



*PECULIARITIES AND PROBLEMS OF INTRODUCING AGRICULTURAL
COOPERATIVES IN THE REPUBLIC OF ARMENIA*

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Abstract

This research aims at identifying the peculiarities and problems of introducing agricultural cooperatives in the Republic of Armenia. This is an explorative case study that was conducted in Armavir region of Armenia. The primary research question is as follows: *Is building trust among farmers a key to strengthening the role and further development of cooperatives in the Republic of Armenia?*

The thesis is divided into five parts: Literature Review, Field Research and Analysis, Feasibility Assessment, Econometric Modelling and Recommendations. The first part provides definitions of cooperatives and examines the international experience on psychological, economic and legal issues of forming cooperatives. The second part of the thesis presents the focus group analysis conducted in Armavir region of the Republic of Armenia. The scenario analysis and a three dimensional model, including conceptual, economic and legal aspects, determine the cause-effect relationships of various factors hindering the smooth establishment of cooperatives and sustainable operations of already established cooperatives in the Republic of Armenia. The third part explores the financial feasibility assessment of “Yervandashat” Agricultural Consumer Cooperative and provides calculations on costs, revenues and prices. In this section the visualization of the feasibility results is done through graphs.

The fourth part of the thesis presents the econometric model, which measures the members’ stated relative scepticism with respect to the production efficiency of the agricultural cooperative model in Armenia. The final section presents recommendations for future research.

Key

words:

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INTRODUCTION

The beginning of the modern co-operative era is documented in 1844 in Rochdale, England (The Co-operative Learning Centre, 2010). “A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise” (ICA Statement on Cooperative Identity, 1996).

The agricultural sector constitutes around 22 per cent of Armenia’s GDP (National Statistical Service of Armenia, 2014) and is one of the main pillars of the country’s economy.

During the Soviet times in Armenia the norms and volumes of production were set by governmental planning agencies and implemented by collective enterprises, such as sovkhozes and kolkhozes. After the collapse of the Soviet Union in 1991 and the privatization of land and main means of production, each farmer received on average 1.4 ha of land. Lack of necessary bargaining power resulted in weak relationships with the processors and other actors in the value chain (Vardanyan 2012, 3).

The cooperative movement started to emerge in Armenia in 1993. The United Methodist Committee on Relief (UMCOR) NGO in the framework of its Community Association Project (CAP) provided assistance to seven rural communities of establishing cooperatives in Ararat and Vayots Dzor Marzes (UMCOR, 1994-2007).

In 1999, the USDA Marketing Assistance Program (MAP) formed the “Lejan Milk Producers Association” consumer cooperative in Lejan Village of Lori Marz. Following these developments, several individual farmers began establishing their own cooperative enterprises.

As a result, prior to 1999 there were 297 registered consumer cooperatives in Armenia (Urutyanyan 2012, 6). As of January 1, 2013 this number reached 307, including 127 in the field of agriculture. (Vardanyan 2013, 5).

Background of the Problem

The agricultural sector is the biggest employer in Armenia. Being a post-Soviet nation, Armenia greatly depends on the agriculture. In 2014 the share of the agriculture in the GDP comprised 22% (National Statistical Service of Armenia, 2014).

In the past five years about 44.4% of employment in Armenia (Vardanyan 2013, 2) and about 60% of income in rural areas was due to the agricultural sector. The local demand for potatoes, main fruits, grapes, and veal is 98% satisfied by the local production, whereas the self-sufficiency level is quite low for wheat (40%), other grains (50-55%), poultry (15-17%), and pork (50-55%) (Vardanyan 2012, 5). The agricultural production is implemented on over 1.6 mln plots. In general, there is a low level of utilization of pastures (51.5%) (National Statistical Service Yearbook, 2013). Since the Republic of Armenia is on a long way of recovery from the negative consequences of the financial crisis, and considering the high contribution of agriculture to the country's GDP, the role of agricultural cooperatives becomes more critical in this continuous development process. Today people in rural areas do not have necessary funding to acquire consumer services, such as housing, education, social benefits, telecommunication, credit, and other financial services. In this context, agricultural cooperatives, as a major component of the food and agriculture industry, can help them to market their products and secure the supplies villagers need at competitive prices.

Problem Statement

Previously no feasibility study for establishing a cooperative and measures of the stated relative scepticism with respect to the production efficiency of the agricultural cooperative model has been conducted in Armenia. This thesis project examines the most common research issues to fill this gap, and to contribute and initiate an academic approach to the food security problem and unsustainable farming practices in the country.

Research Question

The primary research question of the thesis is the following: *Is building trust among farmers a key to strengthening the role and further development of cooperatives in the Republic of Armenia?*

Purpose of the Study

The purpose of the study is to analyse the psychological factors, which create the farmers' resistance to establishing cooperatives. In addition it aims at providing better solution to improve the wellbeing of rural households and facilitate the development of the agricultural sector in the Republic of Armenia.

Significance of the Study

This study is of essential importance, as it will provide information about psychological, economic, legal and behavioural characteristics and problems of establishing agricultural cooperatives in the Republic of Armenia.

Firstly, it will enhance the awareness of cooperatives in the country and can be considered as a valuable information source for the Ministry of Agriculture of the Republic of Armenia and rural communities.

Secondly, the study will help to educate people living in the villages near the nation's borders, where there is a lack of information.

Thirdly, the study will be beneficial for those researchers and students, who are interested in gaining knowledge about the agricultural sector, and are interested in working in this area.

Assumptions

The following assumptions have been proposed against the background information and views on cooperatives' expansion for development of agriculture in the Republic of Armenia.

- There is a lack of awareness about cooperatives among rural population.
- There is a low demand for trainings on cooperatives in Armenia, because potential clients are not aware about the socio-economic benefits of establishing cooperatives.
- There exists considerable and unexplored market potential and the cooperative development is still in its inceptive stages.

Limitations

The research identified a number of limitations and shortcomings. On the one hand, the fundamental limitation is the exploratory methodology of the research. On the other hand, since the characteristics and problems of introducing agricultural cooperatives are similar across Armenia, thus, the research efficiently shows the general situation for the whole country.

Another bias during interviewing process is the possibility of influencing the respondent, when the latter does not understand the question.

Delimitations

Due to the time and financial constraints the scope of the interviews conducted during the research was only limited to a “Yervandashat” Agricultural Consumer Cooperative. A wider sampling would have had a positive impact on the general analysis of the situation. The focus group includes only one region out of ten regions and village in that region is selected randomly.

This form of sampling is biased and might not be representative for the rest of Armenia.

The main disadvantage of qualitative research methods is that the findings cannot be

extended to wider populations with the same degree of certainty suggested by quantitative analyses.

However, this is only a disadvantage if your research question also requires statistical data. Adopting a mixed methods approach is one way of overcoming this problem, thus, the qualitative interviews conducted in the frame of this study aim to comprehend people's understanding and behaviour about agricultural cooperatives and not to provide a quantitative statistical review. Unfortunately, it is very difficult to conduct a nationwide research. The empirical character of this study together with the qualitative data needed provides a good combination and justifies the applied research method.

LITERATURE REVIEW

One of the most recent studies of the cooperatives in Armenia is “Legislative Reforms for Cooperatives: Guidelines for Armenia” conducted by Dr. Urutyun for the Ministry of Agriculture and FAO in May, 2013. The objective of the study was to contribute to the development of the Law on Agricultural Cooperatives through conducting a background research for the Ministry of Agriculture, who committed to developing the Law according to its Action Plan of 2013.

Firstly, the study provides new data and information emphasizing the major reasons for the success of cooperatives, historical and coeval evidences of cooperative development, share of income and employment, thus, highlighting the significant economic role of cooperatives. This part also introduces the size of cooperative sector worldwide and briefly emphasizes the economic impact of cooperatives. A brief paragraph is provided on the social value of cooperatives, which is needed for local policy makers to understand the social-economic impact of cooperatives before developing any policy paper on cooperatives.

Secondly, the cooperative identity and international cooperative law is explained based on the core components of the public international cooperative law, including the ICA Statement on Cooperative Identity, the UN Guidelines and ILO Recommendation No. 193. An analytical section on comparing the cooperatives and stock companies and highlighting the distinctions between cooperatives and social enterprises has been proposed.

Thirdly, the study explains the problems and issues related to understanding of the cooperative identity in the former Soviet Union countries. This section reveals the problems, issues and other challenges relevant for legislative frameworks based on the internationally recognized cooperative principles and identity.

Fourthly, to study the cooperative movement and the problems and challenges facing cooperatives in Armenia, three phases of cooperative development have been identified, starting from 1993 when first autonomous, voluntary farmers' organizations developed in Armenia. This section also identifies the donors and international organizations and their programs related to cooperative development and most importantly, first time in Armenia, detailed cooperative statistics is provided. As of January 1, 2013 there were 3,737 production cooperatives and 307 consumer cooperatives registered in Armenia, according to the State Registrar of Armenia. The Civil Code of the RA, the Law on Consumer Cooperation, the Law on Water Users Associations, the Law on Agricultural Credit Clubs and the Law on Condominiums (these are also registered as non-commercial cooperatives in Armenia) have been assessed and the cooperative elements identified. The accounting, tax and bookkeeping issues and challenges of consumer cooperatives have also been identified and presented in the report.

Additionally, the study describes comparative analysis of cooperative legislation of selected countries (i.e. Georgia, Bulgaria, Hungary, Germany, and Italy) based on ICA Cooperative principles and ILO R193.

The final part of the report presents the main conclusions and recommendations for the Government of Armenia to draft the law as well as the promotion mechanisms for developing successful cooperatives in Armenia.

“Necessity of legal reforms aimed at sustainable development of cooperatives in Armenia” is a study conducted by Vardan Urutyanyan and Narek Vardanyan in November, 2012. This study encompasses detailed analysis, improvements and replenishments of the RA Civil Code (Articles 117 through 121) and the law on consumer cooperation adopted in 1993 based on experience of European and Asian countries as well as research and recommendations

proposed by the International Co-operative Alliance, International Labour Organization, UN, FAO, EURICSE and many other organizations.

Firstly, the study analysed the legal reforms in Armenia and suggested adopting one main comprehensive and all-embracing law in Armenia, and including in that law provisions on certain types of cooperatives. In addition, the law should be based on the well-known seven principles of cooperatives defined by ICA:

1. Voluntary and open membership;
2. Democratic member control;
3. Member economic participation;
4. Autonomy and independence;
5. Education, training and information;
6. Cooperation among cooperatives;
7. Concern for community.

The next suggestion proposed in the first part is to eliminate the duties and fees for registration of cooperatives (i.e. 20 EUR), for changes (i.e. registration of each new member is considered to be a change and results in additional 10 EUR-worth fee), and for the seal.

Secondly, for the establishment of cooperatives and for forming the necessary management bodies it is proposed to define the minimum number of members to be five. As a guarantee for financial sustainability, the study defines the minimum limit of statutory capital, which should be based on entrance fees or payments of the cooperative members.

Thirdly, based on the Japanese model, if any member does not use the cooperative for a one-year period, then he/she may be dismissed from the cooperative. The financial problems of cooperatives may be solved through investor-members, who pay the related fees in return to use the cooperative's services, but shall not have the right to vote and shall not participate in the coop's management.

Fourthly, the analyses of Article 119 of the RA Civil Code and Sections 5 and 8 of Article 2 of the law on Consumer Cooperatives imperfectly define the functions of management bodies, thus, it is suggested to clearly define the functions of the cooperative's obligatory and volunteer management bodies, procedure for formation and the duties thereof, as well as issues related to the formation of respective committees.

Fifthly, the analyses of Article 118 of the RA Civil Code and laws on cooperatives in European and Asian countries have been conducted and based on the example of Poland it is suggested to make the indivisible funds obligatory for cooperatives and to define a minimum threshold of 5% of the annual profit until it reaches to the level of the statutory capital. Further analyses suggest that the cooperatives should not be distinguished as commercial and non-commercial organizations, instead, the cooperatives should be considered as business organizations but be provided with considerable tax privileges.

Sixthly, for the monitoring of cooperatives and guaranteeing of transparent operations it is suggested to have an obligatory annual monitoring, which should be separated from the auditing services provided for companies.

The final part of the study delivers stimulating economic mechanism (i.e. the state assistance programs, loan programs and competitive grant programs, programs envisaged by the RA state budget) and highlights the importance of raising the awareness about cooperative values and principles.

“Legal Reforms Needed for the Effective Development of Cooperatives in Armenia” is written by Narek Vardanyan in the frame of Policy Fellowship Initiative of Open Society Foundations Armenia in 2011.

Firstly, the study analysed the crucial role of agriculture in the economy of the Republic of Armenia, and stated that the development of cooperatives as an agricultural development tool is underlined by the government in the Agricultural and Rural Sustainable Development

Strategy of Armenia in 2010-2020. The first 4 actions of Agricultural and Rural Sustainable Development Strategy of Armenia in 2010-2020 are related to development of agricultural cooperatives and structures as well as ascertainment of advantageous conditions for cooperative functioning, betterment of legislation and development of lacking legal acts required for implementation of the goals of the Program. According to the program the government is ready to spend about AMD 400 mln to the establishment and promotion of cooperatives annually. The report states the important role of law in prospering cooperatives and highlights the following three major underlying reasons:

1. The existence of a cooperative law is a **necessary but not a sufficient** condition for getting a cooperative policy to work.
2. Law provision for the definition of cooperative members, their management bodies and liabilities will establish the legal security.
3. Law defines the fair balance between the autonomy of the cooperatives and the framework of normative control by the state.

Secondly, the report states the need of constructive partnership between Government and cooperatives and provides the example of “Zero Hunger” program in Brazil launched by UN agency FAO (the Food and Agriculture Organization). Due to efficient collaboration between Government and agricultural cooperatives or associations, the food was purchased from local farmers, afterwards, school lunch service and a shared kitchen provided fresh and cooked food for the poorest. The Brazilian “Zero Hunger” program became a benchmark for Argentina, Peru and Venezuela for implementation of similar projects. In this part the author suggests the Government to facilitate cooperative ability to purchase subsidiary businesses and enter joint ventures, trade and invest across national boundaries and merge their activities in whole or part with other cooperatives.

Thirdly, the analyses of international experience in developing cooperative legislation suggest the following two major forms of cooperative legislation:

1. The experience of Brazil, Serbia, Germany, Hungary, India (both at federal and at state levels), Jordan, Kenya, Mexico, Spain and Thailand proposes the need for general cooperative law that will regulate all types of cooperatives in a country.
2. The most common form of cooperative legislation that is found in Ethiopia, Japan, Romania, and Uruguay is the separate law for special types of cooperatives.

Fourthly, the legal structures of Asian and European countries are analyzed and recommendations are proposed based on cooperative laws of ICA, ILO and UN and Serbian case study. The analysis of cooperative legislation in Asian Countries, particularly in Japan, India, and Indonesia evidenced the important role of government in providing financial assistance and support to development of the cooperatives. Most specifically, from Asian countries Japan was the first country to ratify a cooperative law in 1900, which was later articulated and replaced by the Agricultural Cooperative Law in 1947, on the basis of German law. With the exclusion of Japan and South Korea, where different laws regulate various types of cooperatives, in the remaining Asian Countries, all types of cooperatives are regulated by a single common law. The report paid close attention to Japanese law and underlined the Article 1 of the Agricultural Cooperative Society law, which states as follows: “This Law has for its objectives the promotion of sound development of farmers’ cooperative system, thereby improving agricultural productivity and socio-economic status of farmers, as well as ensuring the development of the national economy”. Before functioning, every cooperative is registered by the cooperative law. The registration time limits substantially vary across countries, most specifically, 30 days in Philippines, 2 months in Japan and 6 months in India and Indonesia, conversely, some countries including Bangladesh, Malaysia,

Nepal, Sri Lanka and Thailand have no time restriction. The unique regulatory laws in Fiji are analyzed and an important finding is presented: The cooperatives are prone to maximum of two years of provisional registration in case the bylaws of cooperative are in contradiction with the cooperative laws and cooperative identification statement and in case the members of cooperative are unable to use the services offered by the specific cooperative. The report also includes the studies of cooperative legislation in European Countries. In Austria, the cooperatives are permitted to distribute profits and assets to members, meantime, are not bounded to establish cooperative reserves and are compulsory members of auditing cooperative associations, which provide mandatory cooperative revision. In Germany and Slovenia, the cooperatives are regulated under single general law. In addition to general law, Hungary has specific laws regulating banking and housing cooperatives. The Cooperative Code of Portugal determines 12 different types of cooperatives, thereto one specific tax law for cooperatives. The legislation of Italy defines two types of cooperatives: mainly Mutual and Other type.

Mainly mutual cooperatives have 2 distinct characteristics: the cooperatives must operate only with their members and are allowed to remunerate the capital only to a certain level. In addition, mutual cooperatives are provided with tax benefits. Other cooperatives are exempted from these limitations: the cooperatives can freely operate with non-members as well as remunerate the capital. The main disadvantage of other cooperatives is that these types of cooperatives are not provided with tax privileges.

Meantime, under the Italian law the cooperatives are obliged to 30% contribution of total annual profits for the legal reserve and to 3% allocation of total annual profits for the mutual funds to promote and finance the development of newly formed cooperatives. Fifthly, the cooperative sectors of Serbia and legislative innovations have been analyzed. The

first law associated with cooperatives in Serbia was the Law on Agricultural and Handicraft Cooperatives of 1898. The important points ratified in the law were as follows:

1. Minimum number of members should be 10.
2. Voluntary participation and democratic member control.
3. Management peculiarities.
4. Political regimes and reorganization.

In the final section, the study suggests the following specific actions:

1. New law on cooperatives (include provisions concerning Cooperative Unions in the law).
2. Viable economic policy.
3. Incentives for farmers and dissemination of cooperative values.
4. Monitoring and protection.

RESEARCH METHODOLOGY

The primary research was conducted in village Yervandashat, Armavir region¹. The study was based on both primary and secondary data. The primary data collection was done through the following methods: focus group (encompassing 7 cooperative members) and personal interviews (with the Chairperson of cooperative and members).

The secondary data is a type of data that has already been collected and analyzed by someone else. The secondary data is based on reliable internet sources and reports.

Reliable and valid questionnaires² have been developed to facilitate the collection of qualitative and quantitative data, which enabled to clearly examine the current situation of the agricultural sector in Armavir region of the Republic of Armenia.

¹ Database is available upon request.

² Both questionnaires are available upon request.

FRAMEWORK, PERCEPTION OF COOPERATIVES

This section of report includes 8 questions, which are intended to identify the overall understanding of the members of “Yervandashat” Cooperative of cooperatives.

Understanding the concept of “Cooperative”

The focus group revealed that 7 members of ”Yervandashat” Cooperative first time encountered the idea of sovkhozes from their parents inherited from Soviet Union in 1980’s. In 1984, the “Karap” Collective Farm was established on the basis of equal investments of the parents of “Yervandashat” Cooperative’s current 8 members. In 1991, after the collapse of the Soviet Union the “Karap” Collective Farm has been dissolved. In 2010, with the support of the U.S. “United Methodist Committee on Relief” NGO Armenian branch (UMCOR), “Center for Agribusiness and Rural Development" (CARD) the “Yervandashat” Agricultural Consumer Cooperative, encompassing of 36 cooperative members, was established. The annual membership fee of the “Yervandashat” Agricultural Consumer Cooperative has amounted to 1000 AMD. After one year the membership fees of Cooperative has been eliminated.

There were several trainings offered by U.S. “United Methodist Committee on Relief” NGO Armenian branch (UMCOR) and Center for Agribusiness and Rural Development (CARD), which further enhanced the professional skills of Cooperative’s members. In 2011, the “Yervandashat” Agricultural Consumer Cooperative has hired a Marketing and Social Media Manager. In 2012, through the efficient work of Marketing and Social Media Manager the Cooperative signed a contract with “Azbuka Vkusa” (“Alphabet of Taste”), which is a Russian private network of 64 supermarkets, carrying out operations in Moscow, St. Petersburg and the Moscow region. According to contract, during 2012-2013 the “Yervandashat” Cooperative will sell dried fruit in “Azbuka Vkusa” (“Alphabet of

Taste”) supermarket chain. The imperfection of necessary legal regulations and the absence of experience to export goods through “Yervandashat” Cooperative forced the Cooperative to export dried fruits through the Sole Proprietorship of the head of Cooperative. Since 2010, the “Yervandashat” Cooperative also sells the dried fruit in Duty Free of the “Zvartnots International” Airport. The CARD foundation provided 50% financing of 4 solar dryers, total support amounted to 500,000 AMD per person. The CARD and “Yervandashat” Cooperative cooperate for providing trainings to other dried fruit producers.

1st Principle: Voluntary and Open Membership

The “Yervandashat” Cooperative is a voluntary organization; open to all persons able to use their services and willing to accept responsibilities of membership, without gender, social, racial, political, or religious discrimination.

2nd Principle: Member Democratic Participation

Each member supported the foundation of cooperative, some of members worked without salaries, others provided support in terms of own equipment and tools. UMCOR and USDA CARD supported 3 out of 7 interviewed farmers with the construction materials necessary for 13mx3m solar dryer in a total amount of 500,000 AMD per each farmer.

3rd Principle: Member Economic Participation

Members contribute equitably to, and democratically control, the capital of their cooperative. Members of “Yervandashat” Cooperative allocate the surpluses for any of the following purposes: purchasing necessary equipment, renovating outdated machinery and tools, supporting other activities approved by the membership.

4th Principle: Autonomy and Independence

The “Yervandashat” Cooperative is an autonomous, self-help organization controlled by the members. If the cooperative enters into agreements with other organizations, including government, or raise capital from external sources, the cooperative do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.

5th Principle: Education, Training and Information

The Cooperative provides education and training for the members, manager and employees so latters can contribute effectively to the development of “Yervandashat” Cooperative. The cooperative informs the public about the nature and benefits of cooperation. With the support of UMCOR and CARD various trainings have been conducted, including “Accounting”, “High Value Agriculture”, “Water Saving”, “How to Write a Business Plan”, “Modern Technologies to Combat Insects”, “Modern Pesticides”. The employees of CARD initiated the fieldtrips to farms of the members of “Yervandashat” Cooperative. The employees of CARD analyzed the land conditions, provided detailed explanations concerning the negative impact of various insects on plants and trees, the peasants were unaware of plum pests’ prevention, and the employees of CARD informed about modern plum pesticides.

A CARD employee, who had just arrived from Israel, hold seminars for “Yervandashat” Cooperative about drip irrigation, anti-hail stations, new type of trees that have been planted in one of the Cooperative member’s land. Within the scope of the “High Value Agriculture” seminars, experimental trees of apple, pear and plum have been planted.

6th Principle: Cooperation among Cooperatives

The “Yervandashat” Cooperative serves its members most effectively and strengthens the Cooperative Movement in Armenia by working together through local, national, regional and international structures.

There is a strong collaboration among the members of “Yervandashat” Cooperative; the same applies to cooperation with other cooperatives, the machinery is swapped with the members of other cooperatives. CARD supported the exchange of experience between members of newly established “Meghri” Cooperative and “Yervandashat” Cooperative, the members of “Yervandashat” Cooperative provided professional training courses. Within the scope of the “Dried Fruit” project, the “Yervandashat” Cooperative have also cooperated with “Lukashin” Cooperative (located in village Lukashin, Armavir region) and with “Hatsik” Cooperative (located in village Hatsik, Armavir region).

7th Principle: Concern for Community

Cooperatives work for the sustainable development of their communities through policies approved by their members.

The baling and spraying equipment of cooperative are rented by other non-member villagers under more favourable conditions.

Fostering factors for establishing the “Yervandashat” Consumer Cooperative

According to members of cooperative, it is very difficult to reach any appreciable results while acting alone, since the appropriate governmental support to Small and Medium Enterprises (SME) is missing or insufficient. Meantime, the international organizations support the cooperatives; thus, forming a cooperative enables to meet the necessary volume of export and purchase pesticides and seeds at more affordable prices.

On the other hand, the SME National Center of Armenia refused to cooperate with cooperatives and provide any kind of loan, the representatives of SME National Center of Armenia justified their decision with the fact that the program does not include the collaboration with cooperatives; instead the representatives of SME National Center of Armenia have suggested the members of “Yervandashat” Cooperative to dissolve the cooperative and establish Sole Proprietorships, thus, the SME National Center of Armenia can cooperate with Sole Proprietorships. The next concern of the “Yervandashat” Cooperative is related to the absence of tax privileges to cooperatives. The Chairperson of cooperative contacted to the Baghramyan local employment office in Armavir region to solve the issues of unemployed people, but he was very dissatisfied with the quality of service provided, thus, he decided to establish a cooperative. The efficient formation of the cooperative was due to the efforts of the Chairperson of cooperative, who organized a monthly session for cooperative members on forming cooperatives.

In 2013, the cooperative lost total of 60 tonnes of output, overall the Yervandashat village lost 80 tonnes, since the cooperative was unable to realize the total output, because the “Noyan” Factory lacked the necessary capacity.

The members’ expectations from “Yervandashat” Cooperative

The members of “Yervandashat” Cooperative would like the Government of the Republic of Armenia to supply more favourable loans and establish tax privileges. The Republic of Armenia lacks a comprehensive state program, which will be intended to create a benchmark for the efficient cooperation between the Cooperative and the Government.

The future plans of cooperative included the development of the agritourism and increase of export capacity. The most efficient way of producing dried fruits was to have both solar dryer and electric dryer; currently 5 cooperative members had solar dryer and the cooperative was

in need of additional 5 electric dryers. In March, 2014 the company exported 1.1 tons of dried apricot to Yekaterinburg.

The members' perceptions about Kasyan Farmer Market

Within the scope of the Kasyan Farmer Market the “Yervandashat” Cooperative was given a kiosk for its dried fruit. The members of cooperative stated that the Kasyan Farmer Market is a cheaper market with small area, low opportunities, short duration of only 2 days, and since there were no big organizations willing to make huge purchases, but individual consumers with very limited amount of consumption, which was insufficient to sell the whole dried fruit represented during the Kasyan Farmer Market. Unless the farmers see the feasibility of certain actions, governmental preaching about the easiest and the most efficient way of conducting a business cannot convince the farmers to follow that path.

The members' willingness for long-term collaboration

The future collaboration among members of “Yervandashat” Cooperative and other cooperatives is related to existence of appropriate financial resources and future development of “Yervandashat” Cooperative, if the members of cooperative witnessed no tangible development and that there was no difference between cooperative and sole proprietorship, the members of cooperative would stop cooperation, therefore, the government shall provide distinctive attitude towards the development of cooperatives, by supporting the cooperatives with financial resources; so far the government has been only providing tractors under leasing conditions, but the problem is more profound and the farmers themselves could find tractors if the farmers needed to or could afford to. In reality, the farmers did not have sufficient financial resources for sowing. The farmers highlighted that the most efficient alternative to tractors provided by government under leasing conditions was the cost-less agricultural equipment provided by foreign organizations under various grant projects, since the leased

tractors were offered by such financial institutions as Farm Credit Armenia UCO and Acba-Credit Agricole Bank CJSC under unfavourable leasing conditions (24% annual percentage rate) and farmers were unable to apply for leasing. Meantime, the farmers recalled that their friend, who was a farmer, recently purchased the Chinese tractor under leasing conditions and being unable to cover the costs of tractor through exploitation of the tractor, went to work in the Russian Federation for 3 years to be able to pay out the principal and interest. After one year, the wheels of tractor deteriorated and the farmer had to pay additional 1000 USD to replace them with new ones.

In addition, the members of cooperative requested that the foreign organizations provide them “Belarus” tractors, since these are the most adapted tractors to Armenian soil conditions and the spare parts of Belarusian tractors are the most widely spread across the Republic of Armenia. The farmers were extremely dissatisfied with the performance and the quality of Chinese, Korean and Turkish tractors and the spare parts of these tractors can hardly be found in the Republic of Armenia. In 2010, UMCOR and CARD provided Belarusian tractors, sprinklers and mowers to “Yervandashat” Cooperative. Since during Soviet Union the vast majority of agricultural equipment was imported from the Republic of Belarus, thus, in almost all spare parts’ stores the spare parts of Belarusian tractors are widely spread and due to the "AR-BE" Armenian-Belarusian trading house, which operates in the Republic of Armenia. There was a high chance that the members of “Yervandashat” Cooperative would cooperate in a long term. In autumn, the cooperative did not operate, thus, 8 members of the cooperative wanted to use their water reserves for fishery purposes as an alternative way of maintaining the cooperative’s feasibility.

Future expected benefits from Cooperative

The members of Cooperative affirmed that the “Yervandashat” Cooperative provided all possible benefits to its members and that the Chairperson of “Yervandashat” Cooperative had

many times tried to contact with Government Authorities but the Government Authorities did not respond.

The future perspectives for cooperative were to provide larger capacity of production, more solar dryers to use the full potential. Each member of cooperative contributed to the overall development of cooperative; for example, some members built the smoking area, the others paved with tiles, the remaining members helped renovate the yard.

The feasibility of Cooperative

If the cooperative strongly follows the principles of cooperative, then the overall feasibility of cooperative is estimated as satisfactory. If there was no frostbite, hail and heavy snowfall in April 2014, the cooperative could fully integrate the efforts of all 36 members of cooperative and realize the initial agreement of 28 tons of dried fruit to “Azbukha Vkusa” (“Alphabet of Taste”) Russian Supermarket Chain and distribute the surplus to Duty Free of “Zvartnots” International Airport.

In 2011 the “Yervandashat” cooperative made total sales of 28.4 million AMD, in 2012 total sales equalled 29.3 million AMD and the recent sales figures of 2013 amounted to 36.55 million AMD. Nevertheless, the cooperative lacked the processing opportunity, thus, it could not use the output for the purposes of jam and juice.

Willingness to invest in Cooperative

The members of cooperative had high aptitude to invest spare resources for the efficient development of the “Yervandashat” Cooperative, given sufficient financial resources the members of cooperative would be engaged in fishery. The members of “Yervandashat” Cooperative realized the need to invest their sales to cover the current expenses, most specifically, renovating equipment, tools, and purchasing new tools for packaging the ready produce to keep up with the market developments.

Armenia, Bulgaria Turkey and Georgia were included in Heiffer Program's part related to agricultural tourism, in the frame of this program interesting tours were offered in rural areas, the tourists were personally engaged in such farm activities as picking fruits, buying produce direct from a farm stand, making dried fruit.

The second type of tourism developed in Yervandashat was the archaeological tourism, it had 6 years of history and attracted tourists to Yervandashat village and through the collaboration between tourism agencies and "Yervandashat" cooperative the tourists also visited "Yervandashat" cooperative, having lunch there and staying in Cooperative's hostel.

ECONOMIC BENEFITS TO FARMERS

Access to quality inputs and services at better prices

The fertilizers, pesticides, raw materials and services are available at lower than market prices due to bulk purchases; for example the actual price of spraying is 12,000 AMD per 1 ha but for the members of cooperative its price is 8,000 AMD per 1 ha, the actual price of baling is 15, 000 AMD per 1 ha, but for the members of cooperative its price is 12,000 AMD per 1 ha.

Ability to sell the products at the most favourable wholesale prices

The members of “Yervandashat” Cooperative were able to sell their products at more favourable prices, therefore, to increase the Cooperative’s net income. Previously, the total output produced by single farmers was 0.5 tonnes, but after the “Yervandashat” Cooperative established, the total output reached to 2 tonnes and the farmers started using the services of cooperative more frequently, for example, the members of “Yervandashat” cooperative trusted the Chairperson of Cooperative and in addition to the production cost of 2000 AMD, were willing to pay the additional 500 AMD for the purposes of packaging and exporting the dried fruit.

Cooperative membership as a means for continuously creating additional value

The membership of the Cooperative reduced the cost price of production by 20-30%, since the equipment operates at higher capacity, resulting in comparably lower operational expenses, pesticides and seeds are purchased at lower prices due to bulk purchases. In general, being a member of cooperative did not enable them to substantially get enrolled in various aspects of value chain but continuously created additional value.

New services inside the cooperative and more accessible external resources and services

The members of “Yervandashat” Cooperative are not only willing to offer new services inside the cooperative, but are also diligently striving to realize their goals related to community development overall. The members are willing to produce jams and natural juices inside the cooperative, instead of delivering the fruits to “Noyan” Factory and incurring the additional delivery expenses. Four members of the cooperative recalled that they were able to market only 12 tons of apricot, incurring losses, because of “Noyan” Factory’s low production capacity and the price offered by Noyan Factory was lower than the cost price, and being unable to sell the remaining apricot, each of them had to throw away 20 tonnes of apricot. In 2013, the price offered by Noyan Factory was 50 AMD per 1 kg of apricot, while in 2012 the market price for 1 kg of apricot was 110-130 AMD. The price of 50 AMD per 1 kg of apricot was insufficient for farmers to organize the collection and delivery of apricot, since only delivery and collecting costs were 30 AMD per 1 kg of apricot, but besides those costs the farmers also incurred huge expenses related to water irrigation, land costs, spraying, purchases of pesticides and fertilizers, if all of these costs are added to the cost price for 1 kg of apricot the total cost equals to 100 AMD.

Nevertheless, the “Noyan” Factory offered 50 AMD per 1 kg of apricot and provided no guarantees that the Factory would fully process the remaining 60 tonnes of apricot, thus, the farmers decided to throw away the remaining 60 tonnes of apricot. The farmers told that instead of throwing away the harvest of apricot the members could have processed and produce dried fruits inside the cooperative and sell the dried apricot with seeds for 400-550 AMD per 1 kg, but if the members have kept the dried apricot, the cooperative could have sold it for 1,500 AMD per 1 kg this year and earn superprofit.

The reasons that members of “Yervandashat” Cooperative did not make dried fruit from the thrown away apricots were as follows:

- Confidence that in 2014 the production volume of apricot would be very high.
- The farmers lacked the necessary finance to process the total 60 tonnes of apricot for dried produce.
- The cost price of drying 1 kg of apricot is 600 AMD, thus, by spending 600 AMD per 1 kg the farmers would have to sell the dried apricot for 400-550 AMD per 1 kg and incur losses.

The cooperative and interactions with interconnected markets

There are no well-developed legal acts regulating the activity of cooperatives in the Republic of Armenia; therefore, the consumer cooperative is not eligible to apply for loans to commercial banks or get loans in the frame of SME development projects, instead only the international organizations support the cooperatives, which is insufficient. The SME Development National Center of Armenia and commercial banks suggested the members of cooperative to dissolve the cooperative and establish the sole proprietorships and after meeting the condition of bondsman become eligible for loans. The members of “Yervandashat” Cooperative were well aware that the future is in cooperatives and the farmers lacked the opportunities of establishing separate Sole Proprietorships and doing so was not justified, since each of them had to find their own markets to sell and keep separate accounting and since all of them were engaged in similar agricultural activities; therefore, the business will be more profitable in case of collaboration.

According to Chairperson, Arkadya Khachikyan, “Joining a cooperative cannot enable farmers to avoid interactions with interconnected markets, as the purchase of supplies or sales of ready produce was highly dependent on loans and the support of various international organizations”.

Enhanced competition and transparency

Although the biggest producers “Noyan” and “Shen” NGO had 70 ha of land but the members of “Yervandashat” Cooperative do not produce such products that are subject to monopoly prices; therefore, overall, in the presence of monopoly, the members of Cooperative had average expectations of struggling against monopolies. The “Yervandashat” Cooperative is also engaged in fishery and based on their own experience the members highlighted the existence of monopolies in the sphere of fishery, crawfish production and greens production.

LAWS ON COOPERATIVES

This section reviews the existing legislative framework for cooperatives in the Republic of Armenia.

Laws defining functions of executive and control bodies of cooperative

The members of “Yervandashat” Cooperative told that the TV seldom makes announcements about initiatives of developing new legal acts on cooperatives, and recently the Ministry of Agriculture of the Republic of Armenia is very passive in this concern and the farmers are unaware about current development phase of the law. In general, the members of cooperative showed very low level of legal literacy, which was mainly due to unawareness that the cooperatives are regulated by Articles 117-121 of the Civil Code of the Republic of Armenia and by the Law on Consumer Cooperation adopted in 1993. The members of “Yervandashat” Cooperative insisted that a regular member of an Armenian cooperative does not need to know the laws on Cooperatives.

The Chairperson of “Yervandashat” Cooperative agreed on both that the laws on cooperatives did not fully define the functions of executive and control bodies and that the minimum number of members should be five, which would enable to form the necessary management bodies. Meantime, the cooperative did not conduct annual meetings and take minutes.

Tax privileges to Cooperatives

The farmers noted that there is a strong need to register the small and medium businesses as cooperatives and grant tax privileges. The farmers quoted an example of businessman initiating a business in Yerevan and a farmer operating in remote, border village, in fact both businessmen and farmers are taxed under same rates, and instead the farmers mentioned that tax indulgences must be provided, as farmers live in remote, border village. Because of

unemployment, there is a huge emigration from Yervandashat to other countries. In recent years, there is also growing migration to Yerevan. One of the members of “Yervandashat” Cooperative was so discouraged that he was ready to cut down all his fruit trees on his 1 ha land. The Chairperson of Cooperative supported the idea that comprehensive tax system along with considerable tax privileges should be provided.

The annual monitoring of cooperatives

The annual monitoring of “Yervandashat” Cooperative had an advisory character and was the essential part of the strategic planning. The members of cooperative conduct the monitoring process on a regular basis, before initiating any seasonal work the separate discussions concerning spraying, baling and tillage are conducted.

Obligatory Indivisible Funds

The members of “Yervandashat” Cooperative were willing to make the indivisible funds obligatory for cooperatives and to define a minimum threshold of 5% of the annual profit until it reached to the level of the statutory capital, but thought that it is very early for Armenia and the cooperative needed to grow considerably.

SCENARIO ANALYSIS

Scenario 1

The members of cooperative need 5,000,000 AMD initial cost for purchasing new equipment. This scenario will identify their willingness and ability to invest. (e.g. there were 5 farmers who were willing to invest 1,000,000 AMD each).

All 7 participants of focus group noted the willingness to make equal investments to purchase new equipment, although, according to the Chairperson of Cooperative, the remaining 28 members would not contribute in equal proportions, since the output of cooperative was mainly created by the efforts of the 8 members of “Yervandashat” Cooperative. Therefore, the major proportion of total receipts was divided among 8 participants. At the same time, the remaining 28 members of Cooperative were also willing to equally contribute to the purchase of new equipment if the market capacity was sufficient to completely sell their produce. Although during production process the equipment of all 36 members was commensurably exploited, but each of 36 cooperative members was specialized in a narrow branch of agriculture, for example, agronomy, water irrigation, etc. Some of the hindering factors were the unequal land plots and structural issues. For example, one of the members had a garden, which he cultivated and processed the fruits into dried fruits, the other member was specialized in growing watermelon. Not all members of cooperative were specialized in production of similar products. Nevertheless, according to Mr. Khachikyan, given the capacity restrains, the members of cooperative contributed to the creation of final product with 0.2 tonnes, 1 tonnes, etc. Conversely, excluding 8 members, the remaining members of Cooperative did not have dryers, thus, the final dried fruit was of lower quality and was hardly sold. Consequently, being incapable of satisfying the full demand of dried fruit the “Yervandashat” Cooperative cooperated with other cooperatives.

Scenario 2

The Government of the Republic of Armenia offered the members of cooperative the alternatives of either receiving the 30% financial support of the initial 5,000,000 AMD equipment cost, excluding the cooperative members' future indemnities or providing 3,000,000 AMD equipment with favourable loan terms, 3% annual loan rate and 10 years of loan repayment period. This scenario identifies the members' preference of 2 alternatives.

The members of Cooperative preferred the 2nd alternative of favourable loan terms under 3% annual interest rate and 10 years of loan repayment period, the Chairperson of “Yervandashat” Cooperative expressed willingness to take 30,000,000 AMD loan under given preferential loan terms.

The choice of 1st alternative would express the farmers' unwillingness to spend the loan for intended purposes, while the choice of 2nd alternative implies the farmer's aptitude to spend the loan for intended, strategically vital purposes.

The farmers recalled the example of international organization, most specifically; the fund provision by international organization was followed by discursive cooperation with farmers. The spending of funds was consistently regulated through respective legal documentations. The members of Cooperative suggested the Government of the Republic of Armenia to adopt similar practice.

In contrast, if the Government provided non-favourable loans (e.g. interest rate of higher than 5% and the loan repayment period of less than 10 years), the members of “Yervandashat” Cooperative would be strongly against taking the loan. The experience showed that the hail in 2-3 consecutive years could cause drastically negative effect on harvest and the farmers not being able to repay the principal and interest were forced to leave for work abroad. In 2013,

the farmers did not have necessary financial funds to repay the loan; therefore, the Government of the Republic of Armenia froze the farmers' interest repayments. Similar situation repeated in 2014 and the farmers were reliant that the villagers are the only aggrieved party, not the Government of the Republic of Armenia or Commercial Banks. The members of "Yervandashat" Cooperative tried to negotiate with Commercial Banks on 1 month prolongation of the loans, by promising to repay the full principal and interest on that 1 additional month, but the negotiations failed.

Scenario 3

The World Vision or USDA offered the members of cooperative the alternatives of either receiving the 30% financial support of the initial 5,000,000 AMD equipment cost, excluding the cooperative members' future indemnities or providing 3,000,000 AMD equipment with favourable loan terms, 3% annual loan rate and 10 years of loan repayment period.

This scenario identifies the members' preference of 2 alternatives. In general, the farmers were open to dialogue and cooperation with both the Government of the Republic of Armenia and international organizations, but if both the Government and international organizations made similar suggestion concerning the loan or any other type of cooperation the members of "Yervandashat" Cooperative would give the preference to those international organizations, with whom the "Yervandashat" Cooperative had long-lasting history of efficient collaboration (e.g. USDA/CARD), since there was no collaboration between Government bodies and cooperatives. Meantime, if the suggestions of the Government of the Republic of Armenia and the International Organizations differed substantially the preference would be given to those offering better conditions.

Scenario 4

The Government of the Republic of Armenia eliminated the respective 20 and 10 EUR state duties that could be envisaged for registration as well as for change in the number of cooperative members. This scenario identifies the members' willingness to establish cooperative and other possible hindering factors.

The villagers agreed that instead of charging accordingly 20 EUR and 10 EUR fees, the Government of the Republic of Armenia should financially support the farmers, establish favourable business settings, which would widely foster the establishment of Cooperatives in the Republic of Armenia. The farmers protested against irrationally high service fees charged by several Commercial Banks. In general, the farmers demanded that the Government instead of charging fixed fees provided comprehensive legal justifications for various types of payments to assure farmers the transparency and that the receipts generated from various fees were spent on purpose. The members of “Yervandashat” Cooperative were sure that charging no fees for registration and for change in the number of cooperative members would be stimulus for establishing cooperative in the Republic of Armenia.

The farmers proclaimed that the subsidies by the Ministry of Agriculture of the Republic of Armenia are not transparent and the village community embezzled the majority of governmental support and the remaining support was unequally distributed among villagers based on friend-relative principle. To guarantee the transparency, the farmers suggested precisely coordinating and reporting through media the amount of Governmental support to village communities and the distribution process of Governmental subsidies among villagers. The villagers protested against the water price per 1m^3 , although the governmental officials replied that the actual water price of 1m^3 was 20 AMD and the Government subsidized 9 AMD, resulting in water price of 11 AMD/ m^3 , but only 0.75 AMD/ m^3 went to State Budget and the remaining difference was distributed among several monopoly companies.

FOCUS GROUP AND INTERVIEWS WITH “BYUZAND” MEDIUM FARM

For the purposes of facilitating the research focus group and interviews have been conducted with the Chief Executive Officer of “Byuzand” Medium Farm and the farmers working in the farm. The “Byuzand” Medium Farm is located in village Artamet, region Armavir. The Farm has total of 42.70 hectares of land and encompasses the following fruits:

Table 1. Types of Fruits and Total Area of “Byuzand” Medium Farm

Types of Fruits	Total Area (ha)
Grapes	37.66
Other fruits, including	5.04
Hazelnut	1.22
Apple	0.20
Pear	0.30
Cherry	0.40
Apricot	2.27
Plum	0.65

Factors hindering the development of Cooperatives in the Republic of Armenia

The Factors hindering the development of Agricultural Cooperatives in the Republic of Armenia are as follows:

1. Human factor, the farmers based on subjective reasons do not want to cooperate, since there is no trust among them.
2. The investments and income are not distributed equally.
3. The VAT law on Cooperatives.

4. Absence of comprehensive law that will provide the advantages of establishing a cooperative.
5. People's unawareness about legal acts.
6. The lack of proficient accountants in Cooperative laws.
7. The study of legal acts regulating the Cooperatives showed that though Consumer Cooperatives are non-profit organizations and may get profit, which will be sufficient for their existence only.

According to Tax Legislation of the Republic of Armenia, the consumer cooperatives are subject to both income tax and value added tax (VAT), therefore, the accounting and taxation errors and inaccuracies may result in substantial financial losses and fines.

Concerning accounting and taxation errors and inaccuracies of cooperatives, Mr. Hovhannisyan agreed that, whenever the services are provided at lower prices, the cooperative should incur the resulting fines and losses and he added that in reality there is lack of accountants, who are competent in the accounting principles of cooperatives, thus, the unawareness and strictness of the law on cooperatives and the lack of specialized accountants is an essential problem and can result in dissolution of cooperatives. The farmers of "Byuzand" Farm highlighted the non-profit seeking principle of cooperatives as a disadvantage and added that the consumer cooperatives help their member farmers to sell the produce and sign purchasing contract with villagers setting higher than the market price, meantime the law stipulates the non-profit seeking principle of consumer cooperative, therefore, the profit received by consumer cooperatives will be enough to keep its existence only.

Factors stimulating the development of Agricultural Cooperatives in the Republic of Armenia

The Factors stimulating the development of Agricultural Cooperatives in the Republic of Armenia are as follows:

1. The agricultural produce is non-tax deductible and the farmers may get the salaries in the form of agricultural products.
2. Appropriate alteration of crops.
3. Higher fuel efficiency during harvesting and production process.
4. Proper specialization.
5. The financial funds are more secured.
6. Risk diversification

The Chief Executive Officer of “Byuzand” Farm, Mr. Armen Hovhannisyan recalled an example of agricultural cooperative, which had remaining balance of 100 kg apricot and proposed the following question: If the agricultural cooperative distributed the remaining balance among members and employees of cooperative instead of patronage refunds and salaries, will the 100 kg apricot be subject to taxation or not? Most specifically, Mr. Hovhannisyan assured that eliminating the taxation of the agricultural products paid in the form of salary and patronage refund will be stimulus for establishing agricultural cooperatives in the Republic of Armenia.

The farmers of “Byuzand” Farm defined the cooperative as collaboration among members of cooperative, which would enable to pull the mutual resources (i.e. equipment, land, workforce, etc).

The farmers mentioned that one of the advantages of establishing a cooperative is the ability to conduct the proper crop rotation. The farmers brought an example of individual farmer

growing a watermelon and the cooperative encompassing 10 members; the individual farmer could not grow only watermelon in the same land, since the soil fertility will reduce. Meantime, 10 members of cooperative who pulled their lands find the optimal combination of various agricultural crops and part of the members may grow watermelon, while the others may grow pepper and apricot. The sales receipts of watermelon, pepper and apricot are distributed among members of cooperative based on their contribution. On the other hand, the fuel consumption for bailing 1 ha and 0.5 ha farm are nearly equal, particularly, the expenses of using bailing and other equipment for 5 individual farms of 0.5 ha each, exceed the expenses of 2.5 ha farm; because of auxiliary time and fuel associated with individual farms. The establishment of cooperative enables to use the machinery and tools more efficiently. The next advantage of cooperative is the fostering of specialization, meaning that each member will do whatever he/she is good at doing, some of the members may grow wheat, others watermelon and pepper. The owner of 1 ha land will not be capable of purchasing new equipment because of financial limitations. Conversely, the cooperative can acquire the machinery and tools and the resulting benefits will be equally transferred among members of cooperative. The most important factor fostering the efficient development of agricultural cooperatives in the Republic of Armenia is to provide comprehensive information about the characteristics and problems of establishing agricultural cooperatives in Armenia. The farmers' awareness about the respective legal acts regulating the cooperatives was extremely low.

The individual farmer will incur larger losses in case of hail, snow or frostbite, whereas due to diversification of risk, the cooperative will spread the losses and risks equally between the members, thus, the overall risk and losses will be reduced and the members of the cooperative will end-up with higher profits.

The Accounting Principles of the Republic of Armenia (APRA)

Accounting Principles of the Republic of Armenia (APRA)

According to “Income” principle of “Membership fees” Article 18 point 17, the income recognition depends on the nature of provided services, particularly, “If during membership period the membership fees grant members the right of purchasing specific services and publications or acquiring goods and service at lower than non-member prices, then the membership fees are considered as income based on the received benefits’ time, nature and value principles”.

The study of Law on Consumer Cooperatives identified that though the consumer cooperatives are non-profit seeking organizations, but may earn profits necessary to secure the existence of cooperative. Conversely, the other type of cooperative is a Commercial Cooperative, which is considered as profit seeking organization, therefore it purchases goods from other villagers at lower than the market price and sells the ready produce at market prices, thus, comparably higher profits are guaranteed. The prices of goods sold through consumer cooperative are set by villagers, while the prices of goods sold through commercial and production cooperative are set by the market. For example, the “Yervandashat” Consumer Cooperative purchases apricots from other villagers at a price of 550 AMD and sells for 600 AMD, while under similar conditions, the commercial and production cooperative would set the price of apricots to be not more than 400 AMD. The farmers highlighted the advantage of “Yervandashat” Consumer Cooperative to hire PR and Marketing Manager and successfully enroll new customers from Yekaterinburg, while individual farmers lack the necessary financial funds. One of the farmers told that if the land of farmer is small it does not make sense to use the land, since it is not feasible and is related

to additional expenses and waste of time. On the other hand, medium farmer (i.e. having land of at least 1 ha) can end-up earning normal profits and the medium farmer does not become member of cooperative because of trust, which means that there is man factor, if the farmer sees that the establishment of cooperative is feasible and the cost price of the produce reduces and the resulting profit increases he will cooperate, but no farmer makes the first step, instead the farmers steal water and laborer from each other.

FEASIBILITY STUDY OF “YERVANDASHAT” COOPERATIVE³

This section of report included the feasibility analysis of “Yervandashat” Consumer Cooperative. The final results analysed the distribution for each of the key output variables such as profit, yields, and net present value (NPV). The feasibility analysis of future business decisions under risk are based on the distributions of key output variables. The financial statement simulation model is programmed in Excel using the add-in SIMETAR©, a simulation and risk analysis software (Richardson, Schumann, and Feldman, 2008). The most determinative output variable from the model for evaluating the feasibility of expanding the capacity of dried fruit production factory is the net present value (NPV). The model calculates NPV as follows:

$$(1) \text{ NPV} = -(\text{Beginning Net Worth}) + \sum_{j=1}^n \frac{(\text{Family Living Dividends} + \text{Family Living Bonus})}{(1+i)^j} + \frac{\text{Ending Net Worth}}{(1+i)^n}$$

Equation 1 calculates NPV (assuming a discount rate of $i = 31.75\%$) of family living dividends and family living bonuses paid to households and net worth over the life of the investment (five years), and compares that value to the net worth at the beginning of the investment. If the value of NPV is greater than zero, the business is considered an economic success (Richardson and Mapp, 1976).

The major income-generating products are dried apricot, dried black plum, dried red plum and dried peach. Income is calculated as:

$$(2) \text{ Income} = P_{\text{Dried Apricot}} * Q_{\text{Dried Apricot}} + P_{\text{Dried Black Plum}} * Q_{\text{Dried Black Plum}} + P_{\text{Dried Red Plum}} * Q_{\text{Dried Red Plum}} + P_{\text{Dried Peach}} * Q_{\text{Dried Peach}}$$

Income is stochastic, since it is based on prices, which are drawn at random from probability distributions estimated from historical series. Other random variables include inputs.

³The excel file with all the calculations is available upon request.

In 2014 the farm borrowed 5,000,000 AMD from Acba-Credit Agricole Bank Armenia CJSC, for a 5 year loan, at a 24% interest rate. The loan amortization table has been used to amortize the loan accordingly.

The cooperative is taxed as a corporation and has a depreciation deduction of 250,000 AMD per year, and is subject to income tax and value-added tax (VAT) and has no other tax deduction.

The model assumes that for all five years the base crop mix is fixed. Since all costs are for 2013, thus, all costs, excluding the manager's and electrician's salary are inflated by the Prices Paid Index. On the other hand, the Consumer Price Index (CPI) is used to inflate the manager's salary. The model assumed that the manager did not receive any bonuses. For the purposes of estimating the CPI, PPI and GDP deflator the historical data from 2000-2013 has been used, which was provided by the National Statistical Service of the Republic of Armenia. Based on the historical data the simulation has been conducted and the corresponding values of CPI, PPI and GDP deflator for 2014-2018 have been estimated (Tables 4, 5, 6). The operating loan was estimated as 5% of total annual cash costs. The Interest for the operating loan was computed as the product of the loan amount and the local interest rate. The estimations of the local interest rate amounted to the national interest rate plus the local interest rate basis of 0.085. The local interest rate basis was computed as the difference of average rate of ProCredit Bank Armenia's "AgroProgress" USD loan, which varied from 14%-18%, and Central Bank's Refinancing Loan Rate of 7.5%. Whenever the farm incurs a cash flow deficit, the deficit is financed for one year and the interest of short-term cash flow deficit loan is estimated based on the local interest rate for the operating loan. Land value is inflated on the basis of Gross Domestic Product (GDP) Deflator.

Table 2. Operating Loan Rate and Interest for Cash Reserves

First year to simulate	2014
Hectares Owned	40.0
Hectares Cash Rented	4
Land Value Dec 31	5,796,000
Machinery	
Baling Machinery	6,000,000
4 Solar Dryers (each cotsts 1,000,000 AMD)	4,000,000
Belarusian Tractor	7,200,000
Electric Dryer	2,697,500
Spray machine	1,500,000
Other machinery and tools (i.e. plow, chisel, cultivator)	1,000,000
Total Machinery Cost	22,397,500
% Change Land Value	4%
Beginning Cash Reserves	1,000,000
Manager's and Electrician's Base Salary	100,000
Manager's and Electrician's Bonus % NCFI	0%
Discount Rate for NPV	0.3175
Depreciation Tax Deduction	250,000
Other Tax Deductions	-
Local Interest Rate Basis	0.085
Operating Loan % Year	5%
Interest for Cash Reserves	0.115

The “Yervandashat” Cooperative did not lease any machinery, thus, it did not pay any rent. Meantime, the depreciation expense totalled 250,000 AMD annual under straight-line depreciation method. The risk adjusted discount rate for calculating NPV and present value of ending net worth is 0.3175. The farm had 1,000,000 beginning cash reserves, which it spent for acquiring fuel for 2013. In addition, any cash on hand by January 1, 2014 is assumed to receive interest calculated at 11.5% per year (Annual Interest rate of ProCredit Bank Armenia's "ProApaga" savings account).

Financial Statements

Table 3 depicts the Income Statement projections for 2014-2018. Based on the projections, the Net Cash Farm Income has been substantially fluctuated from 61,337,748 AMD in 2014 to 94,694,278 AMD in 2018.

Table 3. Income Statement Projections for 2014-2018

Financial Statements					
Income Statement	2014	2015	2016	2017	2018
Receipts					
Dried Apricot	95,101,497.17	103,051,828.14	111,320,608.46	119,907,838.13	128,813,517.16
Dried Black Plum	16,599,678.49	18,030,684.78	19,520,835.16	21,070,129.63	22,678,568.18
Dried Red Plum	4,022,441.86	4,366,218.08	4,724,000.47	5,095,789.05	5,481,583.80
Dried Peach	820,201.30	926,141.79	1,038,040.80	1,155,898.32	1,279,714.37
Revenue	116,543,818.82	126,374,872.78	136,603,484.89	147,229,655.13	158,253,383.51
Expenses					
Apricot Planting Cost	22,185,080.24	22,272,611.25	22,360,142.26	22,447,673.27	22,535,204.28
Black Plum Planting Cost	3,011,316.06	3,023,197.18	3,035,078.29	3,046,959.41	3,058,840.53
Red Plum Planting Cost	2,710,184.45	2,720,877.46	2,731,570.47	2,742,263.47	2,752,956.48
Peach Planting cost	2,252,402.21	2,261,289.04	2,270,175.87	2,279,062.70	2,287,949.53
Apricot Harvesting Cost	10,289,900.54	10,733,976.01	11,181,222.79	11,631,640.88	12,085,230.29
Black Plum Harvesting Cost	678,681.32	709,675.05	740,891.34	772,330.20	803,991.62
Red Plum Harvesting Cost	128,723.00	134,204.30	139,724.69	145,284.17	150,882.74
Peach Harvesting cost	14,987.55	16,254.83	17,531.60	18,817.87	20,113.63
Interest on operating Loan	464,301.85	481,528.98	509,716.05	549,321.41	568,037.20
Land Debt Interest	1,200,000.00	1,050,902.74	866,022.14	636,770.20	352,497.79
Carry over debt interest	-	-	-	-	-
Total Expenses	42,935,577.22	43,404,516.83	43,852,075.50	44,270,123.58	44,615,704.08
Earnings before Taxes (EBT)	73,608,241.59	82,970,355.95	92,751,409.39	102,959,531.56	113,637,679.43
Value-Added Taxes	12,270,493.87	13,831,158.34	15,461,659.95	17,163,353.91	18,943,401.16
NCFI	61,337,747.72	69,139,197.62	77,289,749.45	85,796,177.65	94,694,278.27

Table 4 illustrates the Cash Flow Statement projections for 2014-2018. According to Table 4, the Ending Cash has been steadily increased from 35,523,220 AMD in 2014 and reached its pick of 221,673,320 AMD in 2018.

Table 4. Cash Flow Statement Projections for 2014-2018

Cash Flow Statements	2014	2015	2016	2017	2018
Beginning Cash Reserves Jan 1	1,000,000	35523219.94	78298242.47	121432227.5	169168105.7
NCFI	61,337,748	69,139,198	77,289,749	85,796,178	94,694,278
Interest Earned	115,000	4,085,170	-	-	-
Total Cash Inflows	62,452,748	108,747,588	155,587,992	207,228,405	263,862,384
Principal Payment	621,238.57	770,335.83	955,216.43	1,184,468.38	1,468,740.79
Repay the Deficit Loan	-	-	-	-	-
Income Taxes	26,207,046.97	29,577,408.14	33,098,587.38	36,773,511.36	40,617,644.59
Family Living Dividends	101,242.24	101,601.40	101,960.57	102,319.74	102,678.91
Family Living Bonuses	-	-	-	-	-
Total Cash Outflows	26,929,527.78	30,449,345.38	34,155,764.39	38,060,299.48	42,189,064.29
Ending Cash	35,523,219.94	78,298,242.47	121,432,227.53	169,168,105.70	221,673,319.68

Table 5 shows the Balance Sheet projections for 2014-2018. According to Table 5, the Net Worth, which is the difference between Total Assets and Total Liabilities, has been gradually increased from 36,551,060 AMD in 2014 to 227,256,299 AMD in 2018.

Table 5. Balance Sheet Projections for 2014-2018

Balance Sheet	2014	2015	2016	2017	2018
Cash Reserves Dec 31st	35,523,219.94	78,298,242.47	121,432,227.53	169,168,105.70	221,673,319.68
Land and Building	6,027,840.00	6,268,953.60	6,519,711.74	6,780,500.21	7,051,720.22
Total Assets	41,551,059.94	84,567,196.07	127,951,939.27	175,948,605.91	228,725,039.90
Loan Outstanding	5,000,000.00	4,378,761.43	3,608,425.59	2,653,209.16	1,468,740.79
Deficit Loan	-	-	-	-	-
Total Liabilities	5,000,000.00	4,378,761.43	3,608,425.59	2,653,209.16	1,468,740.79
Net Worth	36,551,059.94	80,188,434.64	124,343,513.68	173,295,396.75	227,256,299.11

Financial Model

The 5-year financial model encompasses the following parts:

1. NPV.
2. PV of ending net worth.
3. Annual net cash income.
4. Annual ending cash reserves.
5. The simulation part of stochastic variable.
6. The validation of stochastic variables for 2014.
7. The probability of positive annual net cash income.
8. The probability of positive annual cash reserves.
9. Stochastic efficiency (SERF), which indicated the most preferred crop mix for a risk neutral, moderately risk-averse, and extremely risk-averse person.
10. The Stoplight chart is presented and interpreted for probabilities of NPV being less than 0 AMD and greater than 100,000,000 AMD.

11. Roy's ranking on the basis of Net Cash Farm Income (NCFI).
12. The Probability Distribution function (PDF) for Dried Apricot, Dried Black Plum, Dried Red Plum and Dried Peach for 2014.
13. Cumulative Distribution function (CDF) and PDF for 4 scenarios of NPV.

Results and Discussions

To assess the risk component associated with each scenario the report states the mean values of NPV along with distributions. The data on cumulative distribution function (CDF) depicts that the probability of getting negative NPV under each of 4 scenarios is 0%. Since the graphs of NPV cross under all 4 scenarios, thus, there is no first degree stochastic dominance, therefore, the CDF graph cannot tell under which scenario the NPV is the most preferred, thus, other tools have to be used to rank NPV.

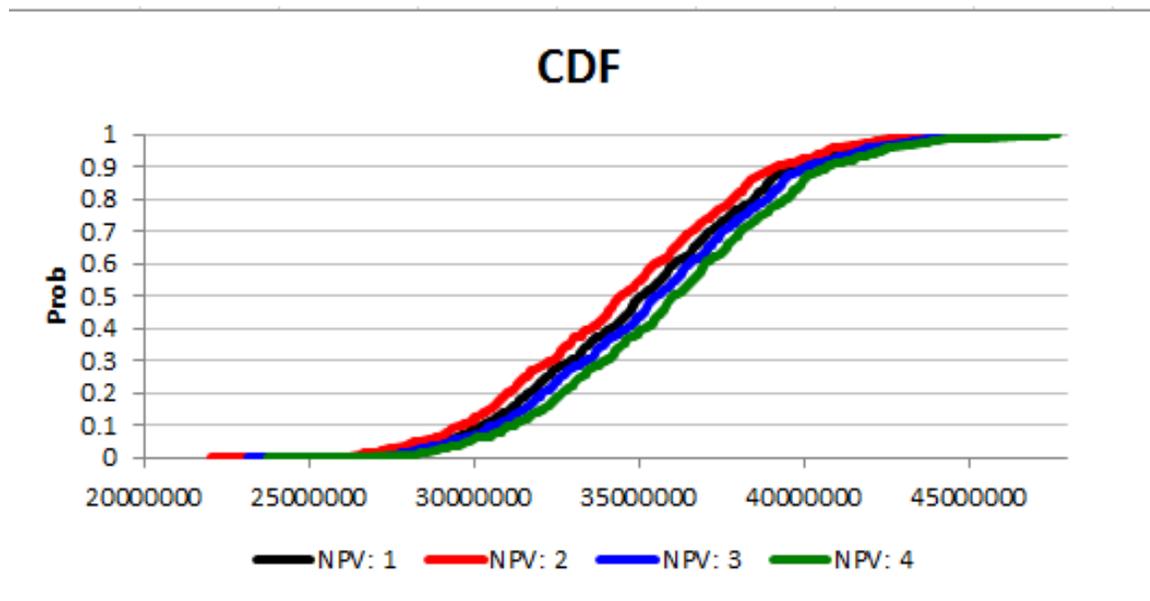


Figure 1. CDF of Net Present Values of “Yervandashat” Cooperative under 4 scenarios

The PDF graph depicts that the probability that under all 4 Scenarios our NPV value will fall in between 23,000,000 AMD and 48,000,000 AMD is 95% percent and the probability that

the NPV will be below 23,000,000 AMD is equal to 2.5%, the probability that the value of NPV will exceed 48,000,000 AMD is 2.5%.

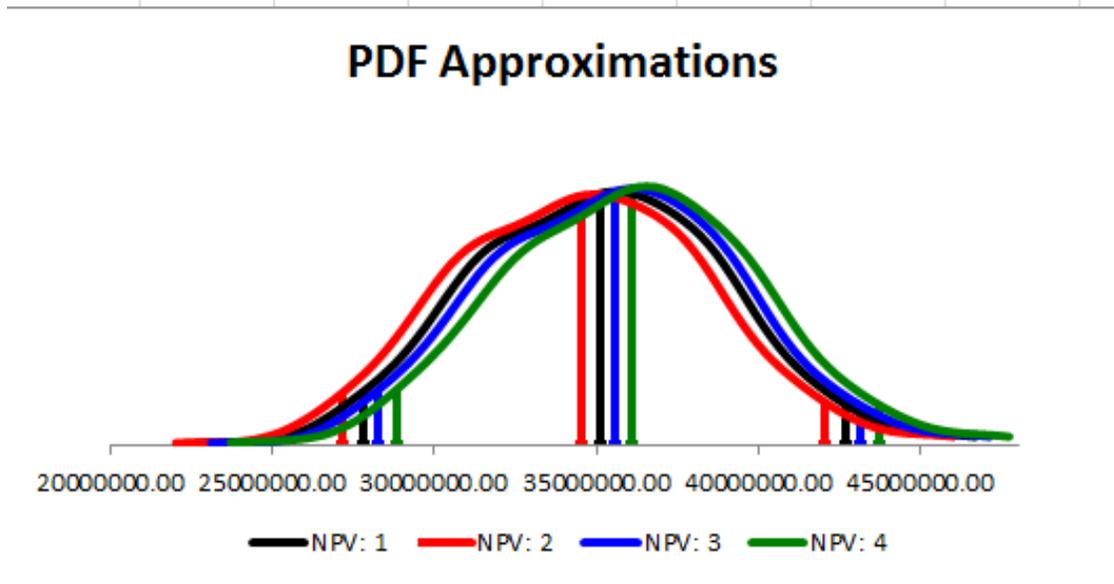


Figure 2. PDF of Net Present Values of “Yervandashat” Cooperative under 4 scenarios

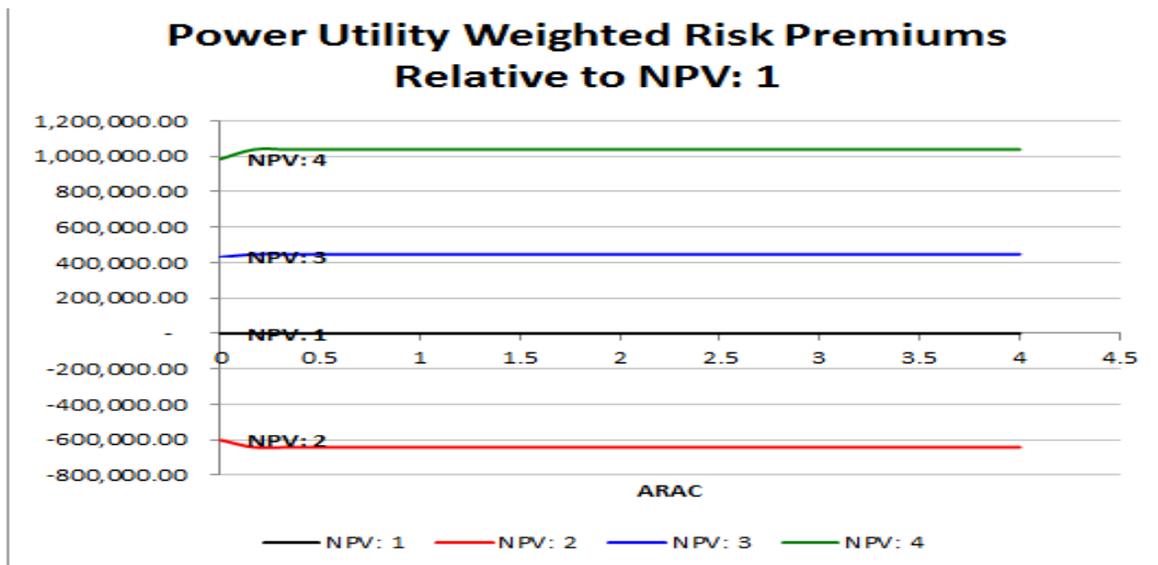


Figure 3. Power Utility Weighted Risk Premiums of “Yervandashat” Cooperative

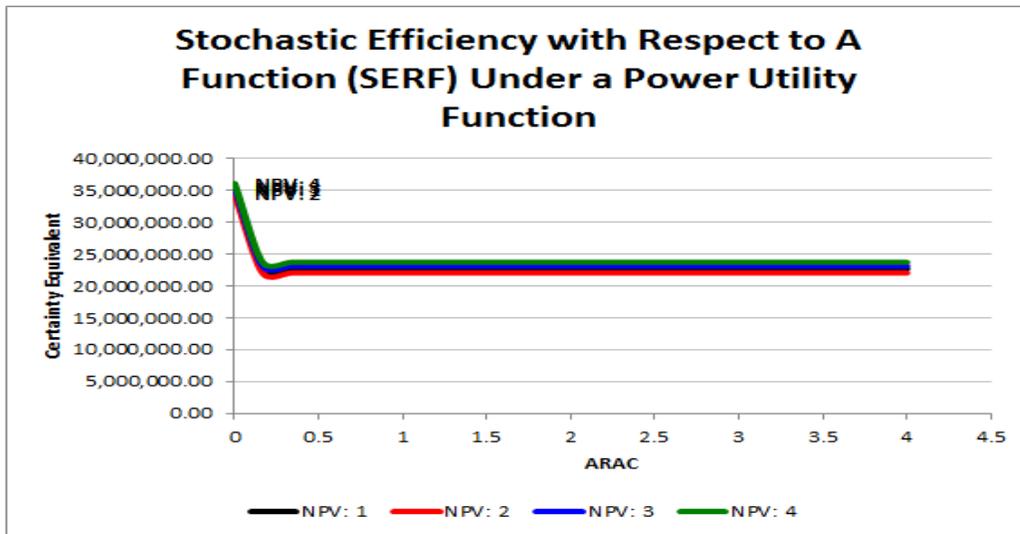


Figure 4. SERF under a Power Utility Function

Figure 3 and Figure 4 show that since the financial model is a Multi-year project, thus, a Power Utility function has been chosen; the Lower RAC is equal to 0 and the Upper RAC is equal to 4.000001. NPV 4 is preferred by all decision makers because the CE (Certainty Equivalence) is maximum for every relative risk aversion (RRAC) from zero to 4.000001.

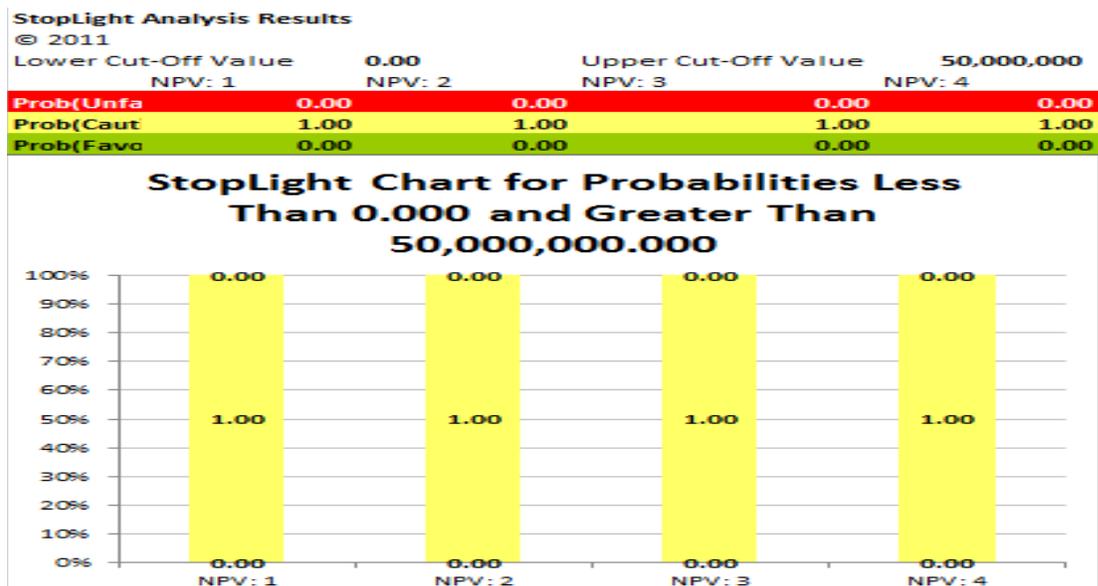


Figure 5. Stoplight Chart for Probabilities of Less Than 0 AMD and Greater than 100,000,000 AMD

Figure 5 illustrates the Stoplight Chart, which shows that the probability that NPV₁, NPV₂, NPV₃ and NPV₄ will exceed the upper target (green) of 50,000,000 AMD is 0 or 0%. The

probability that NPV₁, NPV₂, NPV₃ and NPV₄ are between 0 AMD and 50,000,000 AMD is 1 or 100% (yellow). The probability of getting negative NPV (red) under each of 4 scenarios is 0 or 0%.

Table 6. Probabilities of positive NCI and annual cash reserves from 2014-2018

	2014	2015	2016	2017	2018
Probability of positive annual NCI	100%	100%	100%	100%	100%
Probability of positive annual cash reserves	100%	100%	100%	100%	100%

Table 6 illustrates that during 2014-2018 there is 100% chance of getting positive values for both annual net cash income (NCI) and annual cash reserves.

Table 7. Roy’s Criteria for Net Cash Farm Income (NCFI)

	Scenarios 1	Scenarios 2	Scenarios 3	Scenarios 4
NCFI	0	0	0	0

Table 7 depicts that under all 4 Scenarios there is 0% chance of Negative Net Cash Farm Income occurring in 2 consecutive years, thus, all 4 scenarios are equally preferred.

Table 8. Distribution Comparison of Historical Apricot Price & Projected Apricot Price

Distribution Comparison of Dried Apricot Price per kg (AMD) & 2014 Dried Apricot Price per kg (AMD)			
Confidence Level	Test Value	Critical Value	P-Value
2 Sample Hotelling T ² Test	10.42	15.87	0.153 Fail to Reject the Ho that the Mean Vectors are Equal
Box's M Test	8.00	51.00	0.127 Fail to Reject the Ho that the Covariance Matrices are Equivalent
Complete Homogeneity Test	48.00	60.48	0.130 Fail to Reject the Ho that the Mean Vectors and Covariance Matrices are Equivalent, Respectively*
			*Based on asymptotic distribution

Table 8 illustrates the various multivariate tests. The first one is a 2 Sample Hotelling T² test, as a test value is 10.42, critical value is 15.87, p-value is 0.153, meaning that there is 100% chance that the vector of means are reproduced, that the analysis have to start with, thus, the 2 Sample Hotelling T² test fails to reject the null hypothesis that the Mean Vectors are Equal, which means that the Mean Vectors are Equal, given 95% confidence level.

The next test is a Box's M test. The Box's M test tests if the covariance matrix associated with a simulated data is statistically equal to covariance matrix for the original input data and the Box's M test fails to reject the null hypothesis that the Covariance Matrices are equivalent, meaning that the Covariance Matrices are equivalent, given 95% confidence level. The Complete Homogeneity test, the 3rd one, tests whether the Mean Vectors and Covariance Matrices are equal. The Mean Vectors and Covariance Matrices are equal in fact, since the Complete Homogeneity test fails to reject the null hypothesis that the Mean Vectors and Covariance Matrices are equivalent, thus, meaning that the Mean Vectors and Covariance Matrices are equivalent given 95% confidence level. In conclusion, the tests have actually validated our random numbers.

Table 9. Test of Correlation coefficients of historical and simulated data

Test Correlation Coefficients								
Confidence Level								
Confidence Level			95.0000%					
Critical Value			1.96					
	2014 Dried Black Plum Price per kg	2014 Dried Red Plum Price per	2014 Dried Peach Price per l	2014 Total Dried Apricot Yield	2014 Total Dried Rec	2014 Total Dri	2014 Total Dried Black Plum Yield	
2014 Dried Apricot Price per kg (AMD)	1.74	1.43	1.43	0.55	1.74	1.14	1.37	
2014 Dried Black Plum Price per kg (AMD)		1.43	1.43	0.55	1.74	1.14	1.37	
2014 Dried Red Plum Price per kg (AMD)			1.79	0.48	1.83	0.64	1.81	
2014 Dried Peach Price per kg (AMD)				0.48	1.83	0.64	1.74	
2014 Total Dried Apricot Yield					0.53	0.59	0.05	
2014 Total Dried Red Plum Yield						0.88	0.92	
2014 Total Dried Peach Yield							0.32	

Table 9 depicts another multivariate distribution validation test and is a test to compare the correlation matrix implicit in the simulated output to the input (assumed) correlation matrix. This test is useful for validating multivariate probability distributions, particularly the non-normal multivariate distributions. Based on the Student's t test statistics for comparing the corresponding correlation coefficients in two matrices since the estimated t-values are less than the critical t-value of 1.96, thus, the test of Correlation Coefficients fails to reject the null hypothesis, which means that the parameter estimates associated with Dried Apricot Price, Dried Black Plum Price, Dried Red Plum Price, Dried Peach Price, Dried Apricot Yield, Dried Red Plum Yield, Dried Peach Yield are statistically significant, given 95% confidence level.

THE COMPARISON OF BUSINESS PARTNERSHIPS AND COMPANIES, FULL PARTNERSHIP, LIMITED PARTNERSHIP AND COOPERATIVES

This section of report identifies the differences between Business Partnerships and Companies, Full Partnership, Limited Partnership and Cooperatives. The detailed analysis has been proposed based on Articles 72-94 and 117-121 of the Civil Code of the Republic of Armenia. The Table 10 compares the Business Partnerships and Companies, Full Partnership, Limited Partnership and Cooperatives.

Table 10. The comparison of Business Partnerships and Companies, Full Partnership, Limited Partnership and Cooperatives

BUSINESS PARTNERSHIPS AND COMPANIES	FULL PARTNERSHIP	LIMITED PARTNERSHIP	COOPERATIVES
<p>Article 72. Business partnerships and companies are commercial organizations with charter or contributed capital, which encompasses the ownership shares of the founders or participants. In cases stipulated by the present Code, a business company may be created by one person.</p> <p>The property of business</p>	<p>Article 77.</p> <p>1. A full partnership is one, where participants (general partners), in accordance with the charter are conducting entrepreneurial activity in the name of the partnership and bear liability for its obligations with the property belonging to them.</p> <p>2. A person may be a participant in only one full partnership.</p>	<p>Article 90.</p> <p>1. A limited partnership is a partnership in which, along with participants conducting entrepreneurial activity in the name of the partnership and being liable for the obligations of the partnership with their property (general partners), there are one or more contributor-participants (limited partners), who bear the risk of losses connected with the activity of the partnership within the limits of the amounts of contributions made by them and do not take part in the conduct by</p>	<p>Article 117. A cooperative is a voluntary amalgamation based on the membership of citizens and legal persons and is intended to satisfy the financial and other needs of the participants.</p> <p>The property of a cooperative is based on the combined property and participatory share contributions made by members.</p>

<p>partnership and company is based on the founders' or participants' contributions and the property that was produced or acquired by the business partnership or company during its activity.</p>		<p>the partnership of entrepreneurial activity. 3. A person may be a general partner only in one limited partnership. A participant in a full partnership may not be a general partner in a limited partnership. A general partner in a limited partnership may not be a participant in a full partnership.</p>	
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<p>Article 73.</p> <p>1. Participants in a business partnership or company have the following rights:</p> <ol style="list-style-type: none"> 1) Participation in management. 2) Acquaintance with its books and other documentation by the procedure established by the charter. 3) Participation in the distribution of profit. 4) Acquirement of the part of the property, in case of liquidation, left after covering the indebtedness. <p>2. Participants in a business partnership or company have the following obligations:</p> <ol style="list-style-type: none"> 1) Contribution by the procedure, in the amounts, by the means, and within the time periods that are provided by the charter. 2) Non-dissemination of confidential information about the activity of the partnership or company. 	<p>Article 78.</p> <p>The charter of a full partnership must contain terms on the amount and composition of the contributed capital of the partnership; on the amount of and procedure for change in the ownership shares of each of the participants in the contributed capital and on the liability of the participants for violating duties to make contributions.</p> <p>Article 81.</p> <ol style="list-style-type: none"> 1. A participant in a full partnership has the duty to participate in its activity in accordance with the conditions of the charter. 2. A participant in a full partnership is obliged to make his contributions to the contributed capital of the partnership prior to its registration. 3. A participant in a full partnership cannot make in his own name in his own interests or in the interests of third persons transactions of the same type as 	<p>Article 91.</p> <p>The charter of a limited partnership must contain terms on the amount and composition of the contributed capital of the partnership; on the amount of and procedure for change of the ownership shares of each of the general partners in the contributed capital. It includes the general partners' liability for the violation of duties for the making of contributions; and on the total amount of contributions made by the contributors.</p> <p>Article 93.</p> <ol style="list-style-type: none"> 1. The contribution is certified by a certificate, which is granted by the partnership to the contributor. 2. A contributor in a limited partnership has the following rights: <ol style="list-style-type: none"> 1) To receive the part of profit of the partnership due for its ownership share in the contributed capital. 2) To be informed about the annual reports and balance sheets of the partnership. 3) To abandon the partnership, at the end of the financial year and acquire the contributions. 4) To fully or partially transfer its ownership share to another 	<p>Article 118.</p> <ol style="list-style-type: none"> 1. Property under the possession of a cooperative is divided into the participatory shares of its members. 2. A member of the cooperative is obliged to pay in his participatory share contribution in full before registration of the cooperative unless otherwise provided by the charter of the cooperative. 3. A certain part of the property belonging to the cooperative may constitute to indivisible funds in accordance with the purposes specified by charter. 4. Members of a cooperative are obligated within two months after the approval of the annual balance sheet to cover losses that have occurred by additional contributions. In case of failure to fulfill this duty the cooperative may be liquidated by judicial procedure upon demand of creditors. 5. After the liquidation, the remaining property of a cooperative shall be divided among its members in accordance with the charter of the cooperative.
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	<p>those that compile the core activity of the partnership. If this rule is violated, the partnership has the right to demand compensation from a participant for the losses incurred or benefits obtained from such transactions.</p>	<p>contributor or a third person.</p>	
<p>Article 74. 1. Business partnerships and companies may be transformed into business partnerships and companies of another type by decision of the general meeting of participants by the procedure established by the present Code. 2. After transformation of a partnership into a company, each general partner that has become a participant (or stockholder) of the company shall bear for two years subsidiary liability with all his property for obligations that have passed to the company from the partnership. The dismissal by the</p>	<p>Article 89. A full partnership may be liquidated on the bases indicated in Article 67 of the present Code and also in the case when a single participant remains in the partnership. Such a participant shall have the right within six months from the time when he became the sole participant in the partnership to transform such a partnership into a business company by the procedure established by the present Code.</p>	<p>Article 94. 1. A limited partnership shall be liquidated upon the exit of all contributors participating in it. Meanwhile, the general partners shall have the alternative right to avoid the liquidation by transforming the limited partnership into a full partnership. However, a limited partnership shall be maintained if at least one general partner and one contributor remains in it. 2. Upon liquidation of a limited partnership, including in case of bankruptcy, the contributors shall have a priority right ahead of the general partners to receipt of their contributions from the property of the partnership remaining after satisfaction of the claims of its creditors.</p>	<p>Article 121. A cooperative may be voluntarily reorganized or liquidated by decision of the general meeting of its members.</p>

former partner of the ownership shares (or shares of stock) belonging to him shall not free him from such liability.			
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Source: Articles 72-94, 117-121, Civil Code of the Republic of Armenia

THE COMPARISON OF LLC, JOINT-STOCK COMPANY AND COOPERATIVES

This section of report identifies the differences between Limited Liability Company, Joint-Stock Company and Cooperatives. The detailed analysis has been proposed based on Articles 95-121 of the Civil Code of the Republic of Armenia. The Table 11 compares the Limited Liability Company, Joint-Stock Company and Cooperatives.

Table 11. The comparison of LLC, Joint-Stock Company and Cooperatives

LIMITED LIABILITY COMPANY	JOINT-STOCK COMPANY	COOPERATIVES
<p>Article 95. 1. A limited liability company is a company founded by one or several persons, the charter capital of which is divided into ownership shares of amounts determined by the charter. The participants in a limited liability company are not liable for its obligations; they bear the risk of losses connected with the activity of the company within the limits of the value of the contributions made by them.</p>	<p>Article 106. 1. A joint-stock company is a company whose charter capital is divided into defined number of shares of stock. 2. The issuance of shares of stock is the exclusive right of joint-stock companies 3. The participants or the stockholders of a joint-stock company are not liable for its obligations and bear the risk of losses only within the limits of the value of the shares of stock belonging to them. 4. One person may create the joint-stock company or it may consist of one person if all the shares of stock of the company are acquired by that person. This information should be contained in the charter of the company, be registered, and be published for general information. Meantime, the business company consisting of one person may not be a sole participant in a joint-stock company. Article 107. 1. Open joint-stock company is a joint-stock company</p>	<p>Article 117. A cooperative is a voluntary amalgamation based on the membership of citizens and legal persons and is intended to satisfy the financial and other needs of the participants. The property of cooperative is based on the combined property participatory share contributions made by members.</p>

	<p>whose participants can distribute the shares of stock belonging to them without the consent of the other stockholders. It has the right to conduct open subscription to shares of stock issued by it and to their free sale on the conditions established by a statute and other legal acts.</p> <p>2. The annual report and balance sheet is subject to publication for general information each year.</p> <p>Article 108.</p> <p>1. Closed joint-stock company whose participants can distribute the shares of stock belonging to them only among its founders or other previously identified group of persons. It does not have the right to conduct open subscription to shares of stock issued by it nor otherwise to propose them for sale to an unlimited group of persons.</p> <p>2. If the number of participants in a closed joint-stock company exceeds the limit established by the statute on joint-stock companies the company shall be subject to transformation into an open joint-stock company within a year, and on the expiration of this time period, to liquidation by judicial procedure, if their number is not reduced to the limit established by the statute.</p>	
<p>Article 97. The charter of a limited liability company must contain terms on the amount of the charter capital of the</p>	<p>Article 110. The charter of a joint-stock company must contain conditions on the types of shares of stock issued by the</p>	<p>Article 118. 1. Property under the possession of a cooperative is divided into the participatory shares of its members.</p>

company; on the amount of ownership shares of each of the participants; on the composition of and procedure for the making by them of contributions; on the liability of participants for violation of the duty to making contributions; on the composition and competence of the management bodies of the company and the procedure for their making decisions, including on questions decisions on which are taken unanimously or by a qualified majority of votes.

Article 98.

1. The charter capital determines the minimum amount of the property of the company guarantying the interests of its creditors and cannot be less than the sum determined by the statute on limited liability companies.
2. The founders shall fully pay in the charter capital, prior to registration of Limited Liability Company.
3. The participants cannot be freed up from making the charter capital contributions.
4. The value of the net assets shall coincide with the charter capital; otherwise the company has the obligation to report the reduction of its charter capital at the end of the second or each following financial year. On the other hand, the company is subject to liquidation, if the value of the net assets is below the minimum amount of charter capital determined by a statute.
5. It is allowed to reduce the charter capital of a limited liability company only after

company, their stated value and number; on the amount of the charter capital of the company; on the rights of stockholders; on the composition and competence of the management bodies of the company and on the procedure for their making decisions.

Article 111.

2. The charter capital of the company determines the minimal amount of the property of the company guarantying the interests of its creditors. It may not be less than the amount provided by the statute on joint-stock companies.
3. The founders of a joint-stock company must fully pay in the charter capital, before registration of the company. After the foundation of a joint-stock company all its shares of stock must be distributed among the founders.
4. The stockholder shall not be freed up from the duty to pay for shares of stock of a company including by way of setoff of claims against the company.
5. If after the end of the second and each subsequent financial year, the value of the net assets of the company is below the charter capital, the company has the duty to report and to register by the established procedure a reduction of its charter capital, failure to do so will result in the liquidation of the company.

2. A member of the cooperative is obliged to pay in his participatory share contribution in full before registration of the cooperative unless otherwise provided by the charter of the cooperative.

3. A certain part of the property belonging to the cooperative may constitute to indivisible funds in accordance with the purposes specified by charter.

4. Members of a cooperative are obligated within two months after the approval of the annual balance sheet to cover losses that have occurred by additional contributions. In case of failure to fulfill this duty the cooperative may be liquidated by judicial procedure upon demand of creditors.

5. After the liquidation, the remaining property of a cooperative shall be divided among its members in accordance with the charter of the cooperative.

<p>notification to all of its creditors. The latter have the right to demand the early performance, termination of the respective obligations or compensation by company for losses.</p>		
<p>Article 100. 1. It is allowed to voluntarily reorganize or liquidate the limited liability company based on the unanimous decision of its participants. 2. A limited liability company may be transformed into a joint-stock company.</p>	<p>Article 116. 1. The voluntary reorganization or liquidation of a joint-stock company by decision of the general meeting of stockholders. 2. A joint-stock company has the right to transform itself into a limited liability company.</p>	<p>Article 121. A cooperative may be voluntarily reorganized or liquidated by decision of the general meeting of its members.</p>

Source: Articles 95-121, Civil Code of the Republic of Armenia

ECONOMETRIC RESEARCH⁴

Research approach

The prevailing majority of research about agricultural cooperatives in market economies indicates that social trust within the membership is a critical factor fostering the failure or success of cooperatives (Golovina et al., 2013). The guarantee of success is the trust in the cooperative and among members. The limited trust in cooperative will reduce the willingness to finance and govern it and as a result the members' patronage will decline. Therefore, the relative strength of the Armenian agricultural cooperatives may be explained by social trust among members. The development factors of cooperatives substantially vary from those in the Western countries. In western economies the cooperatives have been developed on the basis of popular movements. On the one hand, the reasons behind formation of cooperatives in Western countries are economic problems that could not be solved individually and have been solved through joint actions. On the other hand, the Armenian agricultural cooperatives are generally former state or collective farms, transformed into cooperative societies.

This study aims at exploring the role of social capital in the existence of the Armenian agricultural cooperatives. The empirical data has been collected through surveys and personal interviews with 36 members of Yervandashat consumer cooperative, located in region Armavir, village Yervandashat. The paper identifies the theoretical framework of the social capital. The variables and questionnaire items are based on the theoretical approach. The following sections of report include the empirical approach, account of the results, analyses of the findings, a discussion and conclusion.

⁴The excel file and log file with all the calculations are available upon request.

THEORETICAL FRAMEWORK

Social capital theory

According to classical and neoclassical economists, the sustainability of growth and guarantee of well-functioning markets relies on those formal and informal institutions that foster the sharing and dissemination of trust and cooperation (Smith 1759; Mill 1848; Arrow, 1972).

The individual, group or organizational decisions of future actions are based on financial, social, physical, human and natural resources (Ellis, 2000).

The social orientation of cooperatives may have significant impact in terms of social coherence and sustainable growth (Dow 2003; Stiglitz 2009; Birchall, 2010).

The social capital literature supports the fact that the trust supports growth and development and results in reduction of transaction costs, the enforcement of contracts and the accumulation of human capital (Putnam 1993; Knack and Keefer 1997; Guiso et al. 2008, 2009; Yamamura 2009).

The cooperatives experience social impact on income inequality, public health and employment protection (Ben-Ner et al. 2011; Erdal 2011, 2012; Freundlich and Gago 2012; Perotin, 2012).

The social capital is “made up of social obligations (connections), which is convertible, in certain conditions, into economic capital and may be institutionalized in the form of a title of nobility” (Bourdieu, 1986).

According to Woolcock (1998, p. 153), the social capital is “the information, trust, and norms of cooperation inherent in one's social networks”.

The present study is based on the aforementioned definitions.

Social capital indicators

The assessment of social capital is based on the differentiation between structural and cognitive forms. The structural forms of social capital are based on information sharing and collective action through established roles, rules and procedures. These forms are relatively objective and observable. The cognitive forms of social capital are based on shared norms, values, trust, attitudes and beliefs that contribute to cooperative behaviour. These forms are more subjective and intangible (Uphoff, 1999). The present study focuses on social capital of the cognitive understanding.

Several studies have identified the members' trust in their cooperative and in its leadership (Borgen, 2001; Hansen, Morrow et al., 2002; James and Sykuta, 2005; Österberg and Nilsson, 2009).

The present study encompasses the following four social capital indicators:

- Involvement
- Trust
- Satisfaction
- Loyalty

The questionnaire used in the collection of data is based on one or more items characterizing each of these four variables.

VARIABLES AND QUESTIONNAIRE ITEMS

The *dependent variable* is the members' view of the agricultural cooperative form in Armenia. The following question covers this attitudinal variable: "I think that joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia". Answers to this question have been measured on a Likert scale that was ranging from (1 – 6) with scale ends "agree (=1)" to "disagree (=6)".

The independent variables are based on marital status (a dummy variable =1 if the respondent is married and 0 otherwise (base category), the socio-economic factors of age, household size and the four social capital factors of involvement, trust, satisfaction and loyalty. One or more questions in the questionnaire cover each of these social capital factors. The study is based on the following social capital dimensions, questions, and variables:

Involvement. The members' involvement is represented by explicit actions concerning the agricultural cooperative's operations and wellbeing. The members will have high willingness to be informed about the financial status, take part in discussions, and be prepared to govern the firm. The following questions identify the social capital factor of involvement in cooperative:

- "To which extent do you read the balance sheet and the profit-and-loss account of the annual report?" Likert scale: very carefully – not at all (1 – 6); variable "dreadbal".
- "Do you always take part in the general assembly meetings?" A Likert scale is used, running from every time (1) to never (6); variable "dpart".
- "Would you be willing to become a member of the leadership?" The answering alternatives were Yes = 1 or No = 2; variable "dlead".

Trust. The trust is based on both the individual member's relationship to other members and in their view of the leadership. The following questions identify the social capital factor of trust in cooperative:

- “To which extent is it important for you to have friends and relatives close to you within the cooperative (as colleagues)?” A Likert scale was used, ranging from 1 (very important) to 6 (not important at all); variable “clfriend”.
- “To which extent does the leadership care about the opinions of the members?” The Likert scale was used, ranging from Very much (1) to Not at all (6); variable “dleadcare”.

Satisfaction. Since the members’ degree of satisfaction with the cooperative is a relative concept, thus, it has been compared to the conditions before the establishment of the cooperative as well as the attractiveness of private farming.

- “Compared to the situation of collective/state farms, i.e. during the time of the Soviet Union, do you think that you – as an ordinary member – have more influence in decision-making now?” The question has two response alternatives: yes = 1; no = 2; variable “dmeminfl”.
- “Have you, after you became a member of the production cooperative, considered the option of becoming a family farmer?” The question should be answered by Yes = 1 or No = 2; variable “farmlater”.

Loyalty. The loyalty is considered to be both an expression of an individual’s propensity to act and the individual’s actual behaviour. Since the members have little possibility to complain through disloyalty, thus, the loyalty has been measured in terms of opinions.

- “To which extent does it happen that the members have positive opinions about the way the cooperative is run?” A Likert scale is used, ranging between very often (1) to never (6); variable “dopinion”.

Socio-economic structure of the sample

Table 12. Socio-economic structure of the sample (N = 36)

Attribute	Mean	Std. dev.
Age (years) (respage)	46.47	8.77
Gender (binary; 1=male, 2=female) (gender)	1	0
Household head (binary; 1=yes, 2=no) (hhead)	1	0
Household size (number of persons) (hhpsize)	3.22	0.64
Education (1=primary education; 2=secondary education; 3=university) (education) (agriceduc)	1.08	0.65
Agricultural education (1 = on-the-job only; 2= Armenian National Agrarian University)	1.08	0.28
Years of work experience (workexpy)	18.47	6.02

The average age is relatively high with about 47 years. Younger people seem to turn to other professions or move to other regions or countries. The share of those younger than 35 years is less than 6 per cent. The full sample consists of males. All of the respondents are household heads whose households comprise 3-4 persons. The educational level is relatively low.

On the one hand, the primary education dominates. On the other hand, formal agricultural education is rather low, since most of the respondents got on-the-job agricultural education. Only 8 per cent of respondents earned an agricultural university degree.

RESULTS

Descriptive findings

Table 13. Mean value of the social capital variables (N = 36)

Social capital dimension/ social capital variable	Mean	Std. dev.
<i>Involvement</i>		
- reading annual reports (very often = 1; never = 6)	4.36	0.90
- attending meetings (very often = 1; never = 6)	1.72	0.85
- willingness to become leader (yes = 1; no = 2)	2	0
<i>Trust</i>		
- close friends in cooperative (very important = 1; not at all = 6)	3.89	1.65
- caring leadership (very much = 1; not at all = 6)	1.83	0.70
<i>Satisfaction</i>		
- more influence in decision-making than in Soviet times (yes = 1; no = 2)	1.83	0.38
- considered private farming after transformation (yes = 1; no = 2)	2	0
<i>Loyalty</i>		
- positive opinion about cooperative (very often = 1; never = 6)	1.83	0.81

Involvement. The members' involvement in the cooperative is quite low. Relatively few read the cooperative's annual reports, conversely the attendance to annual meetings is

considerably high. None of respondents are willing and prepared to stand for board elections and take over leadership responsibilities.

Trust. It is important for respondents to work together with relatives and friends at the cooperative. There is a strong positive feeling whether the cooperative leadership cares about the opinions of the members.

Satisfaction. Most members were not satisfied with their influence on decision-making in the cooperative. In comparison to work at the predecessor farm during the Soviet times, the ordinary members stated that the ordinary members do not have more influence in decision-making in these days; therefore, not much have changed. Meantime, none of them has thought about the option of becoming private farmer after the transformation into an agricultural cooperative, i.e. during the recent years.

Loyalty. Most members have positive opinions about their cooperative, thus, the positive opinions predominate.

ECONOMETRIC ANALYSIS

The dependent variable of the econometric analysis is formed by responses to the survey question “*I think that joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia.*” Answers to this question have been measured on a Likert scale that was ranging from (1 – 6) with scale ends “agree (=1)” to “disagree (=6)”. Therefore, the dependent variable measures the stated relative scepticism with respect to the production efficiency of the cooperative model among survey respondents.

The underlying, yet unobservable, continuous distribution of this relative scepticism is based on the six-point Likert scale. Therefore, the method of analysis had to account for the fact that the value of the dependent variable remained unobserved, but was approximated through the observed categorical responses on the Likert scale.

The Ordered Logit model was employed; the explanatory variables were based on previously discussed measures of social capital. The Ordered Logit model along with ordered probit models is a well-established estimation approach if the dependent variable y is discrete while the order of discrete categories has a meaningful interpretation such as “increasing order of answers” or, in the present case, Likert categories 1 to 6 implying subsequently higher levels of scepticism regarding the degree up to which the cooperative may be an efficient way to organize agricultural production in Armenia.

STATA Ordered Logit Regression Output

```
. * Ordered Logit Regression

. ologit agriced respage hhpsize married dreadbal dlead clfriend dleadcare
dmeminfl farmlater

note: married dropped because of collinearity
note: dlead dropped because of collinearity
note: farmlater dropped because of collinearity
Iteration 0:    log likelihood = -52.452448
Iteration 1:    log likelihood = -46.43288
Iteration 2:    log likelihood = -45.952334
Iteration 3:    log likelihood = -45.950222
Iteration 4:    log likelihood = -45.950221
```

Ordered logistic regression

Number of obs = 36

LR chi2(6) = 13.00

Prob > chi2 = 0.0430

Log likelihood = -45.950221

Pseudo R2 = 0.1240

agriced	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
respage	.0317559	.0512182	0.62	0.535	-.06863	.1321418
hhpsize	.5163523	.5212019	0.99	0.322	-.5051848	1.537889
dreadbal	.5656853	.4241157	1.33	0.182	-.2655663	1.396937
clfriend	.2765275	.268191	1.03	0.303	-.2491171	.8021722
dleadcare	-.6711435	.5214689	-1.29	0.198	-1.693204	.3509168
dmeminfl	-2.246228	.9358999	-2.40	0.016	-4.080558	-.4118977
_cut1	-2.097579	4.525838			-10.96806	6.7729
_cut2	-.3359566	4.552235			-9.258174	8.58626
_cut3	1.647881	4.552723			-7.275292	10.57105
_cut4	3.382652	4.562758			-5.560189	12.32549

. listcoef, help

ologit (N=36): Factor Change in Odds

Odds of: >m vs <=m

agriced	b	z	P> z	e^b	e^bStdX	SDofX
respage	0.03176	0.620	0.535	1.0323	1.3209	8.7651
hhpsize	0.51635	0.991	0.322	1.6759	1.3898	0.6375
dreadbal	0.56569	1.334	0.182	1.7607	1.6632	0.8993
clfriend	0.27653	1.031	0.303	1.3185	1.5792	1.6523
dleadcare	-0.67114	-1.287	0.198	0.5111	0.6264	0.6969
dmeminfl	-2.24623	-2.400	0.016	0.1058	0.4278	0.3780

b = raw coefficient

z = z-score for test of b=0

P>|z| = p-value for z-test

e^b = exp(b) = factor change in odds for unit increase in X

e^bStdX = exp(b*SD of X) = change in odds for SD increase in X

SDofX = standard deviation of X

. listcoef, percent help

ologit (N=36): Percentage Change in Odds

Odds of: >m vs <=m

agriced	b	z	P> z	%	%StdX	SDofX
respage	0.03176	0.620	0.535	3.2	32.1	8.7651
hhpsize	0.51635	0.991	0.322	67.6	39.0	0.6375
dreadbal	0.56569	1.334	0.182	76.1	66.3	0.8993
clfriend	0.27653	1.031	0.303	31.9	57.9	1.6523
dleadcare	-0.67114	-1.287	0.198	-48.9	-37.4	0.6969
dmeminfl	-2.24623	-2.400	0.016	-89.4	-57.2	0.3780

b = raw coefficient
 z = z-score for test of b=0
 P>|z| = p-value for z-test
 % = percent change in odds for unit increase in X
 %StdX = percent change in odds for SD increase in X
 SDofX = standard deviation of X

Logit Coefficients

```

. * Ordered Logit Regression

. ologit agriced respage hhpsize married dreadbal dlead clfriend dleadcare
dmeminfl farmlater

note: married dropped because of collinearity
note: dlead dropped because of collinearity
note: farmlater dropped because of collinearity
Iteration 0:   log likelihood = -52.452448
Iteration 1:   log likelihood = -46.43288
Iteration 2:   log likelihood = -45.952334
Iteration 3:   log likelihood = -45.950222
Iteration 4:   log likelihood = -45.950221

Ordered logistic regression                               Number of obs = 36
                                                         LR chi2(6) = 13.00
                                                         Prob> chi2 = 0.0430
Log likelihood = -45.950221                             Pseudo R2 = 0.1240
  
```

agriced	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
respage	.0317559	.0512182	0.62	0.535	-.06863	.1321418
hhpsize	.5163523	.5212019	0.99	0.322	-.5051848	1.537889
dreadbal	.5656853	.4241157	1.33	0.182	-.2655663	1.396937
clfriend	.2765275	.268191	1.03	0.303	-.2491171	.8021722
dleadcare	-.6711435	.5214689	-1.29	0.198	-1.693204	.3509168
dmeminfl	-2.246228	.9358999	-2.40	0.016	-4.080558	-.4118977
_cut1	-2.097579	4.525838			-10.96806	6.7729
_cut2	-.3359566	4.552235			-9.258174	8.58626
_cut3	1.647881	4.552723			-7.275292	10.57105
_cut4	3.382652	4.562758			-5.560189	12.32549

1. The coefficient for the **respage** variable is 0.032; for every additional year of age, other things being equal, the predicted log odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase by 0.032. Since the p-value associated with the independent variable of respage is equal to 0.535 and is greater than $\alpha=0.05$ level of significance, thus the test fails to reject the null hypothesis (i.e. $H_0:\beta_1=0$), which means that the parameter estimate associated with respage is statistically insignificant, with 5% significance level.

2. The coefficient for the **hhpsize** variable is 0.52; for every additional member of household, other things being equal, the predicted log odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase by 0.52. Since the p-value associated with the independent variable of hhpsize is equal to 0.322 and is greater than $\alpha=0.05$ level of significance, thus the test fails to reject the null hypothesis (i.e. $H_0:\beta_2=0$), meaning that the parameter estimate associated with hhpsize is statistically insignificant, with 5% significance level.
3. The coefficient for the **dreadbal** variable is 0.57; for every additional unit increase in independent variable of dreadbal, other things being equal, the predicted log odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase by 0.57. Since the p-value associated with the independent variable of dreadbal is equal to 0.182 and is greater than $\alpha=0.05$ level of significance, thus the test fails to reject the null hypothesis (i.e. $H_0:\beta_3=0$), which means that the parameter estimate associated with dreadbal is statistically insignificant, with 5% significance level.
4. The coefficient for the **clfriend** variable is 0.28; for every additional unit increase in independent variable of clfriend, other things being equal, the predicted log odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase by 0.28. Since the p-value associated with the independent variable of clfriend is equal to 0.303 and is greater than $\alpha=0.05$ level of significance, thus the test fails to reject the null hypothesis (i.e. $H_0:\beta_4=0$), meaning that the parameter estimate associated with clfriend is statistically insignificant, with 5% significance level.
5. The coefficient for the **dleadcare** variable is -0.67; for every additional unit increase in independent variable of dleadcare, other things being equal, the predicted log odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia decrease by 0.67. Since the p-value associated with the

independent variable of dleadcare is equal to 0.198 and is greater than $\alpha=0.05$ level of significance, thus the test fails to reject the null hypothesis (i.e. $H_0:\beta_5=0$), meaning that the parameter estimate associated with dleadcare is statistically insignificant, with 5% significance level.

- The coefficient for the **dmeminfl** variable is -2.25; for every additional unit increase in independent variable of dmeminfl, other things being equal, the predicted log odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia decrease by 2.25. Since the p-value associated with the independent variable of dmeminfl is equal to 0.016 and is less than $\alpha=0.05$ level of significance, thus the test rejects the null hypothesis (i.e. $H_0:\beta_6=0$), which means that the parameter estimate associated with dmeminfl is statistically significant, with 5% significance level.

Odds Ratios

```
. * Odds Ratios
```

```
. listcoef, help
```

```
ologit (N=36): Factor Change in Odds
```

```
Odds of: >m vs <=m
```

-----+-----						
agriced	b	z	P> z	e^b	e^bStdX	SDofX
-----+-----						
respage	0.03176	0.620	0.535	1.0323	1.3209	8.7651
hhpsize	0.51635	0.991	0.322	1.6759	1.3898	0.6375
dreadbal	0.56569	1.334	0.182	1.7607	1.6632	0.8993
clfriend	0.27653	1.031	0.303	1.3185	1.5792	1.6523
dleadcare	-0.67114	-1.287	0.198	0.5111	0.6264	0.6969
dmeminfl	-2.24623	-2.400	0.016	0.1058	0.4278	0.3780
-----+-----						

```
b = raw coefficient
```

```
z = z-score for test of b=0
```

```
P>|z| = p-value for z-test
```

```
e^b = exp(b) = factor change in odds for unit increase in X
```

```
e^bStdX = exp(b*SD of X) = change in odds for SD increase in X
```

```
SDofX = standard deviation of X
```

The odds ratio Ω has been calculated directly by taking the antilog (that is, e to the power) of the logit coefficient.

The logit coefficient for the **respage** variable is 0.032; its odds ratio Ω is $e^{0.032}$, or 1.032.

This means that for every additional year of age, other things being equal, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia are multiplied by 1.032 (that is, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase, which implies higher levels of scepticism).

The logit coefficient for the **hhpsize** variable is 0.516; its odds ratio Ω is $e^{0.516}$, or 1.676.

This means that for every additional member of household, other things being equal, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia are multiplied by 1.676 (that is, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase, which implies higher levels of scepticism).

The logit coefficient for the **dreadbal** variable is 0.566; its odds ratio Ω is $e^{0.566}$, or 1.761.

This means that for every additional unit increase in independent variable of dreadbal, other things being equal, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia are multiplied by 1.761 (that is, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase, which implies higher levels of scepticism).

The logit coefficient for the **clfriend** variable is 0.277; its odds ratio Ω is $e^{0.277}$, or 1.319.

This means that for every additional unit increase in independent variable of clfriend, other things being equal, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia are multiplied by 1.319 (that is, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase, which implies higher levels of scepticism).

The logit coefficient for the **dleadcare** variable is -0.671; its odds ratio Ω is $e^{-0.671}$, or 0.511.

This means that for every additional unit increase in independent variable of dleadcare, other things being equal, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia are multiplied by 0.511 (that is, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase, which implies higher levels of scepticism).

The logit coefficient for the **dmeminfl** variable is -2.245; its odds ratio Ω is $e^{-2.245}$, or 0.106.

This means that for every additional unit increase in independent variable of dmeminfl, other things being equal, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia are multiplied by 0.106 (that is, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase, which implies higher levels of scepticism).

```
. * Percentage change in Odds Ratios
. listcoef, percent help
ologit (N=36): Percentage Change in Odds
Odds of: >m vs <=m
```

-----+-----	b	z	P> z	%	%StdX	SDofX
agriced	0.03176	0.620	0.535	3.2	32.1	8.7651
hhpsize	0.51635	0.991	0.322	67.6	39.0	0.6375
dreadbal	0.56569	1.334	0.182	76.1	66.3	0.8993
clfriend	0.27653	1.031	0.303	31.9	57.9	1.6523
dleadcare	-0.67114	-1.287	0.198	-48.9	-37.4	0.6969
dmeminfl	-2.24623	-2.400	0.016	-89.4	-57.2	0.3780

```
-----+-----
b = raw coefficient
z = z-score for test of b=0
P>|z| = p-value for z-test
% = percent change in odds for unit increase in X
%StdX = percent change in odds for SD increase in X
SDofX = standard deviation of X
```

Percent change interpretations of odds ratios are based on subtracting 1 from the odds ratio and then multiplying the difference by 100, as: Percent change in the odds = $(\Omega - 1) * 100$

For each additional year of age, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase by 3.2%, or $(1.032-1) * 100 = 3.2\%$, everything else held constant.

For each additional unit increase in independent variable of **hhpsize**, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase by 67.6%, or $(1.676-1) * 100 = 67.6\%$, everything else held constant.

For each additional unit increase in independent variable of **dreadbal**, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase by 76.1%, or $(1.761-1) * 100 = 76.1\%$, everything else held constant.

For each additional unit increase in independent variable of **clfriend**, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia increase by 31.9%, or $(1.319-1) * 100 = 31.9\%$, everything else held constant.

For each additional unit increase in independent variable of **dleadcare**, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia decrease by 48.9%, or $(0.511-1) * 100 = -48.9\%$, everything else held constant.

For each additional unit increase in independent variable of **dmeminfl**, the odds of joint farming in an agricultural cooperative is an efficient way in doing agricultural production in Armenia decrease by 89.4%, or $(0.106-1) * 100 = -89.4\%$, everything else held constant.

The Likelihood Ratio (LR) Chi-Square statistic is for testing the null hypothesis that there is no relationship between independent variables. The formula is:

$$LR\chi^2 = -2*(\text{Log likelihood at iteration of 0} - \text{Log likelihood at final iteration}) = -2*(-52.452448 - (-45.950221)) = 13$$

χ^2 (chi-square) tests for relationships between variables. The null hypothesis (Ho) is that there is no relationship. Since p-value of observed chi-square of 0.0430 is less than $\alpha=0.05$ level of significance, thus the test rejects the null hypothesis, which means that there is

relationship between independent variables of respage, hhpsize, dreadbal, clfriend, dleadcare, dmeminfl, given 95% confidence level.

The Pseudo R² does not have anywhere near as straightforward an interpretation as the "explained variance" interpretation that R² has in OLS. $R^2_L = -2*(\text{Log likelihood at iteration of 0} - \text{Log likelihood at final iteration}) / (-2*(\text{Log likelihood at iteration of 0})) = -2*(-52.452448 - (-45.950221)) / (-2*-52.452448) = 0.124$

Specification Error

```
. ologit agriced respage hhpsize married dreadbal dlead clfriend
dleadcare dmeminfl farmlater, nolog
note: married dropped because of collinearity
note: dlead dropped because of collinearity
note: farmlater dropped because of collinearity
```

```
Ordered logistic regression                Number of obs   =           36
                                           LR chi2(6)      =           13.00
                                           Prob> chi2      =           0.0430
Log likelihood = -45.950221                Pseudo R2       =           0.1240
```

agriced	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
respage	.0317559	.0512182	0.62	0.535	-.06863	.1321418
hhpsize	.5163523	.5212019	0.99	0.322	-.5051848	1.537889
dreadbal	.5656853	.4241157	1.33	0.182	-.2655663	1.396937
clfriend	.2765275	.268191	1.03	0.303	-.2491171	.8021722
dleadcare	-.6711435	.5214689	-1.29	0.198	-1.693204	.3509168
dmeminfl	-2.246228	.9358999	-2.40	0.016	-4.080558	-.4118977
_cut1	-2.097579	4.525838			-10.96806	6.7729
_cut2	-.3359566	4.552235			-9.258174	8.58626
_cut3	1.647881	4.552723			-7.275292	10.57105
_cut4	3.382652	4.562758			-5.560189	12.32549

```

. linktest, nolog

Ordered logistic regression                Number of obs   =           36
                                           LR chi2(2)      =           13.78
Prob> chi2    =           0.0010
Log likelihood = -45.563383                Pseudo R2       =           0.1313

-----+-----
agriced |      Coef.   Std. Err.      z    P>|z|   [95% Conf. Interval]
-----+-----
hat |      1.391814   .5408229     2.57   0.010   .3318209   2.451808
   _hatsq|     -.1421026   .1623686    -0.88   0.381   -.4603393   .1761341
-----+-----
   _cut1 |     -2.30597   .8954589
   _cut2 |     -.2848622   .5368351
   _cut3 |      1.745503   .5731285
   _cut4 |      3.399531   .7293632
-----+-----

```

The output from the logit command showed that out of 6 predictors one predictor (i.e. `dmeminfl`) is statistically significant predictor, and in the linktest that followed, the variable `_hatsq` is not significant (with $p\text{-value} = 0.381 < \alpha = 0.05$ significance level). This confirms, on one hand, that we have chosen meaningful predictors. On the other hand, it tells us that we do not have a specification error (since the linktest is not significant), thus, the model is correctly specified.

Multicollinearity

Multicollinearity (or collinearity for short) occurs when two or more independent variables in the model are approximately determined by a linear combination of other independent variables in the model. In case of perfect collinearity that is, when one independent variable is a perfect linear combination of the others, it is impossible to obtain a unique estimate of regression coefficients with all the independent variables in the model. The analysis cannot assume that the variable that Stata drops from the model is the "correct" variable to omit from the model; thus, the study relied on theory to determine which variables should be omitted.

```
*Multicollinearity
. Collin agriced respage hhpsize married dreadbal dlead clfriend
dleadcare dmeminfl farmlater
(obs=36)
corr(): matrix has zero or negative values on diagonal
r(504);
```

Since the number of observations is small (i.e. $n=36$), thus, the model cannot check for Multicollinearity.

RECOMMENDATIONS

After discussing the characteristics and problems of introducing agricultural cooperatives in the Republic of Armenia, as well as the overall situation of the cooperative industry in Armenia several relevant recommendations are proposed to positively influence the growth and development of cooperatives in Armenia.

First, cooperatives as entities need to have legal protection in terms of concise and detailed specification of roles and responsibilities both among members and other stakeholders. Tax advantages should be specified based on the overall size of the cooperative and the number of members.

Second, special educational programs should be developed specifically and separately for cooperatives' governance bodies and members. Furthermore, those members who are not interested in the specific subject should not attend that training. In this case the capabilities and interest of each member is taken into consideration. Meanwhile, governing bodies should be more specialized.

Lastly, members have to contribute to the common equity of the cooperative in order to stay self-sufficient and viable, even in the absence of outside support by donor organizations.

CONCLUSION

This paper explores whether the success of cooperatives can be explained by social capital. The hypothesis was that the members support the cooperatives as they have trust in their fellow members as well as in the leadership. To facilitate the analysis a survey has been conducted among cooperative members of village Yervandashat, Armavir region. An Ordered Logit Model was used to estimate findings. The findings indicate the existence of social capital in the membership. On the one hand, the members, who consider cooperatives to be an efficient business form, have social ties to other members. On the other hand, the leadership enjoys much social capital. The cooperative is regarded as a social unit rather than a business enterprise. The members' support of the cooperative society is explained by the social capital within the memberships. The development of cooperatives does not only aim to maximise profit but also plays a decisive role in building a trust. The trust enhances the efficiency of operations and fosters investment in ideas, human capital and physical capital.

To summarize, cooperatives are slowly making an impact across rural Armenia. Cooperatives have huge potential to become one of the cornerstones in Armenia's agricultural and economic development especially in rural areas where the united force of farmers can change their own lives and the overall livelihood of their community. However, in Armenia cooperatives as organizational models are not sustainable yet. Most of the members did benefit from developing their individual farms but the idea of cooperative as an entity is not developed properly yet. This derives risks in a sense that, after donor organizations leave, cooperatives are broken since most members are not motivated to stay with the cooperative. The experience of many registered but not functioning cooperatives in Armenia shows this effect.

The first reason is the imperfection of law on cooperatives that would define necessary

and sufficient specifics of its operation, as well as provide legal protection both inside the cooperative and in interactions with other stakeholders. This would also protect ownership rights and responsibilities of members as well as enable cooperatives to have diplomatic relations with other legal entities, such as processors.

Second, there have been many cases when local people confused cooperative enterprise with once-prevalent collectives from the Soviet Union time. This caused expectations of waiting for governmental aid. Meanwhile, members did not contribute to the formation of common equity of the cooperative. However, the members should be more concentrated on cooperatives' self-help, self-reliance and self-responsibility aspects rather than waiting for the external support.

Moreover, the government should not intervene in creation and governance of cooperatives since it contradicts to the principle of independence. Instead there should be improved partnership relations between cooperatives and all its stakeholders, including the government. In the case of Armenia, the government still has much to do in terms of taking actions in creation of favourable legal and economic environment for development of cooperatives.

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APPENDIX A

Table A1. “Yervandashat Cooperative”. Company’s product, Product Lines and Production Capacity

Type of Product	Production Capacity (tons, annual), including	High Quality
Dried Apricot	25-30	5-6
Dried Black Plum	6	2.5-3
Dried Peach	1.5	1.5
Dried Red Plum	1	1
Dried Pear	0.5	0.5
Apple Chips	0.5	0.5

Table A2. “Yervandashat Cooperative”. Annual Production Capacity

Type of Product	Production Capacity (tons, annual)		
	2011	2012	2013
Dried Apricot	25	20	30
Dried Black Plum	5	5	6
Dried Peach	0.8	1.5	1.5
Dried Red Plum	1	1	1
Dried Pear	-	0.4	0.7
Apple Chips	-	0.2	0.2

Table A3. “Yervandashat Cooperative”. Annual Sales

Type of Product	Sales (AMD)			Balance (AMD)
	2011	2012	2013	2013
Dried Apricot	18,000,000	16,000,000	22,500,000	3,000,000
Dried Black Plum	7,000,000	7,000,000	7,000,000	1,000,000
Dried Peach	1,600,000	3,000,000	3,000,000	
Dried Red Plum	1,800,000	1,800,000	1,800,000	
Dried Pear	-	1,000,000	1,750,000	
Apple Chips	-	500,000	500,000	

Table A8. Internationally recognized 7 principles of Cooperative

Voluntary and Open Membership
Cooperatives are voluntary organizations; open to all persons able to use their services and willing to accept responsibilities of membership, without gender, social, racial, political, or religious discrimination.
Democratic Member Control
Cooperatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary (true) cooperatives, members have equal voting rights (one member, one vote), and cooperatives at other levels are organized in a democratic manner.
Member Economic Participation
Members contribute equitably to, and democratically control, the capital of their cooperative. Part of that capital is the common property of the cooperative. Adequate capital is essential to a true business cooperative's success. Members allocate surpluses for any of the following purposes: developing their cooperatives capital, which would be indivisible; and supporting other activities approved by the membership.
Autonomy and Independence
Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.
Education, Training and Information
Cooperatives provide education and training for their members, elected representatives, managers and employees so they can contribute effectively to the development of their cooperatives. They inform the public, particularly young people and opinion leaders, about the nature and benefits of cooperation.

Cooperation among Cooperatives

Cooperatives serve their members most effectively and strengthen the 21st century Cooperative Movement by working together through local, national, regional and international structures.

Concern for Community

Cooperatives work for the sustainable development of their communities through policies approved by their members.

Source: International Cooperative Alliance (ICA)

Table A9. Cooperative Values

Self-help - In cooperatives, people help each other while helping themselves by working together for mutual benefit.

Self-responsibility - Individuals within cooperatives act responsibly and play an active part in the organization including governance.

Democracy - A cooperative is structured so that members have control over the organization: one member, one vote.

Equality - Each member has equal benefits according to their use.

Equity – Members are treated justly and fairly.

Solidarity – Members support each other and other cooperatives.

Source: International Cooperative Alliance (ICA)

Table A10. Weighted Average Cost of Capital computation for Simulation Model

WACC Calculations	
$WACC=r_d*(1-t)+r_e$	
$r_e=r_{rr}+(r_m-r_{rr})*\beta$	
where:	
$r_m=$	11.50% Annual Interest rate of ProCredit Bank Armenia's "ProApaga" savings account
$r_{rr}=$	9.39% Annual Armenian Treasury Bond Yield
$r_d=$	24% Annual Interest rate of Acba-Credit Agricole Bank CJSC's loan
$t=$	20%
$\beta=$	1.5 Based on assumption $\beta=1.5$; the beta coefficient of 1.5 indicate that the beta it's theoretically 50% more volatile than the market.
$r_e=$	12.552600%
$r_d*(1-t)=$	19.2%
WACC=	31.75%

Table A11. Amortization Table

Amount Borrowed	Loan Life	Annual Interest rate	First Year of the Loan			
5000000	5	0.24	2014			
Years	Debt Jan 1st	Constant Payment	Interest Paid	Principal Paid	Calc Bal Dec 31st	Total Loan Outflow
2014	5,000,000.00 ₺	1,821,238.57 ₺	1,200,000.00 ₺	621,238.57 ₺	4,378,761.43 ₺	1,821,238.57 ₺
2015	4,378,761.43 ₺	1,821,238.57 ₺	1,050,902.74 ₺	770,335.83 ₺	3,608,425.59 ₺	3,642,477.15 ₺
2016	3,608,425.59 ₺	1,821,238.57 ₺	866,022.14 ₺	955,216.43 ₺	2,653,209.16 ₺	5,463,715.72 ₺
2017	2,653,209.16 ₺	1,821,238.57 ₺	636,770.20 ₺	1,184,468.38 ₺	1,468,740.79 ₺	7,284,954.30 ₺
2018	1,468,740.79 ₺	1,821,238.57 ₺	352,497.79 ₺	1,468,740.79 ₺	- 0.00 ₺	9,106,192.87 ₺

Table A12. Income Tax

Calculate Federal Taxable Income					
	2014	2015	2016	2017	2018
Net Cash Income	73,608,242	82,970,356	92,751,409	102,959,532	113,637,679
Depreciation	250,000	250,000	250,000	250,000	250,000
Other Deductions	-	-	-	-	-
Taxable Income	73,358,242	82,720,356	92,501,409	102,709,532	113,387,679
Income Tax Schedule for a Corporation Uses Taxable Income above					
Taxable income Over--	But Not Over--	Base Tax is:	Marginal Tax Rate		
0	120,000	0	0.244		
120,000	200,000	29,280	0.26		
2,000,000	99,999,999	518,080	0.36		
Calculate the income taxes using VLOOKUP to find values in the tax schedule					
	Total Taxes 2014	Total Taxes 2015	Total Taxes 2016	Total Taxes 2017	Total Taxes 2018
Taxable Income	73,358,242	82,720,356	92,501,409	102,709,532	113,387,679
Minimum Income Taxes	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Tax Base	518,080	518,080	518,080	518,080	518,080
Marginal Tax Rate	0.360	0.360	0.360	0.360	0.360
Taxes Due	26,207,047	29,577,408	33,098,587	36,773,511	40,617,645

Table A13. Apricot Production Costs per 1 hectare

Apricot Production Costs per 1 hectare						Price/kg	AMD
Expenses	Explanation	Quantity	Price		Total Value		Total Value
			AMD	AMD	USD	Material and input cost	
Total Input Expenses				375,059		\$907	29
Fertilizers	Manure tonn	20		6,500		130,000	333
	N, kg	200		137.862		27,572	3500
	P, kg	130		137.862		17,922	AMD/day
	K, kg	110		137.862		15,165	Foreign Exchange Rate
Total				190,059		\$461	414
Land Preparation	Soil Preparation and Bailing (Work. Day)	13				45,500	
	Land smoothing, weeding	32				112,000	USD/AMD
Total				157,500		\$380	
Seeds						0	
Pesticides						120,000	
Water Irrigation						65,000	
Harvesting work	Work Day	30				105,000	
Workforce (irrigation, pesticides)	Work Day	63				220,500	
Total Expenses				858,059		\$2,074	
Expected Harvest	Tonne					30	
Sales Price	kg					140	
Sales				4,200,000		\$10,145	
Gross Profit						3,824,341	
Net Income				3,341,341		\$8,071	
Workforce Income	Work Day	138		3500		483,000	

The data of Budgeting Apricot
Harvest / tonne 30
Sales Price / AMD 140

Table A14. Black Plum Production Costs per 1 hectare

Black Plum Production Costs per 1 hectare						The data of Budgeting Black Plum	
Expenses	Explanation	Quantity	Price		Total Value		Material and input cost
			AMD	AMD	USD	AMD	
Total Input Expenses				306,873		\$741	15
Fertilizers	Manure tonnes	20		6,500		130,000	150
	N, kg	130		137.86		17,922	
	P, kg	100		137.86		13,786	
	K, kg	110		137.86		15,165	
Total				176,873		\$427	44
Land Preparation	Soil Preparation and Bailing (Work. Day)	13				45,500	
	Land smoothing, weeding	24				84,000	
Total				129,500		\$313	
Seeds						0	
Pesticides						65,000	
Water Irrigation						65,000	
Harvesting work	Work Day	25				87,500	
Workforce (irrigation, pesticides)	Work Day	39				136,500	
Total Expenses				660,373		\$1,595	
Expected Harvest	Tonne					15	
Sales Price	kg					150	
Sales				2,250,000		\$5,435	
Gross Profit						1,943,127	
Net Income				1,589,627		\$3,840	
Workforce Income	Work Day	101		3500		353,500	

Table A15. Red Plum Production Costs per 1 hectare

Red Plum Production Costs per 1 hectare						
Expenses	Explanation	Quantity	Price		Total Value	
			AMD	USD	AMD	USD
Total Input Expenses					300,873	\$741
Fertilizers	Manure tonnes	20	6,500		130,000	\$314
	N, kg	130	137.862		17,922	\$43
	P, kg	100	137.862		13,786	\$33
	K, kg	110	137.862		15,165	\$37
Total					176,873	\$427
Land Preparation	Soil Preparation and Bailing (Work. Day)	13			45,500	\$110
	Land smoothing, weeding	24			84,000	\$203
Total					129,500	\$313
Seeds					0	\$0
Pesticides					65,000	\$157
Water Irrigation					65,000	\$157
Harvesting work	Work Day	25			87,500	\$211
Workforce (irrigation, pesticides)	Work Day	39			136,500	\$330
Total Expenses					660,373	\$1,595
Expected Harvest	Tonne				15	
Sales Price	kg				150	
Sales					2,250,000	\$5,435
Gross Profit					1,943,127	\$4,694
Net Income					1,589,627	\$3,840
Workforce Income	Work Day	101	3500		353,500	\$854

The data of Budgeting Red Plum	
Harvest / tonne	15
Sales Price / AMD	150

Price/kg	AMD
Total Value	44
Material and input cost	20

Table A16. Peach Production Costs per 1 hectare

Peach Production Costs per 1 hectare						
Expenses	Explanation	Quantity	Price		Total Value	
			AMD	USD	AMD	USD
Total Input Expenses					440,494	\$1,064
Fertilizers	Manure tonnes	20	6,500		130,000	\$314
	N, kg	130	137.862		17,922	\$43
	P, kg	100	137.862		13,786	\$33
	K, kg	100	137.862		13,786	\$33
Total					175,494	\$424
Land Preparation	Soil Preparation and Bailing (Work. Day)	13			45,500	\$110
	Land smoothing, weeding	43			150,500	\$364
Total					196,000	\$473
Seeds					0	\$0
Pesticides					200,000	\$483
Water Irrigation					65,000	\$157
Harvesting work	Work Day	36			126,000	\$304
Workforce (irrigation, pesticides)	Work Day	63			220,500	\$533
Total Expenses					982,994	\$2,374
Expected Harvest	Tonne				18	
Sales Price	kg				180	
Sales					3,240,000	\$7,826
Gross Profit					2,799,506	\$6,762
Net Income					2,257,006	\$5,452
Workforce Income	Work Day	155	3500		542,500	\$1,310

The data of Budgeting Pear	
Harvest / tonne	18
Sales Price / AMD	180

Price/kg	AMD
Total Value	55
Material and input cost	24

Table A17. Time and Resource Allocation of Research Paper

Timeline										
Start Finish										
Fri 20/12/13 Thu 13/11/14										
WBS	Task Mode	Task Name	Duration	Start	Actual Start	Finish	Predecessors	Resource Names	Add New Column	
0	0	Project Suggested Timeline	235 days?	Fri 20/12/13	NA	Thu 13/11/14				
1	1	Submit Completed Forms	110 days	Fri 20/12/13	NA	Thu 22/05/14				
2	1.1	Form 1 - Project Selection	10 days	Fri 20/12/13	NA	Thu 02/01/14		Student		
3	1.2	Handbook Feedback	100 days	Fri 03/01/14	NA	Thu 22/05/14	2	Research Supervisor		
4	2	Project Process	205 days?	Fri 31/01/14	NA	Thu 13/11/14	1			
5	2.1	Review and Discuss Requirements	7 days	Fri 23/05/14	NA	Mon 02/06/14	3	Student & Research Supervisor		
6	2.2	Topic Selection	12 days	Tue 03/06/14	NA	Wed 18/06/14	5	Student & Research Supervisor		
7	2.3	Project Writing	10 days	Thu 19/06/14	NA	Wed 02/07/14	6	Student		
8	2.4	Project Proposal	10 days	Fri 31/01/14	NA	Thu 13/02/14	7	Student		
9	2.5	Draft Project	7 days	Fri 23/05/14	NA	Mon 02/06/14	8	Student		
10	2.6	Submit Completed Project	115 days	Tue 03/06/14	NA	Mon 10/11/14	9	Student		
11	2.7	External Review	2 days	Tue 11/11/14	NA	Wed 12/11/14	10	Peer Reviewer		
12	2.8	Oral Defense	1 day?	Thu 13/11/14	NA	Thu 13/11/14	11	Student		

Table A18. Survey Questionnaire of Yervandashat Cooperative

Dependent Variable	Explanation	Answer alternatives
agricred	“I think that joint farming in an agricultural cooperative is an efficient way for doing agricultural production in Armenia.”	A Likert scale that was ranging from (1 – 6) with scale ends “strongly agree (=1)”, “agree (=2)”, “somewhat agree (=3)”, “undecided (=4)”, “disagree (=5)”, to “strongly disagree (=6)”.
Independent Variables		
Involvement		
dreadbal	“To which extent do you read the balance sheet and the profit-and-loss account of the annual report?”	A Likert scale that was ranging from (1 – 6) with scale ends “very carefully (=1)”, “carefully (=2)”, “not very carefully (=3)”, “somewhat carefully (=4)”, “not carefully (=5)”, “sometimes”, to “not at all (=6)”.
dpart	“Do you always take part in the general assembly meetings?”	A Likert scale that was ranging from (1 – 6) with scale ends “every time (=1)”, “very frequently (=2)”, “frequently (=3)”, “not frequently (=3)”, “sometimes (=4)”, “almost never (=5)”,

		to “never (=6)”.
dlead	“Would you be willing to become a member of the leadership?”	The answering alternatives were Yes = 1 or No = 2.
Trust		
clfriend	“To which extent is it important for you to have friends and relatives close to you within the cooperative (as colleagues)?”	A Likert scale that was ranging from (1 – 6) with scale ends “extremely important (=1)”, “very important (=2)”, “important (=3)”, “somewhat important (=4)”, “slightly important (=5)”, to “not important at all (=6)”.
dleadcare	“To which extent does the leadership care about the opinions of the members?”	A Likert scale that was ranging from (1 – 6) with scale ends “extremely cares (=1)”, “very much cares (=2)”, “cares (=3)”, “somewhat cares (=4)”, “slightly cares (=5)”, to “not at all (=6)”.
Satisfaction		
dmeminfl	“Compared to the situation of agricultural cooperative, do you think that you – as an ordinary member – have more influence in decision-making now?”	The answering alternatives were Yes = 1 or No = 2.
farmlater	“Have you, after you became a member of the agricultural cooperative, considered the option of becoming a family farmer?”	The answering alternatives were Yes = 1 or No = 2.
Loyalty		
dopinion	“To which extent does it happen that the members have positive opinions about the way the cooperative is run?”	A Likert scale that was ranging from (1 – 6) with scale ends “very often (=1)”, “often (=2)”, “sometimes (=3)”, “seldom (=4)”, “very seldom (=5)”, to “never (=6)”.
Additional Variables		
respage	“What is your age?”	Please specify in years.
gender	“Please specify your gender?”	The answering alternatives were male = 1 or female= 2.
hhead	“Does your household have head?”	The answering alternatives were Yes = 1 or No = 2.
hhpsize	“What is the size of your Household?”	Please specify the number of household members.
education	“What is your Education degree	The answering alternatives

	attained?"	were secondary education = 1 or university = 2.
agriceduc	"How did you attain the Agricultural education?"	The answering alternatives were on-the-job only = 1 or Armenian National Agrarian University = 2
workexpy	"How many years of work experience do you have?"	Please specify in years.

APPENDIX B

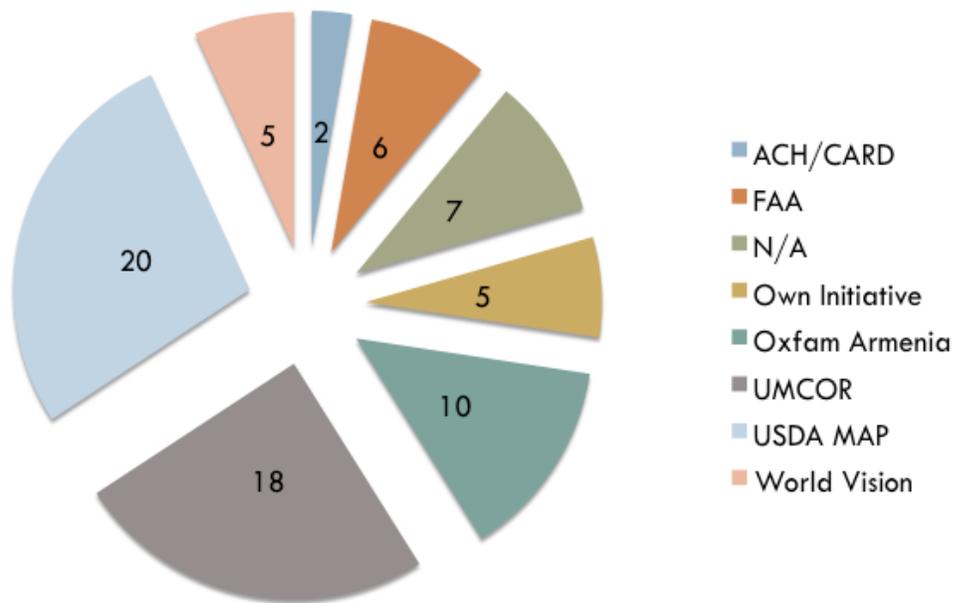


Figure B1. Consumer cooperatives created by donor organizations

Source: Urutyán, V. (2012) Policies to support small Farmer Organizations in Armenia. pp 9-10

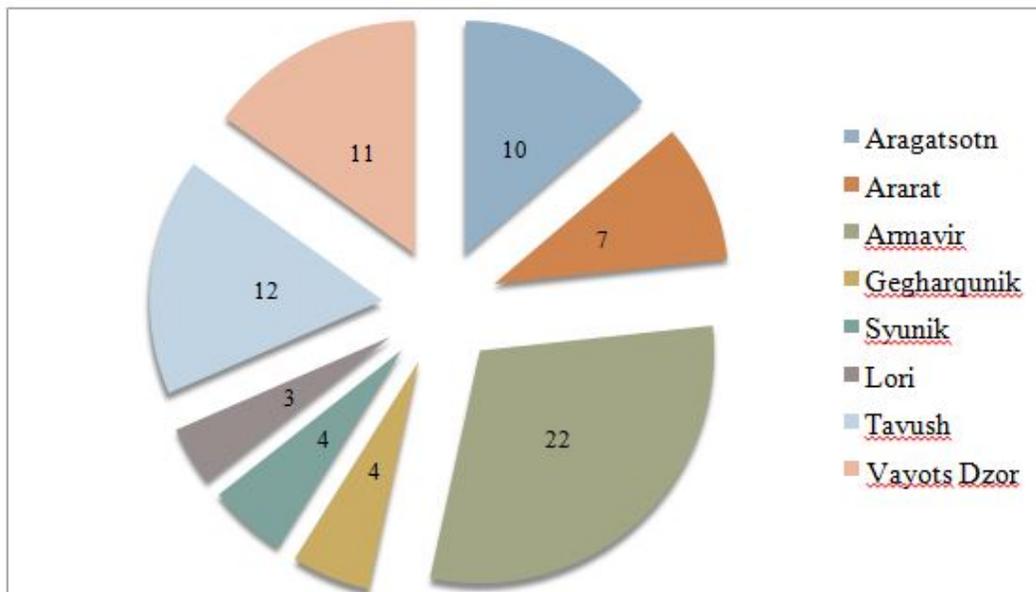


Figure B2. Consumer cooperatives by region

Source: Urutyán, V. (2012) Policies to support small Farmer Organizations in Armenia. pp 9-10

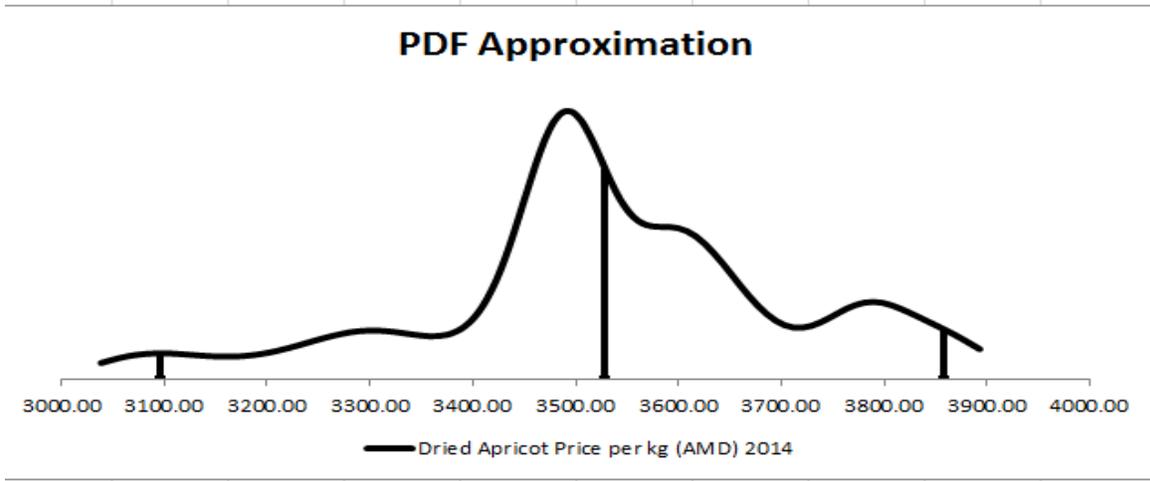


Figure B3. PDF of Dried Apricot Price per kg (AMD) for 2014

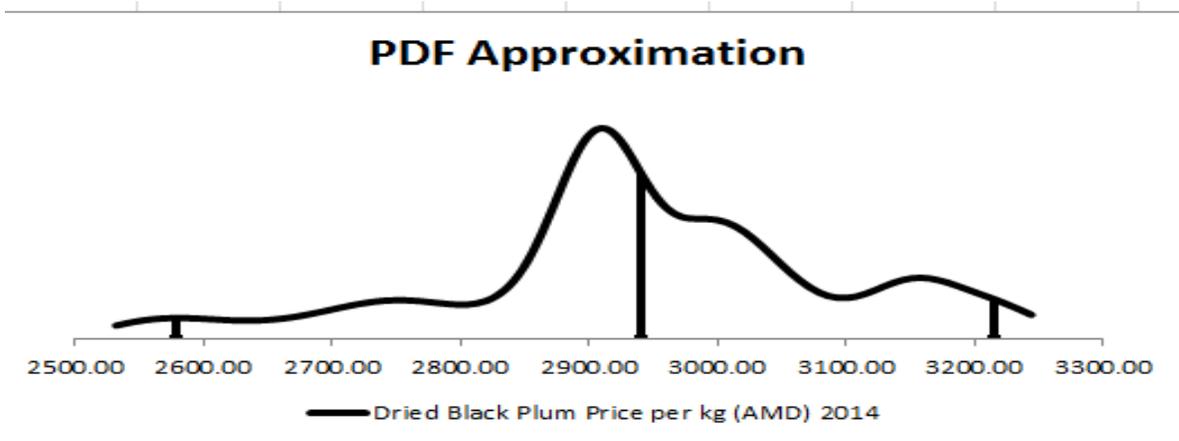


Figure B4. PDF of Dried Black Plum Price per kg (AMD) for 2014

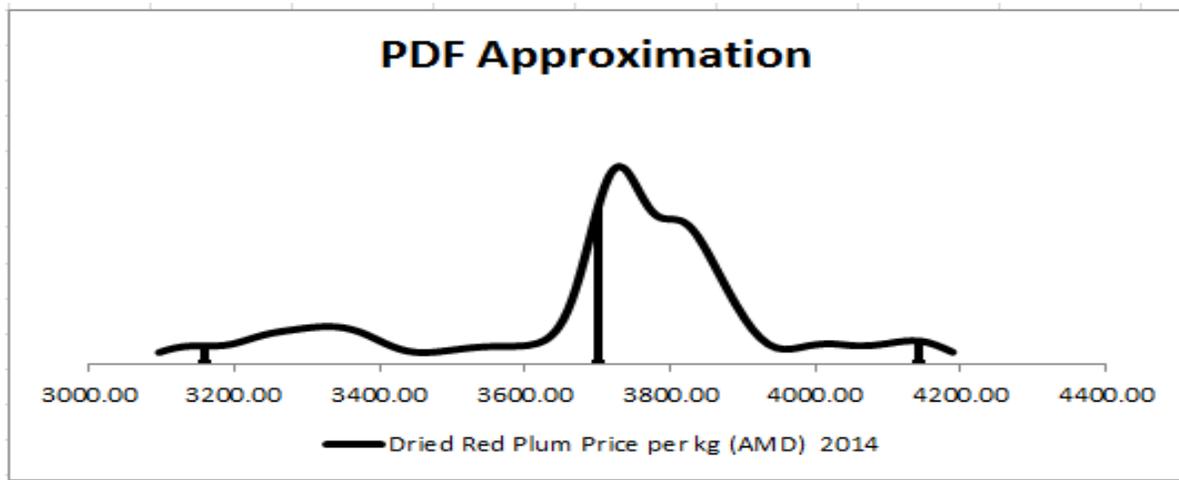


Figure B5. PDF of Dried Red Plum Price per kg (AMD) for 2014

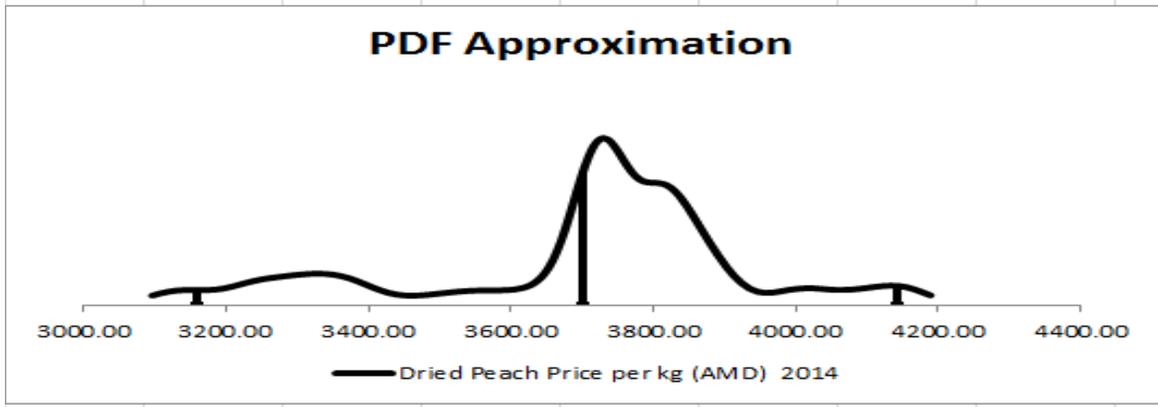


Figure B6. PDF of Dried Peach Price per kg (AMD) for 2014

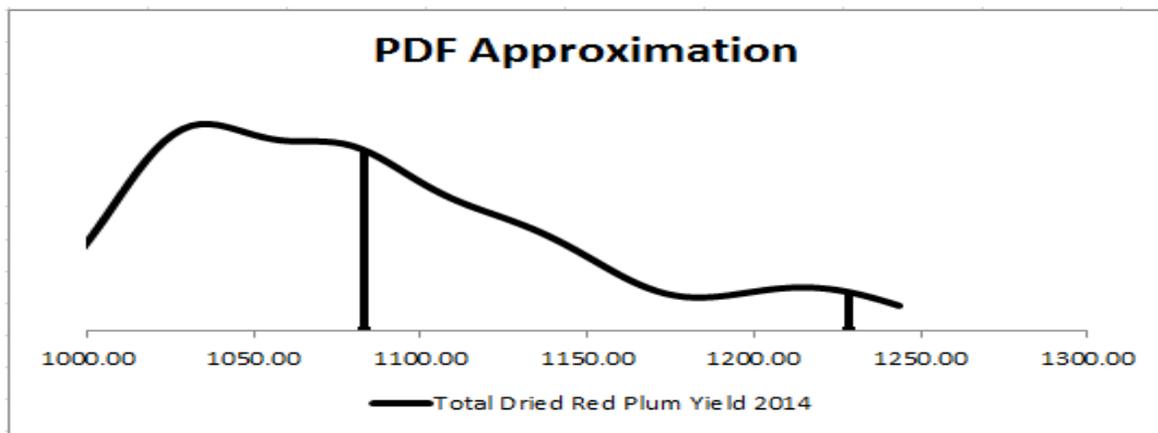


Figure B7. PDF of Dried Red Plum Yield for 2014

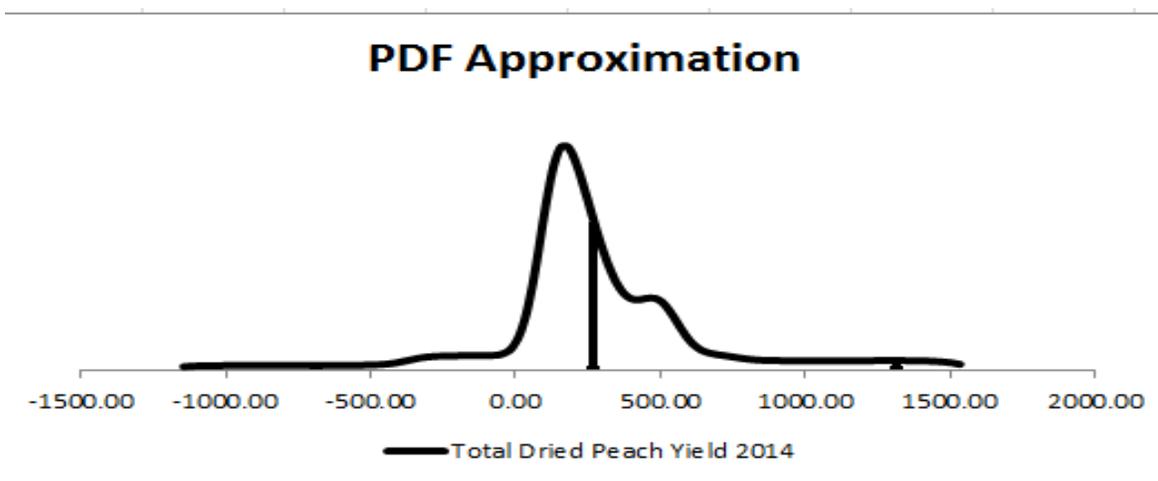


Figure B8. PDF of Dried Peach Yield for 2014

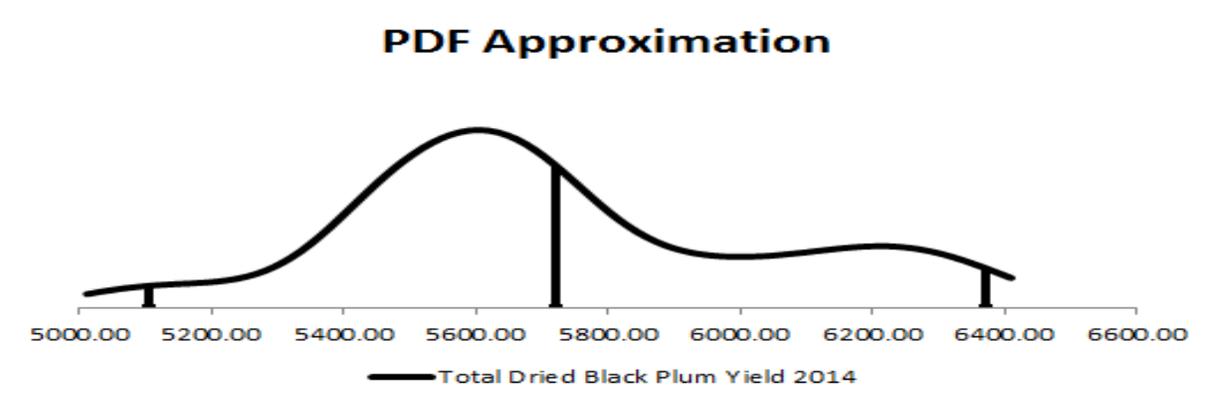


Figure B9. PDF of Dried Black Plum Yield for 2014

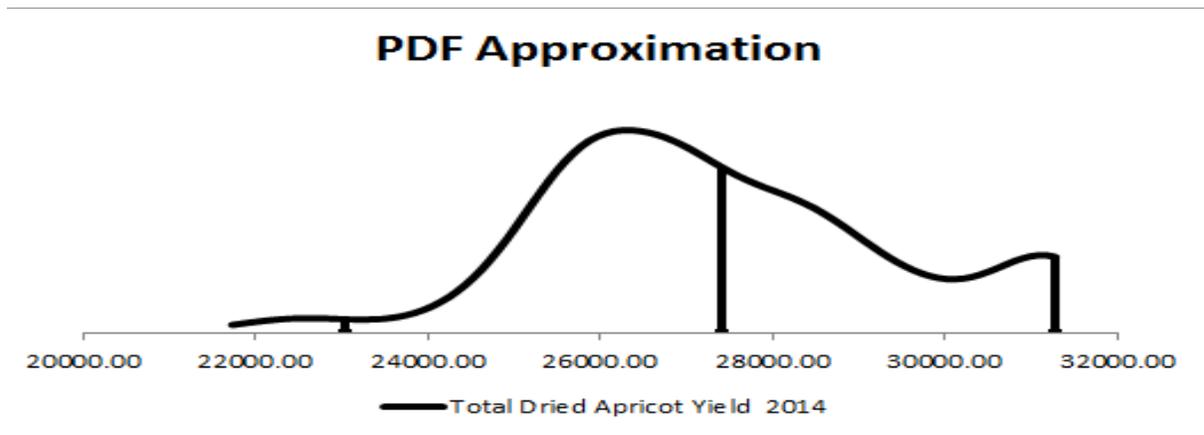


Figure B10. PDF of Dried Apricot Yield for 2014

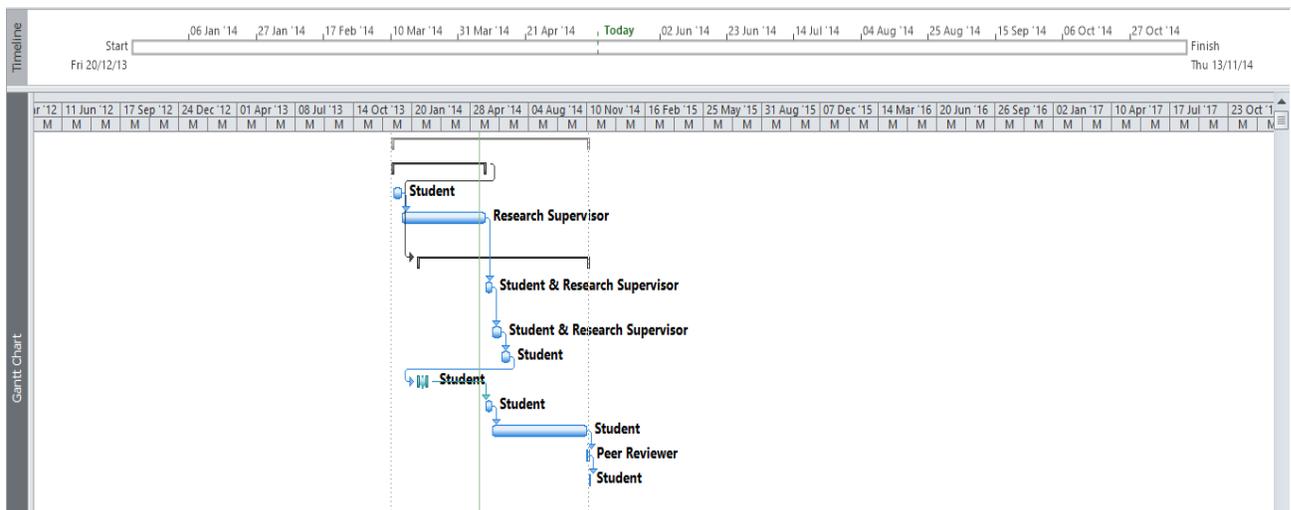


Figure B11. Gantt Chart of Research Paper