CHALLENGES WITH UPSCALING SMALL-TO-MEDIUM SIZE FAMILY AGRICULTURAL PRODUCTION IN THE COUNTRY OF GEORGIA

A Capstone Paper Project
Presented to the Faculty of the Graduate School
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Field of International Agricultural and Rural Development

by
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ABSTRACT.

The country of Georgia has an ancient culture with a deep agricultural history. In recent years, small to medium-sized agricultural producers have struggled to grow while the country's policy agenda has turned towards economic modernization. Incentives for foreign investment in the service sector and urban development left a void of policy support for the agricultural industry that has consequently created significant regional imbalances as well as domestic hurdles for producers. In this study, 342 Georgian smallholder farmers were surveyed, 22 participants in focus groups were interviewed and 2 experts were consulted on the findings of the challenges associated with the upscale of small-to-medium-sized farms. The results of the surveys and focus groups show that the key challenges for upscaling small-to-medium-sized farms are (a) policy regulation related to the imported agricultural goods, and challenges with safety regulation for agricultural input products, these policies are essential for the protection of domestic agricultural producers, (b) disconnection between policymakers and farmers (c) lack of vocational education opportunities for farmers to improve their agribusiness and (d) shortage of qualified professionals in agricultural fields to support farmers through private consulting organizations as well as agricultural extension. These findings suggest that there is a significant need for effective policymaking in the country's agricultural sector and a vital need for investment in educational opportunities. In the paper, we discuss all identified challenges and potential solutions in detail.

BIOGRAPHICAL SKETCH.

Nana Barrett was born in the country of Georgia. She grew up in a family of farmers and nature enthusiasts. Her happiest memories from her childhood were planting vegetable seeds in her grandmother's garden, nature trail exploration with her parents and younger brother, and grape harvesting and wine making with her grandfather. Her family's background sparked her passion to pursue an education in agriculture. She received her Bachelor of Science in Agribusiness Management degree from Delaware Valley University. Currently, she is an MPS student in Global Development at Cornell University studying international agriculture and rural development. As a new mother, Nana is even more passionate and blessed to be involved in the field of sustainable and regenerative agriculture and serving rural farming populations in achieving their goals for efficiency, resiliency, and sustainably nourishing the world for generations to come.

ACKNOWLEDGMENTS.

Foremost, I would like to express my boundless gratitude to my loving mom and spouse, whose support gave me the courage and drive to complete my degree. Their love, dedication, and care give me the strength to tackle any challenge on my way with conviction. And my son, whose love gives me wings to fly and set my goals high.

My sincere gratitude also goes to my academic advisor, Maricelis Acevedo, whose expertise and continuous guidance have brought this paper together, and who supported me through my graduate education as a student and a new mother with patience, understanding, and care.

I would like to extend my thankfulness to the group of experts in the country of Georgia who gratuitously dedicated time and resources to helping me with the data collection and facilitation throughout the full process.

God has blessed me with exceptional people in my life and on my path, for which I am eternally grateful.

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BACKGROUND AND INTRODUCTION.

The country of Georgia is well known in eastern Europe as the motherland of ancient agricultural practices and the melting pot between east and west gastronomy. In the last decade, archaeologists have made two groundbreaking discoveries that give validation to the idea that Georgia is one of the oldest agrarian societies. First, the discovery of winemaking residue in 8,000-year-old clay pots from a Georgian village (Curry, 2017). Second, the residue of pollen in honey pots dating back 5,500 years past (Mission, 2019). These discoveries make Georgia the oldest wine and honey-producing society in history. This historical background has played a critical role in the development of the country's culture.

During the Soviet Union's occupation of Georgia, the economy adapted to a means of production that benefited the USSR's need for agricultural products and nondurable manufacturing. Georgia was one of the leading Soviet republics in fruit and vegetable production (GRYTA, 1988). During this period, Georgia exported 95 percent of its processed tea, 62 percent of its wine, and 70 percent of its canned goods to the other USSR countries (Financial, 2010). The agricultural sector was thriving with agricultural exports exceeding imports by 70% (FAO, 2012).

After the collapse of the Soviet Union and the transitional period during the Georgian civil war, the agricultural industry fractured and decayed without leadership from central planning. During the 1990s, the government made privatization of land legal, and the people regained the right to own and start privately run agricultural production. This freedom was a step forward and back as it resulted in agricultural sector fragmentation and left the country with about half a million farmers/peasants, with no resources for modern agricultural technologies, no access to education, and devoid of financial support for growth and development.

Naturally, this significant structural change, disorganization, and lack of government support resulted in an agricultural sector being filled with hundreds of thousands of subsistence-styles, self-employed farmers living on the average size of 2-hectare plots. Comprising a significant share of the agricultural sector, most of these farmers are still undocumented as the government does not require them to register under a business structure and pay taxes unless they exceed 100,000 GEL in financial turnover (FAO, 2012).

As Georgia began to rebuild with foreign assistance the nation sought a western economic model that was focused on urban development and service-based industries versus that ancient agricultural heritage (Arveladze & Smeets, 2017; Posadas et al., 2018). To this date, Georgia's agricultural production and agrarian identity are recovering from the collapse of the Soviet Union's centralized planning and price controls that created imbalances in supply and demand inputs that still pose many challenges to old and new farmers looking to develop and grow in the field.

This study focuses on constraints and key challenges faced by small and medium-sized Georgian farmers since the country's transition into a competitive post-Soviet Union/civil-war economy. Specifically, it examines the issues of upscaling agricultural production from different angles such as production and technical constraints, policy influence and market deregulation, accessibility to financial and educational resources, and cultural perceptions. This paper brings awareness to the complexity of the situation and highlights deficiencies that prevent progress and

its effects on the Georgian farmers. Using qualitative and quantitative data collection methods we study and analyze the above-mentioned challenges and provide recommendations and interventions to help improve conditions for small-to-medium scale Georgian farmers to achieve growth, development, and modernization.

LITERATURE REVIEW.

The country of Georgia's fertile soil, mild climate, and diverse growing zones provide small and medium-size farmers with a strong foundation for the successful production of high-quality crops and agricultural commodities (ITA, 2021) (AGROVOC, 2021). This literature review discusses the dynamic forces impacting the agricultural industry in The Republic of Georgia and similar developing countries. The dynamic forces include the following: access to financial resources, access to market, government policies supporting domestic producers, access to high-quality agricultural input products, and lack of agricultural extension support.

The World Bank's latest synthesis report showcases the pathway for Georgia to successfully transition from an inefficient agricultural system to high-value crop production and achieve increased economic productivity in the sector with proper policy-making and sensible investment(World Bank, 2022). Georgia's agriculture sector represents 7.29% of the country's GDP (Statista, 2022). In the year 2021, 41.29% of Georgia's total population was employed in the agricultural sector (Trading Economics, 2022). This shows that even though the GDP share of agriculture is small, almost half of the population engages in this sector regardless of insignificant financial gain. It is notable that in 2021, the rural population comprised 40.13 % of all citizens (World Bank, 2018). Considering previous data points, we can deduce that most of the rural population is involved in agriculture. The latest data from 2020 shows that 21.3% of the population lives below the poverty line. Poverty levels are more notable in rural populations (Asian Development Bank, 2021). The extreme poverty rate and impoverished agricultural performance have been mitigated because of the elevated levels of remittances from immigrants supporting their families and households from abroad. Remittances from Georgian immigrants create a significant economic effect, accounting for 14% of gross domestic product (Bogiashvili, 2021). The agricultural sector has significant potential to contribute to the country's social and economic growth and relieve many of the challenges mentioned above. However, to get to a point where the agricultural sector becomes the solution, many barriers need to be overcome.

In a 2019 study about the challenges of small-scale farming in Ukraine, authors Roman Bezus and Olena Samofal surveyed 120 smallholder farmers from the Dnipropetrovs'k region (Bezus & Samofal, 2019). Of 120 smallholder producers some participated in dairy production, others in honey, and the rest in vegetable growing. The demographic pool consisted of both male and female farmers between the ages of 23 to 64 years old. All respondents were farm owners. All participants were asked to point out 3 main challenges with their production, ranging from the most to the least pressing. Additionally, the authors conducted 10 personal interviews to delve deeper into the results of the primary survey. The study shows that the biggest impediments on the farmers' path of development were access to materials and resources, access to financial resources i.e., credit, migration of younger generations away from rural regions, change in climate patterns, market access, lack of education, and policy issues.

Bezus and Samofal, 2019 study is highly relevant to my paper because Ukraine and Georgia are both post-soviet republics, countries that have a complicated and tense political relationship with the Russian Federation and share a similar morphology and cultural backgrounds. We can thus predict that the limitations and challenges pointed out by smallholder farmers in Ukraine are

remarkably similar to the ones in Georgia. The recommendations that the authors offer at the end of their paper are, therefore, of primary importance.

The authors provided the following recommendations: government support of communal and cooperative agricultural production where farmers advocate for the development of their community. Through cooperatives, smallholder agricultural producers, lower their costs to access the market by removing the expenses of working with a distributor as an intermediary. Another important recommendation was to move towards agricultural practices that are considerate of land and water resources. This recommendation is especially important to preserve the soil and environmental health and to respond to the changing climate. Two more important suggestions made were constant professional growth and education of farmers to make better managerial decisions and lastly, they urged the government to incentivize younger generations away from migration to urban settings. All these suggestions are notable and relate to the realities of the Georgian, smallholder farmers.

In the study "access to finance and difference in family farm productivity in Benin" the authors examine the impact of access to financial resources on the productivity of smallholder family farmers (Acclassato Houensou et al., 2021). The findings of this study are of essential interest for the recommendations section of our paper as it discusses the financial challenges of small-scale farmers and access to funding.

By analyzing national representative survey data from the Benin government covering the 2016–2017 agricultural season, Acclassato et al evaluated the Endogenous Switching Regression (ESR) model. Based on the paper, cultivated area, seeds, the cost of fertilizer, agricultural mechanization, and household size are the significant determinants of productivity. The findings of the paper suggest that families that had access to credit and other financial assistance have achieved higher productivity, improved living conditions, and lowered poverty levels. As these smallholder farmers saw improvement in their financial security they gradually upgraded from subsistence to market-oriented agriculture. Based on the similarities between Benin and Georgia, we can suppose that access to affordable financial services would enable Georgian smallholder family farmers to achieve comparable results of increasing productivity and achieving financial stability.

Similar constraints were identified in a study Constraints and Challenges Facing the Small-Scale Farmers in Limpopo Province by Mpandeli et al. (2014). This paper focuses on the challenges of small-scale farmers in three regions of Limpopo provinces of South Africa. The primary challenge hindering agricultural development identified by this study was the affordability and availability of agricultural inputs such as seeds, herbicides, etc. Another notable factor was access to the market and information. For example, even if farmers produced larger volumes of high-quality agricultural goods, the goods would perish in their storerooms due to the challenge of accessing the market. Therefore, these smallholder farmers generate most sales through informal traders and street vendors. The cost of transportation is another reason it is challenging to access the market for small-scale family farmers.

Similar to the Mpandeli et al. study, the Relevance of Smallholder Farming to African Agricultural Growth and Development report, examines small rural farmers with less than two

hectares of land (Kamara et al., 2019). It outlines that the lack of financial support, poor market access, underdeveloped infrastructure, and climate change are the primary constraints on agricultural productivity.

Furthermore, it outlines government initiatives that created new financial support programs for small rural farms and the impact of these resources. This study is important for our research because it closely aligns with the claim that Georgian farmers need financial modernization. Achieving sustainable agricultural development has been a primary focus for international donor agencies and institutions like the African Union which have been funding this initiative. The local African government recognizes the importance of the role of agriculture in economic and rural development, however, they fall short of investing in small-scale farmers.

Agricultural market conditions and challenges in Georgia are similar to those described by Kamara et al. for Africa. The government recognizes that agriculture is one of the most important sectors in the country's economy since 40% of the population is employed in this field. Yet, there are no structures, and thoughtfully planned strategies to invest in the agriculture sector and help smallholder farmers grow and develop. Therefore, based on Alie Kamara's paper's findings we can presume that proper government investment into the necessary areas of the agricultural sector will have a tremendous impact on the development of Georgian small-scale farms and the rural economy.

METHODOLOGY.

This research paper is based on a mixed-methods approach of collecting quantitative and qualitative data to analyze the primary challenges with upscaling production in small-to-medium scale farming populations in Georgia. The four methods of data collection for this paper are literature review, Qualtrics survey, focus groups, and expert interviews. This research project spanned from August 2020 to May 2022 and occurred in four phases. Each phase corresponds to the four unique methods of data collection.

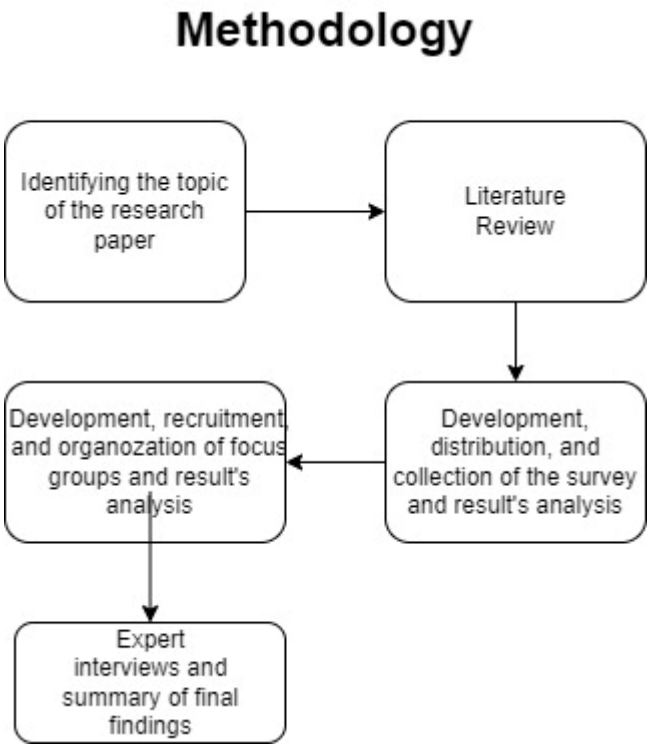

Illustration 1.1 – Methodology Steps

Qualtrics Survey

The survey questionnaire was developed based on challenges and limitations pointed out during consultation sessions with the experts in the field. The target audience for the survey distribution was small-to-medium scale agricultural producers in any agricultural field including but not limited to livestock production, poultry farming, vegetable, cereal, orchard growers, apiarists, fiber producers, dairy farmers, vignerons, and farmers specializing in agrotourism. Producers from any region of the country were welcome to participate. The only limitation was that the participants had to be engaged in agricultural production for business and not only for subsistence purposes.

The survey was presented to the participants as a Qualtrics survey link. At the beginning of the survey participants were made aware that the survey was voluntary and anonymous and were

informed of the time commitment requirement as well as my contact information in case they had any follow-up questions.

The survey questionnaire consists of 17 questions and is divided into 3 parts. The first part is a collection of demographic questions such as age, gender, marital status, and region. The second part asks about the details of agricultural production that the participants are involved in, for example, the field of agriculture, years in business, their role and title, if their production is registered and if they have decision-making authority, etc. This section provides more detail about the surveyed population. Finally, the third part consists of questions related to the challenges associated with the upscaling production and asks participants to point out major problems within four categories of social, economic, governance and education as the tentative root of the issue. In this section, we got a clear picture of the major challenges survey takers representing small-scale farming communities were experiencing and laid a foundation for the development of a further, more detailed set of questions for the focus group interviews.

The results of this survey are based on the responses of 325 participants' anonymous feedback. The survey section of the research has laid the basic knowledge foundation of the research topic and provided data that was used to develop more specific questions for the focus group participants. The survey was distributed by several agricultural organizations in Georgia and various local agricultural groups via Facebook.

Focus Group

At the beginning of each focus group session, participants were kindly greeted and made aware that their identities would remain private and would not be shared in the paper. Therefore, we do not document participants' names, we only share responses they documented, and viewpoints shared during each session. Participants were recruited by the Women Farmers' Association of Georgia, the Georgian agriculture department office, and through Facebook groups.

Objectives:

Collection of more detailed responses on subjects that were pointed out during survey collection. Capture responses for the following questions:

- In what way does deregulated market affect you?
- What would fair market regulation help you achieve?
- Is your goal to grow your financial output or the production size?
- Access to what kind of financial resources and funding opportunities would help you upscale the most? Money, equipment and tools, funds for technical/vocational training, funds for production inputs (e.g., fertilizer, seeds, irrigation, etc.).
- If you had access to financial resources in a regulated domestic market, would you be able to achieve 100% of your goals or would you have other constraints?
- Are you a registered producer?
- What is the main reason your agribusiness is not registered?
- What is the main reason you decided to register your agribusiness? How difficult was it to register your agribusiness?

- Do you think it affects your ability to access financial resources and funding opportunities?

Approach:

Focus groups consisted of 4 separate groups of 5-6 participants in each, a total of 22 participants. Participants joined in via 60–90-minute Zoom and FB Messenger sessions and engaged in guided semi-interview structured conversations. Based on Guest et al research on a homogeneous study population using a semi-structured discussion guide, three to six groups are sufficient to capture 90% of themes, including the most prevalent themes. (Guest et al., 2017) Conversation topics and questions were developed based on Qualtrics survey data results analysis. Data was collected via notes for later analysis. Participants agreed to the verbal informed consent. All groups were asked the same set of 8 questions developed based on the survey analysis. There was no monetary incentive to participate in the discussion.

Participant Grid:

The participants were selected from the same demographic pool and satisfied the same selection criteria as the Qualtrics survey takers, therefore, they represented small-to-medium scale agriculture producers from any agricultural field and region of the country. The only personal information about participants shared in this paper is the field of agriculture they were representing. There were no restriction criteria except that all participants had to be small-to-medium scale farmers in Georgia.

Expert Interviews

The expert interviews were conducted throughout the whole data collection and analysis process. Experts were consulted on the following matters:

- Development of the survey questionnaire.
- Development of discussion topics and questions for the focus groups.
- A final summary discussion of all data, expert suggestions, and strategies.

All feedback provided by the experts is of their personal and professional experience and is not representative of any specific organization.

Experts consulted throughout the survey were:

- Agriculture and Extension systems expert experienced working with the UNDP Georgia.
- Farmer and a professional in the agricultural sector with experience working with the Women Farmers' Association of Georgia and the Georgian Farmers' Union.

Experts were contacted via Zoom and FB Messenger and all their responses were documented by notes. Participants agreed to the verbal informed consent.

After the results of the surveys and focus groups were relayed and major findings were pointed out to the experts, we followed up with the questions below:

- Do you agree with the challenges that participants pointed out during surveys and focus groups? Do these challenges objectively represent the current condition of the agricultural market challenges in Georgia?
- Are there other pressing challenges that were not reflected in the results of the Georgian smallholder farmer survey and focus group participants?
- Based on your experience, what can be done in the short, medium, and long term and where can the work begin?

Consent

Receiving verbal informed consent was obtained in each of the four phases of data collection and at every interaction with participants.

Anonymity and Confidentiality

Anonymity and Confidentiality of all participants were preserved due to safety reasons as well as the reason of keeping the data accurate and removing the influence, bias, and prejudice.

Data Analysis

The data was analyzed using Qualtrics data tools, Microsoft Excel, and the Jamovi software program. Graphs were created through Jamovi and MS Excel. Through virtual appointments, Cornell Statistical Consulting Unit has provided guidance and recommendations throughout the data analysis process.

Challenges

Conducting a research project in the middle of a pandemic and halfway across the globe was the obvious challenge. Within that primary challenge were scheduling, oversight, and commitment of participants. Due to the virtual and remote nature of the focus groups, capturing body language and eye contact with participants was challenging.

RESULTS AND DISCUSSION.

Survey Results

We engaged 400 participants who interacted with the survey. Of the 400 total participants, 342 completed and submitted their responses. The survey was divided into three parts and the overview of the results is presented below.

Part I – Demographic questions

Of the 342 participants, the largest share by age and gender was represented by 40 to 50-year-old female farmers. The second-largest share is aged 30-40 years old. Followed by 50+ and over and lastly the ages of 18-30 years old (Figure1.1).

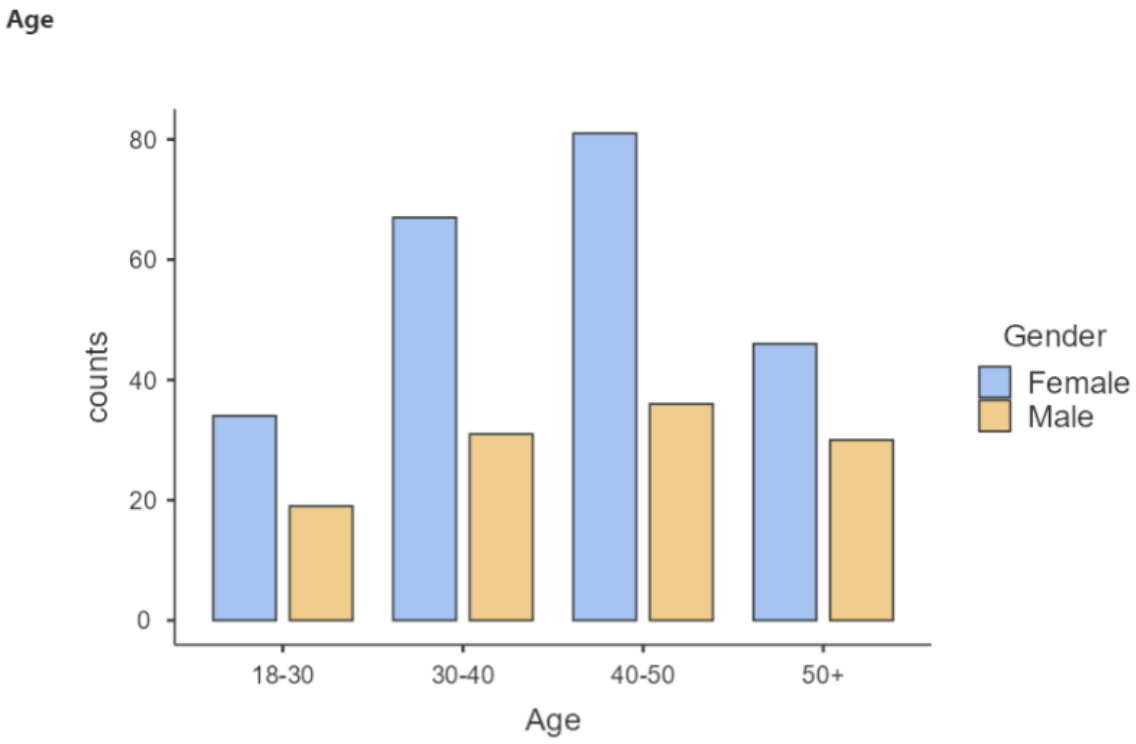

Figure 1.1 – Survey participant's demographic breakdown by age and gender.

Of the 342 participants, sixty-eight percent of the pool classified themselves as the married population with singles representing twenty-five percent and widowed seven percent. (Figure 1.2)

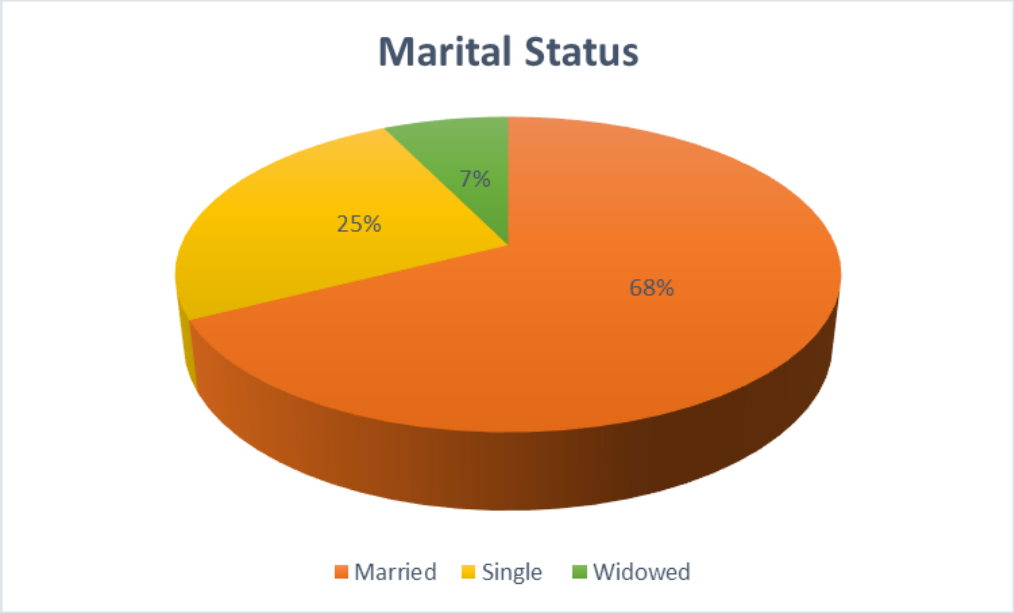

Figure 1.2 – Survey participant's demographic breakdown by marital status

When identifying the geographic regions, the survey takers identified themselves as coming from multiple regions throughout Georgia. The majority represent the Eastern part of the country, the Kakheti region with 125 participants, Mtskheta 55, Racha 35, Imereti 30, Guria 27, and Samegrelo 25 (Figure 1.3).

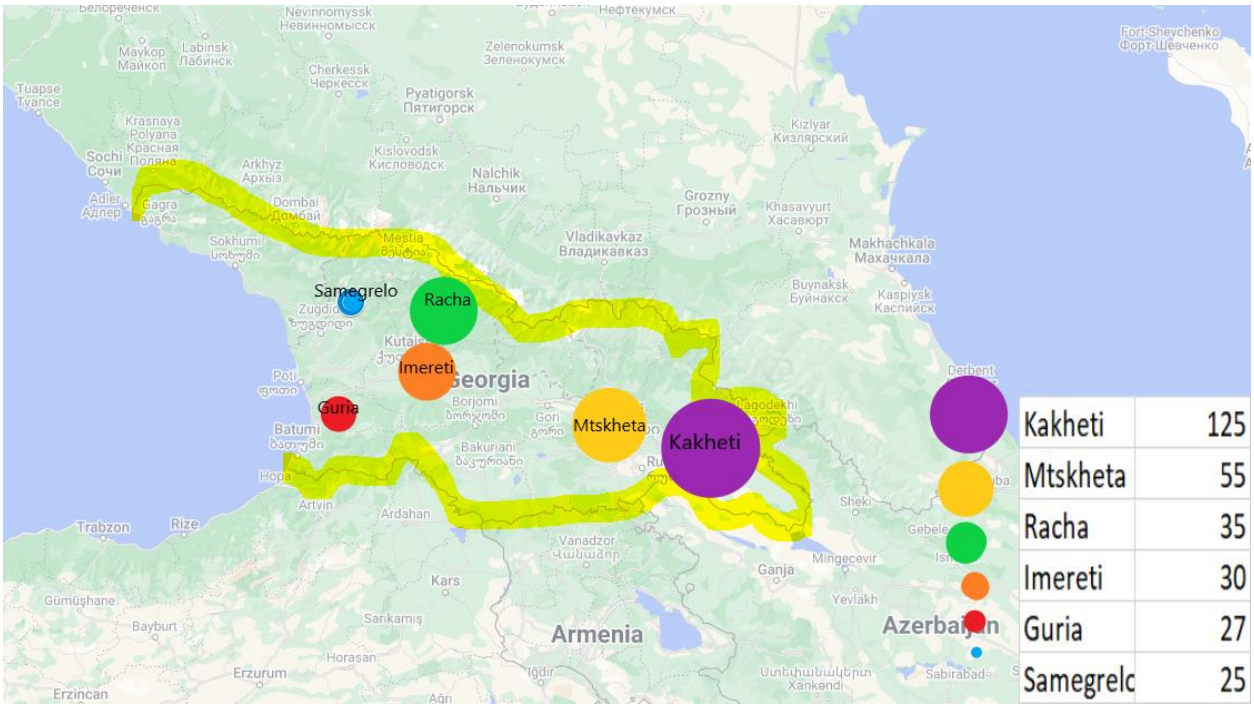

Figure 1.3 – Distribution and number of survey participants across Georgia regions.

Part II

For the second part of the survey, we asked questions to identify the specific occupational focus of participants, the success of their farm, and the current assessment of their agricultural production.

Figure 1.4 shows the breakdown of the agricultural sectors in which the participants indicated their involvement. From the 342 participants, 19% identify as wine making, 18% livestock, 16% vegetable, 13% dairy, 13% orchard, 8% agrotourism, 8% other and 5% fiber.

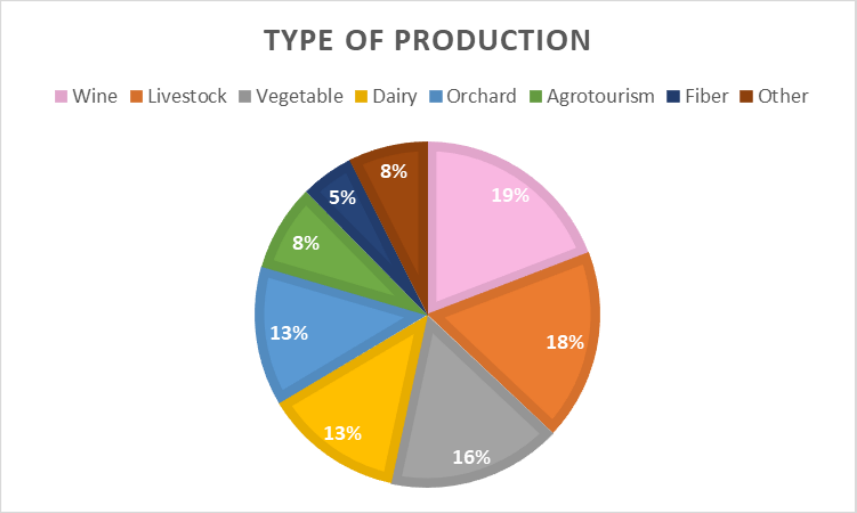

Figure 1.4 Distribution of survey participants' agricultural focus based on the type of production.

When asked about their motivation for occupation, over 80% of participants named their passion and inheritance as the major reason for choosing a specific agricultural field. Sixteen percent stated professional experience as their primary motivation. More than half of the participants indicated that they were new producers. (Figures 1.5 and 1.6)

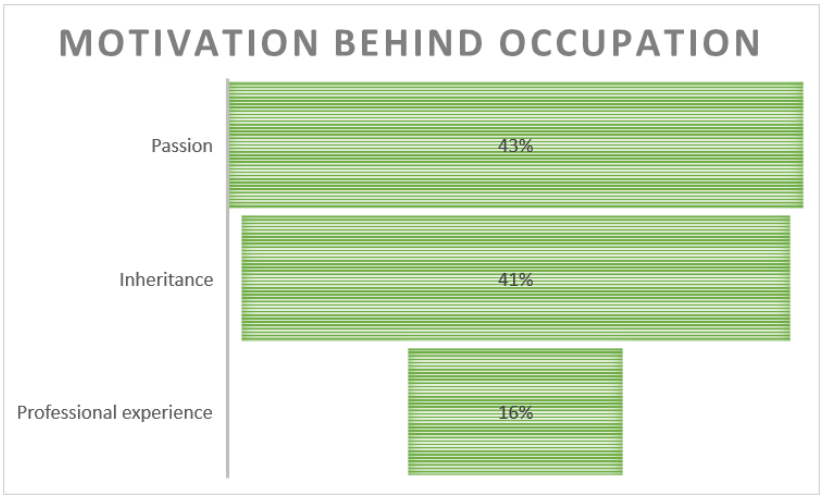

Figure 1.5 Survey participants' reason and motivation for involvement in agribusiness

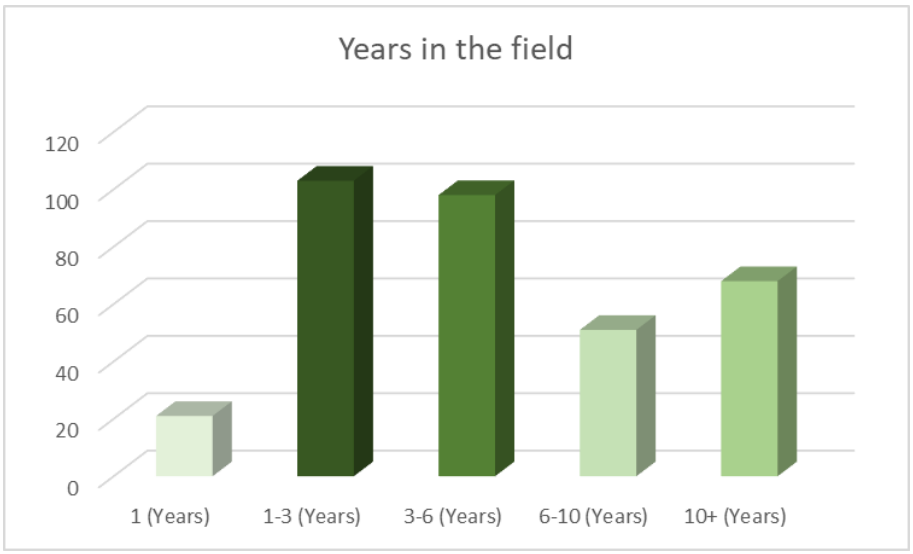

Figure 1.6 Survey participants' breakdown based on years of agribusiness experience

When asked about their work titles in farming operations 85% indicated that they were owners. Additionally, 69% of participants said that they were sole decision-makers. Please see Tables 1.7 and 1.8. As shown in Table 1.9, 84% of participants indicated that their production was not officially registered.

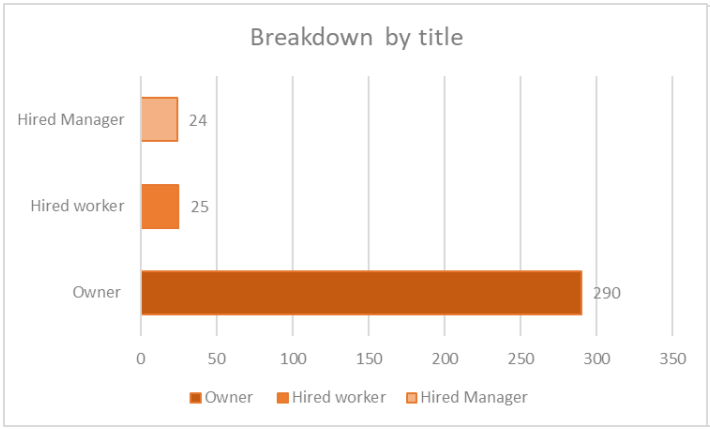

Figure 1.7 Survey participants' breakdown by title

Figure 1.8 Participants' breakdown by decision-making power

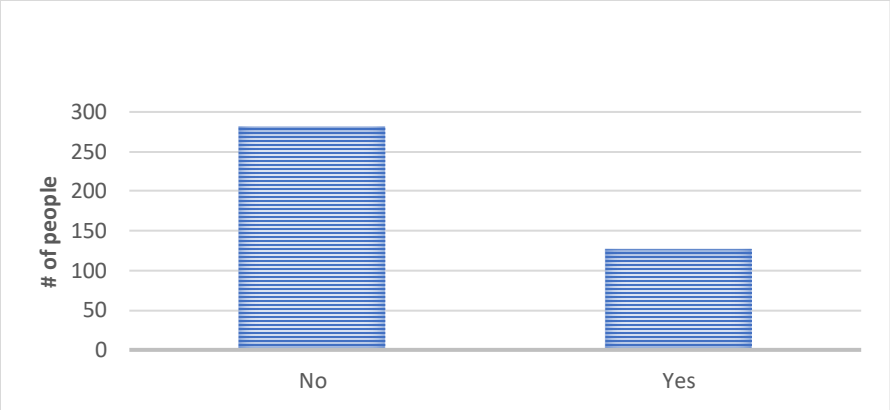

Figure 1.9 Survey participants' agribusiness registration status

Part III

The third and last section of the survey asked questions about challenges associated with upscaling their production.

As shown in Figure 1.10, 34% of participants mentioned deregulated market and unfair policy issues related to the import-export of agricultural goods as a major barriers preventing the growth and development of small-scale agriculture production. Challenges accessing financial resources such as grants, donor funding, etc. was the second leading reason represented (29%) followed by unfavorable loan terms (29%). Lastly, 13% named lack of education and access to vocational training as the key barrier to the growth and development of small-scale agriculture production.

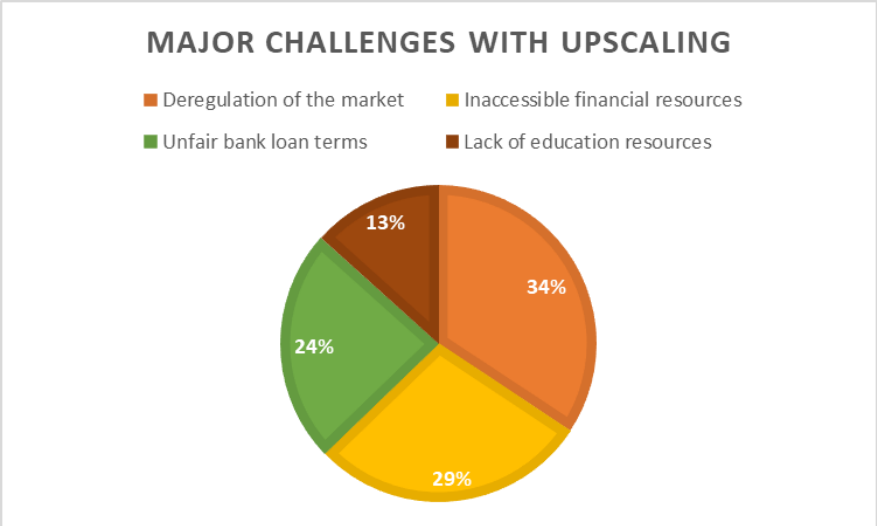

Figure 1.10 Major challenges identified by survey participants

When asked, seventy percent of survey takers indicated that they are not satisfied with the financial output of their production and fifty-six percent% said that the solution to this challenge would be access to funding. Fifty-one percent indicated that the financial growth of their production is their main objective.

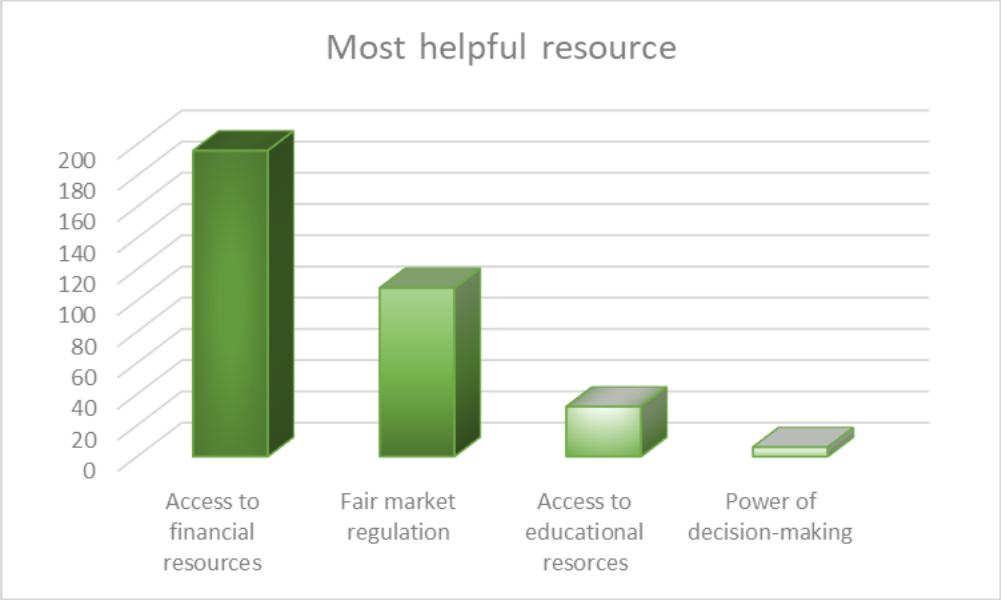

Figure 1.11 Breakdown of the resources that participants have selected as most helpful in upscaling agricultural production

Qualtrics Survey Discussion

The results of the survey suggest most of the population participating in the survey were married females in the age group 40-50 from the Kakheti region. Their most significant challenge with upscaling their production was indicated to be a deregulated market and lack of access to financial resources. In Figure 1.1 and Figure 1.12 we can see that the female population is dominant across age, gender, and marital status variables.

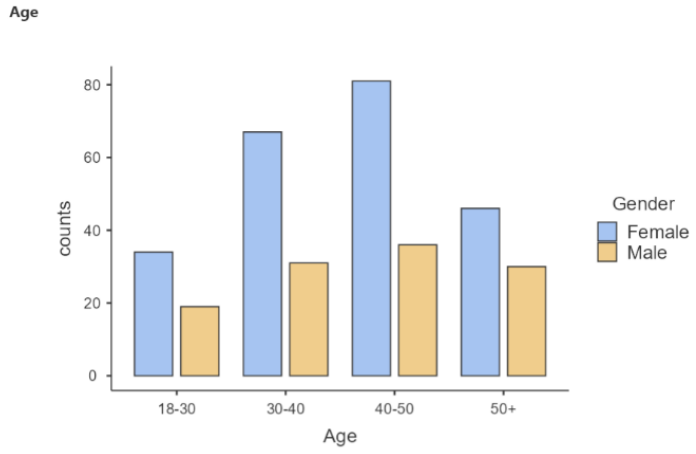

Figure 1.1 Survey participant's demographic breakdown by age and gender.

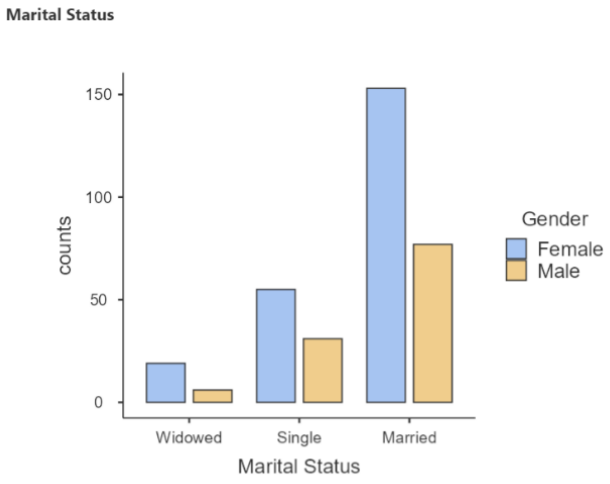

Figure 1.12 Survey participant's demographic breakdown by marital status and gender.

Even though we had participants spread throughout the country, the majority were from the Western part, the Kakheti region. This also coincided with the majority selection of the agriculture sector of involvement by the participants to be wine-making field. This pattern is

logical as the Kakheti region is well known for wine production, grape growing, and livestock production. Please see Figure 1.3 and Figure 1.4.

Another interesting pattern that we noted was between the status of legally registered agribusiness and access to grants and funding. In Table 1.12 we can see that most of the participants who did not have their agribusiness registered did not have access to grants and funding. This is especially important because more than half indicated that the main objective of their production was to increase the financial output of their agribusiness. Based on this it is not surprising that the majority indicated that they are not satisfied with their farm's current financial output (Table 1.13).

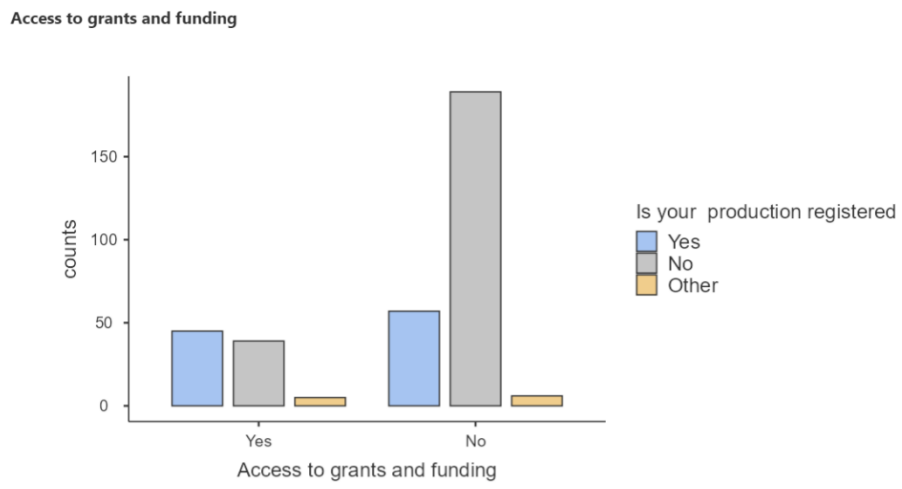

Figure 1.12 Participants' accessibility to grants and funding and agribusiness registration status

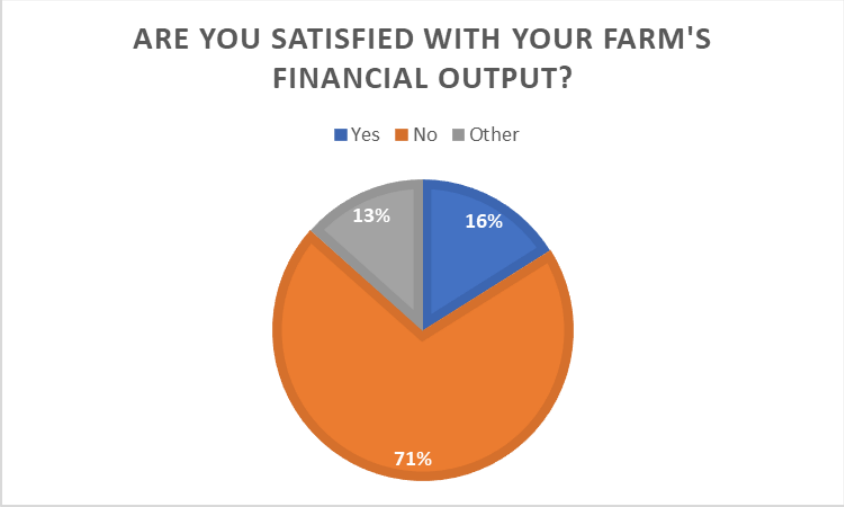

Figure 1.13 Breakdown of participants' financial satisfaction with their agribusiness

To answer the most important question of the survey, the major challenges of upscaling small-to-medium size farming in Georgia, we asked 4 redundant questions. All 4 questions aimed to get information about the same topic but were worded differently to see if people consistently chose the same answers. As presented in Figures 1.14- 1.17 participants consistently chose market regulation and access to financial resources as the top 2 answers to all 4 questions. In previous other survey answers, 71% of participants indicated that they are not satisfied with their financial outputs and that both market regulation and access to financial resources would help them with increasing financial output and upscale their production.

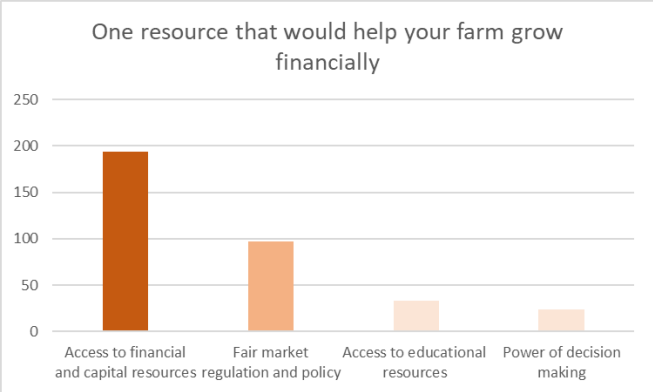

Figure 1.14 Resource that would support farmers' financial growth

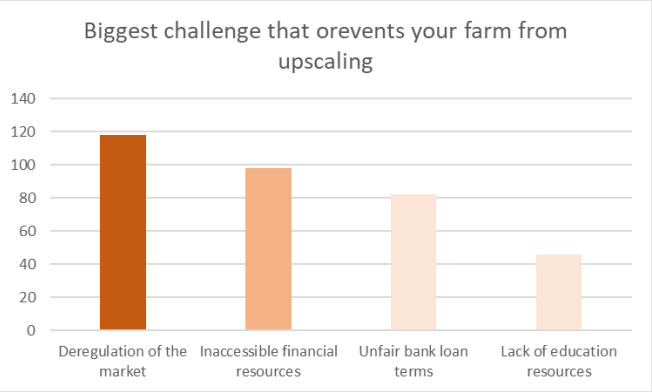

Figure 1.15 Biggest Challenge preventing farm upscale

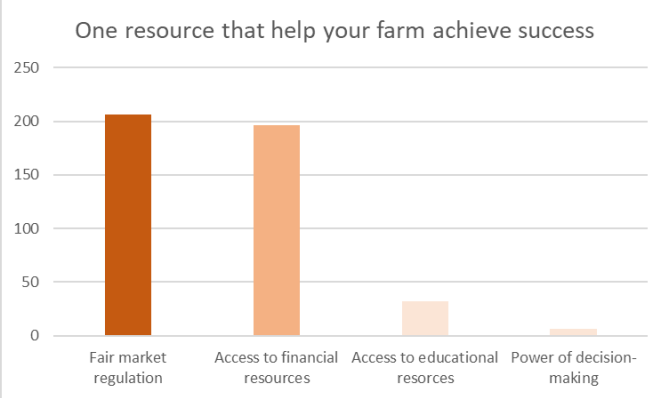

Figure 1.16 Resource needed for success in upscaling

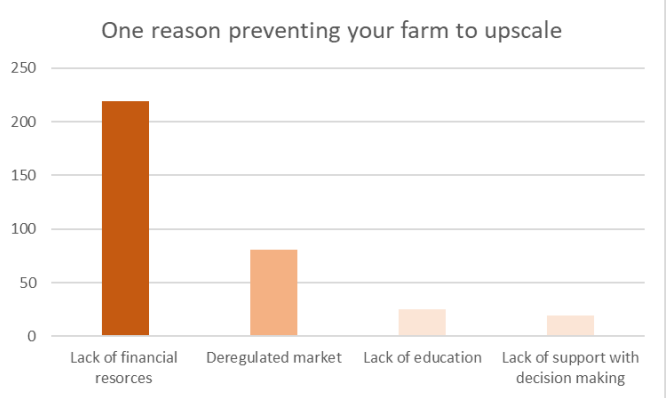

Figure 1.17 One reason preventing the growth of the farm

Limitations of the Qualtrics Survey

- The technological literacy level of the rural Georgian farmers' population.
- The number of the survey sample population.
- Accessibility to a broader pool due to the remote nature of the project.

Results of the focus group interview

The focus group cohort consisted of 22 participants, equally representing the male and female demographics. Eighty-five percent belonged to the age group between 30-50 years old, and the remainder 15% were 50 years old and above. As the focus group participants were on an at-will basis and randomized, by happenstance there were no participants in the age group 18-30. Participants equally represented the Eastern and Western regions of the country. Each group discussion lasted 60-90 minutes (about 1 and a half hours) and followed a semi-interview, discussion-based approach. The summary of the results is presented in Table 1.

Table 1. Focus group interview summary results

1. In what way does deregulated market affect you?
Regulation
• The government does not regulate what is being imported and in what quantities and at what prices. This often created a surplus of cheaper imported agricultural produce in comparison to how much it costs for the local farmer to produce, and this results in financial losses and lowered demand for local production. • The government does not regulate agricultural supply products for chemical toxic content. It is up to a farmer to do research and learn if certain ag input products on the market such as fertilizer, herbicide, etc. may cause chemical contamination and harm produce quality and environmental health. • There is no anti-monopolistic agency to protect smallholder farmers • Smallholder farmers do not have access to sell in grocery and food chains unless they produce a larger volume and if they go through a distributor, they must supply their products at a cheaper price than profitable. • If a smallholder farmer supplies their produce to a local bodega and the bodega does not pay or goes bankrupt after selling the produce, there is no legal safety mechanism to protect the farmer and they are forced to suffer monetary loss. • The consumer has low purchase power due to the extreme poverty level and due to the high 9% inflation producer's input costs are high and they cannot lower production prices.
Safety
• There are no labs where local producers could ask for disease analysis and recommendations or to check the purity and quality of a product. • No labeling and poor quality-check standards.
Transparency
• The government does not provide a yearly report of how much of what products and agricultural commodities need to be sown and grown to meet local demand or reach export goals. This often creates a surplus of one thing and a shortage of the other. • There is a gap between farmers and policymakers. No firsthand farmers' input in policy making. • There is no agricultural extension support from the government, no research made studying the challenges of farmers firsthand and suggesting solutions and recommendations.

• There is no real data collection to create legitimate statistical analysis to make yearly production forecasts.
2. What would fair market regulation help you achieve?
• Sustainable financial growth and expansion of production.
3. Is your goal to grow your financial output or the production size?
• 79% of participants indicated that growing their financial output is more important than production expansion and growth.
4. Access to what kind of financial resources and funding opportunities would help you upscale the most? Money, equipment and tools, funds for technical/vocational training, funds for production inputs (e.g., fertilizer, seeds, irrigation, etc.).
• 55% indicated that if they could afford it, most importantly they would invest in modern agricultural equipment for efficiency and innovation. • 35% pointed out that if they had funds they would invest in technical/vocational training and education, learning about modern production practices in their fields. • 5% indicated that if they had financial resources, they would invest in higher quality production inputs such as seeds, irrigation systems, better fertilizer, etc. • 5% chose low-interest loans.
5. If you had access to financial resources in a regulated domestic market, would you be able to achieve 100% of your goals or would you have other constraints?
• 73% indicated that there is no access to qualified and knowledgeable workers and a low retention rate. • 5% Popularization of local produce. • 22% Climate change adaptation. Late growing seasons. Higher precipitation and increased diseases.
6. Are you a registered producer?
75% No
25% Yes
7. What is the main reason your agribusiness is not registered?
The government does not tax producers who are not registered and have a yearly turnover of 100,000 GEL or less.
8. If yes, what is the main reason you decided to register your agribusiness? How difficult was it to register your agribusiness?
• To have access to funding and grants. • To access grocery and food store chains directly without a distributor. • Registration is remarkably simple; you just need to call up a helpline.
9. If not, do you think it affects your ability to access financial resources and funding opportunities?
• No, because paying 25% tax on my turnover and employee salaries would cost more than any financial opportunities would provide if I were registered.

Expert Interviews

Expert interviews consisted of 60–90-minute zoom meetings with each of two experts. Experts were chosen as one of the most successful professionals in the agriculture field. The first expert interviewed is a professional, formally educated in the policy and agriculture subjects, for the past twenty years actively involved with the agriculture extension and UNDP Georgia work. The second expert interviewed is a farmer and a professional involved with the Women Farmers' Association and the farmers' union of Georgia. Both experts are independent and not biased towards any political organization and both are well-respected leaders in the field serving Georgian farmers.

Expert I

The first interviewed expert has been involved with the development of the agricultural sector in Georgia for the past twenty years. The expert has experience working with international organizations such as UNDP as well as the agricultural extension systems in Georgia. Throughout the expert's professional career, they've been helping, supporting, and raising awareness of the challenges of farmers and rural producers and advocating for the development of this sector in Georgia. The expert provided their valuable feedback during the creation of the survey and focus group interview questionnaire. They've also kindly shared the survey through social media and connections in the field. All feedback provided by the expert is from their personal and professional experience and is not representative of any specific organization.

After sharing the findings of the surveys and focus group interviews with the expert it was confirmed that all the challenges identified in the study are objective and legitimate. Moreover, based on twenty years of experience, the expert commented that these issues are even more severe when it comes to market regulation and policy making.

The expert verified that access to modern agricultural equipment and innovative technologies is significantly limited in Georgia. Not only is it unaffordable for the majority of smallholder farmers to purchase such technologies, but there is no local supplier that would provide access and technical maintenance services for it. Often, we see that only one cultivator-combine serves a large area of a region and not everyone gets the opportunity to rent it for their crop fields, moreover that the quality of the cultivator service may be significantly low. The expert has experience overseeing a project where the donor provided 143 smallholder farmers with small grants amounting to $2500. The most successful participants in that project were the farmers who invested funds in purchasing agricultural technologies and equipment such as microgreen production supplies from the US, fruit drying equipment, vinegar distiller, solar panels, etc. Increased efficiency due to these technologies allowed some of them to scale up to a level that they were able to supply one of the Georgian grocery chains with locally produced apple cider vinegar and a restaurant chain with microgreens.

Experts also pointed out that the government has very few protection policies when it comes to imported agricultural products and commodities. There is no regulation enforcement to protect the prices of locally produced agricultural goods when the government allows the import of much cheaper produce. This not only disincentivizes local agricultural production but oftentimes leaves farmers in significant financial strain. In addition to import challenges, there is no

regulation to protect farmers from the high distributor costs and poor market access, for example, during the Summer season to purchase cherry at the farm in Kartli costs only 1.5-2GEL/Kilo whereas, the distributor resells it for 7-8GEL in the capital city just 1 hour away from the farm.

Additionally, the expert pointed out that there is a dramatic lack of professionals in Georgia in all fields of agronomy, plant scientists, plant pathology specialists, soil experts, arborists, etc. There is only one general agronomy major in the country and no access or availability to study any specialized field of agriculture. There is no educational growth potential for Georgian students aside from seeking education overseas which is something only a few can afford.

The expert stated that there is limited enforcement of quality control of imported agricultural input materials. For example, wax imported from China and purchased by a Georgian apiary that produces and exports organic honey in Europe was found by a third-party laboratory to be contaminated with antibiotics and chemicals, this was a tremendous financial and credibility loss for a Georgian exporter farmer. Unfortunately, examples like these are not scarce. Quality control for seeds, seedlings, fertilizers, herbicides, and thousands of other agricultural inputs is not controlled and no policy exists to protect domestic farmers.

The expert noted that there is considerable concern with the objective data collection and yearly report publications by Georgian government data collection agencies There is no objective representation of the agricultural sector, challenges, and strengths, in a way lack of data representation keeps things behind the senses, not as vivid, urgent, and pressing as it is. There is no database of who was given government funding, subsidies, grants, how much, for what purposes, or when. This level of obscurity leaves a lot of room for unfair practices, and corruption, and stunts the development of the agricultural sector. There also is no regulation to fact-check that published data is objective and reflects true realities.

To see any positive change in the development of the agricultural sector expert states that it is imperative to depoliticize this sector. It takes years and often decades to see progress and development in this sector, it is far beyond any politicians' short-term 4-year agenda. If the government does not create and enforce domestic market protectionist policies for imported agricultural goods, it will further the stagnation of local farmers. The expert expressed that proper policy planning and implementation in all aspects of the agricultural sector is the sole factor that can drive the development in the right direction.

Expert II

The second expert that was interviewed for this study has vast experience in empowering Georgian smallholder farmers, especially female farmers, and advocating for their rights. This expert has been closely working with the Women Farmers' Association of Georgia and the Georgian Farmer’s Union. I have consulted her when developing the subject of the paper, confirmed the pertinency of the survey and focus group questions, and pursued her professional feedback on the results and how they see the resolution to the identified challenges. The expert helped distribute the survey through their social media channels. All feedback provided by the expert is from their personal and professional experience and is not representative of any specific organization.

The expert has agreed that all the challenges indicated in the survey and focus group interview results are objectively portraying the reality of the Georgian agricultural sector.

Regarding the challenges with policymaking, the expert shared that there is a significant gap between the government creating the policy and enforcing it. For example, there is a policy regarding the acceptable levels of chemical content in imported goods, however, there is no agency that would check and control that imported products indeed do fall under acceptable level of regulation. Another example of this challenge is that most farmers do not know what policies exist to protect them as producers and business owners because no one enforces these policies. In other words, until the government creates effective policies that are enforceable and controlled, farmers will not feel safe and protected and this will indefinitely impede their growth.

The expert pointed out that there is a significant shortage of knowledgeable professionals in the fields of agronomy and agriculture overall. Experts stated that this is the single most crucial challenge which should be immediately prioritized by the government to develop and invest in. She mentioned that, in her opinion, the government needs to source current professions in the field and invest in the creation of accredited educational degrees, courses, and tech schools. Qualified and passionate students need to be recruited and funded for this education, in exchange for their commitment to stay in the county and be employed in their respective fields for a certain number of years. Investing in farmers' education is crucial as well because no matter how much funding a farmer has access to if they are not well educated, they will make a wrong investment decision. This has been proven by the examples of many farmers in Georgia who were given monetary grants without the restriction of usage.

One more challenge expressed by the second expert was that many agricultural projects that are funded by the government and NGOs are not successful because they are cut short in the middle of the project facilitation process. In the end, the funds that are invested into these halfway completed projects are lost as the projects don't come to fruition. For example, the almond plantation project which was funded by the government was not successful because even though the almond trees were planted successfully there was no planning for an irrigation system which resulted in the loss of all trees.

The expert also mentioned that there is no legal definition of a farmer in Georgia. Though there is a records office where farmers can register, there is no qualification requirement on who is allowed to register. Additionally, the government does not incentivize or enforce registration requirements. This created a large gap in census data which prevents any objective data analysis and market report production. The government needs to formulate a definition of the farmer and enforce registration so that they can provide an objective market picture and condition which will offer farmers annual reports and suggestions for the development of the agricultural field.

To conclude the interview, the expert expressed that until there is a gap between farmers and policymakers it will be almost impossible to overcome any challenges in the agricultural field in Georgia. The expert noted that thou the Secretary of Agriculture does not need to know technical details of each agricultural field, the members of his cabinet need to be closely related to the agricultural sector and work with the farmers to identify challenges and solutions in the sector.

Oftentimes, policymakers are completely unaware of the challenges that farmers face, and the specific needs they have, and therefore they pass ineffective policies and invest in the areas of the sector that are counter-productive to the overall growth and development of the sector.

CONCLUSION AND RECOMMENDATIONS.

Georgian smallholder farmers are resilient and to support their growth and the country's sustainable agricultural development we offer our findings and suggest some recommendations, in this section, based on our research to overcome current sector challenges and upscale smallholder farmers.

After analyzing the results of the 325 Surveys, 4 focus group interviews of 22 participants, and 2 expert interviews we have found several major challenges associated with the upscaling, growth, and development of the smallholder farmers in the country of Georgia. These findings are common amongst developing nations and are supported closely by the results unpacked in our literature review. The challenges we identified from our research are as follows:

(a) Effective Communication- A gap in understanding exists between policymakers and farmers. The lack of dialogue, communication, and cooperation between these two parties is frustrating to Georgian farms and needs to be strengthened.

(b) Transparency- The need for the government's transparency with agricultural market data to depict a real picture is imperative. There is no yearly market report or suggested production amount to stabilize the market.

(c) Policy Focus- The lack of effective policymaking and enforcement from the local government is a major challenge. There is no policy to protect local farmers from significantly cheaper prices of imported agricultural products, in other words, no protectionist policies exist to enforce tariffs and protect domestic producers. Additionally, there is no effective regulation of the harmful content of the imported agricultural inputs, such as pesticides, herbicides, animal medications, quality of seeds, seedlings, etc. There is a policy stating that these issues should be regulated, however, no agency enforces or regulates these policies. Lastly, the agriculture sector is too politicized and short-term focused hence it lacks a long-term sustainable vision.

(d) Labor- There is a shortage of qualified professionals in the field of agriculture and the absence of accredited institutions offering education in the fields of agronomy, plant and animal sciences, agricultural technologies and engineering, natural resource management, etc. The sector lacks educational opportunities for farmers to learn modern concepts of managing their farms and ways to grow and develop.

In addition to the identified challenges above the surveyed farmers express temporary concerns influencing the sector. These concerns include unaffordability and the unattainability of modern technological innovation, the absence of laboratories to check the quality and purity of the imported agricultural products, and the lack of support in identifying and providing recommendations for pests, and diseases, soil issues, and climate change impacts.

To eliminate and overcome the challenges and concerns of Georgian farmers we have formulated three approaches to construct a sustainable solution. These approaches are proven to be effective in the studies mentioned in the literature review section of the paper. They are as follows:

1. Effective policymaking that is oriented towards (i) long-term sustainable development and domestic agricultural market protection and (ii) easy access to agricultural sales markets. Policymakers must consider farmers' close input and feedback.

2. Vigorous investment into agricultural education to retrain current professionals and recruit new ones as well as the training and education of the farmers.

3. Accessibility to affordable financial resources such as bank loans, government funding, non-government grants, etc. aimed towards investing in certain areas of agriculture that are deemed to be the most effective. For example, providing funding for the farmers interested in specific agricultural innovation and technology versus just handing out finances without restriction.

The country of Georgia is a small country and home to just 3.7 million people. To my knowledge, this is the first study of its kind available to the public. The study used several outlets of information and data collection and collected responses from active farmers and professionals involved in the agricultural sector in Georgia. From my perspective future studies must focus on researching the following topics:

(i) The reason behind the high incompletion and low success rates of agricultural projects funded by the government and non-government organizations. Why are these projects cut short and not brought to full completion? The rationale behind stunted longevity and sustainability of such projects. And finally, research what should be done to overcome this challenge.

(ii) It is imperative to research what areas of the agricultural sector should be prioritized for future investments. Assess and establish the country's goals and priorities for the sustainable development of rural farmers and the agricultural sector overall. A systematic approach to sustainable agricultural and rural development is essential for Georgia as currently, the focus is very dispersed, and priorities are not clearly set which results in inefficiency, ambiguity, and stunted growth of the sector.

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