterogeneity of preferences in the sample. This is important for creating credit

[16] 100 lari are equivalent to €44 (NBG 2008)

schemes that correspond appropriately to the requirements of different parts of the sampled population.

Multinomial logit analysis served to calculate the influence strength and direction of the single independent variables (the attributes) of loans with individual liability (n=328). As noted earlier, the number of joint liability loans (n=31) is too small to compute valuable statistical results. Thus only loans with individual liability were analysed. Results indicate that the coefficients for loan size, interest, loan duration and the alternative-specific constant (ASC, none of the loan alternatives on the choice cards) are significant. These are the most important attributes that characterize a loan. With regard to the influence direction of significant attributes, multinomial logit analysis computed the following results (Table 7.1.2):

Table 7.1-2: MNL model results

Constant (ASC)	-1.8738***	(-7.590)
Loan size	-0.6136***	(-11.357)
Interest	-0.6498***	(-7.875)
Collateral	0.1427	(1.692)
Instalments	0.8699	(1.238)
Commission	-0.1598	(-2.297)
Loan duration	0.5137***	(9.047)
Log-likelihood	-1213.5054	
Number of observations	1312	
Adjusted ρ^2 (Pseudo-R)^2	9.4%	

t-statistics in parentheses; significances: ***p<0.001

As expected, attribute coefficients for the ASC, loan size, interest, and loan duration are significant. The negative sign denotes disutility and was observed for the ASC. This implies that respondents derive disutility from a lack of credits, and that they prefer the hypothetical loans offered in the CE. Moreover, this result shows that the attribute levels for the loans depicted on the choice cards comply with the sampled population's understanding of credit. If the loans offered on the choice cards were not suitable for the respondents, a larger number of them would have chosen the ASC notwithstanding their basic credit demand.

Disutility was observed in the areas of large loan amounts and high interest rates, which reflects a preference for small loan sizes and low interest rates. Long loan durations show a gain in utility. Model fit for this model is unsatisfactory. Values should be in the range of 0.2 to 0.4 and in this model, pseudo-R^2 is much smaller, with a value of 0.094 (depicted as 9.4 percent in Table 7.1.2).

iii) Analysis of the choice experiment using a latent class model

Analysis of the CE with Latent Gold Choice — latent class modelling software and a latent class model (see Reunanen & Suikkanen 1999) — shows that respondents prefer, as expected, lower interest rates, lower commissions and longer loan durations. The preferred instalment is two months. With respect to collateral, respondents favour using real estate assets to secure their loans. Regarding loan size, the surveyed population prefers the minimum loan of 8000 lari that was denoted on the choice cards. As mentioned above, few respondents chose the option 'none of both loans' (ASC), indicating that choosing one of the offered loan options offered them greater utility than remaining without a loan.

Latent class analysis offers a more differentiated picture of preferences with respect to loan conditions. Model results suggest that respondents could be grouped into four classes that differ in preferences regarding the characteristics of individual loans. Thus to reach a high share of the rural population, future credit schemes should take into account the different preference types. The four classes with their different preference structures are described in detail below:

Class 1 (size = 47 percent of those respondents who preferred individual loans): Small loans, relatively low aversion against higher interest rates

Members of class 1 prefer lower interest rates, but this effect is far less influential on choices than in segments 3 and 4. Loan durations of thirty months (maximum length indicated on the choice cards) yield the highest utility and did not have as much influence on choices as in groups 3 and 4. The most preferred loan size is in the range of 8000 to 16000 lari. Furthermore, members of class 1 favour using high value assets (real estate) as collateral so as to obtain a suitable loan in return. There is no firm explanation for this. However, farmers may not be well endowed with movable assets, or movable assets may be perceived as a liquid reserve that can easily be turned into cash in case of emergency. Similar to class 2, members of class 1 use loans mainly for investments in agriculture.

Class 2 (size = 23 percent): Long loan duration, relatively low aversion against higher interest rates

Similar to class 1, members of class 2 accept higher interest rates (or, in other words, have lower aversion against higher rates) than segments 3 and 4. Additionally, members of class 2 are willing to pay a commission of 1.5 percent of the loan size in order to take up a loan. Members of class 2 prefer an instalment period of two months. Furthermore, loan duration is the most important factor for this group. The preference for long loan durations as revealed by this group can be traced to several factors. One factor — particularly for older respondents — is the long length of repayment periods typical of agricultural loans under Soviet rule. Such loans had repayment periods of up to ten years. Another factor is that the research region has a heavy investment in apple orchards. For apple farmers, there is a time lag of a couple of years between planting the trees and harvesting the first apples. The third reason lies in the low capital endowment of the sampled population. They need long loan durations in order to pay back loans.

Class 3 (size = 20 percent): Lower interest rates, movable assets

Like class 4, class 3 model results show a strong negative effect to an increase in interest rates. Furthermore, respondents of both groups did not have a positive attitude towards loans. This may be rooted in previous bad experience: many respondents in class 3 stated that they were denied a loan when they applied for one previously. Similar to class 4, members of class 3 use loans predominantly for the renovation of houses, which shows that their housing conditions are on a very low level. With regard to collateral, members of class 3 rely on movable assets. The preferred instalment period is 1.5 months.

Class 4 (size = 10 percent): Large loans

Members of class 4 have the strongest preference for low interest rates. With regard to collateral, class 4 relies on real estate. The preferred instalment period is 2.5 months. In contrast to all other groups, this segment has a positive preference for a loan size of 24000 lari. This means that members of class 4 are willing to take up the biggest loans compared to other groups. High loan sizes indicate that farmers are in need of large

amounts of money to realize planned investments — possibly because they start from almost nothing.

iv) Calculation of interactions between socio-economic variables and choice experiment attributes

Concerning interactions, only five socio-economic variables show significance with regard to the loan attributes. The variables 4) 'whether respondent is familiar with financial systems or not' and 5) 'respondent's degree of certainty with regard to his/her choice' are significant with respect to all CE attributes (p-value 0.000), except the attribute of collateral. Variable 7) 'importance of implementation of a rural credit system' has a weak significance with regard to the CE attribute of loan duration (p-value 0.0005) and with regard to the ASC (p-value 0.0010). Variable 21) 'importance of individual loan's interest rate for the respondent' interacts significantly with the attribute of loan size (p-value 0.000), and with the ASC, but on a lower level (p-value 0.0005). For a list of all variables for which interactions were calculated, see Chapter 6, section 6.3. The results suggest that only variables reflecting respondents' certainty with regard to the CE and their opinion on and experience with financial institutions have an influence on the decision-making process regarding the CE. Socio-economic characteristics do not play a role as to the decision-making process in the CE. To examine whether socio-economic characteristics actually have no importance, further analyses with dummy coded socio-economic key variables were conducted (see next section).

v) Calculation of interactions with dummy coded socio-economic key variables

Due to the small number of significant interactions, six socio-economic key variables (see Chapter 6, section 6.3 for a list of these variables) were re-coded into dummy variables to test for interactions with the CE attributes. The outcomes show no significance at all. This implies that respondents' socio-economic characteristics do not have an influence on the decision-making process with respect to the choice of loan alternatives on the four choice cards.

vi) Calculation of elasticities between loan attributes

For the attributes of interest and commission which form the cost of a loan point elasticities were calculated concerning choice alternatives 1 and 2. This was done to examine how respondents' preferences for a loan uptake would change if interest rates and commission increased. The different elasticities and their meanings are displayed in the following table (Table 7.1.3).

Table 7.1-3: Types of elasticities

Definition	**Absolute value of elasticity observed**	**Direct (point) elasticity**
Perfectly inelastic	Aggregate probability of choice of alternative i = 0	1 percent increase in X_i results in a -∞ percent decrease in P_i
Relatively inelastic	0 < Aggregate probability of choice of alternative i < 1	1 percent increase in X_i results in a less than 1 percent decrease in P_i
Unit elastic	Aggregate probability of choice of alternative i = 1	1 percent increase in X_i results in no percent change in P_i
Relatively elastic	1 < Aggregate probability of choice of alternative i < ∞	1 percent increase in X_i results in a greater than 1 percent decrease in P_i
Perfectly elastic	Aggregate probability of choice of alternative i = ∞	1 percent increase in X_i results in an ∞ percent decrease in P_i

X_i is the price of alternative I, and P_i denotes the probability of choice of alternative i.
Source: Table adopted and changed from Hensher et al. (2005 p. 387)

The results of the calculation of the elasticity for interest rates show that the direct effects are -0.410 and -0.397 with respect to choice alternatives 1 and 2. This suggests that a 1 percent increase in interest rates will decrease the probability of selecting alternative 1 by 0.410 percent and of selecting alternative 2 by 0.397 percent, all else being equal (Hensher et al. 2005). The results for commission are close to those for interest rates. An increase of 1 percent in commission will decrease the probabilities of choosing alternative 1 and 2 by 0.102 and 0.098 percent respectively.

Both choice alternatives concern the same type of loan that is an individual liability loan. The attributes for choice alternative 1 and 2 differ with respect to their levels in one choice set of four cards. If we consider the outcomes, they show similar results, with 0.410 and 0.397 percent for interest rates, and 0.102 and 0.098 percent for commission. One possible explanation for these results may be that respondents did not differentiate between the size of interest rates and commission of loan alternatives 1 and 2 on one choice card because other attributes were more important to them. As expected, a raise in loan cost — interest rates and commission — will result in a

decrease of loan demand. If we compare the results with Table 7.1.3, we note that both elasticities are relatively inelastic. For the loan-providing institution this means that the revenue gained by any increase in interest rates and commission will be larger than the loss of clients incurred by the loan cost increase (Hensher et al. 2005). In a wider sense, farmers in Shida Kartli prefer to take up a loan irrespective of the loan cost, indicating a high demand for loans.

vii) Conduct of the Waller-Duncan test for all socio-economic variables

The results of the Waller-Duncan test give a more complex picture of respondents' socio-economic characteristics and their opinion on different aspects regarding financial affairs in relation to the four classes computed with latent class analysis. The Waller-Duncan test is used for calculations with groups of respondents that differ significantly from each other. Calculations could not be computed with homogeneous subgroups for every variable, and in some cases, one class belongs to two groups. For the missing variables that are not mentioned in the Waller-Duncan results due to the lack of subgroups, see section i) frequencies of socio-economic variables, which provides information on all variables. In the following section, only the groups to which the Waller-Duncan test assigned the four classes are described. The characterization of each class begins with the significant result out of the latent class analysis that is compared to the outcomes of the Waller-Duncan test.

The result of the latent class analysis demonstrates that class 1 (47 percent of respondents who chose individual loans) prefers small loans and has a relatively low aversion to higher interest rates. According to the results of the Waller-Duncan test, 9 percent of respondents out of this class stated that they did not take up a loan because there was no possibility for taking up a loan, which is the group with a low share in this answer. A second reason for not taking up a loan is to a small extent the lack of trust in others (1 percent, group with low share). Asked how they would invest a hypothetical loan, 22 percent of respondents in class 1 say that they never would take up a loan (group with low share). Those out of class 1 who would take up a hypothetical loan voice a preference for investments in agriculture (47 percent, group with high share), investments in business (groups with low and high shares), and in the renovation of their houses (group with low share). These types of investment add up to 12 percent. With respect to investment of funds from an actual loan, one-third out of

respondents took up a loan. Of those in class 1 who belong to the one-third with loan experience, 38 percent invested the money in agriculture (groups with low and high shares in this investment type). This is followed by investments in consumption purposes (28 percent, group with low share), investments in business (13 percent, groups with middle and high shares), and investments in a car (2 percent, one group for all classes). As to loan size, class 1 is in the group that took up the highest loans, ranging between 1000 and 2000 lari[17], and in the group who travelled the greatest distance — with more than 8 km to the nearest financial institution. Members of this segment report that it was easy to obtain a loan (group with low degree of difficulty), that the loan cost (interest rates and commission) were moderately acceptable (groups with high and low levels of acceptance), and that the personnel in the financial institution were 'very friendly' with a slight tendency to 'friendly' (group with low expectations of staff amiability). Furthermore, it was 'easy' with a tendency to 'moderately easy' for them to fulfil all loan requirements (groups with middle and high ease of fulfilment).

The results in this part suggest that class 1 has the best access to credit. Members of this class are inclined towards using credit. Their strong willingness to invest a hypothetical loan in agriculture indicates the high importance of this sector to them. Investments in business play a minor role with respect to hypothetical investments. As only one-third out of all respondents actually took up a loan, the share of respondents in the four classes with loan experience is relatively low in each class. The real loan investments of class 1 differ from hypothetical investments. Agriculture is still the largest segment, but to a much smaller extent compared to hypothetical investment. It is possible that investments in agriculture would have been higher, if farmers were not forced to use parts of their loans for consumption purposes. The dedication of loans to consumption purposes indicates a high degree of poverty in the research area. On the other hand, it may signify that investments in consumer goods such as a television are preferred over investments in income-generating activities.

The next paragraph describes respondents' notion of an ideal loan. They were asked to denote upper and lower limits for the following loan attributes: i) loan size, ii) interest rates, iii) collateral, iv) instalments, v) commission, and vi) loan duration.

[17] At the time of field research in January 2008, 1 lari was equivalent to 0.44 euros (NBG 2008).

Class 1 quotes an upper limit for loan size of 12100 lari, and belongs to both groups with low and high loan sizes. The lower loan size limit is 4500 lari (group with high lower limit of loan size). All four classes are in one group with regard to the upper limit for interest rates. Class 1 favours a monthly payment of 313 lari in interest, which is the highest amount out of all classes. For the lower limit of interest, Waller-Duncan could not calculate any homogeneous subgroups. As to collateral, for class 1 the largest percentage preferred movable property as collateral (5 percent, groups with low and high shares) and the smallest percentage preferred respondents' houses as collateral (1 percent, group with low percentage), movable property (42 percent, group with low share, of real estate (31 percent, groups with low and high shares), and of vehicles/agricultural machines (24 percent, group with high share). All other types of upper limit collateral such as real estate, houses, vehicles/agricultural machines, and salary did not form homogeneous subgroups. For instalments, also, there are no subgroups. Out of all classes, class 1 is in the group with the highest upper limit for commission (148 lari). Regarding the lower commission limit, all classes are in one group with class 1 favouring 67 lari. Finally, class 1 prefers as its upper limit a long loan duration of 42 months (group with long loan durations), and 22 months as its lower limit (group with long loan duration).

Similar to all other classes, the loan size stated by members of class 1 as an ideal loan is many times higher than the size of the largest actual loans they ever took up. This result suggests that farmers are in need of larger size loans in order to invest in viable agricultural and business projects, and that there is no financial institution which provides loans of an adequate size. In addition, it may indicate that farmers do not have the appropriate collateral to secure larger loans. The mean of the stated upper and lower loan sizes of class 1 (8300 lari) corresponds approximately to the loan size preferred by all respondents together in the CE, which is 8000 lari, and to the outcomes of the latent class analysis for class 1 (between 8000 and 16000 lari). All three figures show that members of class 1 have a very consistent concept of loan size. Class 1 states the highest interest amount out of all classes (313 lari), and the highest commission amount (148 lari) which is in accordance with the results of the latent class analysis revealing a relatively low aversion against higher interest rates. Both outcomes indicate that class 1 has a high credit demand, which is not influenced by the credit cost, interest, and commission. Preference for a long loan duration shows that

due to their poor financial endowment farmers are not able to pay back in short periods of time. In addition to that the return on investments in agriculture and in business takes time to reach the break-even point, which is especially true for fruit tree planting in the Shida Kartli research area.

After the CE, respondents were asked how certain they were with respect to their choice of loan alternatives presented to them on the four choice cards. Respondents in class 1 report that they were certain, which places them in the group with a high degree of certainty in their choice. Respondents rated all six loan attributes on a scale with five gradations containing the rankings 'very important,' 'important,' 'moderate importance,' 'slight importance', and 'no importance'. All classes assigned a high rating to loan size with the statement 'very important' bearing a slight tendency to 'important' (only one group for all classes). The attribute of interest rates was judged of less importance in Class 1 than in any other group; Class 1 ranked interest rates as 'important'. Class 1 ranked collateral as having mid-level importance, between 'very important' and 'important'. Finally, instalments and commission are 'important' and of 'moderate importance' respectively, which places both in the groups with low importance. For the attribute loan duration, no homogeneous subgroups could be computed. Respondents were also asked use the same five-gradation scale to rank the importance of the implementation of a rural finance system. Class 1 ranks the implementation of a rural credit system as 'important' and gives a rating of 'likely' to the likelihood of implementation of a rural finance system.

Class 1 belongs to the group that displays a high degree of certainty in their choice of CE cards. This may show that members of class 1 are familiar with financial systems. Collateral is ranked as being most important suggesting that class 1 is willing to accept higher loan cost (interest rates and commission) but perhaps dislikes assigning assets as collateral, because they may lose the assets if they default on repayment of their loan. The relatively high loan demand of class 1 is reflected again in their ranking of the value and likelihood of implementation of a rural finance system (important).

The next set of variables provides information on respondents' socio-economic characteristics. Class 1 has a share of 2 percent in respondents with a ninth class degree (only one homogeneous group for all classes). Members of class 1 are in the group with a low share of respondents with general secondary education (40 percent),

and with a specialized technical post-secondary education, which equals the general secondary education (26 percent). Both degrees allow for university studies. For class 1 this means that two-thirds (66 percent) have a degree which provides them with access to university studies. No subgroups could be calculated for respondents with a university degree. The job situation of class 1 is as follows. For self-employment, only one group exists; some 10 percent of class 1 respondents say they are self-employed. A small number of respondents say that they are students (group with low share, 1 percent). For other main jobs Waller-Duncan did not calculate any subgroups. Regarding the main income source, subsistence farming represents 9 percent and unemployment accounts for 11 percent (group with low share). Class 1 does not receive financial support from relatives (group with low share, 0 percent). No other types of income sources could be grouped by Waller-Duncan. Concerning agriculture, class 1 is in the groups with low shares in the following three types of agriculture: 2 percent in livestock, fruits, and wine; and 3 percent in livestock, vegetables, and wine. There are no subgroups for the other types of agriculture. Class 1 has the highest educational level out of all classes. This can be calculated by adding up all school degrees and subtracting them from 100 percent. The result (32 percent) is the percentage of class 1 members with a university degree which is 4 percent higher than the average (28 percent). Class 1 has the lowest share in self-employed members in comparison to all other classes. This suggests that agriculture is the main job and main income source for class 1, for which Waller-Duncan did not calculate subgroups. The unemployment rate of 11 percent is not very high, but unemployment may signify that respondents are doing subsistence farming (see section i). The occurrence of students in class 1 indicates that this class contains younger respondents, as well. Members of class 1 do not have relatives who support them financially. Because several hundred thousand Georgians emigrated to Russia, to the EU, and to the U.S., many families in Georgia receive monetary transfers from abroad.

In class 1 everyone owns land. Respondents' mothers (groups with low and middle share) own 5 percent of farmland. Other types of land ownership could not be grouped into homogeneous subgroups. Regarding monthly household income, no subgroups could be calculated either. With respect to decision making on the use of household money, decisions in class 1 are taken predominantly by the head of household (male or female) (23 percent, group with low share), followed by all

members of the family (6 percent, groups with low and middle shares) and respondents' parents (3 percent, group with low share). Two per cent of respondents said that the eldest household member decides (one group for all classes). Class 1 is the single class where wives also decide on the financial means of the household (2 percent, one group for all classes). Decisions on bigger investments are made in class 1 by all family members together (7 percent, groups with low and high shares), by respondents' parents (3 percent, group with low share), by the respondent's husband (2 percent, group with low share), and by the eldest household member (1 percent, groups with low and high shares).

The declaration of mothers as landowners indicates a segment of young unmarried respondents who live in their parents' home. In most cases, it is a female-headed household, where the mother is the landowner. Moreover, women do own land irrespective of their marital status. In this sample 19 percent of landowners are female. As expected, the head of household decides in most cases on the use of household income. Parents and the eldest household member could be added to the group of heads of household depending on the respondent's status within the family. Adding these two categories to the head of household category yields a percentage of approximately one-third (28 percent) of respondents listing the head of household as financial decision maker. Interestingly, all family members together also decide on financial means available within the household, pointing to a democratic decision-making process. A small percentage of wives factor as decision makers on monetary household income. Reasons for this in this patriarchal society may be that the husband is ill or thinks his wife is better at dealing with money than he is.

According to the results of the latent class analysis, class 2 (23 percent of respondents who chose individual loans) prefers long loan durations (30 months), and has a relatively low aversion against higher interest rates. With respect to the Waller-Duncan test, the main reason in class 2 for not taking up a loan is that the respondent had no feasible way to obtain a loan (13 percent, groups with low and high shares). Other reasons mentioned are lack of trust in others (1 percent, group with low share), and being afraid of incurring debt (1 percent, group with low share). With regard to a hypothetical loan investment, 16 percent say that they never would take up a loan (group with low share). Class 2 is in the group with a high share with respect to a hypothetical loan investment in agriculture (50 percent), followed by investments in

business (16 percent, group with high share), and investment in home renovation (12 percent, group with low share). With regard to actual loans, class 2 is in the group with a high share of investments in agriculture (49 percent), and in the groups with low and middle shares of investments in business (10 percent), and in the group with a low share of investments in consumption purposes (25 percent). Regarding investment in a car, all classes form one group. At 7 percent, class 2 represents the highest class percentage in this group. This class is in the group that took up a low loan sum of between 500 and 1000 lari. As in class 1, members of class 2 must travel around 8 km to the nearest financial institution (group travelling a great distance). For this segment, it was easy to obtain the loan (groups with low and high ease of access), interest rates and commission were ranked as 'moderately acceptable' (groups with low and high levels of acceptance); people in the financial institution were viewed as 'very friendly' with a tendency to 'friendly' (group with low expectations of staff amiability), and it was 'easy' ' to 'moderately easy' to fulfil the loan requirements (groups with low and mid-level ease of fulfilment).

In comparison to class 1, a higher percentage of respondents had no feasible way to obtain a loan (13 percent). Lack of trust and being afraid of taking on debt play a greater role compared to class 1, but do not show high percentages. As in class 1, class 2 has a low aversion against loans. For members of class 2, agriculture is the most important sector for loan investments. The hypothetical loan investment in agriculture and the actual one show similar shares of 50 and 49 percent respectively. In addition to agriculture, class 2 — like class 1 — prefers to invest a hypothetical loan in business and in their houses. As already mentioned, investments in the house indicate that residences are in need of renovation. Housing conditions are on a very low level in the research area. Investments in business reveal that the rural population needs a second income source besides farming because selling of agricultural products does not create the necessary financial means needed in the household. Most of the agricultural products are consumed by the households themselves. Real loans were invested with relatively high shares in consumption indicating the high degree of poverty in this class. Class 2 took up small loans ranging between 500 and 1000 lari. There are different reasons for obtaining small loans. One is that not every household is in need of larger loans, and some respondents are afraid of taking up larger loans. The second reason is that farmers simply do not have the option of take up larger loans, because

they lack collateral, and most financial institutions do not regard them as creditworthy clients. Finally, agriculture is an insecure sector for financial institutions because the weather — and thus harvests — are not predictable. As to actual loans, class 2 is not very satisfied with the loan costs of interest and commission, but all other loan conditions were more or less suitable for them.

With regard to upper and lower limits of attributes of a hypothetical loan, class 2 is in the group with low loan sizes, stating 8100 lari as an upper limit, and 2100 lari as a lower limit. The upper loan limit corresponds exactly to the results of the logit analysis as to the preferred loan size of all respondents combined, which is 8000 lari. The upper limit of the monthly interest rates should be 147 lari (lowest interest stated out of all classes). Class 2 has no subgroup for lower interest limits. Class 2 prefers different types of collateral to secure a hypothetical loan. This segment is in the group with a high share of movable property as its upper collateral limit (11 percent). No other kinds of upper collateral limit are grouped by the Waller-Duncan test. The lower collateral limit is composed of movable property (59 percent, group with high share), followed by real estate (26 percent, group with low share), vehicles and agricultural machines (10 percent, group with low share) and respondents' houses with 1 percent (group with low share). The upper limit on commissions is 67 lari (group with low commission) and the lower limit is 31 lari (only one group). Compared to the other groups, class 2 favours short loan durations with 35 months as an upper limit, and 17 months as a lower limit.

Class 2 describes its ideal loan with low loan cost and with smaller loan sizes compared to the other classes. This suggests that members of class 2 prefer not to take up large loans, perhaps due to a lack of collateral or because they have no large investment projects. It can also be interpreted as a sign of poverty. As Waller-Duncan computed groups for only one kind of upper collateral limit (movable property) we cannot infer valid statements on the distribution of all other upper limit collaterals types. Concerning the lower collateral limits, as expected, respondents prefer listing their movable property as assets. Real estate is mentioned as well, which shows that land may not have a very high value, or that smallholders prefer to risk high value collateral in order to obtain a loan. All classes listed vehicles or agricultural machines as a lower collateral type. Since few in the research area possess agricultural machinery, it can be assumed that vehicles would predominate as lower types of

collateral. Along with class 3, class 2 belongs to the groups with low percentages of vehicles and/or agricultural machines, which could be interpreted as a sign of poverty. Loan duration should be approximately three years, which is the shortest loan duration out of all classes. This means that class 2 does not prefer long time investments that require long loan durations. Small, inexpensive, and short-term loans secured with movable property are the ideal kind of loan for class 2. The loan duration (35 months) of a hypothetical loan corresponds roughly to the loan duration preferred in the CE (30 months).

With regard to the CE, class 2 resembles class 1 as a group displaying a high certainty of choice of CE cards marked as ‘certain’. This indicates that members of this class are familiar with credit systems and/or that the choice was not too difficult for them. All classes rank loan size as ‘very important’ with a slight tendency to ‘important’ (one group for all classes). Class 2 is one of three groups that grant high importance to interest rates, collateral, and instalments. The high importance put on interest rates corresponds to the class 2’s statement regarding respondents’ preference for low interest rates in an ideal loan. All three attributes are ranked as ‘very important’. This result does not correspond to the results of the latent class analysis of the CE, where out of all loan attributes only loan duration is significant. Commission is only moderately important to class 2 (groups with low and high importance). This segment ranks the implementation of a rural finance system as ‘important’ (group with high importance), and believes that the implementation of a rural credit system is ‘likely’ (group with high likelihood). High importance and high likelihood of implementation point to the high credit demand of class 2. This is similar to class 1.

No class 2 members have a ninth class degree (0 percent, only one group). Similar to class 1, class 2 has a low share of respondents who possess a general secondary education (38 percent) and who have a specialized post-secondary technical education that equals the general secondary education (31 percent). If we add both shares, a high number of respondents (69 percent) have a degree that permits them to study at a university. Subtracting these school degrees (69 percent) from 100 percent, reveals that class 2 has a high educational level, with 31 percent of respondents possessing a university degree. The average share of university degrees is 28 percent in the sample population as a whole.

Concerning respondents' main jobs, class 2 has a share of 15 percent of self-employed respondents. It is in the group with a low percentage of unemployed persons (10 percent), and the percentage of students, ranked at 0 percent, is also low (group with low share). There are no homogeneous subgroups for other types of employment. With respect to main income sources, class 2 shows a percentage of 5 percent in subsistence farming. Similar to the findings for class 1, class 2 respondents do not receive any financial support from relatives (group with low share, 0 percent). Class 2 is in the group with a low percentage or respondents active in three types of agriculture: Livestock, fruits, and wine production (2 percent); livestock, vegetables, and wine (4 percent), and fruits, vegetables, and wine (1 percent). All members of class 2 own land. They are in the group in which a low percentage of respondents' mothers are landowners (3 percent). The land area is the same for all classes, with plots ranging from less than one hectare up to two hectares.

Together with class 3, class 2 has the highest percentage of self-employed members (15 percent). Being self-employed suggests that farming plays a smaller role for classes 2 and 3 or that both classes had a greater opportunity to build up a second income source compared to the other two classes. In most cases, the household income is compiled from different cash sources, while farming is the basic source of monetary and non-monetary income.

Decisions on the use of the monetary household income are made by respondents' husbands (1 percent, group with low share)) and by the eldest household member (1 percent, only one group). Parents are also decision makers (3 percent, group with a low share). The main decision makers are either the heads of household, whether male or female, (20 percent, group with low share), or all household members combined (10 percent, group with high share). If we add up the relevant individuals: husband, eldest household members, parents, and the heads of household and combine them into one group labelled 'head of household' then the percentage of heads of household as decision maker is 25 percent. With regard to larger investments, all family members deciding together form a group of 11 percent of respondents, which is the group with the highest percentage. This is followed by the respondents' parents (3 percent) and husbands (2 percent). Both are in the groups with the lowest percentages.

In class 2, if we look at 'all family members combined' as decision makers on the household's monetary income, and on bigger investments they show the highest

percentage in all classes with respect to both kinds of decisions. Therefore class 2 could be described as ranking high in democratic decision-making. As to decisions on the household's monetary income, the head of household represents only a quarter of all decision makers.

Results of the latent class analysis indicate that class 3 (20 percent of respondents who chose individual loans) prefers lower interest rates and the lower collateral type that is movable assets. With respect to the results of the Waller-Duncan test, this class is in the group with a high percentage of respondents who state 'no feasible way to take up a loan' as their reason for not doing so (15 percent). Other reasons, such as being afraid of incurring debt or a lack of trust in others played no role at all for class 3 (0 percent respectively). This result suggests that for class 3 the major, or only, barrier is the inability to obtain a loan. Even if financial institutions existed which facilitated the provision of loans to the rural population, 18 percent of class 3 respondents say that they would never take up a loan. Those who would invest a hypothetical loan prefer for the most part to invest it in agriculture (54 percent), the highest percentage investment in agriculture. This is followed by hypothetical investments in business (15 percent), and in the home (a low percentage of 8 percent). Contrary to their hypothetical investments, those who took up an actual loan invested it in agriculture, but with only a 27 percent share. The second investment purpose was consumption (24 percent. Class 3 is in the group with a high percentage of investments in business (20 percent), and in education (5 percent). It is the only class that invested in education. The percentage of investments in a car is 3 percent. Similar to class 2, class 3 prefers small loans of between 500 and 1000 lari. Like the first two classes, class 3 is in the group whose members reside farthest from a financial institution (more than 8 km). Class 3 reports that it was easy to obtain a loan (group with greatest ease of obtaining loans), and that interest rates and commission were acceptable (group with high acceptance of loan cost). Personnel in the financial institution were viewed as 'very friendly' or 'friendly' (group with low expectations of staff amiability), and it was easy to fulfil all loan requirements (group with high ease of fulfilment).

Like class 2, class 3 has a relatively low aversion to taking up a loan. Members of class 3 have the biggest divergence between the intention to invest a hypothetical loan in agriculture (54 percent) and the actual loan investment in this sector (27 percent). The second field of investment of a hypothetical loan was business to a

greater extent and the house accounted for a smaller degree of investment. This may indicate that class 3, together with class 2, puts a stronger emphasis on investments in economic activities to improve monetary income compared to the other two classes. Real loans were invested with higher percentages in business — confirming the willingness to invest a hypothetical loan with high shares in business. In all classes, actual loans were spent for consumption purposes demonstrating the high degree of poverty in the research area. Class 3 is the only class that invested loans in education. This suggests that members of class 3 expect that earning a university degree will grant them access to better jobs than [subsistence] farming. With respect to the financial institution providing credit to class 3, this segment is quite satisfied with personnel and loan conditions. Class 3 could be described as having a high loan demand and a diverse and well-defined investment concept.

Unlike class 2, class 3 is in the group which prefers high upper limits and high lower limits for the size of a hypothetical loan (18200 lari and 3900 lari respectively). The upper limit of interest rates is 232 lari (one group for all classes). Class 3's preferences for different types of collateral are similar to those of class 2. The share of movable property as one kind of upper collateral limit amounts up to 11 percent (group with a high percentage of movable property as upper collateral limit). For the other kinds of upper collateral limit, no subgroups exist. Lower collateral limits consist of the house (group with low share, 1 percent), movable property, (class 3 belongs to the two groups with low and high percentages, 52 percent), real estate (group with high percentage, 39 percent), and vehicles/agricultural machines (group with low percentage, 7 percent). Class 3 limits commissions to a maximum of 127 lari and belongs to the two groups that stipulate middle and high commission amounts. The lower commission limit is specified at 67 lari (only one group for all classes). With regard to loan duration, class 3 favours 42 months as an upper limit and is in the two groups with low and high loan durations. The lower limit for the loan duration is 24 months (group with long loan durations for the lower limit).

Class 3 respondents show the highest upper limit for an ideal loan size and one of the highest lower loan size limits. A demand for large loans could be interpreted as a wish to realize profitable business plans. Moreover it may mean that members of class 3 do not control large amounts of cash, thus depending on high monetary sums for

their investments. On the other hand, statements regarding ideal loans may not reflect the real loan demand. Lerman (2004 p. 474) says in this regard that

> Naïve estimates of farmers' demand for credit based on simple survey questions about how much they would like to borrow reveal a very healthy appetite for future borrowing. The expressed demand for credit is four to five times the present level of borrowing and, most surprisingly, two to three times the present level of sales. The latter ratio suggests that the credit demand estimates may be exaggerated.

This may hold only for smallholders in class 3. However, results of this research suggest that smallholders in Shida Kartli have an actual high demand for credit. Lerman (2004) advances an opposing view. According to his findings, there is no empirical evidence that farmers in transition countries suffer severely from a shortage of credit. Small-scale farmers all over the world are risk-averse, and are reluctant to borrow. Emphasis on the deficiency of farm credit should not be exaggerated, because analyses of credit constraints have been carried out with samples of insufficient size. Individual farmers' borrowing behaviour varies strongly between transition countries. Borrowing is mainly short-term and predominantly informal (from friends and relatives) (Lerman 2004). These conclusions are not transferable to the research region of Shida Kartli, where those who took up a loan obtained it from a bank (see section i) frequencies of socio-economic variables). The willingness to borrow is relatively high in the research region, which is confirmed by analysis results of the CE.

Class 3 respondents state the second highest interest rates of all classes, which matches their preference for high loan sizes. With respect to latent class analysis, low interest rates are of significant importance to class 3. This difference could be explained by the supposition that when doing the CE respondents may have forgotten what they had previously stated as ideal loans. It is difficult to decide if the preference for high loan sizes or the preference for low interest is more important for members of class 3. Both may have the same degree of importance. A high percentage of class 3 respondents prefer movable assets as collateral for an ideal loan. This is in accordance with the significant type of collateral in the latent class analysis. Additionally, class 3's ideal loan would feature high loan sizes with a relatively high loan cost (interest rates and commission). It should be secured predominantly by movable assets and real estate, and should have a relatively long duration.

Class 3 is in the group that reports a high certainty of choice of CE cards (certain). As with all other classes, class 3 ranks loan size as 'very important' or 'important' (one group for all classes). Interest rates and collateral are important for

class 3, placing it in the two groups with low importance for both attributes. Concerning instalments, class 3 belongs to the two groups that rank instalments ‘very important’ and ‘important’ (groups with low and high importance). Commission plays a minor role, being ‘moderately important’ to class 3 (group with low importance for commission). Implementation of a rural credit system is important to this segment, and the likelihood of implementation was ranked likely. This ranking places class 3 in the two groups that rate a rural credit system as having a high importance and a high likelihood of implementation.

Similar to classes 1 and 2, members of class 3 indicate that they have been certain with respect to the CE showing that the choice task was not too difficult for them and/or that they are familiar with loans and their attributes. All loan attributes except commission were ranked by class 3 as ‘important’. Commission is ‘moderately important’. This means that as the smaller part of the loan cost, the commission is not of high importance. In a wider sense, it may signify that if all other loan attributes are suitable for class 3, a high amount of commission would be acceptable.

This section provides information on socio-economic characteristics of respondents in class 3. With respect to education, members of class 3 have, like class 1, a small share of respondents with a ninth class degree (2 percent, only one group). Class 3 is in the group with a low share of a general secondary education (33 percent), and in the group with a high share of specialized post-secondary technical education, which equals the general secondary education (36 percent). The main jobs in class 3 are as follows: 15 percent are self-employed (one group for all classes), and 19 percent are unemployed (group with a high percentage of unemployed persons). No members of class 3 are students (0 percent, group with low share). No homogeneous subgroups exist for other types of employment. Some 8 percent of class respondents show subsistence farming as their main income source (one group for all classes), and no members of class 3 receive financial support from relatives (group with low share, 0 percent). The types of agriculture practiced by class 3 respondents include livestock farming, growing fruits and growing grapes for wine production (5 percent) (group with high share); livestock, vegetables, and wine (1 percent) (group with low percentage); and cereals, fruits, vegetables, and wine with 3 percent (group with high percentage). All members of class 3 own land and 10 percent of class 3 respondents list their mothers as landowners (group with high percentage). The land area per

household is the same for all groups with surfaces up to one hectare and between one and two hectares.

All school degrees together result in 71 percent, indicating that the remaining 29 percent of class 3 members must possess a university degree, which is slightly above the average (28 percent). The percentage of self-employed members in class 3, combined with those in class 2, yields the highest percentage of all classes. On the other hand, class 3 has the highest percentage of unemployed members. This could be an indicator for two different income classes within class 3: wealthier and poorer respondents. The wealthier respondents list their business as primary cash income source supplemented by subsistence farming, and the poorer ones — the unemployed — depend on subsistence farming alone. A high percentage of landowners who are mothers signifies a relatively high percentage of young respondents living in households headed by women. In the majority of cases, these households are very poor.

The decisions on the use of the household's money are made by the respondents' husband (1 percent) (group with the lowest percentage), by the eldest household member (3 percent) (one group for all classes), by all family members together (3 percent, group with low percentage), by the head of household (male or female) (30 percent) (group with high percentage), and by the parents (6 percent, group with high percentage). The decision-makers on bigger investments are respondents' husbands (1 percent) (group with low percentage), the eldest household member (2 percent) (group with high percentage), all family members together (4 percent, group with low share), and finally the parents (6 percent, group with high percentage).

Class 3 is less 'democratic' with regard to the decision-maker for the household's monetary income. In this segment, the share of the aggregated heads of household as decision makers is — at 40 percent — far higher than in class 2 (25 percent). The share of all family members together amounts to 3 percent only. The relatively high percentage of parents as decision-makers confirms the assumption that class 3 includes numerous young respondents.

Class 4 is the smallest of all the classes with 10 percent of respondents who chose individual loans. The results of the latent class analysis of the CE show that class 4 prefers the largest loan size of all the classes (24000 lari). But with respect to the outcomes of the Waller-Duncan test, members of this segment are the most credit

adverse in the sample. This is reflected in the following results. Class 4 is in the groups with high representation in the answers ‘there was no feasible way to obtain a loan’ (17 percent), ‘I cannot trust others’ (4 percent), and ‘I am afraid of incurring debt’ (5 percent). This is also true in the case of a hypothetical loan investment. Class 4 falls into the group with a high percentage of respondents stating that they would never take a loan (35 percent). Those of this segment who would invest a hypothetical loan favour investments in agriculture (31 percent, group with low percentage), in the home (20 percent, group with high percentage), and in business (group with low percentage, 7 percent). In contrast, actual loans were invested in large part in agriculture (44 percent, group with high percentage), and in consumption purposes (46 percent) (group with high percentage). The percentage of investments in business (1 percent, group with low percentage) and in the car (1 percent, one group for all classes) is very low. Class 4 joins class 2 in the group preferring small loan sizes (500-1000 lari). Members of class 4 live at a slightly lesser distance from the nearest financial institution compared to all other classes (still close to 8 km, group with low distance to travel). In accordance with the dislike of credit, class 4 ranks the ease of obtaining a loan as ‘easy’ or ‘moderately easy’ (group with low degree of difficulty), and the loan costs of interest rates and commission are seen as moderately acceptable (group with low level of acceptance). In contrast to these rankings, class 4 says that people in the financial institution were very friendly (group with low expectations of staff amiability). Class 4 respondents found it ’easy’ to ‘moderately easy’ to fulfil the loan requirements (group with low ease of fulfilment).

The ranking of the investment types of a hypothetical loan shows that class 4 respondents stress investments in the house more than other classes but does not put an emphasis on agriculture. Business plays a minor role. The wish to invest in the house refers to inadequate housing conditions. Actual loans were primarily spent on consumption. A higher expenditure here on consumption than in all other classes infers the high incidence of poverty in this class. The second investment sector was agriculture, which also commands a high percentage of funds. This suggests that class 4 depends strongly on agriculture, but does not want to invest in it. No significant portions of real loans were spent for business. Either this type of second income source is not prevalent in class 4 or this class did not need a loan for it. Furthermore, class 4 took up small loans and evidences dissatisfaction with loan conditions.

With respect to an ideal loan, members of class 4 favour an upper loan size limit of 8400 lari, thus belonging to the group preferring low upper loan sizes. This is similar to class 2. Both classes are close to the average loan size preferred by the total of all respondents (8000 lari). Class 4's preferred lower size limit for loans is 2700 lari. This secures class 4 a place in the groups with low and high lower limits for loan size. Class 4's upper interest limit is 173 lari (one group), which is the second smallest amount of interest out of all classes. Regarding collateral, class 4 is in the group with a low percentage of movable property as an upper collateral limit (1 percent). For the lower limit of collateral, class 4 respondents list four different types. The house is given as lower collateral limit by 5 percent (group with high percentage), movable property comes in at 46 percent (group with low percentage), joined by real estate (29 percent, groups with low and high percentages), and lastly vehicles/agricultural machines with 20 percent (group with high percentage). The upper limit for commission is specified at 83 lari (groups with low and middle commission), and the lower limit is given as 35 lari (one group for all classes), the second smallest commission out of all classes. Finally, class 4 stipulates an upper loan duration limit of 47 months (group with long loan duration) and a lower limit of 21 months, placing it in the two groups with short and long lower limits for loan duration.

In contrast to the outcomes of the CE analysis, class 4 favours a loan size for an ideal loan (8400 lari) which is three times lower than stated in the CE (24000 lari). Either respondents did not understand the CE — thinking it was a real and not a hypothetical scenario and thus showing a big appetite for high loan sizes — or their choice of CE cards does not reflect their true preferences. With regard to collateral, the high percentage of vehicles/agricultural machines as lower collateral is noteworthy. It indicates that class 4 possesses significant quantities of this type of collateral — a sign of wealth which contradicts the presumption of severe poverty in this class. Class 4 specifies the highest upper limit for loan duration out of all classes, and the second lowest lower one, with a range between 47 and 21 months. Long loan durations can be an indicator for low monetary endowment hindering faster repayment and/or projects with a slow financial development.

Members of class 4 are the most uncertain respondents with regard to the choice of CE cards, being 'moderately certain' (group with low choice certainty). They rank the importance of loan attributes as follows: Loan size is 'very important' to

‘important’ (all classes are in one group), interest rates are ‘very important’ (group with high importance), collateral is ‘important’ (groups with low and high importance of collateral), instalments are ‘very important’ (group with high importance), and commission is ‘moderately important’ (group with high importance). Class 4 assesses the importance of implementation of a rural credit system as ‘important’ (group with low importance), and is more sceptical as to the likelihood of implementation of such a system (moderately likely, group with low likelihood).

As indicated above, class 4 does not seem to have a clear perception of credit systems which is reflected in their high degree of uncertainty in the CE. With regard to the ranking of importance of loan attributes, interest rates and instalments are ranked ‘most important’. This means that class 4 prefers convenient pay-back conditions with longer instalments and low loan cost (low interest rates and low commission). Both rankings are confirmed by the results of latent class analysis of the CE, where class 4 favours the lowest interest rates and the longest instalments with 2.5 months. Despite ranking the implementation of a rural finance credit system with the second highest importance, class 4 is not convinced that such a system will be implemented.

Similar to class 2, all members of class 4 have higher school degrees than a ninth class degree (0 percent, only one group). Class 4 has a high percentage of respondents with a general secondary education (49 percent), and a low percentage with a specialized post-secondary technical education, which equals the general secondary education (25 percent). Self-employment shows a percentage of 11 percent in the only group for all classes, and only 6 percent are unemployed (group with a low percentage of unemployed persons). Like class 1, class 4 has a small number of students (2 percent, group with high percentage). Subsistence farming represents 8 percent (one group for all classes). Class 4 is the only class receiving financial support from relatives (2 percent, group with high percentage). Members of class 4 are involved in two types of agriculture: Livestock, fruits, and wine (5 percent) (group with high percentage); and livestock, vegetables, and wine (7 percent) (group with high percentage). According to the numbers of students in class 4, 8 percent of class 4 landowners are the respondents’ mother (groups with middle and high percentage). This class is the only one that contains a respondent who owns no land (1 percent, group with high percentage).

To further analyse class 4 education levels, we subtract the total of general secondary education and specialized post-secondary technical education (74 percent) from 100 percent, resulting in the percentage of class 4 respondents with university degrees (26 percent). This is a lower percentage than in the other classes and is slightly below the average of all respondents (28 percent). Self-employment and unemployment are relatively low compared to other classes. As students do not earn income they can be viewed as being unemployed, thus raising the unemployment rate in this class from 6 to 8 percent. A quite high number of respondents mention their mothers being landowners. This suggests that these respondents are very young and live in a household headed by a woman. A small percentage of class 4 members receive financial support from relatives, and a small percentage owns no land. In numbers, there are 3 respondents receiving financial support from relatives, and only 1 respondent does not possess any land.

Decisions on use of households' financial means are — in 7 percent of households — made by the respondents' husband (group with high percentage), and — in 3 percent of households — by the eldest household member (only one group for all classes). The share of all members of the family deciding together on money use is 8 percent (groups with middle and high shares). Twenty-three percent report that the head of household (male or female) makes the financial decisions (groups with middle and high shares). Only 1 percent of class 4 members report that their parents decide on the use of the money available in the household (group with low share). With regard to larger investments, in 5 percent of cases, the respondents' husbands are the decision makers (group with high percentage); in 2 percent of cases, it is the eldest household member who decides (groups with low and high percentages); 12 percent of respondents report that all family members make the decision together (group with high percentage); 1 percent of cases are resolved by parents deciding on larger investments (group with low percentage).

In this class the highest share in a 'patriarchal' decision-making structure prevails with the husband as decision-maker on the cash household income. On the other hand, class 4 has the highest share in a 'democratic' decision-making process with regards to decisions on bigger investments (all family members together). Analysis results for class 4 are in most instances contradictory, giving a disrupted and unclear overall picture of this segment.

viii) Analysis of research questions

The following three research questions were explored by testing several related hypotheses (see Chapter 5).

1. What are the perceptions of smallholder farmers in Shida Kartli regarding rural credit systems?
2. What kind of rural credit system do farmers prefer?
3. Does smallholders' past credit experience influence the demand for a rural credit system?
4. Which factors determine smallholders' choice between the status quo and different rural credit systems?

The null hypothesis H_{01} related to research question 1 predicates that farmers prefer the status quo and thus do not want a rural credit system. The null hypothesis has to be rejected, as the results of the multinomial logit analysis are highly negatively significant (p-value is 0.000) for the status quo (no rural credit system) choice alternative. The outcome indicates that farmers disapprove having no rural credit system and prefer the loan alternatives to the status quo alternative. Therefore the alternative hypothesis H_{11} has to be accepted, which states that farmers have a demand for a rural credit system.

With regard to research question 2, frequencies show that smallholders in the research area prefer loans with individual liability (92 percent) to loans with joint liability (8 percent). To examine if this preference distribution is statistically true, a one-tailed binomial significance test was undertaken. For this purpose, an appropriate null hypothesis H_{02} belonging to research question 2 was formulated. It predicates that the majority of farmers favour loans with individual liability:

$$H_{02} : \pi \geq 0.5 ,$$

where π stands for the share of farmers (n=360) who prefer loans with individual liability within the population of farmers who decided between both credit systems (n=391). A small segment of respondents did not choose a credit system (n=15) and was therefore not included in the population. The alternative hypothesis related to H_{02}, H_{12} states that fewer than half of farmers prefer loans with individual liability thus favouring loans with joint liability:

$$H_{12} : \pi \leq 0.5 .$$

Results show that at a significance level of $\alpha = 0.1$ the region of rejection $R_z = (-\infty, -1.28)$. As the computed test statistic Z has a value of 16.6, it lies outside of R_z. so the null hypothesis has to be accepted, and the alternative hypothesis has to be rejected. This outcome confirms the percentages calculated by frequencies: The large majority of farmers prefer loans with individual liability.

To explore research question 3, the null hypothesis H_{03} postulating that smallholders' past credit experience does not influence the demand for a rural credit system and the alternative hypothesis H_{13} stating that smallholders' past credit experience influences the demand for a rural credit system were formulated. For this purpose, interactions between the variable for loan uptake and the three choice alternatives were calculated. The results are not significant at all, which means that H_{03} has to be accepted, and H_{13} has to be rejected. Thus farmers' demand for a rural credit system is not influenced by their past credit experience.

Research question 4 was explored with the null hypothesis H_{04} stating that smallholders' choice between the status quo and different rural credit systems is not influenced by any of their socio-economic factors. The alternative hypothesis H_{14} indicates that socio-economic factors like age, gender, education, land size, and income influence smallholders' choice between the status quo and different rural credit systems. To analyse both hypotheses, interactions between eleven socio-economic variables and the three choice alternatives were calculated. None of the results are significant; therefore, we have to confirm the null hypothesis H_{04} that smallholders' decision-making process is not influenced by any of their socio-economic characteristics.

7.2 Credit unions — A possible solution to farmers' problems?

Credit unions (CUs) are regarded as the most suitable financial institution to reach vulnerable groups such as smallholder farmers (IFAD 2007b; Schott 2001; Zeller 2003). Credit unions have numerous advantages such as independence from banks and NGOs, low operating costs, and membership-based governance. Georgian farmers do not trust in any kind of cooperative system, including CUs. The reason for this lies in the decade-long misuse of the cooperative concept by the central government of the former Soviet Union and in a failed CU implementation project conducted by IFAD. Credit unions had been established in Georgia in the 1990s, but the majority did not

survive. Other types of cooperatives such as ‘genuine’ agricultural and service cooperatives were implemented as recently as 2003 (Dzirkvadze 2008 p. 6). Georgia’s rural population is not familiar with cooperative concepts, which they mistake for the forced collective farming systems of the Soviet era.

Despite farmers’ negative experiences and attitudes towards cooperatives, CUs can be a viable solution for farmers’ financial problems, if they use the individual liability loan format, which is the preferred type of lending in Georgia. To be successful, CUs must include appropriate management, and training programmes and should focus on the improvement of rural living conditions, and on enhancing farm activities (IFAD 2007b; Revishvili & Kinnucan 2004). For the members’ part, commitment to their organization is a crucial aspect for efficient functioning of the CU. With regard to implementation, various examples show that an ‘outsider’ organization or person can set up successful CUs (e.g. Raiffeisen in Germany, CUs in the U.S.A.). For CUs to succeed in Georgia, the implementing organization must not use the word ‘cooperative’ or ‘collective’ in the lender’s title, and should promote the new CUs via the local media. According to Baramidze (2007), cooperatives and thus CUs could be successfully set up through the incorporation of social traditions from Georgia’s culture of food and drink (such as the custom of offering ceremonial toasts) into the business life of rural communities. Practices from Georgian cooperatives prior to the 1917 Soviet revolution may also prove useful. However, CUs alone cannot solve the problems Georgian farmers face, because loans offered by CUs typically are not on the scale to finance the expensive farm machinery that is needed urgently in most villages. Thus CUs are a solution for the smaller financial needs of their members, unless they develop into service cooperatives, or are integrated into an existing service cooperative. Experiences from numerous countries show that service cooperatives which include a financial component are the most appropriate organization to solve the problem of rural poverty.

7.2.1 Business models for credit unions

This section presents business models for credit unions that are tailored to the four different credit preference classes, which resulted from the latent class analysis (see Section 7.1). These four classes vary in their preferences for loan attributes and in their

socio-economic characteristics. Thus, credit unions should show features that suit the preferences of all four classes.

Implementation types for credit unions in Shida Kartli

Why implement credit unions in Georgia? The majority of the literature studied on this topic showed that there are many obstacles to CUs, which are difficult to overcome. Nevertheless, rural participants in the CU component of the large Agricultural Development Project (ADP) initiated by the World Bank together with the International Fund for Agricultural Development (IFAD) benefited from the implementation of CUs. IFAD reports with respect to social capital built up by CUs:

> Villagers stated that the CUs supported them during difficult times and gave them a sense of hope. This was borne out by the 2003 survey, in which views of overall CU operations were 99 percent positive. CUs are often found at the heart of village life and are gradually becoming stronger self-help institutions. Women account for 50-55 percent of CU membership and the same percentage of loans. In CUs, women dominate the committees, and the managers are often women. (IFAD 2007c p. xiv)

Furthermore, the credit union component of ADP showed that there is strong evidence of commitment among members and managers, including community initiatives funded by members, and managers working on reduced or unpaid salaries (IFAD 2007c). These positive aspects should be taken into account for a new CU project in Shida Kartli, and they prove that CUs are feasible and desirable. In the following subsections, two implementation types for credit unions are presented.

Implementation type 1: Private level (bottom-up approach)

First, a partnership on the village level between villages in Shida Kartli and villages in an EU member country should be generated by an association, a CU, a village council, or a non-profit company in an EU member country. The initiating institution in the EU member country applies for funds and organizes exchanges between officials from the Georgian villages and the villages in the EU member country. The visitors from Georgia attend courses on village associations and on the functioning, the advantages and the organizational aspects of CU in their partner village in the EU member country. On the other hand, the village officials of the EU member country learn in Georgia, how small-scale farms function, what products they produce, and what problems farmers in Georgia face. Both parties develop an implementation plan for a CU and create a timetable. All newly implemented CUs should be grouped in an

umbrella organization on regional level in order to create a lobby for CUs at the regional political decision making institutions. The funds for the implementation of cooperatives could be managed by a local commercial bank. During the field research stay in winter 2007-2008, the author contacted several commercial banks in Gori. Discussions with bank officials showed that the majority of the banks were willing to contribute staff, and expertise, and were interested in managing the fund of a future rural credit union project. The implementation project should be managed by elected managers of the CUs and by a manager of the foreign implementing unit. Project monitoring should be performed by experts from the donor organization and by Georgian experts from e.g. a consulting firm, who are not related to the persons involved in the project.

Implementation type 2: Public level (top-down approach)

Kortenbusch & Cervoneascii (2003) studied in detail the possibilities for the implementation of credit unions in Georgia. According to their findings, a grant for the set up of CUs should come from an international donor like the Kreditanstalt für Wiederaufbau (KfW). A loan is very difficult to realize because it involves the sovereign, the Ministry of Finance (MoF) and the National Bank of Georgia (NBG) as loan guarantor. In 2003, NBG refused to assume this responsibility. In addition, the involvement of the Georgian government to a greater extent could hinder the flexible development of the project. The political long-term turmoil in Georgia does not provide a stable basis for the implementation of such a project in cooperation with the Georgian government. Thus, the participation of the Georgian government should be kept very low, and it is recommended to establish an autonomous fund, which is legally independent. The fund should not be implemented as a unit in a bank due to conflict of interests. One important factor of success of CUs consists of trained and committed Georgian personnel having a high degree of management qualities who should manage the CU (Kortenbusch & Cervoneascii 2003). The new CU project should cooperate with one of the 15 top-performing CUs of the credit union component of ADP, which should support the project with its expertise. All newly founded CUs should be organized in an umbrella organization that represents the interests of the CUs at regional political level. With regard to project structure, the managing board should comprise at least one manager of the donor institution, elected

managers of the new CU umbrella organization, managers of the CU implemented by the ADP, and fund managers. The new CUs should focus on female members and managers because they already played an important role in the CUs set up by ADP's credit union component (IFAD 2007c). Beyond that, monitoring of the project is an important issue. This task should be performed by an external, independent monitoring unit, e.g. a well-established consulting firm in the area of development projects. The staff of the monitoring unit should be composed of local and foreign experts, whereas the locals should not be friends, nor relatives of the persons involved in the CU project. As to project duration, Kortenbusch & Cervoneascii (2003) propose duration of ten years in order to implement stable institutions.

Both of the above proposed implementation types can be applied to the following two credit union business models, whereas the implementation project 1 on the private level would be more suitable for business model 1, and the implementation project 2 on the public level would be more suitable for business model 2 (see both sub-sections below).

Credit union business models for the four preference classes

This sub-section presents business models for the four preference classes. Based on their loan attribute preferences and one socio-economic characteristic, the four classes could be grouped into two units. Class 1 and class 3 make up one unit and class 2 and class 4 the other unit. For these two groups, two credit union business models were developed.

Model 1: Credit unions

Class 1, which comprises 47 percent of those respondents who preferred individual, small loans, has a relatively low aversion against higher interest rates. Class 3, which is 20 percent of those respondents who preferred individual loans, has a preference for lower interest rates, and movable assets as collateral. Based on their preference structure (small loans, higher interests accepted, low interests, movable assets) and their relatively high share in unemployed farmers (11 percent in class 1, 19 percent in class 2), both classes can be grouped together in one credit union business model. Unemployment as socio-economic characteristic was chosen because all other socio-economic characteristics do not differ to a great extent. Unemployment means that

subsisence farmers do not have a second income source such as trade, a shop or a vehicle for public transport. Thus, they should start with a small business, and with small loans, which is in line with the preference of class 1 for small loans. Class 1 and class 3 differ in their preferences for interests: Relatively low aversion against higher interests (class 1), and preference of low interests (class 2). This difference can be removed by assuming that class 1 would have nothing against the low interests class 2 prefers. For both classes, CUs on village level would be the most appropriate institution. Due to the small loans class 1 prefers, the implementation of CUs at the village level does not require very high initial funding. Therefore, they could be set up by a NGO in cooperation with one of the 15 top-performing CUs out of the CU component of the ADP. The implementing NGO should dispose over grants and loans while the chosen CU from the ADP can serve as template for the new CUs and help to implement them. To start with CUs, a small number of villages (5-6) should be selected in Shida Kartli after information campaigns, meetings and discussions with village dwellers, and their consent of the project. With respect to the main features of CUs, they should disburse loans to their members, they should offer savings possibilities, and they should advise members as to their investment decisions. Credit unions should follow the 'savings first' principle in order to enhance long-term sustainability and independence from outside funding. To motivate the deposit of savings, interests should be higher than interest rates of commercial banks on savings. An additional service provided by the CUs could be micro-insurances for farmers covering crop- and livestock risks. The CUs should be managed by salaried employees who are well-trained, motivated and committed to their task. As to the number of initial members, CUs should start with a small number of 50 interested village-dwellers per selected village. The CUs should focus on women for membership and management (see IFAD 2007c). All rural inhabitants who purchase shares in the CUs could become members. Concerning loans, these should be offered with short durations of up to 12 months in the first phase of CU implementation, and they should not be very high, which meets the preferences of class 1. Interests charged on loans should not be lower compared to interests on savings. In order to attract more CU members, interests for loans and savings products have to be more attractive compared to interests on financial products of a commercial bank. This fits the preferences of class 3 (low interests). If the CUs develop positively in terms of financial sustainability

within a couple of years, loan durations may be extended. Depending on the repayment performance of the member, small loans up to 500 lari could be disbursed without collateral to reliable members. This kind of loan is already disbursed by ProCredit Bank in Gori, Shida Kartli's capital. All other loans should require movable assets as collateral such as savings, household assets, pensions, and salaries. Movable assets are the type of collateral class 3 prefers. If a member is not able to provide physical collateral for a loan, the loan could be disbursed with a guarantor instead. One important factor for the (financial) success of CUs is portfolio diversification. Loans should not only be focused on agriculture; they should also be focused on commercial purposes.

Model 2: Service cooperatives with a CU component

Class 2, which contains 23 percent of those respondents who preferred individual loans has a preference for long loan duration, and has a relatively low aversion against higher interest rates. Ten percent of the Class 4 respondents preferred individual loans. It is the smallest class and has a single preference for large loans. Both classes can be grouped together due to their preference structure: Long loan duration, relatively low aversion against high interest rates and large loans. Both classes have a relatively low share of unemployed persons: 10 percent in class 2, and 6 percent in class 4. This indicates that members of both classes have a second income source like a small business (e.g. trade, shop, vehicle for public transport). Thus, it can be assumed that members of both classes have at least basic experience with commercial operations. Credit unions alone would not be the appropriate institution for these two classes, because they prefer large loans with long durations, which could not be offered by CUs in the initial stage. Large loans with long durations are suitable for investments in long-term business projects. In the area of agriculture, larger business projects need a more complex institution compared to a pure credit union, and the investors need training, information and advice. Thus, service cooperatives with a CU component providing input, training and marketing possibilities, as well as loans and savings possibilities would be the most suitable institution for farmers who wish to take up large loans. With respect to service cooperatives, India is a country with very successful cooperatives that are well organized. The following section describes

cooperatives in India and explains why they could serve as model for Georgian service cooperatives.

Decade long experience with cooperatives in India shows that the factors for a successful cooperative are professional management, creativity, product diversification, and motivation (Bellur et al. 1990). Besides this, a clear structure plays an important role. Based on its success, the Anand pattern of dairy cooperatives in India can serve as template for Georgian service cooperatives. The principle of these cooperatives is based on the maximization of farmer profit and productivity by means of cooperative effort (Rajendran & Mohanty 2004). The cooperative supports the farmers effectively through a professional management. Member farmers conduct their own businesses independently; adopt modern production and marketing techniques and receive services that they cannot afford individually. One factor of success of the Anand pattern lies in the assistance of cooperative members in their own development through salaried, employed professionals who are responsible to elected cooperative chairpersons (Rajendran & Mohanty 2004; Uotila & Dhanapala 1994). According to Rajendran & Mohanty (2004) the institutional infrastructure — village cooperatives, dairy and cattle feed plants, and state and national marketing — is owned and controlled by farmers.

With regard to the institutional structure, the basic unit is the village milk-producers' cooperative, which is a voluntary association of dairy farmers who want to market their milk collectively. Every dairy farmer can become a member by buying a share and by committing him or herself to sell milk exclusively to the village cooperative society. Members are paid according to the quality of their milk. The cooperative society provides additional services to its members (fodder, artificial insemination, veterinary services) (Rajendran & Mohanty 2004). The second tier is the district level cooperative milk union, and the third tier consists of a state level cooperative milk marketing federation, which markets milk and milk products outside the state. The National Cooperative Dairy Federation (NCDFI), the fourth tier, operates on national level. It protects the interests of all milk producers by formulating adequate policies and programmes (Banerjee 1994). With regard to profit, all surpluses earned by the cooperative are divided in an equitable manner among cooperative members. Uotila & Dhanapala (1994) conclude

> that from a humble beginning this country's [India] dairy cooperative programme has grown into the largest in the world and is owned by millions of rural-producer cooperative members. It is all the more impressive considering that it was accomplished with the minimum of state intervention and assistance. (Uotila & Dhanapala 1994)

As for Georgia, the four-tier-structure of Indian dairy cooperatives could be transferred to implement service cooperatives in Georgia because a clear vertical structure of cooperatives is important for the representation of the cooperatives' interests at political level. Service cooperatives train and advise their member farmers with regard to their business projects, and provide them with the necessary inputs and marketing possibilities for their products. Like the Indian cooperatives, they should employ professional, salaried persons who are responsible to a management board consisting of elected cooperative members. Concerning the preferences of class 2 and class 4 for large loans with long durations, the service cooperative should develop a business plan together with those farmers who want to create a larger (agricultural) business, train them as to business skills, and check marketing opportunities in Georgia or cross-border in neighbouring countries for Georgian products first (for marketing studies see CRRC 2008; Engels 2003). For marketing, the service cooperative should dispose over processing and packing facilities, and it should develop a brand for the products it sells. The development of a business plan and the training of member farmers by the service cooperative are essential in order to start a viable business before the disbursement of a large loan with long duration. This can help to reduce repayment risks and the failure of the new business. In a second step, loan size and loan duration needed for the member's business project are assessed. With regard to organization, loans and savings should be managed by a credit component within the service cooperative. The credit component can have two structures:

a) The service cooperative negotiates loan conditions with a commercial bank and provides loans with good conditions for its members from the partner bank. In this case, service cooperative members are clients of the bank, and the service cooperative serves as intermediary.

b) The service cooperative obtains grants and/ or loans from an external donor such as a NGO. It sets up its own CU by disbursing loans to its members who are also members and clients of the CU. In this case, the service cooperative manages the financial means of the CU component.

In both cases, large loans should be covered by an insurance against repayment failure and should be secured by suitable collateral such as real estate and houses.

7.3 Summary of Chapter 7

Chapter 7 presented and discussed the results of the empirical research and addressed the topic of credit unions as a possible solution for farmers' financial problems. With regard to access to credit, one-third of respondents have taken a loan, while over two-thirds of respondents have no credit experience. A great majority of farmers rated the implementation of a rural credit system as 'very important' or 'important'. Respondents would invest a real or a hypothetical loan predominantly into agriculture. Many farmers chose a twofold investment strategy: agriculture and a second income source. This indicates that agriculture alone is not perceived to generate sufficient income due to the small plots and the lack of [export] markets. The average loan size of those respondents who took a loan is 1000 lari, which is about 10 times the monthly average household income. With regard to rural credit systems, farmers strongly prefer loans with individual liability. The single main reason for the choice of individual loans was distrust amongst villagers. Smallholders gave detailed information on the attributes of an ideal loan, including loan size, interest rates, collateral, instalments, commission, and loan duration. Loan duration and loan size have the highest importance to them. Concerning socio-economic characteristics, the majority of respondents are married and well-educated with approximately one-third possessing a university degree. Respondents' main job is agriculture, and over the half of them lives on the selling of agricultural products. The area of most respondents' farmland is about one hectare. Households control an average income of 100 lari (€44) per month, which is below the Georgian average per capita subsistence level income (113 lari). With respect to the CE, respondents preferred the loans depicted on the choice card over no loan, showing that the attribute levels for the loans on the choice cards comply with the sampled population's notions about credit. The attribute coefficients of loan size, interest rates, and loan duration are significant — meaning that these attributes are the most important ones in a loan scheme. Respondents expressed preferences for a small loan size, low interest rates, and long loan duration. Latent class analysis offers a more differentiated view of preferences with respect to loan conditions. Model results

suggest that respondents could be grouped into four classes that differ in the preferences regarding the characteristics of individual loans:

- Class 1 (size = 47 percent of those respondents who preferred individual loans): Small loans, relatively low aversion against higher interest rates.
- Class 2 (size = 23 percent): Long loan duration, relatively low aversion against higher interest rates.
- Class 3 (size = 20 percent): Lower interest rates, movable assets.
- Class 4 (size = 10 percent): Large loans.

The calculation of interactions shows that only five of the socio-economic variables influence loan attributes. Elasticities were calculated for the loan cost (interest and commission). With regard to interest rates, the direct effects are -0.410 and -0.397 with respect to choice alternatives 1 and 2. This suggests that an increase of 1 percent in interest rates will decrease the probability of selecting alternative 1 by 0.410 percent and of selecting alternative 2 by 0.397 percent, all else being equal. An increase of 1 percent in commission will decrease the probabilities of choosing alternative 1 and 2 by 0.102, and 0.098 percent respectively. Both elasticities are relatively inelastic. For the loan-providing institution this means that the revenue gained by any increase in interest rates and commission will be larger than the loss of clients the loan cost increase may generate. In a wider sense, farmers in Shida Kartli prefer to take up a loan irrespective of the loan cost, indicating a high demand for loans. With regard to acceptance of the empirical study in the research area, 85 percent of respondents took part in the survey, and 81 percent did the CE — both of which are high acceptance rates. The question whether credit unions are a suitable institution to solve farmers' financial problems can be answered 'yes' from the theoretical standpoint and 'yes' if they employ the individual lending approach. But credit unions cannot solve all agricultural problems farmers in Georgia face, and it is difficult to implement them due to distrust amongst the rural population and farmers' distrust of any cooperative system based on negative experiences with compulsory collective farming in the Soviet period. Credit unions can succeed only under appropriate management. To convince farmers of the benefits to using CUs' credit, advertisements in the mass media and in the press, as well as training courses are necessary.

In the last section of Chapter 7, two models for the implementation of credit unions and two business models for the four different credit preference classes out of

the latent class analysis were presented. These models were developed based on the experiences the World Bank and the International Fund for Agricultural Development (IFAD) made with a credit union project in Georgia. All in all, the project failed, but a small number of CUs was very successful and its members benefited to a high degree from this institution. The CUs from the credit union project and cooperatives in India, which are very successful, could serve as template for a new credit union implementation project in Shida Kartli. As to implementation, a bottom up-approach is proposed, which starts by a cooperation between villages in an EU member country and villages in Shida Kartli. The intermediary between the EU villages and the villages in Shida Kartli could be a NGO, a CU in the EU country or other associations, which apply for project funding. The other implementation type includes a top-down approach. The CU project is funded by an international donor and is set up as an independent unit in Georgia in cooperation with Georgian personnel and managers. With regard to the the credit union business models, two different models were developed:

a) A credit union model for farmers who prefer small loans with low interests and who do not have experience with business. Credit unions would be the most appropriate institution to start small business projects, because CUs only provide small loans with short duration in the initial stage.

b) A service cooperative model with integrated CU for farmers who prefer large loans with long duration, and who have experience with business. Service cooperatives could help them with input, training, advice, and marketing to set up a larger long-term business project. Loans can be taken directly from a commercial bank at good conditions, which the service cooperative negotiates for its farmer members, or the service cooperative sets up its own CU financed by loans and/ or grants from an outside donor, e.g. a NGO.

8 Conclusions

Chapter 7 presented and discussed the results of the study, examined the acceptance of the choice experiment method in Shida Kartli, and investigated the question whether credit unions are a possible solution to farmers' problems. Chapter 8, the final chapter, summarizes the conclusions of the study and suggests areas for further research.

The Georgian agricultural sector is currently unable to realize its potential for manifold reasons. Farmers depend on subsistence agriculture and do not dispose over sufficient monetary income (Glenk et al. 2009), nor do they operate efficiently as their work is based on primitive means of production and manual labour (Golovina & Nilsson 2008), so-called 'spade and hoe' techniques (Lerman 2004). The findings of this empirical study support these facts and, furthermore, reveal that the population in Shida Kartli predominantly prefers small loan sizes (8000 lari) and long loan durations. Their preference for long loan durations indicates how low respondents' income is, which prevents faster loan repayment. Their inclination towards small loans indicates the low value of the assets respondents' might use as collateral to secure a loan: small plots, houses in very poor condition, and the absence of high-value movable assets. In that regard, half the sampled population prefers to offer real estate as collateral — the higher value of the two collateral types offered on the choice cards. Willingness to secure a loan with the highest collateral available may be a sign of high credit demand and of the low value of the other possible collateral types. Two-thirds of respondents would like to invest in agricultural production, whereas one-third prefers investment into the renovation of their houses. High preference for investment in agriculture shows that this sector is in immediate need of development.

To improve agricultural development in Georgia, rural credit, savings, and insurance systems; farm machinery; inputs like fertilizer and pesticides; seed material; agricultural extension; veterinary services; processing and packaging facilities; new marketing chains; and new markets to address the problem of the Russian trade embargo are needed. Market problems could be alleviated through public agencies that establish private processor-farmer relationships or, even better, through service cooperatives. If market linkage programmes are designed properly, they can provide substantial benefits for small farmers (Gow & Shanoyan 2008).

Besides a lack of finance, farmers in the research region, Shida Kartli, indicated that they also suffered from a lack of export markets. To improve their situation, new markets, especially for export, must be opened. As most markets are saturated worldwide, the focus should be on niche markets. Recommendations for improving the agribusiness and agricultural sector made for USAID in Georgia (Heron et al. 2001) and agricultural projects like AgVantage, which is administered by a US NGO (Karchava 2006), stress the importance of products that can serve standard demand in export countries, for example, improved table grape and wine varieties or new apple varieties, which come in part from the US. These should be grafted on existing Georgian rootstock or newly planted. With regard to wine, it was recommended that 'A national vine rehabilitation strategy should be oriented toward production of high-quality/high-value grapes that are in demand' (Heron et al. 2001 p. 35). The varieties may produce high yields, but they demand more inputs, like fertilizer and pesticides, which farmers have to buy. The results of the above-mentioned AgVantage project show that improved crop and fruit varieties can create better market chains for Georgian farmers (Karchava 2006), but, on the other hand, they may also lead to a reduction in or even the complete disappearance of the rich biodiversity of Georgian crop and fruit varieties. Georgia is considered a hotspot for biodiversity. Instead of following these recommendations, it would be more sustainable for the Georgian agricultural sector to focus on unique ecological products that protect the environment and conserve biodiversity while generating income.

Agriculture in transition countries faces numerous problems, especially with respect to marketing and input supply. The reason for this can be found in monopolies in the buying and selling area and in the high transaction costs stemming from an underdeveloped marketing infrastructure, including lack of information, transportation, and storage services. The question is whether farmer-owned cooperatives could solve these problems (Gardner & Lerman 2006). Regarding service cooperatives, Gardner & Lerman indicate that

> No official statistics are available on service cooperatives in CEE and CIS, and we have to rely on farm-level surveys to provide some information on cooperation among farmers in transition countries. Despite the resistance to cooperatives stemming from the long-term abuse of this concept under the Soviet regime, we are witnessing the emergence of new forms of cooperation among individual farmers in transition countries. This is voluntary cooperation, often informal and sporadic, that stands in stark contrast to the all-pervasive mandatory cooperation of the socialist era. Cooperation is

> quite strong in many areas, with the notable exception of processing and credit. (Gardner & Lerman 2006 pp. 14-15)

This thesis has investigated farmer's preferences for rural credit systems and the possibility of implementing credit unions (CUs) in the central-eastern Georgian region of Shida Kartli. Survey results clearly show that farmers would prefer an individual lending system and that they distrust other kinds of systems. Due to the lack of trust and other reasons, they are reluctant to form a cooperative system (Gardner & Lerman 2006), and they confound cooperatives with the former compulsory collective agriculture in Soviet times. Credit unions were set up in the 1990s and mostly failed, whereas agricultural production and service cooperatives were implemented in Georgia from 2003 on (Dzirkvadze 2008 p. 6); hence, they are a new concept to Georgian farmers. Nevertheless CUs could be a possible solution (Zeller 2003) if they employ the individual lending approach and if they provide additional services. IFAD (2007b) states in this regard that credit schemes are necessary to strengthen the economic situation of rural areas. They would i) improve the marketing of agricultural products, including the post-production phase, and ii) assist in the development of market-oriented smallholder agriculture supported by access to rural financial services and agricultural support services (mechanization, etc.) (IFAD 2007b). Service cooperatives could provide farmers with these services. Dzirkvadze (2008 p. 11) describes the 'ideal' Georgian cooperative:

- The Georgian government must provide greater support to agriculture if agricultural cooperatives are to reach a satisfactory level.
- Cooperatives would function well with less governmental intervention.
- Cooperatives should be non-political and self-sufficient organizations. Complete trust and confidence is necessary for success.
- Cooperatives should be run as businesses; they must not be public clubs or charity organizations.
- The guidance and active participation of cooperatives is necessary for the formulation and execution of farm production plans. Knowledge of scientific farming, provision of high quality inputs, such as seeds and mechanization, are important factors for enhancing productivity. Technological innovations that are relevant to the changing needs of agriculture and the environment should be promoted.

- Cooperatives should give farmers advice on growing crops with the possibility of higher income yields. Information should circulate among farmers, cooperatives, and markets in this regard. In order to be successful, farmers should put their emphasis on improving quality and productivity.
- Cooperatives should be managed by energetic, professional and dynamic persons; business activities should be conducted in accordance with modern management principles.
- The elected management board should be paid for its work.
- Improved packaging and marketing are important to enhance the cooperative's business operations. Agricultural cooperatives could be encouraged to participate as wholesalers in the market and thus improve members' profits since good quality and good packaging enable higher product prices to be charged.

How to convince farmers of the benefits of cooperatives remains an open question. Helpful methods for doing so include image and information campaigns (e.g. village training courses on cooperatives, the use of mass media and publications) conducted by an NGO or a public agency. Key ingredients in the successful establishment of cooperatives and CUs could be Georgia's experience with cooperatives before the Soviet revolution in 1917 and the integration of social traditions from the Georgian eating and drinking culture (Baramidze 2007).

Research results show that CUs alone are not a solution for the numerous problems confronting Georgia's agricultural sector. Historical and present-day experiences show that service cooperatives can be seen as an 'all-rounder' to alleviate rural poverty. To what extent can this be true for Georgia? Can service cooperatives integrate smallholder farmers into the agribusiness chain, thus providing them with a decent income? Are they capable of supporting sustainable agriculture through training and extension? What agricultural products should Georgian farmers market through service cooperatives? Are high-value ecological products the answer? And, last but not least, are service cooperatives practicable in Georgia? These are new issues that have emerged in the course of preparing this dissertation. Thus, they are not dealt with in it and must remain as subjects for further research.

Summary of Chapter 8

Georgia is a country with high agricultural potential that is not being realized. The main reasons for this can be found in the subsistence based agriculture — more or less a means of survival rather than a source of monetary income — and in the lack of input supplies, farm machinery, markets, extension, and financial resources. This thesis focuses on the financial side of agriculture by researching the preferences of smallholder farmers for rural credit systems and their impact on the implementation of credit unions (CUs). The survey results show that farmers prefer the individual lending approach over the joint liability approach and that they prefer small loan sizes secured with real estate. Credit unions alone cannot solve the problems Georgian farmers face. To improve agricultural production, credit schemes that imply additional services, like marketing, processing, and input supply are necessary. These services could be provided by a service cooperative. Notwithstanding the advantages of cooperatives, Georgian farmers are reluctant to accept this type of organization due to their distrust of others, which is rooted in the decades-long misuse of the cooperative concept under the Soviet regime, which forced the rural population to work on collective farms, the *sovkhozes* and *kolkhozes*. Potentially effective methods of overcoming farmers' distrust and implementing cooperatives include information campaigns, the involvement of social traditions, and a reminder of experiences with Georgian cooperatives before the 1917 Soviet revolution.

New issues that emerged during the preparation of this thesis include the question whether service cooperatives could be implemented in Georgia and whether they could really solve the agricultural problems in Georgia's rural areas.

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Appendix

1. **Map of Georgia**
2. **List of surveyed villages**
3. **English questionnaire**
4. **Georgian questionnaire**
5. **Results of the latent class model**
6. **Results of the Waller-Duncan test**
7. **Field research report**
8. **Acceptance of the choice experiment method in Shida Kartli**
9. **Curriculum vitae**

1. Map of Georgia

Courtesy of the University of Texas Libraries, The University of Texas at Austin, U.S.A.

2. List of surveyed villages

- Pilot test

  Didi Ateni, Degeula, Djebiri, Karaleti

- Survey

  Breti, Doghalauri, Kvemo Khvedureti, Dshandrebi, Kheoba, Samtsegrisi, Kobesaant Ubani, Didi Medjvriskhevi, Patara Medjvriskhevi, Tqviavi, Kvemo Rekha, Plavi, Kvemo Khviti, Qelktseuli, Tedotsminda, Tortiza

3. English questionnaire

Farmers' Preferences for a Rural Finance System in the Region of Shida Kartli, Georgia

Research Project carried out by Johanna Pavliashvili
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DZ Bank Foundation in the Foundation's Federation for the German Science

Questionnaire for Smallholder Farmers in Shida Kartli

A. Introduction

Hello, my name is XY. We like to interview you with regard to your opinion on a possible rural finance system. Your answers will be anonymous. Do you agree to these conditions?
If respondent agrees, tell him/her that you want to speak with the head of household.

E = Enumerator. Instructions for the enumerator are written in italics.

E: please fill in A.1 through A.4 before reading the text to the respondent.

A.1 Enumerator's code: I____I

A.2 Date I____I____I_____I

A.3 Code of village I____I

E: Please read the following text to the respondent before starting with the questions:
The reason we are conducting this survey is that smallholder farmers in Georgia have limited access to financial services like taking loans, depositing savings, and contracting insurance. With financial services in your area, farmers have the opportunity to use loans in order to improve the production of agricultural products and raise their income. Therefore, we are interested in your opinion on various rural finance systems and, in particular, on loans. Your opinion is very important for the possible development of rural finance systems that correspond to your ideas. And it is important for us to know if you would like to make use of rural finance systems. As we are interested in your thoughts and your opinion, there are no right or wrong answers. Since we are from universities in Germany and Georgia, we are not involved in financial affairs, nor do we receive money for conducting the survey. Your answers to the questions will be made anonymously. The survey includes 360 interviews with smallholder farmers in Shida Kartli. The survey results will be shared with institutions that could use them for the implementation of a rural finance system according to your needs in this region. However, it is not certain that a rural finance system will be implemented. It depends on the decision of the relevant institutions. Thank you very much for your cooperation!

E: First of all, we will start with some general questions on your personal experience concerning loans.

B. Loan availability and use

B.1 Is it possible for farmers to take a loan? (*Multiple answers possible)*
I___I 1. No loan available
I___I 2. Loan from bank available
I___I 3. Loan from NGO available
I___I 4. Loan from bank and NGO available
I___I 5. Informal loan from family members, relatives, friends or neighbours available
I___I 6. Other (please specify): _____
I___I 99. Answer not given

B.2 Have you ever taken a loan?
I___I
1. No, 2. Yes, 3. I tried to take a loan, but was not successful

E: If "Yes", please proceed with B.5. If "No", please go to B.3.

B.3 What is your main reason for not taking a loan?
I___I
1. I did not need a loan, 2. I had no opportunity to take a loan, 3. I could not fulfil the loan conditions, 4. I do not want to have debts. 5. The interest was too high, 6. Other (please specify): _____, 99. Answer not given

B.4 Imagine that you will be taking a loan. In what would you invest the money?
I___I 1. I would never take a loan →Go to section D.
I___I 2. I would invest the money in (please specify one item): _____
I___I 3. Answer not given

E: After B.4 go to D.

B.5 If you have taken a loan, how often have you done so?
I___I
1. Once 2. Twice 3. Three times 4. More than three times 99. Answer not given

B.6 From which kind of institution did you obtain the loan or loans? (*Multiple answers possible)*
I___I 1. Bank (e.g. United Georgian Bank),
I___I 2. NGO (e.g. Constanta)
I___I 3. Family/ friend/ informal lender
I___I 4. Wholesaler
I___I 5. Moneylender
I___I 6. Other (please specify) _____
I___I 99. Answer not given

B.7 For what purpose did you use the loan? (*Multiple answers possible)*
I___I 1. Investments in horticulture (wine, fruits and other)
I___I 2. Investments in livestock
I___I 3. Investments in the house
I___I 4. Consumption purposes
I___I 5. Purchase of land
I___I 6. Other (please specify) _____
I___I 99. Answer not given

B.8 How big was the credit sum? (*Multiple answers possible)*

I___I 1. Up to 100 Lari
I___I 2. Between 101 and 500 Lari
I___I 3. Between 501 and 1000 Lari
I___I 4. Between 1001 and 2000 Lari
I___I 5. More than 2000 Lari
I___I 99. Answer not given

C. Satisfaction with the credit institution
E: Please fill in the answer to C.1 without asking the respondent. If the answer is yes, please proceed with C.2. If no, please go to D.

C.1 Did the respondent receive the loan from an official credit institution (bank or NGO)?
I___I
0. No 1. Yes

C.2 How far is the credit institution from your home?
I___I
1. 0–1 km
2. 1–3 km
3. 3–8 km
4. More than 8 km
99. Answer not given

C.3 How satisfied are you with the financial services?
1. It was easy for me to obtain the loan.
I___I
1. It was very easy. 2. It was easy. 3. It was moderately easy. 4. It was slightly easy. 5. It was not easy. 99. Answer not given

2. The interest rates and the commission were adequate .
I___I
1. Very adequate 2. Adequate 3. Moderately adequate 4. Slightly adequate 5. Not adequate 99. Answer not given

3. The people in the bank/NGO were friendly.
I___I
1. Very friendly 2. Friendly 3. Moderately friendly 4. Slightly friendly 5. Not friendly 99. Answer not given

4. The loan conditions were understandable.
I___I
1. Very understandable 2. Understandable 3. Moderately understandable 4. Slightly understandable 5. Not understandable 99. Answer not given

5. It was easy for me to fulfil all loan requirements.
I___I
1. Very easy 2. Easy 3. Moderately easy 4. Slightly easy 5. Not easy 99. Answer not given

E: Now, I would like to present and explain to you rural finance systems. After the explanation, I will show you some cards like this one (show one card as example), and I will ask you to choose the cards with the finance system you prefer. Finally, I will ask you some concluding questions. Do you agree to this procedure?

D. Rural Finance Systems

In Georgia, there are some organisations and banks that disburse loans to borrowers with a low or middle income. There are two different types of lending systems. With an individual loan, the lending institution disburses the loan to one person, who is then personally liable for its repayment. With a group liability loan, the loan also goes to one person, but a group is liable for the repayment. The group size lies between two and seven members. Both lending systems have the following features:

- Loan size
- Interest
- Collateral
- Maturity of instalments
- Commission
- Loan duration

E: Now, I will explain to you the meaning of each of those features:

- Loan size is the amount of money the borrower obtains from the lending institution. Loan size differs according to the needs of the borrower.
- Interest is an amount of money the borrower has to pay to the lending institution for obtaining the loan. Interest is calculated on a monthly basis at a prearranged rate, that is, at a certain percent of the loan size. For example, if you take a loan of 1000 lari with an interest rate of 1.5 percent, this means that, if you pay back your loan through a monthly instalment plan, you have to add 15 lari per month to the repayment amount.
- For each loan, collateral has to be pledged in terms of physical assets, like cars, gold, furniture, machines, or real estate for individual loans and in terms of personal debt guarantees for loans with group liability. If the borrower does not pay back his or her individual loan, the lending institution takes ownership of the physical assets or real estate. For loans with group liability, the members of the group have to pay back the loan for the defaulting borrower.
- Maturity of instalments describes the periods in which parts of the loan plus the monthly interest rate have to be paid back. For example, if you take a loan of 1000 lari, after one month, you begin to pay back 100 lari plus 1.5% interest each month. This means that you pay 115 lari monthly for a period of 10 months.
- The commission is an additional amount of money the lending institution demands for disbursing the loan. Commission has to be paid once and its amount is calculated in percent of the loan size. It has to be paid to the lending institution at the time the loan is disbursed. For example, if the lending institution demands 2% commission for a loan size of 1000 lari, you have to pay 20 lari to the lending institution. Interest rate and commission make up the price for the loan.
- Loan duration refers to the period within which the borrower must repay the loan. When the period ends, the whole amount has to have been paid back. Imagine that you take a loan of 1000 lari, which you can use for a period of 10 months. By the end of the tenth month, the whole loan amount as well as the interest has to have been paid back to the lending institution.

D.1 Respondent's Preference for a Rural Finance System

E: Now I am going ask you to choose the system you generally prefer: individual loans with higher loan sizes and physical assets as collateral or loans with lower loan sizes and group liability. To help you decide, take a look at these examples. (Show the tables with examples of each finance system and enter respondent's choice below.)

I___I

1. Individual loans 2. Loans with group liability 99. Don't know/answer not given

D.2 In your opinion, what should be the upper and lower limits for the attributes of the finance system you chose?

E: If respondent chooses group liability loans, show him/her the big table with group loans and fill in the respondent's answer in the small table below.

Attributes	**Loan with group liability Upper limit**	**Loan with group liability Lower limit**
Loan size (in lari)		
Interest per month (in lari)		
Group size		
Maturity of instalments (in weeks)		
Commission (in lari)		
Loan duration (in months)		

D.3 I cannot state upper or lower limits for loans with group liability.
I___I

E: If respondent chooses D.3, go to E.1.

E: If respondent chooses individual loans, show him/ her the big table with individual loans and fill in the respondent's answer in the small table below.

Attributes	**Individual loan Upper limit**	**Individual loan Lower limit**
Loan size (in lari)		
Interest per month (in lari)		
Collateral type		
Maturity of instalments (in months)		
Commission (in lari)		
Loan duration (in months)		

D.4 I cannot state upper or lower limits for individual loans.
I___I

E: If respondent chooses D.4, go to E.1.

D.5 Were you familiar with the finance systems before I told you about them?
I___I
0. No 1. Yes

E: If the respondent seems not to understand the explanation of the financial systems, please read the following text to him/her:
The two lending systems are a little bit complicated. If you want, I can repeat the explanation for you. *(E: Please briefly repeat the contents of section D).*

E. Choice Experiment

E: The choice experiment follows. Please read the following text to the respondent.
Now I will show you some cards (*E: Show the choice cards*). Each card contains a description of certain loan conditions. I would now like you to imagine that you have been offered two loans with the details you see on the cards. In each situation, I will ask you to choose the loan you would prefer. If neither of the loans described is attractive to you, you have the option of

choosing "neither loan". Choosing "neither loan" does not entail any costs, while the other two options have costs in terms of interest and commission. Let's go!

E: If respondent is not able to do the choice experiment, go to E.3.

E.1 Choice Experiment
E: Please fill in the choice results of each of the four cards in the table below.

*For respondents who chose loans with group liability in **D.1:***

	Loan with group liability A	**Loan with group liability B**	**Neither loan**	**Category No.**	**Block No.**	**Card No.**
Choice 1						
Choice 2						
Choice 3						
Choice 4						

*For respondents who chose individual loans in **D.1:***

	Individual loan A	**Individual loan B**	**Neither loan**	**Category No.**	**Block No.**	**Card No.**
Choice 1						
Choice 2						
Choice 3						
Choice 4						

E: After the choice experiment, ask the following questions:

E.2 How certain were you with regard to your choices on the cards?
I__I
1. Very certain 2. Certain 3. Moderately certain 4. Slightly certain 5. Not certain at all 99. Answer not given

E.3 As you know, there are almost no rural finance systems in Georgia. Imagine that a decision has to be made for a loan system with either group liability or individual liability, and only one can be implemented. Which one would you prefer to be implemented?
I__I
1. Group liability system 2. Individual liability system 3. No rural finance system

*E: If in **E.3***
*1. "group liability system", proceed with **E.4***
*2. "individual liability system", go to **E.7***
*3. "no rural finance system" go to **E.10***

E.4 You chose the <u>group liability system</u>. How important were the following features of this system for you with regard to your choice?

1. Loan size
I__I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

2. Interest rate
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

3. Collateral in terms of group liability for the loan of a single borrower
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. answer not given

4. Maturity of instalments
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. answer not given

5. Commission
I___I
I___I
1. Very important 2. Important, 3. Moderate importance, 4. Slight importance, 5. No importance, 99. Answer not given

6. Loan duration
I___I
1. Very important, 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

E.5 Are there additional reasons for your choice of loans with group liability?
I___I
0. No 1. Yes

*If "No" in **E.5**, go to **E.14***

E.6 If "Yes" in E.5, please specify: _____

*E: After **E.6** go to **E.14***

E.7 You chose the <u>individual liability system</u>. How important were the following features of this system for you with regard to your choice?

1. Loan size
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

2. Interest rate
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

3. Collateral in terms of physical assets or real estate for the loan of a single borrower
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

4. Maturity of instalments
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

5. Commission
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

6. Loan duration
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

E.8 Are there additional reasons for your choice of individual liability loans?
I___I
0. No 1. Yes

*If "No" in **E.8**, go to **E.14***

E.9 If "Yes" in E.8, please specify: _____

*E: After **E.9** go to **E.14***

E.10 You chose the option <u>"no rural finance system"</u>. What are the main reasons for your choice? *Multiple answers possible.*
I___I 1. I do not trust financial institutions.
I___I 2. I do not need a loan.
I___I 3. I cannot fulfil the requirements to get a loan.
I___I 4. I do not like the conditions under which loans are disbursed.
I___I 5. I do not like to have debts.
I___I 99. Answer not given

E.11 Are there additional reasons for your choice of no financial system?
I___I
0. No, 1. Yes

*E: If "No" in **E.11**, go to **E.13.***

E.12 If "Yes" in E.11, please specify: _____

E.13 Could you imagine takeing a loan if the conditions for doing so were attractive for you?
I___I
0. No 1. Yes

E: At the end of this section, I like to ask you some more general questions concerning rural finance systems.

E.14 In general, how important is the implementation of a rural finance system to you?
I___I
1. Very important 2. Important 3. Moderate importance 4. Slight importance 5. No importance 99. Answer not given

E.15 How do you generally assess the likelihood of a rural finance system being implemented?
I___I
1. Very likely 2. Likely 3. Moderate likelihood 4. Slight likelihood 5. Not likely at all 99. Answer not given

E: Now I come to several questions with regard to your family, land, and decision-making process on financial affairs. Let's begin with the family.

F. Family Structure

F.1 Household members

Code	Status of respondent (a)	Relationship with head of household (b)	Gender 0=Male 1=Female	Age	Maximum level of education (c)	Main job (d)
1						
2						
3						
4						
5						
6						
7						
8						

Respondent's status:
1. Single 2. Married, with partner living permanently in the household
3. Married, with emigrated partner who is economically tied to the household
4. Widowed 5. Divorced 99. Answer not given

Relationship with household head:
1. Head of household 2. Wife, husband or partner 3. Son or daughter 4. Father or mother 5. Grandson or granddaughter 6. Other relative 7. Person not related to family 99. Answer not given

Maximum level of education of all household members:
1. No education, 2. Basic compulsory education (9 school years) 3. General secondary education (11 school years) 4. Apprenticeship 5. University degree 99. Answer not given

Main job:
1. Agriculture on land owned by the respondent/respondent's family 2. Agriculture on leased land 3. Self-employed 4. Work in the household 5. Day labourer 6. Employed 7. Looking for a job 8. Not looking for a job/retired 9. Not able to work (ill or disabled) 10. Student 11. Pupil 12. Other 99. Answer not given

F.2 To which ethnic group do you belong? *Multiple answers possible.*
I___I 1. Georgian
I___I 2. Ossetian
I___I3. Armenian
I___I 4. Azeri
I___I 5. Russian
I___I 6. Greek
I___I 7. Turkish
I___I 8. Kurdish
I___I 9. Tatar
I___I 10. Other (please specify):_____
I___I 99. Answer not given

F.3 What is your religious denomination?
I___I
1. None 2. Christian Orthodox, 3. Other Christian 4. Muslim 5. Jewish 6. Other (please specify): _____ 99. Answer not given

F.4 What is the main income source for your household?
I___I
Farm Income
1. Agricultural production only for home consumption (subsistence farming) 2. Selling of agricultural products

Non-farm Income
3. Employee 4. Self-employed 5. Teacher 6. Social benefits (e.g. pension/social welfare, poverty benefits) 7. Transfer payments from international migrated relatives 8. Financial support from relatives in Georgia 9. Other income sources (please specify): _____ _____ 99. Answer not given

F.5 What kind of agriculture do you practice?
I___I
1. Growing fruit 2. Producing wine 3. Growing fruit and producing wine 4. Livestock 5. Fruit, wine, and livestock, 6. Other kind of agriculture (please specify): _____
_____ 99. Answer not given

G. Land

G.1 Who owns the land? Multiple answers possible.
I___I 1. Respondent
I___I 2. Husband
I___I 3. Wife
I___I 4. Relative
I___I 5. Neighbour
I___I 6. Other (please specify) _____
I___I 99. Answer not given

G.2 How large is the area of your plot(s) (in hectare)?
E: if respondent has several plots, please add up the areas, and enter the final answer according to the categories below.
I___I
1. Less than one hectare 2. One to two hectares 3. Two to five hectares 4. More than five hectares 99. Answer not given

E: Now we come to the last questions. They are related to financial affairs in your household, and I would be grateful if you could answer them.

H. Decision making on financial affairs within the household

H.1 What is your monthly income?
E: If respondent can only state a yearly income, please divide it by 12, and enter the answer according to the categories below.
I___I
1. Less than 50 lari
2. 50 to 100 lari
3. 100 to 200 lari
4. 200 to 300 lari
5. More than 300 lari
99. Answer not given

H.2 Which household member decides on the use of the available money?
I___I
1. Couple together 2. Husband 3. Wife 4. Eldest household member 5. Each spouse makes the decisions regarding his/her own money 6. Head of household (man or woman) 7. Another person (please specify):_____ 99. Answer not given

H.3 Which household member makes the final decision regarding large investments, like purchase of land, agricultural inputs, furniture, and so forth?
I___I
1. Couple together 2. Husband 3. Wife 4. Eldest household member 5. Head of household (man or woman) 6. Another person (please specify): _____
99. Answer not given

H.4 Do you expect that your income in the next two years will ...
I___I
1. Increase greatly 2. Increase a little bit 3. Stay the same 4. Decrease a little bit
5. Decrease greatly 99. Answer not given

Thank you very much for your time and effort.

4. Georgian questionnaire

სასოფლო სამეურნეო დაფინანსების სფეროში გლეხების მიერ შერჩეული უპირატესი ფორმები შიდა ქართლის რეგიონში, საქართველო

პროექტი ხორციელდება იოჰანნა პავლიაშვილის მიერ
სასოფლო აგრარულ ეკონომიკური განვითარების განყოფილება
გოეტინგენის გეორგ აუგუსტ სახელობის უნივესიტეტი, გერმანია

ანკეტა შიდა ქართლში მცხოვრებ მეურნეთათვის

A. შესავალი

გამარჯობათ მე მქვია……..ჩვენ გვინდოდა მოგვესმინა თქვენი აზრი სასოფლო სამეურნეო საქმიანობის დაფინანსების თაობაზე თქვენი პასუხები დამუშავდება ანონიმურად
თანახმა ბრძანდებით?
თუ რესპოდენტი თანახმაა,მაშინ სთხოვეთ მას რამდენიმე შეკითხვაზე გიპასუხოთ.

მანამ ტექსტს რესპოდენტს წაუკითხავთ გთხოვთ შეავსოთ **A1** დან **A4** პუნქამდე .

A.1 ინტერვიუერის ნომერი I____I

A.2 თარიღი I____I____I_____I

A.3 სოფლის ნომერი I____I

სანამ გამოკითხვას დაიწყებთ გთხოვ წაუკითხოთ შემდეგი ტექსტი რესპოდენტს.

კვლევას საფუძვლად ედება ის გარემოება რომ საქართველოში გლეხები შეზღუდულნი არიან მიიღონ ხელსაყრელი ფინანსური დახმარება რაც გამოიხატება კრედიტების მიღების, დაზღვევასა და დაზოგვის ფორმებში.ფინანსური დახმარების მეშვეობით გლეხები შეძლებდნენ მათ რეგიონშივე გამოეტანათ კრედიტი რათა მათ მიერ მოყვანილი პროდუქტი გაუმჯობესებულიყო და აგრეთვე მათი შემოსავლებიც გაზრდილიყო ამიტომ ჩვენ გვაინტერესებს თქვენი აზრი სხვადასხვა სასოფლო სამეურნეო დაფინანსების ფორმებზე,განსაკუთრებით კრედიტების შესახებ.თქვენი აზრი ძალიან მნიშვნელოვანია სასოფლო სამეურნეო დაფინანსების სისტემის განვითარებისთვის რომელიც თქვენი შეხედულებების შესაბამისი იქნება.აგრეთვე მნიშვნელოვანია ჩვენთვის იმის ცოდნა ისარგებლებდით თუ არა საერთოდ სასოფლო სამეურნეო დაფინანსების სისტემით. ჩვენ მხოლოდ თქვენი აზრი გვაინტერესებს და ძალიან გთხოვთ იყოთ გულწრფელნი,ვინაიდან ჩვენ წარმოვადგენთ გერმანიისა და საქართველოს უნივერსიტეტების მეცნიერებს ჩვენ არ შეგვიძლია თქვენი დაფინანსება ჩვენი ფინანსები მხოლოდ ამ კვლევისთვისაა გათვლილი თქვენი

პასუხები ანონიმურად იქნება დამუშავებული ეს გამოკითხვა შედგება 360 ინტერვიუსაგან რომლებსაც გლეხებისგან ავიღებთ ამ გამოკითხვის შედეგები გადაეცემა შესაბამის ორგანოებს რომლებსაც შეუძლიათ დაფინანსების ასეთი ფორმის შემოღება ამ რეგიონში მაგრამ ეს იმას არ ნიშნავს რომ ასეთი სისტემა აუცილებლად განხორციელდება ეს დამოკიდებულია ამ ორგანიზაციების გადაწყვეტილებაზე.
წინასწარ გიხდით დიდ მადლობას თანამშრომლობისთვის

პირველი კითხვა ეხება თქვენ პირად გამოცდილებას კრედიტებთან დაკავშირებით

B. კრედიტების არსებობა და მათი გამოყენება

B.1 არის თუ არა გლეხისთვის იმის შესაძლებლობა რომ კრედიტი გამოიტანოს? ***(დაშვებულია სხვადასხვა პასუხები)***

I___I 1.კრედიტის გამოტანა შეუძლებელია
I___I 2. ბანკის კრედიტის გამოტანა შესაძლებელია
I___I 3. კრედიტის გამოტანა შესაძლებელია მხოლოდ არასამთავრობო ორგანიზაციიდან
I___I 4. კრედიტის გამოტანა შესაძლებელია როგორც არასამთავრობო ორგანიზაციიდან ასევე ბანკიდან
I___I 5. კრედიტის აღება შესაძლებელია არაფორმალურად მაგ ოჯახისწევრებისგან,ნათესავებისგან, მეგობრებისგან ან მეზობლებისგან
I___I 6.ზემოთ ჩამოთლილთაგან არცერთი (მიუთითეთ სხვა ფორმა):
_____
I___I 99. პასუხს არ სცემს

B.2 აგიღიათ ოდესმე კრედიტი?
I___I
1. არა, 2. დიახ, 3. ვცდილობდი კრედიტი ამეღო, მაგრამ არ გამიმართლა

*დადებითი პასუხის შემთხვევეში გადადი **B5** ზე.უარყოფითი პასუხის შემთხვევაში გადადი **B3**.*

B.3 რა არის იმის მთავარი მიზეზი რომ თქვენ ჯერ არასდროს აგიღიათ კრედიტი?
I___I
1. კრედიტი არ დამჭირვებია, 2. არ იყო იმის შესაძლებლობა რომ კრედიტი ამეღო, 3. არ შემეძლო კრედიტის აღებისთვის დადგენილი წინაპირობების დაკმაყოფილება, 4. არ მინდოდა ვალების დადება, 5. მაღალ პროცენტებს შეიცავდა, 6. ზემოთ ჩამოთვლილთაგან არცერთი (მიუთითეთ სხვა მიზეზი):
_____, 99. პასუხს არ სცემს

B.4 წარმოიდგინეთ რომ აიღეთ კრედიტი რაში დააბანდებდით ამ ფულს?
I___I 1.მე კრედიტს არასდროს ავიღებდი. → ამ პასუხის შემთხვევაში გადადი D-ზე
I___I 2. ფულს დავაბანდებდი (მიუთითეთ რომელიმე სფერო):
_____

I___I 3. პასუხს არ სცემს

B.5 რამდენჯერ გაქვთ კრედიტი გამოტანილი?
I___I
1. ერთხელ, 2. ორჯერ, 3. სამჯერ, 4. სამზე მეტჯერ, 99. პასუხს არ სცემს

B.6 როგორი ორგანიზაციიდან გაქვთ კრედიტი გამოტანილი?(დაშვებულია სხვადასხვა პასუხები)
I___I 1. ბანკიდან (მაგ გაერთიანებული ქართული ბანკი
I___I 2. არასამთავრობო ორგანიზაციიდან(მაგ კონსტანტა)
I___I 3. არა ფორმალურად მეგობრებისგან, ნაცნობებისგან
I___I 4.მოვაჭრეებისგან
I___I 5.მევახშეებისაგან
I___I 6.ზემოთჩამოთვლილთაგან არცერთი(მიუთითეთ სხვა წყარო):
_____
I___I 99. პასუხს არ სცემს

B.7 რა მიზნით გამოიყენეთ აღებული კრედიტი? (დაშვებულია სხვადასხვა პასუხი)
I___I 1. გამოვიყენე მეხილეობა მებოსტნეობაში (მაგ ღვინო, ხილი და სხვ...).
I___I 2. გამოვიყენე მეცხოველეობაში.
I___I 3. გამოვიყენე სახლის სარემონტო სამუშაოებში.
I___I 4. გამოვიყენე პირადი მოხმარებისათვის.
I___I 5. გამოვიყენე მიწის შესაძენად.
I___I 6.ზემოთჩამოთვლილთაგან არცერთი(მიუთითეთ სხვა სფერო):
_____
I___I 99. პასუხს არ სცემს

B.8 რიცხვობრივად რამდენ ლარს შეეადგენდა თქვენს მიერ აღებული კრედიტი? (დაშვებულია რამდენიმე პასუხი)
I___I 1 100.ლარამდე
I___I 2. 100დან 500ლარამდე
I___I 3. 500დან 1000 ლარამდე
I___I 4. 1000დან 2000 ლარამდე
I___I 5. 2000 ლარზე ლარზე მეტი
I___I 99.არა აქვს პასუხი

C. კმაყოფილება საკრედიტო ინსტიტუტებისადმი

C.1 აგიღიათ თუ არა კრედიტი ოფიციალური საკრედიტო ინსტიტუტებიდან (ბანკიდან ან არასამთავრობო საკრედიტო ორგანიზაციებიდან მაგ; კონსტანტა)?
I___I
არა, 1. დიახ (თუ კრედიტი აღებული აქვთ აღარ ვეკითხებით)

*დადებითი პასუხის შემთვევაში გადადი **C.2** ზე*
*უარყოფითის შემთხვევაში გადადი **D** ზე*

C.2 რა მანძილია თქვენი სახლიდან საკრედიტო ინსტიტუტამდე?
I___I
1. 0-1კმ
2. 1-3 კმ
3. 3-8კმ
4. 8 კილომეტრზე მეტი
99. არა აქვს პასუხი

C.3 რამდენად კმაყოფილი იყავით ფინანსური მომსახურებით?
1. ჩემთვის ადვილი იყო კრედიტის აღება.
I___I
1. ძალიან ადვილი, 2. საკმაოდ ადვილი, 3. საშუალოდ ადვილი, 4. ნაწილობრივ ადვილი, 5. ძნელი, 99. არ სცემს პასუხს.

2. პროცენტები და ერთჯერადი გადასახადი იყო შესაფერისი
I___I
1. ძალიან შესაფერისი, 2. საკმაოდ შესაფერისი, 3. საშუალოდ შესაფერისი, 4. ნაწილობრივ შესაფერისი, 5. არაშესაფერისი, 99. პასუხს არ სცემს.

3. ბანკის მომსახურე პესონალი იყო თავაზიანი.
I___I
1. ძალიან თავაზიანი, 2. საკმაოდ თავაზიანი, 3. საშუალოდ თავაზიანი, 4. ნაწილობრივ თავაზიანი, 5. უხეში, 99. პასუხს არ სცემს.

4. საკრედიტო პირობები იყო გასაგები.
I___I
1. იოლად გასაგები, 2. საკმაოდ გასაგები, 3 საშუალოდ გასაგები., 4. ნაწილორივ გასაგები, 5. გაუგებარი, 99. პასუხს არ სცემს.

5. ჩემთვის ძალიან ადვილი იყო ყველა მოთხოვნის დაკმაყოფილება კრედიტის მისაღებად.
I___I
1. ძალიან ადვილი, 2. საკმაოდ ადვილი, 3. საშუალოდ ადვილი, 4. ნაწილობრივ ადვილი, 5. ძნელი, 99. პასუხს არ სცემს.

I: ახლა მე მინდა წარმოგიდგინოთ და განგიმარტოთ სასოფლო სამეურნეო დაფინანსების სისტემა. ამის მერე გაჩვენებთ ამ დაფინანსების სისტემას (მაგალითის სახით აჩვენეთ ცხრილი რომელზეც ტაბელარულად იქნება გამოსახული დაფინანსების სისტემა) აქედან თქვენ უნდა ამოირჩიოთ უკეთესი. დასასრულს მინდა რამდენიმე შეკითხვა კვლავ დაგისვათ. ხართ თანახმა?

D. სასოფლო სამეურნეო დაფინანსების სისტემები
საქართველოში არსებობს სხვადასხვა ორგანიზაციები და ბანკები, რომლებიც კრედიტს გასცემენ პიროვნებებზე,საშუალო ან დაბალი შემოსავლებით. საკრედიტო სისტემის ორი სხვადასხვა ფორმა არსებობს ინდივიდუალური კრედიტის

შემთხვევაში გამსესხებელი ინსტიტუტი გასცემს კრედიტს ერთ პირზე რომელიც თვითონ არის პასუხისმგებელი თანხის უკან დაბრუნებაზე.
ჯგუფური სესხის გაცემის შემთხვევაში გაიცემა კრედიტი ჯგუფის ერთერთ წევრზე, მაგრამ თანხის უკან დაბრუნებაზე პაუხისმგებელია ჯგუფი მთლიანად. ორივე საკრედიტო სისტემას აქვს შემდეგი მახასიათებელი ნიშნები:

- კრედიტის ოდენობა
- პროცენტი
- დაზღვევა (გამოხატული გირაოში)
- კრედიტის გადახდის ვადა
- ერთჯერადი საპროცენტო გადასახადი
- კრედიტის ხანგრძლივობა

I: ახლა აგიხსნით თუ რას ნიშნავს ზემოთაღნიშნული მახასიათებელი ნიშნები:

- კრედიტის ოდენობა არის ის თანხა, რომელსაც კრედიტის ამღები იღებს. გამსესხებელი ორგანიზაციისგან. გაცემული თანხის ოდენობა განისაზღვრება კრედიტის ამღების საჭიროების და მიხედვით.
- პროცენტი არის თანხა, რომელსაც კრედიტის ამღები გამსესხებელ ორგანიზაციას კრედიტის გამოყოფისათვის უხდის. პროცენტი გამოითვლება კრედიტის ოდენობასთან შეფარდებით რომელიც ყოველთვიურად უნდა გადახდილი იქნეს მაგ თქვენ იღებთ 1000 ლარის ოდენობის კრედიტს 1,5%-ით ეს ნიშნავს იმას რომ ყოველთვიურ შესატანთან ერთად თქვენ უნდა გადაიხადოთ 15 ლარი პროცენტული დანამატი.
- ინდივიდუალური კრედიტისთვის დაზღვევის სახით უნდა ჩაიდოს კერძო საკუთრება როგორიცაა მანქანა,ოქრო, ავეჯი და სხვ.ჯგუფურ სესხზე გაცემული კრედიტისთვის მხოლოდ ჯგუფის ერთერთი წევრის პასუხისმგებლობაა საჭირო
- ინდივიდუალური კრედიტის შემთხვევაში გამსესხებელი ორგანიზაცია ჩამოართმევს ქონებას კრედიტის ამღებს თუ ამ უკანასკნელმა ვერ შეძლო კრედიტის დაფარვა. ჯგუფურად გაცემული კრედიტის დროს ჯგუფის წევრებმა უნდა გადაიხადონ კრედიტი იმ წევრისთვის, რომელიც უარს განაცხადებს კრედიტის გადახდაზე.
- შესატანის პერიოდულობა ნიშნავს პერიოდულ დისსტანცირებას როდესაც კრედიტის ნაწილი და აგრეთვე პროცენტები უნდა გადახდილ იქნას მაგ: თქვენ იღებთ 1000 ლარის ოდენობის კრედიტს, ერთი თვის შემდეგ თქვენ იწყებთ თვიურად 100 ლარის პლუს 1,5% ის გადახდას ეს ნიშნავს იმას რომ თქვენ ყოველთვიურად 115 ლარი 10 თვის განმავლობაში უნდა იხადოთ.
- ერთჯერადი გადასახადი. შედგება დამატებითი ფულადი შესატანისაგან რომელსაც გამსესხებელი ორგანიზაცია კრედიტის გაცემისათვის ითხოვს. ერთჯერადი გადასახადი გადახდილ უნდა იქნას ერთხელ კრედიტის გაცემის დროს და მისი ოდენობა გამოითვლება კრედიტის ოდენობასთან შეფარდებით მაგ: ერთჯერადი გადასახადი 1000 ლარიანი კრედიტისთვის შეადგენს 2% ამ შემთხვევაში ერთჯერადად გადასახდელი თანხა გამსესხებელი ორგანიზაციის მიმართ შეადგენს 20ლარს. ერთჯერადი გადასახადი პროცენტი ერთად შეადგენენ კრედიტის ღირებულებას.
- ვადა განსაზღვრავს დროის ხანგრძლივობას. ამ პერიოდში კრედიტის ამღები უფლებამოსილია გამოიყენოს აღებული სესხი. ამ პერიოდის ამოწურვის შემდეგ კრედიტის ამღები ვალდებულია გადაიხადოს მთელი კრედიტი

წარმოიდგინეთ რომ თქვენ აიღეთ კრედიტი 1000 ლარის ოდენობით, რომლის გამოყენება თქვენ ათი თვის მანძილზე შეგიძლიათ, მეათე თვის ბოლოს თქვენს მიერ გადახადილი უნდა იყოს მთლიანი კრედიტი პროცენტების ჩათვლით გამსესხებელი ორგანიზაციის მიმართ.

D.1 რესპოდენტთა არჩევანი სასოფლო სამეურნეო დაფინანსების სისტემისთვის

I: ახლა მე მინდა გთხოვოთ ამოირჩიოთ ის სისტემა რომელიც უფრო მისაღებია თქვენთვის. ინდივიდუალური კრედიტი მაღალი საკრედიტო შენატანებით და საკუთრების ჩადებით (გირაოს სახით) თუ კრედიტი დაბალი შენატანებით და ჯგუფური სესხით.

I___I

1. ინდივიდუალური კრედიტი, 2. ჯგუფურისესხი კრედიტი, 99. პასუხი არა სცემს.

D.2 რომელი იქნებოდა თქვენთვს მაღალი ან დაბალი ზღვარი დაფინანსების სისტემის დამახასიათებელი ნიშნებისთვის,რომელიც თქვენ ამოირჩიეთ?

I: თუ რესპოდენტმა ჯგუფურისესხის კრედიტი ამოირჩია აჩვენეთ მას დიდი ცხრილი ჯგუფური კრედიტით და შეიტანეთ პასუხი ქვემოთმდებარე პატარა ცხრილში.

დამახასიათებელი ნიშნები	ჯგუფურისესხი საკრედიტო მაღალი ზღვარებით	ჯგუფურისესხი საკრედიტო დაბალი ზღვარებით
საკრედიტო შესატანი ლარი		
საპროცენტო გადასახადი		
ჯგუფის ოდენიბა		
კრედიტის გადახდის პერიოდი		
ერთჯერადი გადასახადი პროცენტებში		
კრედიტის ხანგრძლივობა/თვეები		

D.3 მე არ შემიძლია ჯგუფურისესხის კრედიტისთვის მაღალი და დაბალი ზღვარის მითითება.

I___I

*თუ რესპოდენტმა **D.3** აირჩია გადადი **E.1.***

I: თუ რესპოდენტმა ინდივიდუალური კრედიტი აირჩია შეიტანეთ პასუხები ქვემოთმდებარე პატარა ცხრილში.

დამახასიათებელი ნიშნები	ინდივიდუალური კრედიტი მაღალი ზღვარი	ინდივიდუალური კრედიტი დაბალი ზღვარი
საკრედიტო შესატანი		
თვიური საპროცენტო გადასახადი ლარებში		
დაზღვევის ფორმა		
კრედიტის თვიური გადახდის პერიოდი		
ერთჯერადი საპროცენტო გადასახადი ლარებში		
კრედიტის ხანგრძლივობა/თვეებში		

D.4 მე არ შემიძლია მაღალი და დაბალი ზღვარის მითითება ინდივიდუალური კრედიტებისთვის.
I___I

*თუ რესპოდენტმა **D.4** აირჩია გადადი **E.1.***

D.5 ნაცნობია თქვენთვის დასახელებული საკრედიტო სისტემები?
I___I
არა, 1. დიახ

I: თუ რესპოდენტს საკრედიტო სისტემები გაურკვევლად ეჩვენება მაშინ წაუკითხეთ მას შემდეგი ტექსტი.
*სხვადასხვანაირი საკრედიტო სისტემები შეიძლება რთულად გასაგები იყოს, თუ გსურთ ამას კვლავ აგიხსნით. (თუ ვერ გაიგო ვუხსნით **D** ხელახლა)*

E. ცდა
I: გთხოვთ წაუკითხოთ რესპოდენტს შემდეგი ტექსტი.
მსურს წარგიდგინოთ ეს რუქა *(აჩვენეთ რუქა რომელზეც უნდა აირჩიოს)* ამ რუქაზე წარმოდგენილია კრედიტის გაცემისთვის დადგენილი პირობები. დაუშვათ თქვენ შემოგთავაზეს ორისხვადასხვანაირი კრედიტი ისეთი დამახასიათებელი ნიშნით როგორიც რუქაზეა გამოსახული. გთხოვთ ყველა რუქაზე აირჩიოთ რუქისთვის ის დამახასიათებელი ნიშანი რომელიც თქვენთვის ყველაზე უფრო ხელსაყრელია. თუ თქვენთვის ორივე საკრედიტო შემოთავაზება მიუღებელია შეგიძლიათ ამოირჩიოთ უჯრა „არცერთი მათგანი“. ამ უჯრაში არანაირი ხარჯები გადასახადების სახით არ შედის, როდესაც დანარჩენი ორი დაფინანსების სისტემა პროცენტებისა და ერთჯერადი გადასახადის სახით ხარჯებთანაა დაკავშირებული. მოდით დავიწყოთ!

*თუ რესპოდენტს შერჩევის რუკის არჩევა არ შეუძლია მაშინ გადადი **E.3.***

E.1 ცდა

I:გთხოვთ შეიტანოთ არჩევის შედეგები ქვემოთმდებარე ცხრილში.

*რესპოდენტისთვის რომელმაც ჯგუფურიპასუხისმგებლობის სესხი აირჩია **D1** ში.*

	ჯგუფური სესხის კრედიტი ა	ჯგუფური სესხის კრედიტი ბ	არცერთი ამ ორი კრედიტიდან	კატეგორია №	ბლოკი №	რუქა №
არჩევანი 1						
არჩევანი 2						
არჩევანი 3						
არჩევანი 4						

*რესპოდენტისთვის რომელმაც ინდივიდუალური დაკრედიტების სესხი აირჩია **D1** ში.*

	ინდივიდუალური კრედიტი ა	ინდივიდუალური კრედიტი ბ	არცერთი ამ ორთაგანი	კატეგორია №	ბლოკი №	რუქა №
არჩევანი 1						
არჩევანი 2						
არჩევანი 3						
არჩევანი 4						

I:საარჩევნო ცდის შემდეგ დასვით შემდეგი შეკითხვები:

E.2 რამდენად დარწმუნებულები იყავით რუქის არჩევაში?

I___I

1.დარწმუნებული, 2. საკმაოდ დარწმუნებული, 3.არ ვიცი ვიყავი თუ არა დარწმუნებული, 4. ცოტა დაბნეული, 5. დაბნეული.

E.3 როგორც ცნობილია სასოფლო სამეურნეო დაფინანსების სისტემა სასაქართველოში თითქმის არ მოიპოვება

ასეთი სისტემა რომ იყოს რომელი დაფინანსების სისტემით ისარგებლებდით?

I___I

1. ჯგუფურისესხის სისტემით, 2. ინდივიდუალურ საკრედიტო სისტემით, 3.არცერთით.

I:

*1. **E3** ის შემთხვევაში გადადი **E4** ზე.*

*2. **E3** ინდივიდუალური დაკრედიტების შემთხვევაში გადადი **E7** ზე.*

*3. **E3** არცერთი გადადი **E10** ზე.*

E.4 თქვენ აირჩიეთ საკრედიტო სისტემა ჯგუფური სესხის სახით. რამდენად მნივნელოვანი იყო თქვენი არჩევანის დროს ამ სისტემისთვის დამახასიათებელი შემდეგი ნიშნები?

1. კრედიტის ოდენობა
I___I
1. ძალიან მნიშვნელოვანი, 2. საკმაოდ მნიშვნელოვანი, 3. საშუალოდ მნიშვნელოვანი, 4. ნაწილობრივ მნიშვნელოვანი, 5. უმნიშვნელო, 99. პასუხი არა აქვს.

2. რამდენად მაღალია პროცენტი
I___I
1. ძალიან მნიშვნელოვანი, 2. საკმაოდ მნიშვნელოვანი, 3. საშუალოდ მნიშვნელოვანი, 4. ნაწილობრივ მნიშვნელოვანი, 5. უმნიშვნელო, 99. არა აქვს პასუხი.

3. დაზღვევა ჯგუფური სესხის ფორმატში კრედიტზე თვითოეულის დამოკიდებულება
I___I
1. ძალიან მნიშვნელოვანი, 2. საკმაოდ მნიშვნელოვანი, 3. საშუალოდ მნიშვნელოვანი, 4. ნაწილორივ მნიშვნელოვანი, 5.უმნიშვნელო, 99. არა აქვს პასუხი.

4. შესატანი გადასახადის პერიოდული სიხშირე
I___I
1. ძალიან მნიშვნელოვანი, 2. საკმაოდ მნიშვნელოვანი, 3. საშუალოდ მნიშვნელოვანი 4. ნაწილობრივ მნიშვნელოვანი, 5. უმნიშვნელო, 99. არა აქვს პასუხი.

5. ერთჯერადი საპროცენტო გადასახადი
I___I
1. ძალიან მნიშვნელოვანია, 2. საკმაოდ მნიშვნელოვანია, 3. საშუალოდ მნიშვნელოვანია, 4. ნაწილობრივ მნიშვნელოვანია, 5. უმნიშვნელოა, 99. არა აქვს პასუხი.

6. კრედიტის ხანგრძლივობა
I___I
1. ძალიან მნიშვნელოვანია, 2. საკმაოდ მნიშვნელოვანია, 3. საშუალოდ მნიშვნელოვანია, 4. ნაწილობრივ მნიშვნელოვანია, 5. უმნიშვნელოა, 99. არა აქვს პასუხი.
E.5 არსებობს თქვენთვის დამატებითი მიზეზები საკრედიტო სისტემის ჯგუფური სესხის არჩევისთვის?
I___I
0. არა, 1. დიახ.

*I: **E.5** ში: უარყოფითი პასუხის შემთხვევაში გადადი **E.14** ზე.*

E.6 ში დადებითი პასუხის შემთხვევაში E 5-ში მიუთითეთ მიზეზი აქ:
_____

*I: **E.6** ის შემდეგ გადადი **E.14** ზე.*

E.7 თქვენ ინდივიდიალურ საკრედიტო სისტემას მიანიჭეთ უპირატესობა რამდენად მნიშვნელოვანი იყო თქვენთვის ამ სისტემის არჩევისას მისი დამახასიათებელი ნიშნები?

1. კრედიტის ოდენობა
I___I
1. ძალიან მნიშვნელოვანია, 2. საკმაოდ მნიშვნელოვანია, 3. საშუალოდ მნიშვნელოვანი, 4. ნაწილობრივ მნიშვნელოვანი, 5. უმნიშვნელო, 99. პასუხს არ სცემს.

2. პროცენტის ოდენობა
I___I
1. ძალიან მნიშვნელოვანია, 2. საკმაოდ მნიშვნელოვანია, 3. საშუალოდ მნიშვნელოვანია, 4. ნაწილობრივ მნიშვნელოვანია, 5. უმნიშვნელოა, 99. პასუხს არ სცემს.

3. დაზღვევა კერძო საკუთრების ჩადების ფორმატში ინდივიდუალური კრედიტისათვის
I___I
1. ძალიან მნიშვნელოვანია, 2. საკმაოდ მნიშვნელოვანია, 3. საშუალოდ მნიშვნელოვანია 4. ნაწილობრივ მნიშვნელოვანია, 5. უმნიშვნელოა, 99. პასუხს არ სცემს.

4. კრედიტის გადახდის დროებითი სიხშირე
I___I
1. ძალიან მნიშვნელოვანია, 2. საკმაოდ მნიშვნელოვაშია, 3. საშუალოდ მნიშვნელოვანია, 4. ნაწილობრივ მნიშვნელოვანია, 5. უმნიშვნელოა, 99. არ სცემს პასუხს.

5. ერთჯერადი საპროცენტო გადასახადი
I___I
1. ძალიან მნიშვნელოვანია, 2. საკმაოდ მნიშვნელოვანია, 3. საშუალოდ მნიშვნელოვანია, 4. ნაწილობრივ მნიშვნელოვანია, 5. უმნიშვნელოა, 99. არ სცემს პასუხს.

6. კრედიტის ხანგრძლივობა
I___I
1. ძალიან მნიშვნელოვანია, 2. საკმაოდ მნიშვნელოვანია, 3. საშუალოდ მნიშვნელოვანია 4. ნაწილობრივ მნიშვნელოვანია, 5. უმნიშვნელოა, 99. არ სცემს პასუხს.

E.8 არსებობს თქვენთვის დამატებითი მიზეზები ინდივიდიალური საკრედიტო სისტემის არჩევისთვის?
I___I
0. არა, 1.დიახ.

*I: **E.8**: ში უარყოფითი პასუხის შემთხვევაში გადაგი **E.14** ზე.*

E.9 ში დადებითი პასუხის შემთხვევაში (შეიტანეთ მიზეზი) _____

*I: **E.9** შემდეგ გადადი **E.14** ზე.*

E.10 რატომ არ აირჩიეთ სასოფლო სამეურნეო დაფინანსების სისტემა?
I___I 1.არ ვენდობი საფინანსო ინსტიტუტებს.
I___I 2.არ მესაჭირება კრედიტი.
I___I 3.არ შემიძლია პირობების დაკმაყოფილება.
I___I 4.კრედიტის პირობები არ მომწონს.
I___I 5. ვალის დადება არ მინდოდა.
I___I 99. არ სცემს პასუხს.

E.11 არსებობს მიზეზი რის საფუძველზეც არ აირჩიეთ სასოფლო სამეურნეო დაფინანსების სისტემა?
I___I
0. არა, 1. დიახ.

*I: **E.11** ში უარყოფითი პასუხის შემთხვევაში გადადი **E.13** ზე.*

E.12 E.11 ში დადებითი პაუხის შემთხვევაში შეიტანეთ მიზეზი_____

E.13 შეგიძლიათ წარმოიდგინოთ აიღოთ კრედიტი როდესაც საკრედიტო პირობები თქვენთვის ხელსაყრელი იქნებოდა?
I___I
0. არა, 1. დიახ.

I: დასასრულს მინდა შეგეკითხოთ ხელსაყრელ სამეურნეო დაფინანსების სისტემაზე.

E.14 სამეურნეო დაფინანსების სფერო ზოგადად ჩემთვის მნიშვნელოვანია
I___I
1. ძალიან მნიშვნელოვანია, 2. საკმაოდ მნიშვნელოვანია, 3. საშუალოდ მნიშვნელოვანია, 4. ნაწილობრივ მნიშვნელოვანია, 5. უმნიშვნელოა, 99. არ სცემს პასუხს.

E.15 თქვენ როგორ აფასებთ იმის ალბათობას რომ ეს სასოფლო სამეურნეო დაფინანსების სისტემა განხორციელდება?
I___I
1. დიდი ალბათობაა, 2. საკმაო ალბათობაა, 3. ყველაფერი ხდება, 4. ალბათ მოხდება, 5. არ მჯერა, 99. არ სცემს პასუხს.
I:თქვენის ნებართვით ახლა თქვენი ოჯახის ეკონომიკურ ფინანსურ მდგომარეობაზე ვისაუბროთ.

F. ოჯახი

F.1 ოჯახის წევრები

კოდი	რესპოდენტის სტატუსი (a)	რესპოდენტის ნათესაური კავშირი ოჯახის უმფროსთან (b)	სქესი 0.მამაკაცი 1.ქალი	ასაკი	უმაღლესი განათლება (c)	პროფესია (d)
1						
2						
3						
4						
5						
6						
7						
8						

რესპოდენტის ოჯახური მდგომარეობა:
1. დაუოჯახებული, 2. დაოჯახებული რომლის მეუღლეც მასთან ერთად ცხოვრობს სახლში, 3. დაოჯახებული რომლის მეუღლე სამუშაო ადგილის გამო ცხოვრობს ოჯახიდან შორს, 4. ქვრივი, 5. გაცილებული, 99. არ სცემს პასუხს

რესპოდენტის ნათესაური კავშირი ოჯახის უფროსთან:
1. ოჯახის უფროსი, 2. ცოლი ,ქმარი თუ მეურვე, 3. ვაჟი, თუ ქალიშვილი, 4. დედა თუ მამა, 5. შვილიშვილი, 6. გარე ნათესავი, 7. ოჯახის ნდობით აღჭურვილი პირი, 99. არ სცემს პასუხს.

ოჯახის წევრთა განათლების დონე:
1. არანაირი განათლება 2. არასრული საშუალო, 3. საშუალო, 4. პროფტექნიკუმი. 5. უმაღლესი, 99. პასუხს არ სცემს

რას ქმიანობას ეწევით
1. ვაუშავებ საკუთარ მიწაზე 2. იჯარით მაქვს აღებული მიწა, 3. ვეწევი ინდივიდუალურ საქმიანობას, 4. ვეწევი საოჯახო საქმიანობას, 5. ვმუშაობ დღიურ შემოსავალზე, 6. ვმუშაობ სახელმწიფო სტრუქტურაში, 7. ვეძებ სამუშაოს, 8. არ ვეძებ სამუშაოს/ ვარ პენსიონერი, 9. არ შემიძლია მუშაობა(ავადმყოფი ინვალიდი), 10. სტუდენტი, 11. მოსწავლე, 12. სხვა რამ, 99. პასუხს არ სცემს.

F.2 რა ეროვნების ბრძანდებით?(დაშვებულია რამდენიმე პასუხი)
I___I 1. ქართველი
I___I 2. ოსი
I___I 3. სომეხი
I___I 4. აზერბაიჯანელი
I___I 5. რუსი
I___I 6. ბერძენი
I___I 7. თურქი
I___I 8. ქურთი

I___I 9. თათარი
I___I 10. სხვა (გთხოვთ მიუთითოთ): _____
I___I 99. პასუხს არ სცემს

F.3 რა აღმსარებლობის ბრძანდებით?
I___I
1. არცერთის, 2. მართლმადიდებელი, 3. ქრისტიანი მაგრამ არა მართლმადიდებელი, 4.მუსლიმანი, 5. იუდეველი, 6. სხვა (გთხოვთ მიუთითოთ): _____, 99. პასუხს არ სცემს

F.4 რა არის თქვენი ოჯახის ბიუჯეტის ძირითადი შემოსავლის წყარო?
I___I
შემოსავლები მიწათმოქმედებიდან
1. მოსავალი პირადი მოხმარებისათვის , 2. მოსავალი გასაყიდად,

შემოსავლები არასასოფლო სამეურნეო წყაროებიდან
3. სახელმწიფო სამსახურში დასაქმებიდან, 4. ინდივიდუალური მეწარმეობიდან, 5. სოციალური დახმარებიდან (როგორიცაა პენსია,შემწეობა), 7. საზღვარგარეთ მცოვრები ნათესავების ფულადი გზავნილებიდან, 8. საქართველოში მცხოვრებ ნათესავების ფულადი დახმარებიდან, 9. სხვა წყაროებიდან(გთხოვთ მიუთითოთ): _____, 99. პასუხს არ სცემს

F.5 რა სასოფლო სამეურნეო საქმიანობას ეწევით?
I___I
1. მეხილეობა, 2. მევენახეობა, მეღვინეობა, 3. მეხილეობა მეღვინეობა, 4. მეცხოველეობა, 5. მეხილეობა, მეღვინეობა, მეცხოველეობა, 6. სხვა საქმიანობა (გთხოვთ მიუთითოთ): _____, 99. პასუხს არ სცემს

G. მიწის საკუთრება

G.1 ვინაა მიწის მესაკუთრე? (დაშვებულია რამდენიმე პასუხი)
I___I 1. რესპოდენტი
I___I 2. ქმარი
I___I 3. ცოლი
I___I 4. ნათესავი
I___I 5. მეზობელი
I___I 6.სხვა (გთხოვთ მიუთითოთ): _____
I___I 99. პასუხს არ სცემს

G.2 რა ფართობისაა თქვენი ნაკვეთი? (ჰექტრებში)
I: თუ რესპოდენტი ფლობს რამდენიმე ნაკვეთს ამ შემთხვევაში დაიანგარიშეთ ერთად და მთლიანი ჯამი შეიტანეთ ქვემოთმდებარე უჯრაში
I___I

1. ერთ ჰექტრამდე, 2. ორ ჰექტრამდე, 3. ხუთ ჰექტრამდე, 4. ხუთ ჰექტარზე მეტი, 99. პასუხს არ სცემს.

I: ეს ბოლო კითხვა ეხება თქვენი ოჯახის ფინანსურ საკითხებს ჩვენ მადლობლები დაგრჩებოდით თუ ამ კითხვებზეც გვიპასუხებდით

H. ოჯახური ფინანსური საკითხების გადაწყვეტილება

H.1 რამდენია თქვენი ოჯახის თვიური ფულადი შემოსავალი?
I: თუ რესპოდენტი მხოლოდ ერთი წლის შემოსავალს უთითებს ამ შემთხვევაში გაყავით ეს 12 ზე და პასუხი შეიტანეთ ქვემოთმდებარე შესაბამის.
I___I
1. 50 ლარამდე
2. 50 დან 100 ლარამდე
3. 100იდან 200 ლარამდე
4. 200 დან 300 ლარამდე
5. 300 ლარზე მეტი
99. პასუხს არ სცემს

H.2 ოჯახის რომელი წევრი იღებს გადაწყვეტილებებს ფულის გახარჯვაზე?
I___I
1. ცოლ ქმარი ერთად, 2. ქმარი, 3. ცოლი, 4. ოჯახის უხუცესი, 5. ცოლსაც და ქმარსაც აქვთ თავისი საკუთარი ფული, 6. ოჯახის უმფროსი (ქალი ან კაცი), 7. სხვა პირი (გთხოვთ მიუთითოთ): _____, 99. პასუხს არ სცემს.

H.3 ოჯახის რომელი წევრი იღებს გადაწყვეტილებას მნიშვნელოვან საოჯახო შენაძენებზე,როგორიცაა მაგ.მიწის შესყიდვა,სასოფლო სამეურნეო ნივთების შეძენა,ავეჯის შეძენა და სხვა?
I___I
1. ცოლ ქმარი ერთად, 2. ქმარი, 3. ცოლი, 4. ოჯახის უხუცესი, 5. ოჯახის უმფროსი (ქალი ან კაცი), 7. სხვა პირი (გთხოვთ მიუთითოთ):
_____, 99. პასუხს არ სცემს

H.4
I___I
1.
2.
3.
4.
5.
99.

დიდი მადლობა დრო რომ დაგვითმეთ. თქვენი კომენტარ

5. Results of the Latent Class Model for four classes

	Class1		Class2		Class3		Class4		Overall	
R^2	0,1806		0,6421		0,4981		0,344		0,5143	
$R^2(0)$	0,3705		0,6989		0,4996		0,6046		0,5454	
Attributes	Class1	z-value	Class2	z-value	Class3	z-value	Class4	z-value	Mean	Std.Dev.
ininte										
	-0,8392	-4,8877	-1,0135	-2,1382	-2,1629	-3,5771	-3,7789	-3,0777	-1,4502	0,9456
incoll										
	0,3803	2,6139	-0,0269	-0,0421	-2,2499	-4,0911	3,221	2,4422	0,0751	1,4671
ininst										
1	0,0134	0,1036	0,3613	0,6958	-1,4478	-3,4285	0,4516	0,6514	-0,1446	0,6633
1,5	-0,0925	-0,8185	-0,7954	-1,4056	0,7631	2,3833	0,5851	1,0025	-0,0162	0,5478
2	0,1974	1,776	1,1681	1,8201	0,6073	1,5489	-2,2108	-2,4395	0,2458	0,93
2,5	-0,1183	-0,9238	-0,734	-1,222	0,0774	0,2182	1,1741	1,9949	-0,0851	0,5212
incomm										
0,5	-0,1634	-1,4159	0,4401	0,8503	0,2301	0,86	2,0059	2,8611	0,2836	0,6441
1	0,1812	1,4951	-1,1575	-1,989	0,2707	0,7445	-0,2322	-0,3459	-0,1549	0,5668
1,5	0,2086	1,538	1,444	2,5988	-0,0716	-0,2494	-0,1562	-0,2824	0,4009	0,5878
2	-0,2265	-2,1587	-0,7266	-1,3416	-0,4291	-1,2191	-1,6175	-1,8192	-0,5296	0,4239
inlod										
12	-0,029	-0,2378	-4,7661	-3,9749	-1,6573	-3,0707	-0,025	-0,031	-1,4418	1,9265
18	0,1117	0,9257	-0,6627	-1,2743	-0,8159	-2,4459	0,9547	1,2054	-0,1587	0,5558
24	-0,3134	-2,1931	2,8118	3,3389	1,3183	4,081	-0,0727	-0,0923	0,7533	1,2832
30	0,2307	2,1385	2,617	4,0727	1,155	3,177	-0,8571	-1,3181	0,8473	1,1087
ASC										
	-4,5956	-8,7045	-2,9841	-3,2904	-2,8996	-3,8964	1,8601	1,5317	-3,2058	1,9132
inlosneu										
8	0,6743	4,6352	2,7264	2,4485	3,0906	6,5848	2,6596	2,7878	1,8313	1,0923
16	0,3342	2,4679	-0,1458	-0,2452	0,3008	0,8682	-0,626	-0,622	0,1146	0,3214
24	-0,44	-3,3382	0,4961	1,1341	-1,8706	-3,8746	1,683	1,6707	-0,2768	1,0268
32	-0,5686	-4,1292	-3,0767	-3,5549	-1,5207	-3,576	-3,7166	-1,6127	-1,669	1,2142

Intercept	Class1	z-value	Class2	z-value	Class3	z-value	Class4	z-value
	0,4164	2,8649	0,2356	1,6723	0,0462	0,3306	-0,6982	-4,8705

Model for choices: Estimation

	Class1		Overall	
R^2	0,1193		0,1193	
$R^2(0)$	0,1752		0,1752	
Attributes	Class1	z-value	Mean	Std.Dev.
ininte				
	-0,6498	-7,878	-0,6498	0
incoll				
	0,144	1,7065	0,144	0
ininst				
	0,0866	1,2327	0,0866	0
incomm				
	-0,1601	-2,3009	-0,1601	0
inlod				
	0,0513	9,0382	0,0513	0
ASC				
	-1,8735	-7,5918	-1,8735	0
inlosneu				
	-0,0614	-11,3591	-0,0614	0

Four class choice model: Statistics

Number of cases	328	
Number of replications	1311	
Number of parameters (Npar)	23	
Random Seed	2427655	
Best Start Seed	2427655	
Chi-squared Statistics		
Degrees of freedom (df)	305	p-value
L-squared (L^2)	-275,2314	1
X-squared	1654,1297	7,60E-184
Cressie-Read	368,4837	0,0074
BIC (based on L^2)	-2042,1005	
AIC (based on L^2)	-885,2314	
AIC3 (based on L^2)	-1190,2314	
CAIC (based on L^2)	-2347,1005	
Dissimilarity Index	0,1657	
Log-likelihood Statistics		
Log-likelihood (LL)	-1061,6802	
Log-prior	-3,5933	
Log-posterior	-1065,2735	
BIC (based on LL)	2256,5998	
AIC (based on LL)	2169,3605	
AIC3 (based on LL)	2192,3605	
CAIC (based on LL)	2279,5998	
Classification Statistics	Classes	
Classification errors	0,1921	
Reduction of errors (Lambda)	0,6591	
Entropy R-squared	0,637	

Standard R-squared	0,601				
Classification log-likelihood	-1211,5135				
AWE	2758,5056				
Classification Table	Modal				
Probabilistic	Class1	Class2	Class3	Class4	Total
Class1	125,0014	15,3218	2,4359	0,415	143,1741
Class2	22,5798	68,8025	3,823	1,8321	97,0374
Class3	2,0917	6,2247	38,6712	2,2344	49,2219
Class4	0,3271	0,651	5,0699	32,5186	38,5666
Total	150	91	50	37	328
Prediction Statistics					
Error Type	Baseline(0)	Baseline	Model	$R^2(0)$	R^2
Squared Error	0,6667	0,6244	0,3271	0,5094	0,4761
Minus Log-likelihood	1,0986	1,0271	0,5485	0,5008	0,466
Absolute Error	1,3333	1,2493	0,7438	0,4421	0,4046
Prediction Error	0,6667	0,5823	0,2273	0,659	0,6096
Prediction Table	Estimated				
Observed	1	2	3	Total	
1	402	111	15	528	
2	107	439	20	566	
3	24	21	172	217	
Total	533	571	207	1311	
Variable Detail					
ID	hhid				
Choice Set	test				
Dependent					
inchoice	Nominal	3			
1	1				
2	2				
3	3				

7 Attributes

ininte	Numeric	4
0,5	1	0,5
1	2	1
1,5	3	1,5
2	4	2
.	5	.
incoll	Numeric	2
0	1	0
1	2	1
.	3	.
ininst	Numeric	4
1	1	1
1,5	2	1,5
2	3	2
2,5	4	2,5
.	5	.
incomm	Numeric	4
0,5	1	0,5
1	2	1
1,5	3	1,5
2	4	2
.	5	.
inlod	Numeric	4
12	1	12
18	2	18
24	3	24
30	4	30
.	5	.
ASC	Numeric	2
0	1	0
1	2	1
inlosneu	Numeric	4
8	1	8

16	2	16
24	3	24
32	4	32
.	5	.
6 Covariates		
b3reano_a	Num-Fixed	2
0	0	0
1	1	1
b3reano_b	Num-Fixed	2
0	0	0
1	1	1
b3reano_c	Num-Fixed	2
0	0	0
1	1	1
b3reano_d	Num-Fixed	2
0	0	0
1	1	1
b3reano_e	Num-Fixed	2
0	0	0
1	1	1
b3reano_f	Num-Fixed	2
0	0	0
1	1	1

Relative importance of loan attributes

ininte	0,1567	0,1411	0,1572	0,2619
incoll	0,0563	0	0,0979	0,1296
ininst	0,0075	0	0,1639	0,1122
incomm	0	0	0,0611	0,2456
inlod	0	0,545	0,1579	0,0651
ASC	0,637	0	0	0
inlosneu	0,1425	0,3139	0,3619	0,1857

6. Results of the Waller-Duncan test

Interpretation of four-class solution (Latent class analysis)

Only respondents who chose loans with individual liability are presented in the following tables.

One-class solution

Lower interest rates, lower commissions, and longer loan durations, two-month instalment period, real estate as collateral (the higher collateral type), smallest loan size of 8000 Lari. Only a few respondents chose the option 'neither loan', indicating that they received greater utility from one of the offered loan options than remaining without a loan.

Four-class solution short interpretation

In brackets: attributes that were not significant but important.

- Class 1: prefers small loans, relatively low aversion to higher interest rates (long loan duration of thirty months, real estate [higher type of collateral])
- Class 2: long loan duration of thirty months, relatively low aversion against higher interest rates (payment of 1.5% commission, two-month instalment period)
- Class 3: lower interest rates, collateral movable assets (lower collateral type), (one-and-a-half month instalment period, negative attitude towards loans)
- Class 4: prefers largest loans (low interest, collateral: real estate, longest instalments [two and a half months])

Results of the Waller-Duncan test assigned to the four classes

Class 1 (47%): Prefers small loans, relatively low aversion to higher interest rates (long loan duration of thirty months, real estate [higher type of collateral])

Variable	Label: Category	Summary
B3eano1_a	Reason no loan: Did not need a loan	No homogeneous subgroups
B3eano1_b	Reason no loan: No possibility to take up a loan	Group 1 with low percentage, 9%
B3eano1_c	Reason no loan: Could not fulfil the conditions	No homogeneous subgroups for all 4 classes
B3eano1_d	Reason no loan: Do not want	No homogeneous subgroups

	to have debts	
B3eano1_e	Reason no loan: Cannot trust others	Group 1 with low percentage, 1%
B3eano1_f	Reason no loan: Afraid of loans	Group 1 with low percentage, 0%
B4invmo1_a	Hypothetical loan investment: Would never take up a loan	Group 1 with low percentage, 22%
B4invmo1_b	Hypothetical loan investment: House	Group 1 with low percentage, 12%
B4invmo1_c	Hypothetical loan investment: Agriculture	Group 2 with high percentage, 47%
B4invmo1_d	Hypothetical loan investment: Business	Group 1 and 2 with low and high percentages, 12%
B4invmo1_e	Hypothetical loan investment: Education	No homogeneous subgroups
B4invmo1_f	Hypothetical loan investment: Consumption purposes	No homogeneous subgroups
B4invmo1_g	Hypothetical loan investment: Car	No homogeneous subgroups
B5lotime	Frequency of loan uptake	No homogeneous subgroups
B7lopu11_a	Purpose real loan: Agriculture	Group 1 and 2 with low and high percentages, 38%
B7lopu11_b	Purpose real loan: House	No homogeneous subgroups
B7lopu11_c	Purpose real loan: Consumption purposes	Group 1 with low percentage, 28%
B7lopu11_d	Purpose real loan: Business	Group 2 and 3 with middle and high percentages, 19%
B7lopu11_e	Purpose real loan: Education	Group 1 with low percentage, 0%
B7lopu11_f	Purpose real loan: Medical treatment	No homogeneous subgroups
B7lopu11_g	Purpose real loan: Car	2% (only 1 group)
B8losu1	loan sum	Group 2 with high loan sum, 1000–2000 lari
C2distan	distance to credit institution	Group 2 with high distance, more than 8 km
C31easyl	easy to obtain the loan	Group 1 with high easiness (easy to obtain a loan)
C32adequ	interests and commission adequate	Group 1 and 2 with high and low adequateness (moderately adequate)
C33frien	people in bank:NGO friendly	Group 2 with low friendliness (very friendly with slight tendency to friendly)
C34condi	loan conditions understandable	No homogeneous subgroups
C35requi	easy to fulfil all loan requirements	Group 1 and 2 with high and middle easiness (easy and easy with a slight tendency to moderately easy)
D4inlosA	individual loan, hypothetical loan size upper limit	Group 1 and 2 with low and high loan sizes, upper limit 12100 lari
D4inlosB	Individual loan, hypothetical loan size lower limit	Group 2 with high loan size, lower limit 4500 lari
D4inintA	Individual loan, hypothetical interests upper limit	313 lari (only 1 group)
D4inintB	Individual loan, hypothetical interests lower limit	No homogeneous subgroups
D4incoA1_a	Individual loan, hypothetical collateral, upper limit: House	No homogeneous subgroups
D4incoA1_b	Individual loan, hypothetical collateral, upper limit: Movable property	Group 1 and 2 with low and high percentages, 5%
D4incoA1_c	Individual loan, hypothetical collateral, upper limit: Real estate	No homogeneous subgroups
D4incoA1_d	Individual loan, hypothetical	No homogeneous subgroups

	collateral, upper limit: Transportation means, agricultural machines	
D4incoA1_e	Individual loan, hypothetical collateral, upper limit: Salary	No homogeneous subgroups
D4incoB1_a	Individual loan, hypothetical collateral, lower limit: House	Group 1 with low percentage, 1%
D4incoB1_b	Individual loan, hypothetical collateral, lower limit: Movable Property	Group 1 with low percentage, 42%
D4incoB1_c	Individual loan, hypothetical collateral, lower limit: Real estate	Group 1 and 2 with low and high percentages, 31%
D4incoB1_d	Individual loan, hypothetical collateral, lower limit: Transportation means, agricultural machines	Group 2 with high percentage, 24%
D4incoB1_e	Individual loan, hypothetical collateral, lower limit: Salary	No homogeneous subgroups
D4ininsA	Individual loan, hypothetical instalments, upper limit	No homogeneous subgroups
D4ininsB	Individual loan, hypothetical instalments, lower limit	No homogeneous subgroups
D4incomA	Individual loan, hypothetical commission, upper limit	Group 3 with high commission, upper limit 148 lari
D4incomB	Individual loan, hypothetical commission, lower limit	Group 1 with 67 lari (only 1 group)
D4inlodA	Individual loan, hypothetical loan duration, upper limit	Group 2 with long loan durations, upper limit 42 months
D4inlodB	Individual loan, hypothetical loan duration, lower limit	Group 2 with long loan durations, lower limit 22 months
E2certce	Certainty choice of CE cards	Group 1 with high certainty of choice of CE cards (certain)
E6inlos	Importance of loan size	High importance of loan size (very important, slight tendency to important) (only 1 group)
E6inint	Importance of interest	Group 2 with low importance of interest (important)
E6incoll	Importance of collateral	Group 1 and 2 with high and low importance of collateral (very important and important)
E6ininst	Importance of instalments' maturity	Group 2 with low importance of instalments (important)
E6incomm	Importance of commission	Group 2 with low importance of commission (moderately important)
E6inlod	Importance of loan duration	No homogeneous subgroups
E11impfs	Importance of implementation of rural credit system	Group 1 with high importance, (important)
E12likel	Likelihood of implementation of rural finance system	Group 1 with high likelihood, (likely)
F1sex1	Respondents' gender	No homogeneous subgroups
F1age1	Respondent's age	No homogeneous subgroups
F1maxed1_b	Respondent's education: 9th class degree	2% (only 1 group)
F1maxed1_c	Respondent's education: General secondary education	Group 1 low percentage, 40%
F1maxed1_d	Respondent's education: Specialized post-secondary technical education	Group 1 with low percentage, 26%
F1maxed1_e	Respondent's education:	No homogeneous subgroups

	University degree	
F1job11_a	Respondent's main job: Agriculture on land owned by respondent/family	No homogeneous subgroups (mean 29%)
F1job11_b	Respondent's main job: employed, day labourer	No homogeneous subgroups (mean 8.6%)
F1job11_c	Respondent's main job: Self-employed	10% (only 1 homogeneous group)
F1job11_d	Respondent's main job: Work in the house	No homogeneous subgroups (mean 25%)
F1job11_e	Respondent's main job: Unemployed	Group 1 with low percentage, 11%
F1job11_f	Respondent's main job: Retired, disabled	No homogeneous subgroups (mean 14%)
F1job11_g	Respondent's main job: Student, pupil, baby, other	Group 1 and 2 with low and high percentages, 1%
F4maini1_a	Respondent's main income source: Subsistence farming	9% (only 1 homogeneous group)
F4maini1_b	Respondent's main income source: Selling of agricultural products and other income source	No homogeneous subgroups
F4maini1_c	Respondent's main income source: Employee	No homogeneous subgroups
F4maini1_d	Respondent's main income source: Self employed	No homogeneous subgroups
F4maini1_e	Respondent's main income source/ Pension, social assistance	No homogeneous subgroups
F4maini1_f	Respondent's main income source: Financial support from relatives	Group 1 with low percentage, 0%
F5kinda_a	Kind of agriculture: Fruit, wine	No homogeneous subgroups
F5kinda_b	Kind of agriculture: Livestock, fruit, wine	Group 1 with low percentage, 2%
F5kinda_c	Kind of agriculture/ Vegetables, fruit, wine	No homogeneous subgroups
F5kinda_d	Kind of agriculture: Livestock, vegetables, wine	Group 1 with low percentage, 3%
F5kinda_e	Kind of agriculture: Cereals, fruit, vegetables, wine	Group 1 with low percentage, 0%
F5kinda_f	Kind of agriculture: Aquaculture	No homogeneous subgroups
F5kinda_g	Kind of agriculture: No agriculture	No homogeneous subgroups
G1land11_a	Landownership: Respondent	No homogeneous subgroups (mean 54%)
G1land11_b	Landownership: Husband	No homogeneous subgroups (mean 24%)
G1land11_c	Landownership: Wife	No homogeneous subgroups (mean 0.5%)
G1land11_d	Landownership: Mother	Group 1 and 2 with low and middle percentages, 5%
G1land11_e	Landownership: Father	No homogeneous subgroups (mean 16%)
G1land11_f	Landownership: Household head (male or female)	No homogeneous subgroups (mean 1%)
G1land11_g	Landownership: Respondent does not possess land	Group 1 with low percentage, 0%
G2landar	Land area	Areas up to 1 ha, tendency to 1 up to 2 ha, (only 1 group)
H1moninc	Monthly income	No homogeneous subgroups. Subsistence minimum

		per one average consumer is 113 lari (March 2008, *Quarterly Bulletin* 2008 I: p. 79). Average monthly income per hh is 300 lari (2007, *Quarterly Bulletin* 2008 I: p.79)
H2decim1_a	Decision on money use: Couple together	No homogeneous subgroups
H2decim1_b	Decision on money use: Husband	Group 1 with low percentage, 1%
H2decim1_c	Decision on money use: Wife	2% (only 1 group)
H2decim1_d	Decision on money use: Eldest hh member	2% (only 1 group)
H2decim1_e	Decision on money use: All members of the family	Group 1 and 2 with low and middle percentages, 6%
H2decim1_f	Decision on money use: Head of hh (male or female)	Group 1 with low percentage, 23%
H2decim1_g	Decision on money use: Mother or father	Group 1 with low percentage, 3%
H3decin1_a	Decision on investments: Couple together	No homogeneous subgroups (mean 62%)
H3decin1_b	Decision on investments: Husband	Group 1 with low percentage, 2%
H3decin1_c	Decision on investments: Wife	No homogeneous subgroups (mean 0.5%)
H3decin1_d	Decision on investments: Eldest hh member	Group 1 and 2 with low and high percentages, 1%
H3decin1_e	Decision on investments: Head of hh (male or female)	No homogeneous subgroups (mean 22%)
H3decin1_f	Decision on investments: All members together	Group 1 and 2 with low and middle percentages, 7%
H3decin1_g	Decision on investments: Mother or father	Group 1 with low percentage, 3%
H4expinc	Expectation of income development	No homogeneous subgroups

Class 2 (23%): Prefers a long loan duration of thirty months, relatively low aversion to higher interest rates (payment of 1.5% commission, two-month instalment period)

Variable	Label: Category	Summary
B3eano1_a	Reason no loan: Did not need a loan	No homogeneous subgroups
B3eano1_b	Reason no loan: No possibility to take up a loan	Group 1 and 2 with low and high percentages, 13%
B3eano1_c	Reason no loan: Could not fulfil the conditions	No homogeneous subgroups for all four classes
B3eano1_d	Reason no loan: Do not want to have debts	No homogeneous subgroups
B3eano1_e	Reason no loan: Cannot trust others	Group 1 with low percentage, 1%
B3eano1_f	Reason no loan: Afraid of loans	Group 1 with low percentage, 1%
B4invmo1_a	Hypothetical loan investment: Would never take up a loan	Group 1 with low percentage, 16%
B4invmo1_b	Hypothetical loan investment: House	Group 1 with low percentage, 12%
B4invmo1_c	Hypothetical loan investment: Agriculture	Group 2 with high percentage, 50%

B4invmo1_d	Hypothetical loan investment: Business	Group 2 with high percentage, 16%
B4invmo1_e	Hypothetical loan investment: Education	No homogeneous subgroups
B4invmo1_f	Hypothetical loan investment: Consumption purposes	No homogeneous subgroups
B4invmo1_g	Hypothetical loan investment: Car	No homogeneous subgroups
B5lotime	Frequency of loan uptake	No homogeneous subgroups
B7lopu11_a	Purpose real loan: Agriculture	Group 2 with high percentage, 49%
B7lopu11_b	Purpose real loan: House	No homogeneous subgroups
B7lopu11_c	Purpose real loan:Consumption purposes	Group 1 with low percentage, 25%
B7lopu11_d	Purpose real loan: Business	Group 1 and 2 with low and middle percentages, 10%
B7lopu11_e	Purpose real loan: Education	Group 1 with low percentage, 0%
B7lopu11_f	Purpose real loan: Medical treatment	No homogeneous subgroups
B7lopu11_g	Purpose real loan: Car	7% (only 1 group)
B8losu1	loan sum	Group 1 with low loan sums, 500–1000 lari
C2distan	distance to credit institution	Group 2 with high distance, more than 8 km
C31easyl	easy to obtain the loan	Group 1 and 2 with high and low easiness (easy to obtain a loan)
C32adequ	interests and commission adequate	Group 1 and 2 with high and low adequateness (moderately adequate)
C33frien	people in bank/NGO friendly	Group 2 with low friendliness (very friendly with slight tendency to friendly)
C34condi	loan conditions understandable	No homogeneous subgroups
C35requi	easy to fulfil all loan requirements	Group 2 and 3 with middle and low easiness (easy and easy with a slight tendency to moderately easy)
D4inlosA	individual loan, hypothetical loan size upper limit	Group 1 with low loan size, upper limit 8100 lari
D4inlosB	Individual loan, hypothetical loan size lower limit	Group 1 with low loan size, lower limit 2100 lari
D4inintA	Individual loan, hypothetical interests upper limit	147 lari (only 1 group)
D4inintB	Individual loan, hypothetical interests lower limit	No homogeneous subgroups
D4incoA1_a	Individual loan, hypothetical collateral, upper limit: House	No homogeneous subgroups
D4incoA1_b	Individual loan, hypothetical collateral, upper limit: Movable property	Group 2 with high percentage, 11%
D4incoA1_c	Individual loan, hypothetical collateral, upper limit: Real estate	No homogeneous subgroups
D4incoA1_d	Individual loan, hypothetical collateral, upper limit: Transportation means, agricultural machines	No homogeneous subgroups
D4incoA1_e	Individual loan, hypothetical collateral, upper limit: Salary	No homogeneous subgroups
D4incoB1_a	Individual loan, hypothetical collateral, lower limit: House	Group 1 with low percentage, 1%
D4incoB1_b	Individual loan, hypothetical collateral, lower limit: Movable Property	Group 2 with high percentage, 59%

D4incoB1_c	Individual loan, hypothetical collateral, lower limit: Real estate	Group 1 with low percentage, 26%
D4incoB1_d	Individual loan, hypothetical collateral, lower limit: Transportation means, agricultural machines	Group 1 with low percentage, 10%
D4incoB1_e	Individual loan, hypothetical collateral, lower limit: Salary	No homogeneous subgroups
D4ininsA	Individual loan, hypothetical instalments, upper limit	No homogeneous subgroups
D4ininsB	Individual loan, hypothetical instalments, lower limit	No homogeneous subgroups
D4incomA	Individual loan, hypothetical commission, upper limit	Group 1 with low commission, upper limit 67 lari
D4incomB	Individual loan, hypothetical commission, lower limit	31 lari (only 1 group)
D4inlodA	Individual loan, hypothetical loan duration, upper limit	Group 1 with short loan durations, upper limit 35 months
D4inlodB	Individual loan, hypothetical loan duration, lower limit	Group 1 with short loan durations, lower limit 17 months
E2certce	Certainty choice of CE cards	Group 1 with high certainty of choice of CE cards (certain)
E6inlos	Importance of loan size	High importance of loan size (very important, slight tendency to important) (only 1 group)
E6inint	Importance of interest	Group 1 with high importance of interest (very important)
E6incoll	Importance of collateral	Group 1 with high importance of collateral (very important)
E6ininst	Importance of instalments' maturity	Group 1 with high importance of instalments (very important)
E6incomm	Importance of commission	Group 1 and 2 with high and low importance of commission (moderately important)
E6inlod	Importance of loan duration	No homogeneous subgroups
E11impfs	Importance of implementation of rural credit system	Group 1 with high importance, (important)
E12likel	Likelihood of implementation of rural finance system	Group 1 with high likelihood, (likely)
F1sex1	Respondents' gender	No homogeneous subgroups
F1age1	Respondent's age	No homogeneous subgroups
F1maxed1_b	Respondent's education: 9th class degree	0% (only 1 group)
F1maxed1_c	Respondent's education: General secondary education	Group 1 with low percentage, 38%
F1maxed1_d	Respondent's education: Specialized post-secondary technical education	Group 1 with low percentage, 31%
F1maxed1_e	Respondent's education: University degree	No homogeneous subgroups
F1job11_a	Respondent's main job: Agriculture on land owned by respondent/family	No homogeneous subgroups (mean 29%)
F1job11_b	Respondent's main job: employed, day labourer	No homogeneous subgroups (mean 8.6%)
F1job11_c	Respondent's main job: Self-employed	15% (only 1 group)
F1job11_d	Respondent's main job: Work in the house	No homogeneous subgroups (mean 25%)

F1job11_e	Respondent's main job: Unemployed	Group 1 with low percentage, 10%
F1job11_f	Respondent's main job: Retired, disabled	No homogeneous subgroups (mean 14%)
F1job11_g	Respondent's main job: Student, pupil, baby, other	Group with low percentage, 0%
F4maini1_a	Respondent's main income source: Subsistence farming	5% (only 1 group)
F4maini1_b	Respondent's main income source: Selling of agricultural products and other income source	No homogeneous subgroups
F4maini1_c	Respondent's main income source: Employee	No homogeneous subgroups
F4maini1_d	Respondent's main income source: Self-employed	No homogeneous subgroups
F4maini1_e	Respondent's main income source: Pension, social assistance	No homogeneous subgroups
F4maini1_f	Respondent's main income source: Financial support from relatives	Group 1 with low percentage, 0%
F5kinda_a	Kind of agriculture: Fruit, wine	No homogeneous subgroups
F5kinda_b	Kind of agriculture: Livestock, fruit, wine	Group 1 with low percentage, 2%
F5kinda_c	Kind of agriculture: Vegetables, fruit, wine	No homogeneous subgroups
F5kinda_d	Kind of agriculture: Livestock, vegetables, wine	Group 1 with low percentage, 4%
F5kinda_e	Kind of agriculture: Cereals, fruit, vegetables, wine	Group 1 with low percentage, 1%
F5kinda_f	Kind of agriculture: Aquaculture	No homogeneous subgroups
F5kinda_g	Kind of agriculture: No agriculture	No homogeneous subgroups
G1land11_a	Landownership: Respondent	No homogeneous subgroups (mean 54%)
G1land11_b	Landownership: Husband	No homogeneous subgroups (mean 24%)
G1land11_c	Landownership: Wife	No homogeneous subgroups (mean 0.5%)
G1land11_d	Landownership: Mother	Group with low percentage, 3%
G1land11_e	Landownership: Father	No homogeneous subgroups (mean 16%)
G1land11_f	Landownership: Head of household (male or female)	No homogeneous subgroups (mean 1%)
G1land11_g	Landownership: Respondent does not possess land	Group 1 and 2 with low and high percentages, 0%
G2landar	Land area	Areas up to 1 ha, tendency to 1 up to 2 ha, (only 1 group)
H1moninc	Monthly income	No homogeneous subgroups. Subsistence minimum per one average consumer is 113 lari (March 2008, *Quarterly Bulletin* 2008 I: p. 79). Average monthly income per hh is 300 lari (2007, *Quarterly Bulletin* 2008 I: p.79)
H2decim1_a	Decision on money use: Couple together	No homogeneous subgroups
H2decim1_b	Decision on money use: Husband	Group 1 with low percentage, 1%
H2decim1_c	Decision on money use: Wife	0% (only 1 group)
H2decim1_d	Decision on money use:	1% (only 1 group)

	Eldest hh member	
H2decim1_e	Decision on money use: All members of the family	Group 3 with high percentage, 10%
H2decim1_f	Decision on money use: Head of hh (male or female)	Group 1 with low percentage, 20%
H2decim1_g	Decision on money use: Mother or father	Group 1 with low percentage, 3%
H3decin1_a	Decision on investments: Couple together	No homogeneous subgroups (mean 62%)
H3decin1_b	Decision on investments: Husband	Group 1 with low percentage, 2%
H3decin1_c	Decision on investments: Wife	No homogeneous subgroups (mean 0.5%)
H3decin1_d	Decision on investments: Eldest hh member	Group 1 with low percentage, 0%
H3decin1_e	Decision on investments: Head of hh (male or female)	No homogeneous subgroups (mean 22%)
H3decin1_f	Decision on investments: All members together	Group 2 and 3 with middle and high percentages, 11%
H3decin1_g	Decision on investments: Mother or father	Group 1 with low percentage, 3%
H4expinc	Expectation of income development	No homogeneous subgroups

Class 3 (20%): Lower interest rates, collateral movable assets (lower collateral type) (1.5-month instalment period, negative attitude towards loans)

Variable	Label: Category	Summary
B3eano1_a	Reason no loan: Did not need a loan	No homogeneous subgroups
B3eano1_b	Reason no loan: No possibility to take up a loan	Group 1 and 2 with low and high percentages, 15%
B3eano1_c	Reason no loan: Could not fulfil the conditions	No homogeneous subgroups
B3eano1_d	Reason no loan: Do not want to have debts	No homogeneous subgroups
B3eano1_e	Reason no loan: Cannot trust others	Group 1 with low percentage, 0%
B3eano1_f	Reason no loan: Afraid of loans	Group 1 with low percentage, 0%
B4invmo1_a	Hypothetical loan investment: Would never take up a loan	Group 1 with low percentage, 18%
B4invmo1_b	Hypothetical loan investment: House	Group 1 with low percentage, 8%
B4invmo1_c	Hypothetical loan investment: Agriculture	Group 2 with high percentage, 54%
B4invmo1_d	Hypothetical loan investment: Business	Group 1 and 2 with low and high percentages, 15%
B4invmo1_e	Hypothetical loan investment: Education	No homogeneous subgroups
B4invmo1_f	Hypothetical loan investment: Consumption purposes	No homogeneous subgroups
B4invmo1_g	Hypothetical loan investment: Car	No homogeneous subgroups
B5lotime	Frequency of loan uptake	No homogeneous subgroups
B7lopu11_a	Purpose real loan: Agriculture	Group 1 with low percentage, 27%

B7lopu11_b	Purpose real loan: House	No homogeneous subgroups
B7lopu11_c	Purpose real loan: Consumption purposes	Group 1 with low percentage, 24%
B7lopu11_d	Purpose real loan: Business	Group 3 with high percentage, 20%
B7lopu11_e	Purpose real loan: Education	Group 2 with high percentage, 5%
B7lopu11_f	Purpose real loan: Medical treatment	No homogeneous subgroups
B7lopu11_g	Purpose real loan: Car	3% (only 1 group)
B8losu1	loan sum	Group 1 with low loan sums, 500–1000 lari
C2distan	distance to credit institution	Group 2 with high distance, more than 8 km
C31easyl	easy to obtain the loan	Group 1 with high easiness (easy to obtain a loan)
C32adequ	interests and commission adequate	Group 1 high adequateness (adequate)
C33frien	people in bank/NGO friendly	Group 2 with low friendliness (very friendly with slight tendency to friendly)
C34condi	loan conditions understandable	No homogeneous subgroups
C35requi	easy to fulfil all loan requirements	Group 1 with high easiness (easy)
D4inlosA	individual loan, hypothetical loan size upper limit	Group 2 with high loan sizes, upper limit 18200 lari
D4inlosB	Individual loan, hypothetical loan size lower limit	Group 2 with high loan sizes, lower limit 3900 lari
D4inintA	Individual loan, hypothetical interests upper limit	232 lari (only one group)
D4inintB	Individual loan, hypothetical interests lower limit	No homogeneous subgroups
D4incoA1_a	Individual loan, hypothetical collateral, upper limit: House	No homogeneous subgroups
D4incoA1_b	Individual loan, hypothetical collateral, upper limit: Movable property	Group 2 with high percentage, 11%
D4incoA1_c	Individual loan, hypothetical collateral, upper limit: Real estate	No homogeneous subgroups
D4incoA1_d	Individual loan, hypothetical collateral, upper limit: Transportation means, agricultural machines	No homogeneous subgroups
D4incoA1_e	Individual loan, hypothetical collateral, upper limit: Salary	No homogeneous subgroups
D4incoB1_a	Individual loan, hypothetical collateral, lower limit: House	Group 1 with low percentage, 1%
D4incoB1_b	Individual loan, hypothetical collateral, lower limit: Movable Property	Group 1 and 2 with low and high percentages, 52%
D4incoB1_c	Individual loan, hypothetical collateral, lower limit: Real estate	Group 2 with high percentage, 39%
D4incoB1_d	Individual loan, hypothetical collateral, lower limit: Transportation means, agricultural machines	Group 1 with low percentage, 7%
D4incoB1_e	Individual loan, hypothetical collateral, lower limit: Salary	No homogeneous subgroups
D4ininsA	Individual loan, hypothetical instalments, upper limit	No homogeneous subgroups
D4ininsB	Individual loan, hypothetical	No homogeneous subgroups

	instalments, lower limit	
D4incomA	Individual loan, hypothetical commission, upper limit	Group 2 and 3 with middle and high commission, upper limit 127 lari
D4incomB	Individual loan, hypothetical commission, lower limit	67 lari (only one group)
D4inlodA	Individual loan, hypothetical loan duration, upper limit	Group 1 and 2 with short and long loan durations, upper limit 42 months
D4inlodB	Individual loan, hypothetical loan duration, lower limit	Group 2 with long loan duration, lower limit 24 months
E2certce	Certainty choice of CE cards	Group 1 with high certainty of choice of CE cards (certain)
E6inlos	Importance of loan size	High importance loan size (very important, slight tendency to important) (only one group)
E6inint	Importance of interests	Group 2 with low importance interests (important)
E6incoll	Importance of collateral	Group 2 with low importance collateral (important)
E6ininst	Importance of instalments' maturity	Group 1 and 2 with high and low importance instalments (very important and important)
E6incomm	Importance of commission	Group 2 with low importance commission (moderately important)
E6inlod	Importance of loan duration	No homogeneous subgroups
E11impfs	Importance of implementation of rural credit system	Group 1 with high importance, (important)
E12likel	Likelihood of implementation of rural finance system	Group 1 with high likelihood, (likely)
F1sex1	Respondents' gender	No homogeneous subgroups
F1age1	Respondent's age	No homogeneous subgroups
F1maxed1_b	Respondent's education: 9th class degree	2% (only 1 group)
F1maxed1_c	Respondent's education: General secondary education	Group 1 with low percentage, 33%
F1maxed1_d	Respondent's education: Specialized post-secondary technical education	Group 2 with high percentage, 36%
F1maxed1_e	Respondent's education: University degree	No homogeneous subgroups
F1job11_a	Respondent's main job: Agriculture on land owned by respondent/family	No homogeneous subgroups (mean 29%)
F1job11_b	Respondent's main job: employed, day labourer	No homogeneous subgroups (mean 8.6%)
F1job11_c	Respondent's main job: Self-employed	15% (only 1 group)
F1job11_d	Respondent's main job: Work in the house	No homogeneous subgroups (mean 25%)
F1job11_e	Respondent's main job: Unemployed	Group 2 with high percentage, 19%
F1job11_f	Respondent's main job: Retired, disabled	No homogeneous subgroups (mean 14%)
F1job11_g	Respondent's main job: Student, pupil, baby, other	Group 1 with low percentage, 0%
F4maini1_a	Respondent's main income source: Subsistence farming	8% (only 1 group)
F4maini1_b	Respondent's main income source: Selling of agricultural products and other income source	No homogeneous subgroups
F4maini1_c	Respondent's main income	No homogeneous subgroups

	source: Employee	
F4maini1_d	Respondent's main income source: Self employed	No homogeneous subgroups
F4maini1_e	Respondent's main income source: Pension, social assistance	No homogeneous subgroups
F4maini1_f	Respondent's main income source: Financial support from relatives	Group 1 with low percentage, 0%
F5kinda_a	Kind of agriculture: Fruit, wine	No homogeneous subgroups
F5kinda_b	Kind of agriculture: Livestock, fruit, wine	Group 2 with high percentage, 5%
F5kinda_c	Kind of agriculture: Vegetables, fruit, wine	No homogeneous subgroups
F5kinda_d	Kind of agriculture: Livestock, vegetables, wine	Group 1 with low percentage, 1%
F5kinda_e	Kind of agriculture: Cereals, fruit, vegetables, wine	Group 2 with high percentage, 3%
F5kinda_f	Kind of agriculture: Aquaculture	No homogeneous subgroups
F5kinda_g	Kind of agriculture: No agriculture	No homogeneous subgroups
G1land11_a	Landownership: Respondent	No homogeneous subgroups (mean 54%)
G1land11_b	Landownership: Husband	No homogeneous subgroups (mean 24%)
G1land11_c	Landownership: Wife	No homogeneous subgroups (mean 0.5%)
G1land11_d	Landownership: Mother	Group 3 with high percentage, 10%
G1land11_e	Landownership: Father	No homogeneous subgroups (mean 16%)
G1land11_f	Landownership: Head of household (male or female)	No homogeneous subgroups (mean 1%)
G1land11_g	Landownership: Respondent does not possess land	Group 1 with low percentage, 0%
G2landar	Land area	Areas up to 1 ha, tendency to 1 up to 2 ha, (only 1 group)
H1moninc	Monthly income	No homogeneous subgroups. Subsistence minimum per one average consumer is 113 lari (March 2008, *Quarterly Bulletin* 2008 I: p. 79). Average monthly income per hh is 300 lari (2007, *Quarterly Bulletin* 2008 I: p.79)
H2decim1_a	Decision on money use: Couple together	No homogeneous subgroups
H2decim1_b	Decision on money use: Husband	Group 1 with low percentage, 1%
H2decim1_c	Decision on money use: Wife	0% (only one group)
H2decim1_d	Decision on money use: Eldest hh member	3% (only one group)
H2decim1_e	Decision on money use: All members of the family	Group 1 with low percentage, 3%
H2decim1_f	Decision on money use: Head of hh (male or female)	Group 2 with high percentage, 30%
H2decim1_g	Decision on money use: Mother or father	Group 2 with high percentage, 6%
H3decin1_a	Decision on investments: Couple together	No homogeneous subgroups (mean 62%)
H3decin1_b	Decision on investments: Husband	Group 1 with low percentage, 1%
H3decin1_c	Decision on investments: Wife	No homogeneous subgroups (mean 0.5%)

H3decin1_d	Decision on investments: Eldest hh member	Group 2 with high percentage, 2%
H3decin1_e	Decision on investments: Head of hh (male or female)	No homogeneous subgroups (mean 22%)
H3decin1_f	Decision on investments: All members together	Group with low percentage, 4%
H3decin1_g	Decision on investments: Mother or father	Group 2 with high percentage, 6%
H4expinc	Expectation of income development	No homogeneous subgroups

Class 4 (10%): Prefers largest loans (low interest, collateral: real estate, longest instalment period [2.5 months])

Variable	Label: Category	Summary
B3eano1_a	Reason no loan: Did not need a loan	No homogeneous subgroups
B3eano1_b	Reason no loan:: No possibility to take up a loan	Group 2 with high percentage, 17%
B3eano1_c	Reason no loan:: Could not fulfil the conditions	No homogeneous subgroups
B3eano1_d	Reason no loan: Do not want to have debts	No homogeneous subgroups
B3eano1_e	Reason no loan: Cannot trust others	Group 2 with high percentage, 4%
B3eano1_f	Reason no loan: Afraid of loans	Group 2 with high percentage, 5%
B4invmo1_a	Hypothetical loan investment: Would never take up a loan	Group 2 with high percentage, 35%
B4invmo1_b	Hypothetical loan investment: House	Group 2 with high percentage, 20%
B4invmo1_c	Hypothetical loan investment: Agriculture	Group 1 with low percentage, 31%
B4invmo1_d	Hypothetical loan investment: Business	Group 1 with low percentage, 7%
B4invmo1_e	Hypothetical loan investment: Education	No homogeneous subgroups
B4invmo1_f	Hypothetical loan investment: Consumption purposes	No homogeneous subgroups
B4invmo1_g	Hypothetical loan investment: Car	No homogeneous subgroups
B5lotime	Frequency of loan uptake	No homogeneous subgroups
B7lopu11_a	Purpose real loan: Agriculture	Group 2 with high percentage, 44%
B7lopu11_b	Purpose real loan: House	No homogeneous subgroups
B7lopu11_c	Purpose real loan: Consumption purposes	Group 2 with high percentage, 46%
B7lopu11_d	Purpose real loan: Business	Group 1 with low percentage, 1%
B7lopu11_e	Purpose real loan: Education	Group 1 with low percentage, 0%
B7lopu11_f	Purpose real loan: Medical treatment	No homogeneous subgroups
B7lopu11_g	Purpose real loan: Car	2% (only 1 group)
B8losu1	loan sum	Group 1 with low loan sums, 500–1000 lari
C2distan	distance to credit institution	Group 1 with low distance, more than 8 km
C31easyl	easy to obtain the loan	Group 2 with low easiness (easy with slight tendency to moderately easy)
C32adequ	interests and commission	Group 2 with low adequateness (moderately

	adequate	adequate)
C33frien	people in bank/NGO friendly	Group 1 with high friendliness (very friendly)
C34condi	loan conditions understandable	No homogeneous subgroups
C35requi	easy to fulfil all loan requirements	Group 3 with low easiness (easy with a slight tendency to moderately easy)
D4inlosA	individual loan, hypothetical loan size upper limit	Group 1 with low loan sizes, upper limit 8400 lari
D4inlosB	Individual loan, hypothetical loan size lower limit	Group 1 and 2 with low and high loan sizes, lower limit 2700 lari
D4inintA	Individual loan, hypothetical interests upper limit	173 lari (only 1 group)
D4inintB	Individual loan, hypothetical interests lower limit	No homogeneous subgroups
D4incoA1_a	Individual loan, hypothetical collateral, upper limit: House	No homogeneous subgroups
D4incoA1_b	Individual loan, hypothetical collateral, upper limit: Movable property	Group 1 with low percentage, 1%
D4incoA1_c	Individual loan, hypothetical collateral, upper limit: Real estate	No homogeneous subgroups
D4incoA1_d	Individual loan, hypothetical collateral, upper limit: Transportation means, agricultural machines	No homogeneous subgroups
D4incoA1_e	Individual loan, hypothetical collateral, upper limit: Salary	No homogeneous subgroups
D4incoB1_a	Individual loan, hypothetical collateral, lower limit: House	Group 2 with high percentage, 5%
D4incoB1_b	Individual loan, hypothetical collateral, lower limit: Movable Property	Group 1 with low percentage, 46%
D4incoB1_c	Individual loan, hypothetical collateral, lower limit: Real estate	Group 1 and 2 with low and high percentages, 29%
D4incoB1_d	Individual loan, hypothetical collateral, lower limit: Transportation means, agricultural machines	Group 2 with high percentage, 20%
D4incoB1_e	Individual loan, hypothetical collateral, lower limit: Salary	No homogeneous subgroups
D4ininsA	Individual loan, hypothetical instalments, upper limit	No homogeneous subgroups
D4ininsB	Individual loan, hypothetical instalments, lower limit	No homogeneous subgroups
D4incomA	Individual loan, hypothetical commission, upper limit	Group 1 and 2 with low and middle commission, upper limit 83 lari
D4incomB	Individual loan, hypothetical commission, lower limit	35 lari (only 1 group)
D4inlodA	Individual loan, hypothetical loan duration, upper limit	Group 2 with long loan durations, upper limit 47 months
D4inlodB	Individual loan, hypothetical loan duration, lower limit	Group 1 and 2 with short and long loan durations, lower limit 21 months
E2certce	Certainty choice of CE cards	Group 2 with low certainty of choice of CE cards (moderately certain)
E6inlos	Importance of loan size	High importance loan size (very important, slight tendency to important) (only 1 group)

E6inint	Importance of interests	Group 1 with high importance interests (very important)
E6incoll	Importance of collateral	Group 1 and 2 with high and low importance collateral (important)
E6ininst	Importance of instalments' maturity	Group 1 with high importance instalments (very important)
E6incomm	Importance of commission	Group 2 with high importance commission (moderately important)
E6inlod	Importance of loan duration	No homogeneous subgroups
E11impfs	Importance of implementation of rural credit system	Group 2 with low importance, (important)
E12likel	Likelihood of implementation of rural finance system	Group 2 with low likelihood (moderately likely)
F1sex1	Respondents' gender	No homogeneous subgroups
F1age1	Respondent's age	No homogeneous subgroups
F1maxed1_b	Respondent's education: 9th class degree	0% (only 1 group)
F1maxed1_c	Respondent's education: General secondary education	Group 2 with high percentage, 49%
F1maxed1_d	Respondent's education: Specialized post-secondary technical education	Group 1 with low percentage, 25%
F1maxed1_e	Respondent's education: University degree	No homogeneous subgroups
F1job11_a	Respondent's main job: Agriculture on land owned by respondent/family	No homogeneous subgroups (mean 29%)
F1job11_b	Respondent's main job: employed, day labourer	No homogeneous subgroups (mean 8.6%)
F1job11_c	Respondent's main job: Self-employed	11% (only 1 group)
F1job11_d	Respondent's main job: Work in the house	No homogeneous subgroups (mean 25%)
F1job11_e	Respondent's main job: Unemployed	Group 1 with low percentage, 6%
F1job11_f	Respondent's main job: Retired, disabled	No homogeneous subgroups (mean 14%)
F1job11_g	Respondent's main job: Student, pupil, baby, other	Group 2 with high percentage, 2%
F4maini1_a	Respondent's main income source: Subsistence farming	8% (only 1 group)
F4maini1_b	Respondent's main income source: Selling of agricultural products and other income source	No homogeneous subgroups
F4maini1_c	Respondent's main income source: Employee	No homogeneous subgroups
F4maini1_d	Respondent's main income source: Self employed	No homogeneous subgroups
F4maini1_e	Respondent's main income source: Pension, social assistance	No homogeneous subgroups
F4maini1_f	Respondent's main income source: Financial support from relatives	Group 2 with high percentage, 2%
F5kinda_a	Kind of agriculture: Fruit, wine	No homogeneous subgroups

F5kinda_b	Kind of agriculture: Livestock, fruit, wine	Group 2 with high percentage, 5%
F5kinda_c	Kind of agriculture: Vegetables, fruit, wine	No homogeneous subgroups
F5kinda_d	Kind of agriculture: Livestock, vegetables, wine	Group 2 with high percentage, 7%
F5kinda_e	Kind of agriculture: Cereals, fruit, vegetables, wine	Group 1 with low percentage, 0%
F5kinda_f	Kind of agriculture: Aquaculture	No homogeneous subgroups
F5kinda_g	Kind of agriculture: No agriculture	No homogeneous subgroups
G1land11_a	Landownership: Respondent	No homogeneous subgroups (mean 54%)
G1land11_b	Landownership: Husband	No homogeneous subgroups (mean 24%)
G1land11_c	Landownership: Wife	No homogeneous subgroups (mean 0.5%)
G1land11_d	Landownership: Mother	Group 2 and 3 with middle and high percentages, 8%
G1land11_e	Landownership: Father	No homogeneous subgroups (mean 16%)
G1land11_f	Landownership: Household head (male or female)	No homogeneous subgroups (mean 1%)
G1land11_g	Landownership: Respondent does not possess land	Group 2 with high percentage, 1%
G2landar	Land area	Areas up to 1 ha, tendency to 1 up to 2 ha, (only 1 group)
H1moninc	Monthly income	No homogeneous subgroups. Subsistence minimum per one average consumer is 113 lari (March 2008, Quarterly Bulletin 2008 I p. 79). Average monthly income per hh is 300 lari (2007, *Quarterly Bulletin* 2008 I: p.79)
H2decim1_a	Decision on money use: Couple together	No homogeneous subgroups
H2decim1_b	Decision on money use: Husband	Group 2 with high percentage, 7%
H2decim1_c	Decision on money use: Wife	0% (only 1 group)
H2decim1_d	Decision on money use: Eldest hh member	3% (only 1 group)
H2decim1_e	Decision on money use: All members of the family	Group 2 and 3 with middle and high percentages, 8%
H2decim1_f	Decision on money use: Head of hh (male or female)	Group 1 and 2 with low and high percentages, 23%
H2decim1_g	Decision on money use: Mother or father	Group 1 with low percentage, 1%
H3decin1_a	Decision on investments: Couple together	No homogeneous subgroups (mean 62%)
H3decin1_b	Decision on investments: Husband	Group 2 with high percentage, 5%
H3decin1_c	Decision on investments: Wife	No homogeneous subgroups (mean 0.5%)
H3decin1_d	Decision on investments: Eldest hh member	Group 1 and 2 with low and high percentages, 2%
H3decin1_e	Decision on investments: Head of hh (male or female)	No homogeneous subgroups (mean 22%)
H3decin1_f	Decision on investments: All members together	Group 3 with high percentage, 12%
H3decin1_g	Decision on investments: Mother or father	Group 1 with low percentage, 1%
H4expinc	Expectation of income development	No homogeneous subgroups

7. Field research report

This section provides a field research report to round out the picture of the sampled population and the research region Shida Kartli. The report reflects opinions and respondents' statements with respect to their living conditions, agriculture, and politics. Other parts of this report consist of the author's impressions and information given to her in personal communications during a six months field research stay in Georgia during the winter of 2007-2008. As expected, people in the chosen villages differed in their understanding of the CE. In most cases, they were interested in the topic. However, in some villages smallholders were not familiar with financial systems at all. After the interviewers had explained to them the different financial systems and the survey target, they showed great interest and expressed enthusiasm for the establishment of a rural finance system in Georgia. In general the sampled population did not have significant difficulties with the CE but had more difficulty with determining upper and lower limits of an ideal loan according to their preference.

Timing of the research created challenges in conducting the interviews, because the Georgian president Saakashvili, announced snap elections for 5 January 2007. This date fell within the planned survey schedule. Election campaigns took place in the villages and, in addition, Jehovah's Witnesses were actively recruiting religious converts in the villages. Mr Saakashvili visited Shida Kartli's capital Gori during this period, too. Thus people were busy with elections, and with preparation for the New Year celebrations. Georgia's main vacation period falls between 1-14 January, during which time rural households celebrate the Western New Year (1 January), orthodox Christmas (7 January), and orthodox New Year (14 January). Within that fortnight, celebrations feature pork from each household's slaughtered pig, homemade wine, and other special dishes. On the one hand, the festivities signify that people are at home and therefore available for the survey. On the other hand, the majority of male respondents will not be sober during this period. Moreover, answering survey questions and doing the CE during the celebration period might disturb people. So we decided to postpone the survey to begin after 14 January. Weather conditions in the winter of 2007/2008 were recorded as the coldest temperatures in 30 years – dropping down to minus 20 degrees. In normal years, Shida Kartli has a climate similar to Mediterranean countries. The cold weather made survey days very uncomfortable for the interviewers. They said that summer is a better season for interviews, because

many families are at home during the middle of the day, when the heat is most intense. With respect to agriculture, not all rural households dispose over sufficient land surfaces for subsistence farming. In some villages, the main income source is cutting firewood for sale at local markets. A breakdown in Georgia's gas pipeline system following independence has lead to a sharp upturn in the country's deforestation. People rely on wood for heating and in some cases for cooking, too.

In Doghalauri, a very small village with only 40 households, people were very poor and relied on government assistance. In former times, Doghalauri was an Ossetian village. During the civil war of the 1990s, when the former Georgian president Gamsakhurdia tried to regain the separatist regions Abkhazia and South Ossetia, many Ossetian families fled this village to settle in South Ossetia, which is only a few kilometres away. Georgian families took over the abandoned houses with their tiny plots of land in Doghalauri. Some elder Ossetians remained there and now live on funds sent by their children in Vladikavkas, the capital of North Ossetia on Russian territory.

There are almost no governmental agricultural development projects in the research region. Several international NGOs fill this gap by conducting own agricultural projects. One of these projects is described here as an example. Close to the villages of Samtsrevrisi and Kobesaant Ubani, two NGOs from the United States give grants to farmers for the planting of apple trees. The two organizations contribute about 70 percent of the necessary finances, and the farmers have to add 30 percent. The NGOs introduced a new variety of apple trees that produces apples after a very short growing period. These trees need much more care than traditional varieties. The organizations sell the necessary equipment for the new apple trees to the farmers. The problems behind this are that farmers no longer have access to Russia, their largest market for selling apples, and a couple of old apple varieties are nearing extinction. In addition, the farmers become dependent on supplies from the NGOs, for which they have to pay. If their apples do not sell, farmers do not have the cash to buy supplies. As the majority of households in the research region is quite poor, success and wealth may endanger richer farmers. This was the case in one of the sampled villages, which is situated a few kilometres off the main road. One interviewed farmer runs a profitable aquaculture there, which is the only one in this region. The man stated that he was very happy he had obtained a loan from a bank despite the high interest. His exact words

were ‘One must be stupid not to use a loan in a profitable way.’ One of his grandchildren was kidnapped five years ago, and the kidnappers blackmailed the farmer because he is quite rich. He went to the police but his grandchild had not been returned at time of the interview.

One of the villages in which interviews were conducted is about 5 kilometres from Tskhinvali, the capital of South Ossetia. Farmers in this village (Kvemo Khviti) suffer from water shortages in summer, because the only one pipeline — from South Ossetia — carries water to the village. According to reports from smallholders in Kvemo Khviti, South Ossetians cut off the water, so in summer farmers have to irrigate their vegetables by hand with a watering can. As the village has no alternative water system, residents’ water comes from wells. One woman in this village invited us to her house for coffee and apples. Like the majority of village inhabitants she deplored the lost market in Russia. Tskhinvali, which is located on the way to Russia, bought most of Georgia’s wines and fruits in former times. The woman wanted the trade relationship with Russia to be reinstated. Despite the closed Russian market, new marketing channels already exist that bypass the embargo. Some customers from nearby Kabardino-Balkaria, an autonomous republic in Russia’s North Caucasus travel into South Ossetia to Kvemo Khviti to buy apples. In addition, merchants from Azerbaijan travel to the villages in Shida Kartli to buy fruits and to sell them through Daghestan (autonomous republic in the North Caucausus) to Russia. Another marketing channel is through the Ukraine.

Many retired respondents are disappointed by governmental politics. They said that President Saakashvili promised higher pensions during his election campaign in January 2008. But during the same period, the prices for food, clothes and agricultural supplies have increased markedly. Thus, a higher pension would not lead to a higher purchase power. Some interviewees suffered severe poverty living not in intact houses, but in unsafe ruined structures. They are in need of [higher] levels of governmental assistance and do not need any credit programmes. Some of them were desperate and with little hope. In most of the villages, the gas pipelines run above ground beside the streets. The reason for this is that nobody can steal gas if the pipeline is visible. Damaged pipelines are not repaired, so many villages have no gas at all. Irakli Okruashvili, Georgia’s former minister for internal affairs, comes from Tqviavi, another village close to South Ossetia. The population of Tqviavi is proud of its

famous inhabitant. In November 2007, mass demonstrations against President Saakashvili took place in Georgia's capital Tbilisi. Okruashvili supported the demonstrations. After the demonstrations were ended through military force, Okruashvili escaped first to Germany then to France, where he demanded asylum. Respondents in Tqviavi sided with Okruashvili, in opposition to the government and thought that the interviewers were sent by the government. Therefore, they were reluctant to do the interviews. It was very difficult to convince people that the survey was not conducted under government auspices. Smallholders in Tqviavi reported that they would take up a loan if there were a market where they could sell their products. The former markets in Tskhinvali and in Russia are closed. The markets in Tbilisi are far away and it would cost too much to go there and pay for a market stand. One farmer said that he bought outdated German pesticides from a Georgian trader who uses the new pesticides for himself. He would take up a loan only for the purpose of buying new German pesticides, because he believes the quality of Georgian pesticides is very low. Other respondents in that village stated that access to pesticides for their apples and access to loans are not the main problem they have. The main problem is the lack of a market. They hope for the former markets to be reopened soon.

In the village of Tortiza, we interviewed an elderly widow. The state does not provide a pension[18] for widows, so her situation was very difficult. The interviewee was still too young for the normal pension. A second widow we interviewed was extremely poor and in her seventies. The widows we met presented a clear case for social assistance in addition to the very low government pension.

8. Acceptance of the choice experiment method in Shida Kartli

Following an initial agreement to take part in the survey, only 15 percent refused to be interviewed, resulting in a very high acceptance rate of 85 percent. As for the CE, out of all respondents, 5 percent refused to choose between loans with joint liability and loans with individual liability because they were against any credit system. Hence these respondents did not take part in the CE for one or both loan types. If we add the 5 percent of general refusals to the 14 percent who refused to do the CE after having chosen a preferred credit system, the overall refusal rate rises to 19 percent. In other

[18] Georgia's government pension was 55 lari per month at the time of the survey in January 2008, which equals €24 (NBG 2008).

words, 81 percent of the respondents did the CE. This is a high acceptance rate if we take into account that the CE method is new for the sampled population.

9. Curriculum Vitae

Name	Johanna Pavliashvili, née Schott
Date of birth	22 August 1966
Place of birth	Kiel, Germany
Nationality	German

Academic studies

Apr. 2007 - July 2009	PhD studies in the Environmental and Resource Economics section, Department of Agricultural Economics and Rural Development, Faculty of Agricultural Sciences, Georg-August-Universität Göttingen, Germany.
	1st examiner: Prof. Dr. Rainer Marggraf, Göttingen
	2nd examiner: Prof. Dr. Manfred Zeller, Hohenheim.
	Topic of the doctoral dissertation: 'Preferences for rural finance systems and their impact on the implementation of credit unions in Georgia'. Grade: Magna cum laude.
	Doctoral scholarship of the DZ BANK foundation.
Sept. 1999 - Sept. 2001	Master of Science in Tropical and International Agriculture, Faculty of Agricultural Sciences, Georg-August-Universität Göttingen, Germany. Grade: 1,3
	Major field of study: Socioeconomics of rural development.
	Topic of the Master's thesis: 'Women's savings and credit co-operatives in Madagascar'.
	Supervisor: Prof. Dr. Manfred Zeller.
Mar. 1990 - Jan. 1995	Diploma in Applied World Economic Languages at the Hochschule Bremen, Germany. Grade: 1,5
	Major fields of study: Micro- and macroeconomics, Development Economics, Arabic, French.
Oct. 1985 - Mar. 1988	Islamic Sciences at the Universität Hamburg, Germany. Major fields of study: Arabic and Persian language. Minor subjects: African Studies and Ethnology.

Education

June 1985	Gymnasium Loger Str., Osterholz-Scharmbeck (Lower Saxony), Germany. Degree: University entrance diploma

Research stay abroad	
Oct. 2007- Apr. 2008	Georgia: field research for the doctoral dissertation.
Sept. 2000 - Mar. 2001	Madagascar: field research for the Master's thesis as part of the project 'Credit with education' conducted by the Malgache development organization OTIV, part of the Canadian development bank Desjardins.
	Scholarship from the German Academic Exchange Service (DAAD)
Practical trainings and stay abroad within academic studies	
Mar. 1992 - Feb. 1993	Internship of eight months at the national Moroccan press agency Maghreb Arabe Presse in Rabat. Training subjects: Journalism techniques in French and Arabic, functioning and structure of a press agency. Practical training within the studies of Applied World Economic Languages.
Mar. 1989 - Sept. 1989	Internship at Milde Multiprint, printing plant in Bremen, Germany. Internship in the studies of Applied World Economic Languages. Training subjects: Printing technology, repro, and bookbinding.
Oct. 1987 - Sept. 1988	Syria: Courses in classic Arabic and Syrian dialect within the studies of Islamic Sciences. Educational Journey to Jordan and Egypt.
Professional experience	
July 2002 - Mar. 2007	Academic advisor at the Faculty of Agricultural Sciences, Georg-August-Universität Göttingen, Germany.
Aug. 2001 - June 2002	Research assistant at the Institute of Rural Development, Faculty of Agricultural Sciences, Georg-August-Universität Göttingen, Germany.
May 1998 - Sept. 1999	Sales department and management assistant at FCP Europa Carton GmbH, printing plant in Bremen, Germany.
Oct. 1996 - Sept. 1997	Assistant of the general management at NOVACOMMERZ GmbH, export company in Bremen, Germany.
Dec. 1994 - May 1998	Interpreter for asylum seekers at the Federal Office for the Acknowledgement of Foreign Refugees in Oldenburg and Bremen, Germany. Languages: Arabic and French.

Publications

Pavliashvili, Johanna (2009): 'Servicekooperativen – ein Modell für die georgische Landwirtschaft? ' Leibniz Institut für Agrarentwicklung in Mittel- und Osteuropa, Halle (Saale), IAMO Discussion Paper No. 125.

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Klaus Glenk, Johanna Pavliashvili, Adriano Profeta (2009): 'Preferences for rural credit systems and their impact on the implementation of credit unions in Georgia'. *Journal of Rural Cooperation*, 37(1): 76-81.

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Pavliashvili, Johanna (2006): 'Auswirkungen der Globalisierung auf die genderbezogene Arbeitsteilung und neue Berufschancen für die afrikanischen und asiatischen Hochschulabsolventinnen in ihren Heimatländern'. Presentation for the programme 'Returning Specialists' of the Association of African and Asian Academics, Göttingen, Germany. Publication in the *Afrika-Asien-Rundbrief* 2007, 22(2): 7–15.

Schott, Johanna (2001): 'Women's Savings and Credit Co-operatives in Madagascar: The Impact of Credit with Education on Members' Quality of Life'. Poster and full text on CD-ROM, and abstract in the *Book of Abstracts* pp. 256–258. Deutscher Tropentag: One World — Research for a Better Quality of Life, 9-11 October 2001, Rheinische Friedrich-Wilhelms-Universität Bonn, Germany.

Schott, Johanna (2001): 'Women's Savings and Credit Co-operatives in Madagascar'. Institut für Rurale Entwicklung, Georg-August-Universität Göttingen, Discussion Paper No. 34.