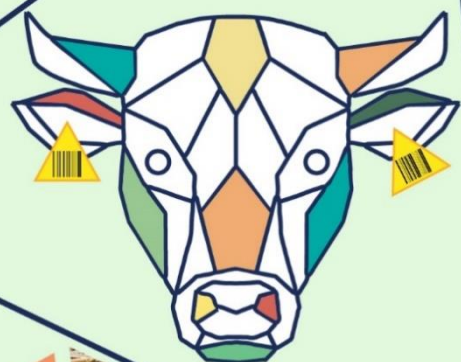# Safety and Quality Investment in Livestock:

Study of Value Added Tax (VAT) Exemption Impact for Increasing the Competitiveness of the Georgian Dairy Sector

November 2019

GEORGIA SAFETY AND QUALITY INVESTMENT IN LIVESTOCK (SQIL)

ინვესტირება უვნებელ და ხარისხიან მესაქონლეობაში - საქართველო

Study of Value Added Tax (VAT) Exemption Impact for Increasing the Competitiveness of the Georgian Dairy Sector

SQIL-2019-PROC-0013

Georgian Safety and Quality Investment in Livestock (SQIL) Project

USDA Food for Progress 2018

www.landolakes.org

Prepared by

ISET

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Policy Institute

Value Added Tax (VAT)

Farm inputs → Farm → MCC → Dairy Industry → Wholesaler/Retailer → Consumer

Milk powder and milk cream import → Dairy Industry

Dairy products import → Wholesaler/Retailer
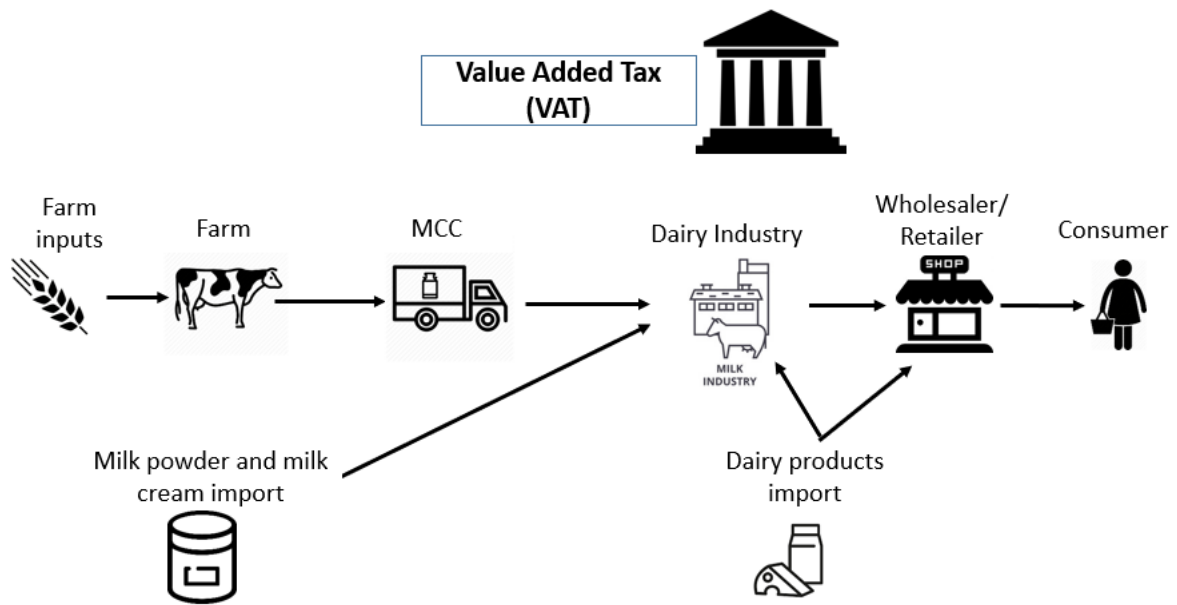
Table of Contents

List of Abbreviations / Acronyms

APC	Average Propensity to Consume
CIF	Cost, Insurance and Freight
CSO	Civil Society Organization
DCFTA	Deep and Comprehensive Free Trade Areas
EBRD	European Bank for Reconstruction and Development
Eql	Liquid milk equivalent
EU	The European Union
FAO	The Food and Agriculture Organization
FAOSTAT	The Food and Agriculture Organization Corporate Statistical Database
GDP	Gross Domestic Product
GEL	Georgian Lari
Geostat	The National Statistics Office of Georgia
HH	HouseHolds
HoReCa	Hotel/Restaurant/Café
IFAD	The International Fund for Agricultural Development
ISET	The International School of Economics at Tbilisi State University
ISET-PI	ISET Policy Institute
kg	Kilogram
gr	Gram
MPC	Marginal Propensity to Consume
NFA	National Food Agency
OECD	The Organization for Economic Co-operation and Development
RS	Revenue Service
Sakrdze	Georgia's Dairy Products Producers Association
SQIL	Safety and Quality Investment in Livestock
Trademap	Trade Statistics for International Business Development
UK	United Kingdom
USD	United States Dollar
USDA	The United States Department of Agriculture
VAT	Value-Added Tax

Executive Summary

The livestock sector plays a significant role in Georgian agriculture, accounting for more than half of total output. Although livestock farming is spread throughout the country, agriculture is dominated by livestock in the mountains, which cover over 50% of Georgian territory. The livestock sector contributed to around 4% of the country's overall GDP in 2018, and dairy production remains one of the most traditional Georgian agricultural sub-sectors.

Though the demand for milk and dairy products has maintained an increasing trend in Georgia, compared to the domestic production of milk, which has been decreasing over the last decade, the increasing shortage is often satisfied by imported milk powder, milk cream (e.g. butter), and other dairy products. As a result, the milk and dairy self-sufficiency ratio has been constantly decreasing over the past decade; it amounted to 81% in 2018 compared to 92% in 2009. Moreover, an increased demand for live animals on export markets has stimulated a decrease in the number of cows and has, thus, reduced the country's milk production.

With the intention of the strengthening the dairy sector by increasing demand on domestic raw milk, dairy associations via the Ministry of Finance initiated a draft law in which the entire supply chain of raw milk and raw milk products are to be exempt from VAT. Currently, the VAT exemption only applies to primary production of raw milk, a raw milk which is bottled in volumes over two liters and to cheese that is produced from domestic raw milk. The objective of the draft law is to support local milk and dairy production through the VAT exemption of milk and lactic acid products created from domestic raw milk.

The main goal of the study is to estimate the potential impacts of VAT exemption for increasing competitiveness in the Georgian dairy sector. The study produced qualitative and quantitative research to provide a financial and fiscal analysis of the costs and benefits of VAT exemption in the domestic milk sector under various VAT related scenarios.

According to the estimation results, the demand elasticity for dairy products is -0.30, while supply elasticity is 0.69. Thus, both demand and supply are inelastic as the elasticity coefficients are less than one in absolute value. The inelastic demand and supply each implies that the deadweight loss of tax is small, therefore a tax cut would result in relatively little relief for society.

Within the raw milk market, the elasticity of demand for raw milk is -0.06, while the elasticity of supply is 0.16. As both elasticity coefficients are low, thus indicating an inelastic supply and demand for raw milk.

A joint solution through clearing squared excess supply on the two markets leads to the conclusion that if dairy products are exempt from VAT both the demand and supply of dairy products would increase by 3.4%, while the price of dairy products would decrease by 11.0%. On the other hand, VAT exemption is projected to increase raw milk price by 6.7%, leading to a 1% increase of demand and supply of domestic raw milk.

The estimation showed that expected annual revenue loss due to VAT exemption to the state budget would be approximately 9.5 mln. GEL in 2018, which accounts for around 0.21% of the 2018 total VAT revenue (4,427 mln. GEL) and 0.10% of the total tax revenue (9,696 mln. GEL).

However, farmers, dairy companies, and consumers will be better off, which would compensate for the budgetary loss. Cheese makers would be worse off due to increase in raw milk prices and cheese consumers, potentially, could be worse off due to potential increase in cheese prices.

As the study revealed, the main constraints within the dairy sector are not associated with raw milk prices (which are already high in Georgia), rather with low quality milk, lack of contemporary knowledge, and the low productivity of cows, which directly relate to the high cost of inputs, inadequate animal feeding, poor fertility of dairy cows, low genetic potential, inefficient reproduction management, and short lactation periods. Thus, a more complex approach aimed at solving the root causes of limited supply should be considered by policy-makers in order to boost the domestic production of raw milk.

1 Introduction

1.1 Project Description

Land O'Lakes International Development is leading an innovative, demand-driven Safety and Quality Investment in Livestock (SQIL) project to improve food safety and quality within Georgia's dairy and beef value chains. The project is funded by the U.S. Department of Agriculture (through Food for Progress) and aims to reduce losses, improve food safety and quality from farm to fork, and to boost competitiveness, productivity, and trade within the Georgian dairy and beef market systems.

Partnered with Michigan State University and the Georgian Farmers' Association, Land O'Lakes will implement interventions to support entrepreneurs and competitiveness within the dairy and beef market systems. SQIL initiatives also reflect a commitment to increasing opportunities for women and young people, and an improved resilience to climate change. SQIL will employ an integrated approach that has six interlinked components:

- Expand Market Access;
- Improve Sanitary and Phytosanitary Standards;
- Improve Post-Harvest Handling and Storage;
- Improve Productivity;
- Improve Access to Financial Services;
- Capacity Building to Inform on Food Safety Policy Development.

1.2 Objective of the Study

The objective of the study is to estimate the potential impacts of VAT exemption for increasing the competitiveness of the Georgian dairy sector. The study produced qualitative and quantitative research to provide a financial and fiscal analysis of the costs and benefits of VAT exemption for

the domestic milk sector under various VAT related scenarios. Based on the finding, the study developed policy implementation recommendations for VAT exemption to increase the competitiveness of the Georgian dairy market system.

1.3 Methodology

1.3.1 Desk Research

In close collaboration with the SQIL team, the consultancy team developed a detailed methodology and work plan to build upon the Request for Proposal for developing a study of Value Added Tax (VAT) exemption impacts for increasing competitiveness in the Georgian dairy sector. This phase included a review of the project documentation and work plan; a review of the current information (literature and statistics) to determine the gaps in the available evidence; and identification of the key informants (including but not limited to associations, producers, farmers, and other important stakeholders in the dairy value chain, alongside sectoral and governmental institutions). Based on the desk research, field work was planned, including interviews and utilizing key informants within the dairy market system. This phase included developing key informant interview guidelines, questions, and checklists.

1.3.2 Field Research

This study is focused on the following research questions:

- What does VAT exemption mean from an economic standpoint?
- What are the potential qualitative and quantitative effects of VAT exemption?
- Do these effects differ for registered and non-registered dairy producers?
- Who will benefit from VAT exemption?
- Are there marginalized groups that might be disadvantaged?
- What are specific financial and technical challenges that might arise from VAT exemption?
- How can Georgian policy-makers implement VAT exemption to increase the competitiveness of the Georgian dairy sector and improve the efficiency of the dairy market system?
- How can Georgian policy-makers improve the fiscal positioning of Georgian raw milk producers (dairy farmers) at the national level?

To better address these questions, the study employed qualitative and quantitative methods to estimate the effects of VAT exemption on the Georgian dairy sector. The data collection moreover included in-depth interviews with various relevant stakeholders.

Interviews with Key Informants

During the in-depth interviews, the research team used contact information from the existing network within the dairy market system as well as that provided by the SQIL project team. To ensure efficient data collection and selection of the relevant stakeholders, the research team completed its stakeholder mapping using the **influence-interest-matrix** (Table 1).

Table 1: Influence-Interest-Matrix

High Power, Low Interest	High Power, High Interest
Meet their needs- keep satisfied	*Significant stakeholder- work closely*
1. Parliament of Georgia (the Agrarian Committee).	1. Ministry of Finance; 2. Ministry of Environmental Protection and Agriculture (MEPA); 3. LEPL Scientific-Research Centre of Agriculture (SRCA).
Low Power, Low Interest	**Low Power, High Interest**
Least important stakeholders- require minimal effort 1. Small dairy farmers; 2. Milk collectors;	*Consider- keep informed* 1. Industrialized dairy farms; 2. Dairy factories; 3. Dairy Associations; 4. Milk and dairy product consumers and consumer associations; 5. Business Association of Georgia; 6. Importers of milk powder and dairy products.

To ascertain the most reliable data for the costs and benefits of VAT exemption on milk and dairy products, the research team further completed a secondary data search based on the available official sources, such as:

- Geostat;
- Ministry of Finance;
- International projects and programmes;
- Ministry of Environmental Protection and Agriculture;
- National Bank of Georgia;
- Trademap.org.

1.3.3 Data Analysis and Drafting the Report

To assess the effects of VAT exemption on the Georgian dairy industry, the research team employed elements of a Regulatory Impact Assessment (RIA) approach. The assessment included the following components:

1. Establishing a baseline which utilizes the analyses of existing qualitative and quantitative information for better understanding the policy context and legislative background:
   - Reviewing the current quantity, value, and market share of milk and other dairy products (cheese, cottage cheese, matsoni, sour cream, yogurt, etc.) produced and imported in Georgia;

2. Identifying problems (size and scope) and important issues to be addressed by possible VAT exemption/reduction in boosting the competitiveness of locally produced raw milk;
3. Undertaking interviews with representatives and collaborators of the associations, producers, farmers, and other important stakeholders in the dairy value chain and sectoral and governmental institutions;
4. Identifying the current challenges within the sector, related to primary production and the processing of raw milk, through stakeholder interviews;
5. Identifying fiscal scenarios based on the current and proposed regulatory frameworks in Georgia, accompanied by a review of international practices and stakeholder consultations;
6. Assessing the impacts of VAT exemption using quantitative and qualitative analysis methods:
   - Applying a regression analysis to derive elasticity coefficients for the demand and supply of dairy products and raw milk;
   - Employing a partial equilibrium analysis to derive new equilibriums on the dairy and raw milk markets;
7. Calculating the input/output price ratios for different scenarios to measure efficiency of using domestic raw milk vs. reconstituted milk;
8. Drawing conclusions and recommendations at the national level for improving Georgian raw milk producers' fiscal positions.

2 General Overview of the Sector

The livestock sector plays a significant role in the country's agriculture, accounting for more than half of its total output; specifically, the sector contributed around 4% in the country's overall GDP in 2018 (Geostat). Dairy production remains one of the most traditional agricultural sub-sectors in Georgia. According to the latest Georgian agricultural census, there are over 235 thousand holdings with dairy cows, with an average of 2.15 cows (Geostat, 2014). While in 2018, there were 880 thousand head of cattle in Georgia, approximately 60% of which are dairy cows.

Georgia's dairy farming is mixed, both because of its combination of lowland and mountainous pastures and the current transitional intensification of farms from extensive farming. According to an IFAD study (2018), there are four major categories of dairy farms across Georgia: (1) Lowland extensive farms, (2) Mountainous extensive farms, (3) Lowland semi-intensified farms, and (4) Industrialized farms. While productivity per cow in industrialized farms is six times higher (varying between 7,000-10,000 liters, with an average of 8,500 liters) than the average Georgian productivity (1,500 liters), industrialized farms only produced about 20 million out of 555 million liters in 2018,[1] the remainder originated from extensive or semi-intensified farms. For average per

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[1] Estimated by the Georgian Dairy Association.

cow productivity Georgia is significantly below the EU and other developed countries.[2] Furthermore, milk output is characterized by seasonality, with more than a third of the total domestic milk production taking place in Q2, with the least productive share in Q4, equating to a sixth of the annual production.

While the demand for milk and dairy products maintains an increasing trend in Georgia, compared to domestic production of milk that has been decreasing over the last decade, the increasing shortage is satisfied by imported milk powder, milk cream (e.g. butter), and other dairy products (Figure 1).

Figure 1: Demand and Supply of Milk in Georgia (in Million Eql.)

Georgia's Demand and Supply of Milk (in Million Eql.)

Shortage | Domestic Production | Domestic Demand
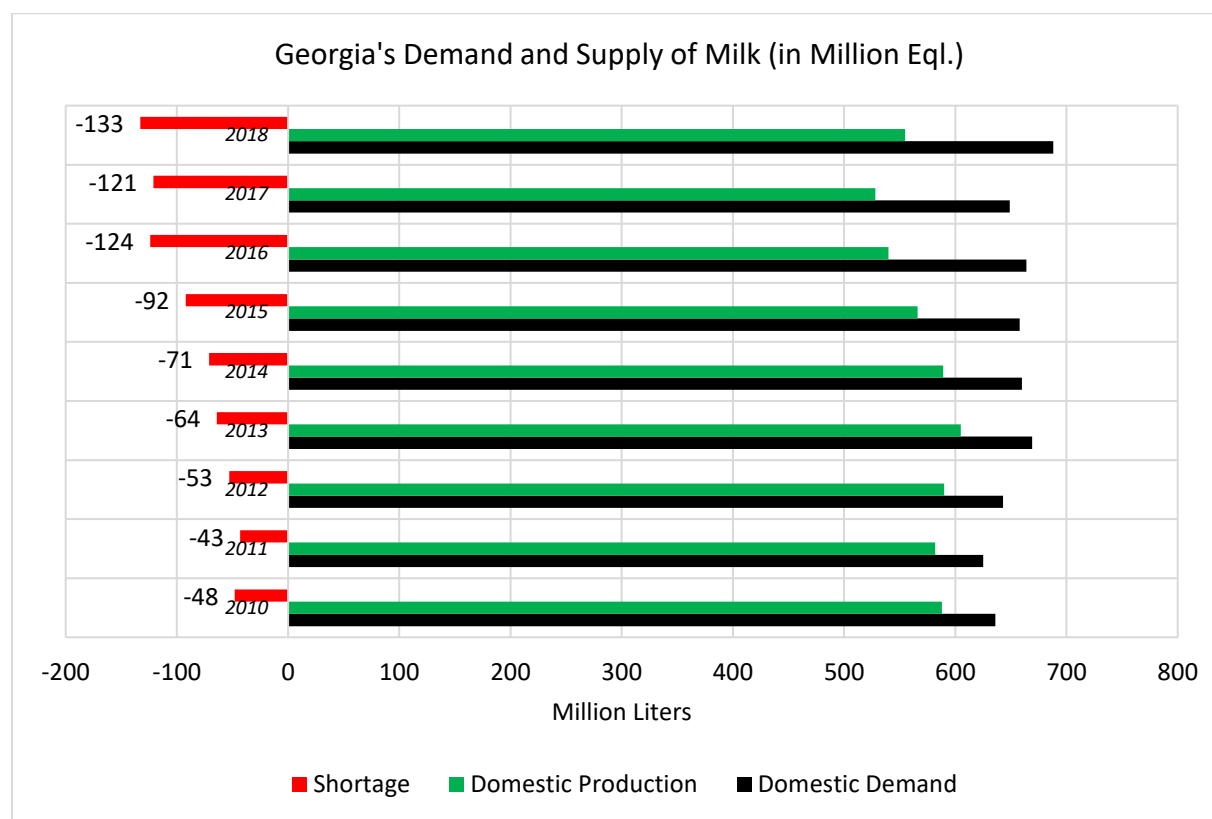
Source: Geostat, 2019.

As a result, the milk and dairy self-sufficiency ratio has been constantly decreasing over the past decade; it amounted to 81% in 2018 compared to 92% in 2009. Moreover, the increased demand for live animals from Georgia on export markets has stimulated a decrease in the local number of cows and has, thus, reduced milk production in the country.[3]

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[2] FAOSTAT shows the average productivity per cow was over 6,700 liters per year in 2017 in the EU, with Romania being the worst (≈3,200 liters annually) performer and Denmark the best (≈9,700 liters annually). The world's highest yields are in Israel (≈13,200 liters) and the USA (≈10,500 liters).

[3] See: http://iset-pi.ge/index.php/en/iset-economist-blog-2/entry/we-don-t-need-no-regulation-on-georgia-s-dairy-and-livestock-sector

2.1 Consumption of Milk and Dairy Products

Georgians are, traditionally, dairy consumers, with an annual average consumption of 178 kg of milk equivalent per capita in 2018 (Geostat), this is, however, considerably below the EU annual consumption levels of approximately 250 kg per capita (FAOSTAT, 2017). Geostat's Integrated Household Survey, for milk and dairy products consumed by households in 2018, reveals the most popular products are cheese, matsoni, milk, butter, and sour cream, with around 96% of total dairy consumption in terms of milk equivalent and 94% in terms of household budgetary spending on dairy products. In 2018, the average consumer in Georgia consumed 30 kg of dairy products (Table 2).

Table 2: Dairy Product Consumption in Georgia

#	Dairy Product	Share by Milk Eql.	Share in HH Spending	Average Consumption per Capita
1	**Cheese**	55.7%	56.4%	12.4 kg
2	**Butter**	27.4%	17.3%	2.6 kg
3	**Sour cream**	5.0%	6.0%	1.8 kg
4	**Milk**	4.2%	5.5%	4.7 liters
5	**Matsoni**	3.8%	9.2%	6.6 kg
6	**Cottage cheese**	3.5%	3.1%	800 gr
7	**Condensed milk**	0.2%	0.6%	200 gr
8	**Yogurt**	0.1%	1.1%	200 gr
9	**Nadughi**	0.1%	0.7%	300 gr
10	**Kefir**	0.1%	0.2%	100 gr

Source: Integrated Household Survey data for 2018, Geostat.

The survey moreover shows that the proportion of household expenses on milk and dairy products of total monthly food expenditure reached an 8.5% margin in 2017. If one considers that 31% of a household's total budget covers food, it signifies that from every 100 GEL in a regular household budget, 2.5 GEL is spent on dairy products. Surprisingly, household consumption of dairy products accounts for only around 19% of the total (Geostat, 2018), the remainder is derived from external consumption - by residents and tourists in the HoReCa sector. While only an approximate estimate, Georgia's dairy market is valued at over 1 billion GEL (ISET Policy Institute, 2019).

2.2 Trade Balance of Dairy Products

While the demand for milk products has an increasing curve, Georgia is a net importer of milk and dairy products, with a deficit of over 130 million in liquid milk equivalent, valued at 65 million USD (as the CIF price) in 2018. The top imported dairy products, in terms of quantity, are milk powder, milk, butter, yogurt, and cheese (Table 3).

Table 3: Imported Milk and Dairy Products (tons)

Product / Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Milk	909	961	810	1,319	1,380	1,891	2,397	2,682	3,491	4,798
Cream	-	-	-	180	218	241	279	340	385	481
Milk powder without fat	3,228	3,471	3,652	3,771	4,257	4,979	6,227	8,334	9,957	8,292
Milk powder with fat	502	406	389	389	326	257	329	125	414	295
Condensed milk	2,799	1,973	1,969	1,974	1,845	2,054	2,238	2,160	2,187	2,254
Yogurt	155	381	561	812	1,422	1,812	2,352	2,265	2,965	3,346
Kefir	1,040	1,106	948	1,065	1,273	1,300	1,162	1,395	1,454	1,884
Whey	536	530	735	754	1,050	1,010	678	967	824	518
Butter	2,041	1,680	1,452	1,852	2,204	2,387	3,264	4,763	4,057	4,694
Cheese	490	782	882	1,079	1,456	1,651	1,907	2,091	2,560	2,740

Source: Trademap, 2019.

For the export of milk and dairy products, Georgia exports, or re-exports, only few products. For example, in 2018, Georgia re-exported butter,[4] milk powder,[5] and yogurt,[6] amounting to 347 tons in total, and exported 42 tons of cheese (Table 4).[7]

Table 4: Exported Milk and Dairy Products (tons)

Product / Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Milk	5	21	8	-	-	-	-	-	-	-
Cream	-	-	-	-	-	-	-	-	4	-
Milk powder without fat	-	107	226	90	554	20	122	40	610	135
Milk powder with fat	3	21	44	1	35	46	81	-	250	-
Condensed milk	-	5	-	28	46	38	43	-	3	-
Yogurt	-	122	24	-	-	-	-	-	-	7
Kefir	7	111	21	-	-	-	-	-	-	
Whey	-	10	-	-	420	120	-	-	-	-
Butter	56	306	99	146	215	407	220	153	129	205
Cheese	5	53	24	29	10	2	5	10	103	42

Source: Trademap, 2019.

Consequently, the trade balance of dairy products is negative, and the gap has been increasing over the last decade, reaching –63.5 million USD in 2018 (Figure 2).

Figure 2: Export-Import Value and Trade Balance of Dairy Products in Georgia

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[4] To Armenia (193 tons) and Azerbaijan (12 tons).
[5] To Armenia (124 tons) and the United Arab Emirates (11 tons).
[6] To Armenia (4 tons) and Azerbaijan (3 tons).
[7] To USA (289 tons), Armenia (54 tons), and Hong Kong, China (6 tons).

Export-Import and Trade Balance (Million USD)
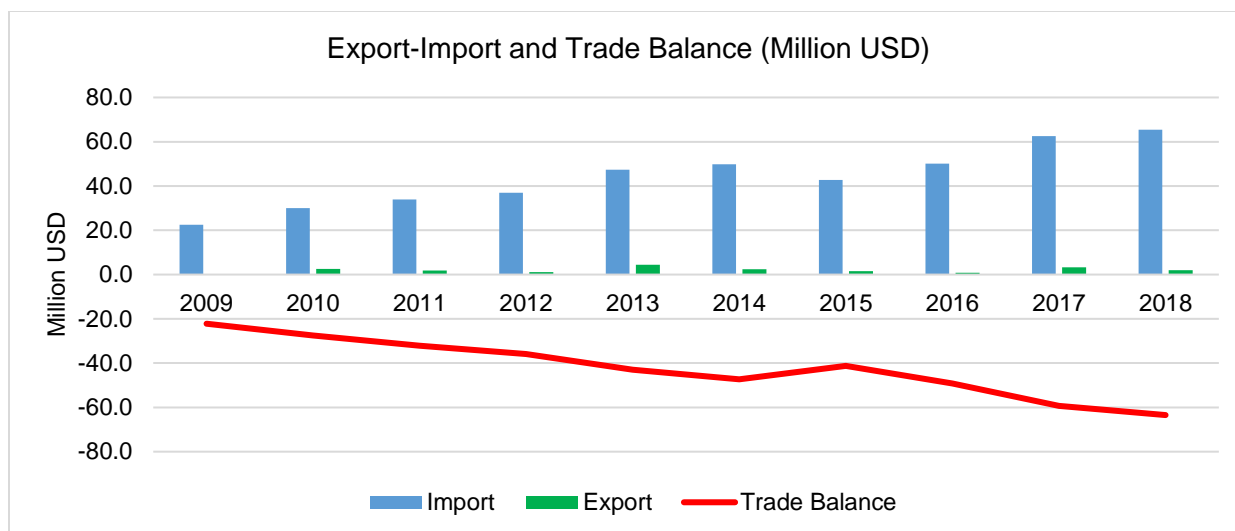
Source: Trademap, 2019.

Imported dairy products are subject to VAT. Thus, the VAT paid for imported products has been increasing over time, and reached approximately 30 million GEL by 2018 (since 2014, the increase has accelerated due to the deprecation of the lari against the USD, as shown in Figure 3).

Figure 3: VAT Paid on Imported Milk and Dairy Products
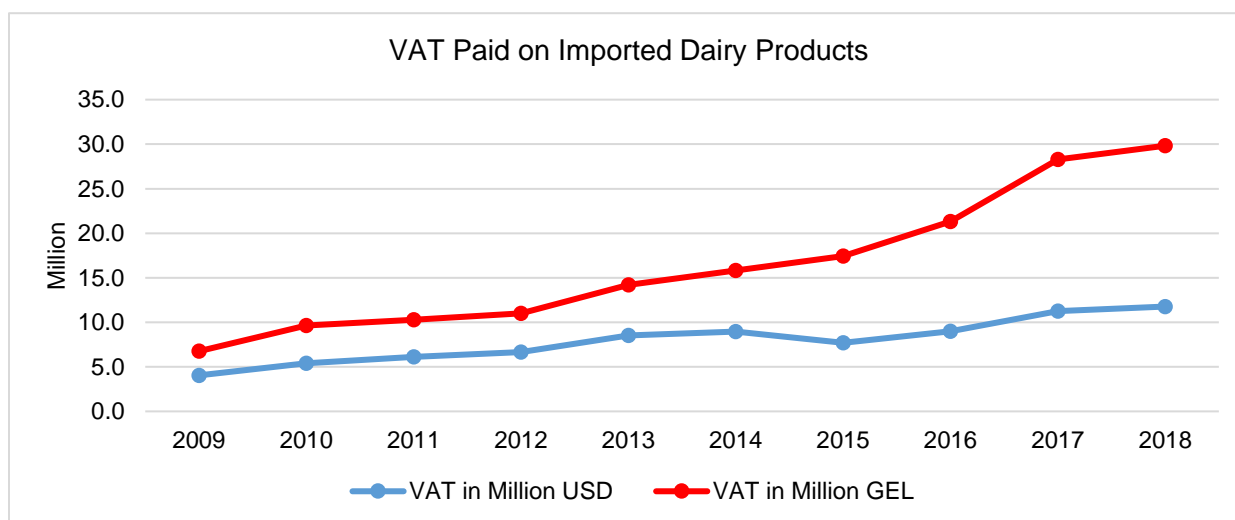
Source: Calculated by the research team based on import data from Trademap and the annual average USD/GEL exchange rate from the National Bank of Georgia.

2.3 Milk Processing

Milk processing transforms milk into various milk products. As identified by an IFAD study (2018), there are three types of processor: (1) home-based processing, (2) mid-scale processors, and (3) industrialized processors. Two-thirds of total milk Eql. consumed in Georgia and more than 80% of domestic produced milk is processed in homes, typically as homemade cheeses and other

dairy products, such as nadughi and matsoni. The remainder is supplied to processing companies for the creation of cheese and dairy products. There are many mid-sized processing companies that collect milk from local farmers, with a capacity of less than 10 tons per day, and mainly produce cheese. Whereas the industrial processors, with a capacity greater than 10 tons per day, account for 12% of the total milk supply. Aside from fresh milk, processors frequently use imported milk powder, milk cream/butter, and other imported ingredients to create additional dairy products (Figure 4).

Figure 4: Quantitative Chart of Georgia's Dairy Value Chain (based on 2017 data)
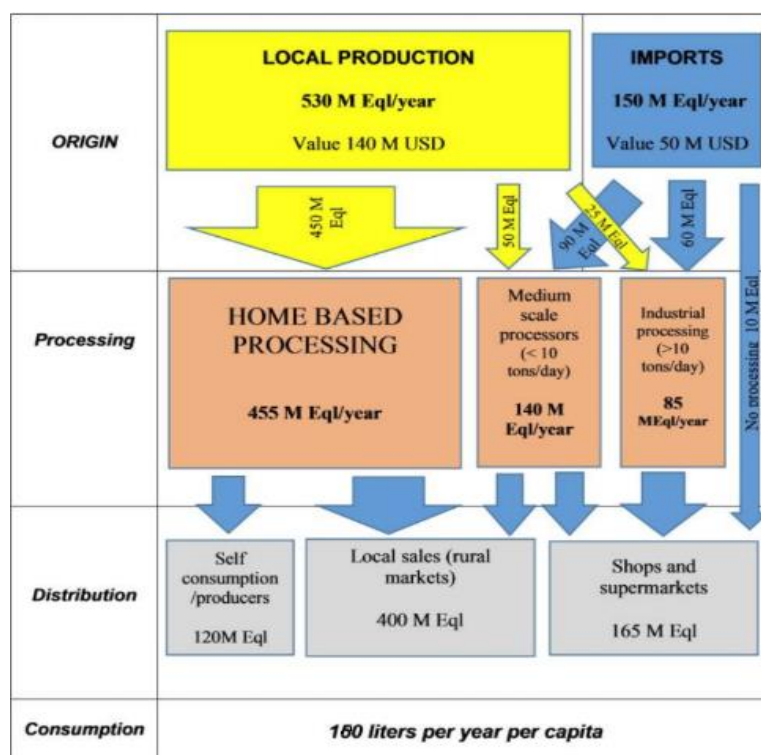
Source: IFAD (2018).

Of the total dairy produced, around 17% is consumed by household producers (120 M. Eql.), 58% is sold through rural markets and bazaars (400 M. Eql.), approximately 24% is sold in supermarkets and shops, and only a small amount reaches export markets.

According to the National Food Agency (NFA), there are 360 registered business operators in milk and dairy production, out of which 23% (82) are registered solely as cheese producers, 21% (75) as thermal processors of raw milk, and 2% (7) as butter producers. However, the majority of registered business operators (54%) maintain a diversified production of various milk and dairy products, and accordingly, they are registered as milk and dairy producers (NFA, 2019). The largest number of registered business operators in milk and dairy production are located in Tbilisi (76- accounting for 21.1% of the total), Kakheti (75- 20.8%), and Kvemo Kartli (60- 16.7%) (Table 5).

Table 5: The Number of Registered Business Operators in Milk and Dairy Production by Region

Region	Number of Registered Business Operators
Adjara	19
Guria	3
Imereti	21
Kakheti	75
Kvemo Kartli	60
Mtskheta-Mtianeti	26
Racha-Lechkhumi and Kvemo Svaneti	7
Samegrelo and Zemo Svaneti	22
Samtskhe-Javakheti	39
Shida Kartli	12
Tbilisi	76
Total	**360**

Source: NFA, 2019

Georgian Dairy (2017) show that business entities have produced the following dairy goods in a wide range of quantities (Table 6).

Table 6: Production of Dairy Products by Business Entities (tons)

Product / Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Milk	6,628	6,695	6,763	6,831	6,900	7,900	6,400	6,900	6,969	7,039
Butter	2,629	3,024	3,478	4,000	4,600	5,600	6,900	6,500	7,348	8,308
Cheese	62	142	325	744	1,700	2,300	4,300	6,300	9,844	15,382
Matsoni	7,493	7,888	8,303	8,740	9,200	10,400	9,700	10,500	11,025	11,576
Yogurt and other fermented dairy products	422	548	711	924	1,200	1,700	1,800	2,200	2,706	3,328
Kefir	2,106	2,025	1,947	1,872	1,800	2,200	1,800	1,500	1,440	1,382
Nadughi	2,420	2,575	2,739	2,914	3,100	3,400	3,000	3,600	3,816	4,045
Sour Cream	3,879	4,171	4,485	4,822	8,300	8,700	8,900	10,100	10,807	11,563
Milk	6,628	6,695	6,763	6,831	6,900	7,900	6,400	6,900	6,969	7,039
Butter	2,629	3,024	3,478	4,000	4,600	5,600	6,900	6,500	7,348	8,308

Source: Georgian Dairy (2017). Note: The Georgian Dairy (2017) study offers four years of data (2013-2016), the remainder was estimated by the research team based on average growth rates for each product between 2013-2016.

If one considers the conversion ratios of such products into a milk equivalent, to create various dairy products, business operators processed over 250 million milk equivalents annually (the average between 2016-2018). From the total milk Eql., two thirds were of imported milk powder, normalized with milk cream (e.g. butter), and added to other dairy products as an ingredient, while only one third was domestic raw milk (IFAD, 2018).

According to the Dairy Products Producers Association (Sakrdze), there are six factories that each process over 10 tons of milk per day,[8] and they represent industrialized dairy factories. They process around 85 M. Eql. annually, of which 70% (60 M. Eql.) is milk powder and other imported dairy products (IFAD, 2018). These processors create a range of milk products such as: sour cream, matsoni, cheese, cottage cheese, packaged milk, yogurt, kefir, etc. Such processors might therefore benefit if VAT becomes exempt on dairy products produced from domestic raw milk.[9] These goods are produced from raw milk, between 15 million to 25 million liters annually, which covers approximately 20% to 30% of the total milk Eql. processed by industrialized dairy factories.

2.4 Regulations in the Georgian Dairy Sector

In 2015, the Georgian government adopted a technical regulation for dairy products in order to regulate the sector and ensure the safety of milk and dairy products. The main purpose of this regulation is to control the production and distribution of raw milk, cream, lactic acid, butter, cheese, cheese products, and other dairy products, and to protect customer rights. Furthermore, it provides core definitions for milk and dairy products. On 1 July 2017, amendments were made to the technical regulation on dairy products, since then it has been prohibited to use the title "cheese" on any product made from milk powder. Butter has a similar regulation and it is now proscribed to use word "butter" if vegetable fat, or anything other than milk fat, is used in its production. Other important regulations include:

- Food / Feed Safety, Veterinary, and Plant Protection Codes (2012);
- Governmental decrees:
  - ✓ Food/feed general hygiene rules - №173, 25.06.2010
  - ✓ Special hygiene regulations for food of animal origin - №90, 7.03.2012
  - ✓ Rules for the sale of food and animals in agricultural markets - №417, 31.12.2013
  - ✓ Rules for the recognition of business-operators - №722, 26.12.2014
  - ✓ Rules of cattle identification and registration of their stalls - №764, 31.12.2014
  - ✓ Special rules for state control on food of animal origin - №55, 12.02.2015
  - ✓ Procedures for registration and state control of veterinary medicines, both imported and produced in Georgia - №327, 07.07.2015
  - ✓ General principles and requirements of traceability in food/feed safety, veterinary, and plant protection - №577, 10.11.2015
  - ✓ Technical regulation on food microbiological indicators - №581, 10.11.2015

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[8] Sante, Soplis Nobati, Natural+, Milka, Agrohub, and Tsipura-Samtskhe (during the summertime).
[9] Except cheese, which is already exempt from VAT.

- Ministers' orders on sanitary rules and norms for food quality and safety.

Since March 2019, a technical regulation has been in place regarding correct food labeling in order to inform customers about various products. This regulation ensures additional requirements for food labels and aims to protect rights and increase customer awareness. The regulation was also developed via obligations within the Deep and Comprehensive Free Trade Area (DCFTA); based on the European Commission regulations and directives: №1169/2011, N1333/2008, 1332/2008, 1334/2008, 2006/114, 2913/92, 2002/46, 2009/39 (SES, 2019; the National Food Agency, 2019).

3 Policy Context

Taxes and business regulations have a great impact on productivity as they directly influence the efficient distribution of resources in the private sector. Georgian dairy farms and associations currently view their foremost constraint as unfair competition, due to the significant number of unregistered family farms producing milk and dairy products like cheese, while not paying VAT or other taxes (profit, income, or property). Although such unregistered farms produce, process, and sell dairy products on a regular basis, they are not subject to food safety regulations: ultimately, they are out of the NFA's control. Consequently, such "farms" have lower operational and production costs than registered farms and entrepreneurs, and can sell their products at lower prices.

The greatest proportion of Georgian milk is produced by family holdings, and only 15 farms are considered to be intensive, industrialized dairy farms, with approximately 2,600 high-breed cows in total (Holstein or Swiss Brown). While the number of high-breed cows in those industrialized farms represent less than 1% of the total throughout the country, their share of milk production exceeds 4%. They have also shown an increasing trend in recent years because of their significant productivity compared to the average yield in Georgia. However, according to the industrialized dairy farms association, this increase could be further accelerated by VAT exemption and would thus increase competitiveness in the Georgian dairy sector. This factor was the primary motivation last year when changes to the tax code were planned; the topic was discussed twice in parliament- during autumn 2018 and spring 2019.[10] Nevertheless, parliamentarians rejected the initiative, considering the impacts to the dairy industry as poorly argued.[11]

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[10] See: https://www.matsne.gov.ge/ka/document/view/4274299?publication=0

[11] See: http://parliament.ge/ge/saparlamento-saqmianoba/komitetebi/agrarul-sakitxta-komiteti/axali-ambebi-agraruli/agrarul-sakitxta-komitetma-sagadasaxado-kodeqsshi-cvlilebebs-mxari-ar-dauchira.page

3.1 Objectives of the Draft Law

With the purpose of strengthening the dairy sector by increasing demand on domestic raw milk, dairy associations initiated the draft law, in which the entire supply chain of fresh and raw milk products will be exempt from VAT. The current VAT exemption only applies to primary production of raw milk, the raw milk bottled in quantities over two liters and to cheese produced from domestic raw milk. The main objective of the draft law is to support local milk and dairy production through the VAT exemption of milk and lactic acid products created from local raw milk.

3.2 Value Added Tax on Milk and Dairy Products

Value Added Tax (VAT; also known as Goods and Services Tax, under the acronym GST in a number of OECD countries) is a consumption tax that is borne ultimately by the final consumer and it applies, in principle, to all commercial activities involving the production and distribution of goods and the provision of services (OECD, 2017). Typically, it is charged as a percentage of price and, therefore, the actual tax burden is visible at each stage in the production and distribution chain. VAT is collected fractionally through a system of partial payments: taxable persons (i.e., VAT-registered businesses) deduct the amount of tax they have paid to other taxable persons on purchases for their business activities from the VAT they have collected.

The Georgian tax code states that, since 2005, the supply of agricultural produce and the provision of agricultural products before processing are exempt from Value Added Tax (excluding eggs and domestic chickens). Additional changes were introduced to the tax code at the end of 2015, which exempted certain processed agricultural products:

- Cheese, made from raw milk;
- Ground beef;
- Shelled hazelnuts.

To better understand how VAT currently works in the dairy value chain the two figures below show the value flow for one liter of packaged milk (2.5% fat) from both domestic raw milk (Figure 5) and reconstituted milk (Figure 6).

As an illustration (Figure 5) the research team took the price of raw 3.5% fat milk at an industrialized farm gate (1.35 GEL per liter, as of August 2019), where 2.5% fat milk (most packaged milk is 2.5% fat) costs 1.20 GEL per liter. Raw milk is exempt from VAT, thus the farmer and the dairy company (or the milk collection center between the farmer and the dairy company) purchasing raw milk do not pay VAT.[12] Subsequently, dairy companies process, pack, and distribute the milk throughout retail markets.[13] Thus, the total VAT paid by a dairy company and a retail shop is calculated based on their value added (57 and 4 tetri VAT is paid by the dairy company and retailer, respectively). While the average retail price to the consumer for packaged

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[12] Raw milk production and cheese are already exempt from VAT, though other dairy products are subject to VAT.
[13] The 7% figure is taken as an average mark-up for retail stores.

1 liter milk created from domestic raw milk is approximately 4 GEL, thus the total VAT at this price is 0.61 GEL.

Figure 5: VAT for 1 Liter of Packaged Milk Produced from Domestic Raw Milk
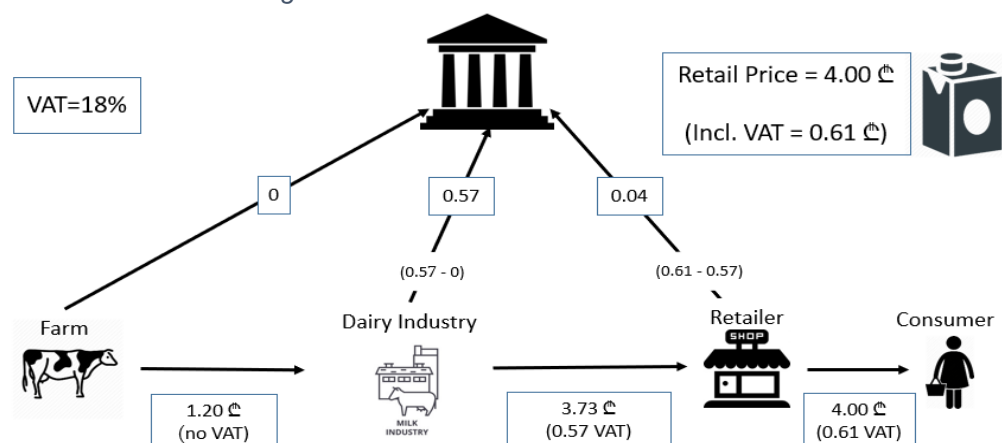
Figure 6 shows the price of imported milk (without fat) and the price of imported milk cream (butter) used to normalize reconstituted milk to attain 2.5% fat. All milk and dairy products created with reconstituted milk are subject to VAT, but with relevant deductions as shown in the image below.

Unlike with domestic raw milk, dairy companies pay VAT on imported milk powder and milk cream; 21 tetri in our example. Thus, in this instance, all value chain actors pay VAT with the further right for deductions. Therefore, the average retail price the consumer pays for packaged milk from reconstituted milk is approximately 3.5 GEL, including 0.53 GEL in total VAT.

Figure 6: VAT for 1 Liter of Packaged Milk Produced from Reconstituted Milk[14]

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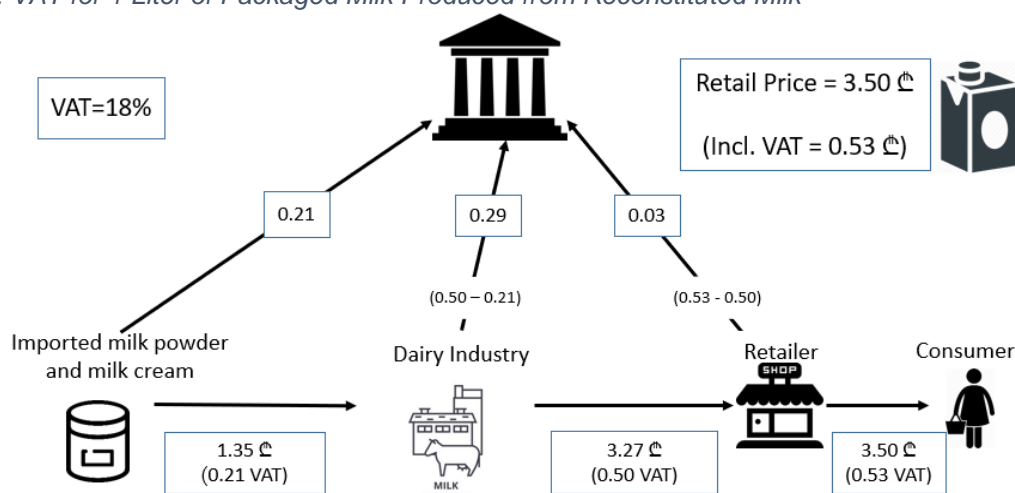
[14] All prices are calculated using August 2019 data (the exchange rate, import prices of milk powder and milk cream (butter), and retail price for 1 liter of packaged milk).

If VAT were exempt for dairy products created solely from domestic raw milk, the 61 tetri VAT paid to the budget for 1 liter of packaged milk would be saved by the respective value chain actors.

The Ministry of Finance has identified 202 tax payers registered as "milk and milk product producers", of which 77 (38%) pay VAT. The VAT accrual on their turnover during a four-year period (2014-2017) amounted to 133.3 million GEL, thus providing a 33.3 million annual average. However, these figures include not only the VAT paid for domestic raw milk products, but also for imported milk powder, milk cream and dairy products and potentially additional goods also subject to VAT.

The interviews with stakeholders, and based around literature compiled on the Georgian dairy sector (e.g. IFAD (2018); Georgian Dairy (2017)), show that dairy companies using domestic raw milk in their dairy products, those subject to VAT (excluding cheese), amount to only 20 to 30 percent of the total milk processed by industrialized dairy factories. The remaing products are created from reconstituted milk. Consequently, we assume that of the total VAT paid by dairy companies, only around 20 to 30 percent could possibly be the tax paid on dairy products created from domestic raw milk (except cheese). If we consider the fact that the VAT would be exempted only for dairy products created from 100% local milk, and not for the products created by mix of local raw milk and reconstituted milk, or products where imported milk cream is added, we can say that were VAT exemption to be adopted, we estimated the budgetary loss for 2018, taking the maximum of 20%, to be approximately 9.5 million GEL (Table 7).

Table 7: Budget Loss Calculation (million GEL)

	Share	2014	2015	2016	2017	2018*
Total VAT paid	100%	27.1	30.8	34.1	41.4	47.7
VAT on products made from domestic raw milk	35%	9.5	10.8	11.9	14.5	16.7
	30%	8.1	9.2	10.2	12.4	14.3
	25%	6.8	7.7	8.5	10.3	11.9
	20%	*5.4*	*6.2*	*6.8*	*8.3*	*9.5*

*Source: Ministry of Finance. *The 2018 data was estimated by based on the average growth rates for 2014-2017. The options were also estimated by the research team based on the analysis as discussed above.*

In 2018, the total revenue from VAT in Georgia's state budget was around 4,427 mln. GEL, which accounted for almost half (45.6%) of the total budgetary tax revenue of 9,696 mln. GEL (State Audit Office of Georgia, 2018). Based on our estimation, if the expected revenue loss (from VAT exemption on locally produced raw milk and dairy products) is approximately 9.5 mln. GEL, it would account for 0.21% of the total VAT revenue (4,427 mln. GEL) and 0.10% of the total tax revenue from the state budget (9,696 mln. GEL in 2018).

3.3 International Experience

International experience regarding VAT regimes on dairy products is rather mixed. Typically, countries do not separate the VAT levied on dairy produced from fresh milk from that produced

using milk powder. Therefore, the situation in Georgia is extremely unique, considering that the VAT exemption will only affect dairy products created from domestic raw milk.

In many European countries, most states (Germany, Croatia, Switzerland, the Czech Republic, France, Italy, Poland, Spain, Greece, etc.) have reduced VAT rates for foodstuffs, including dairy products, while the UK, Ireland, and Malta have a special zero rate for foods, including dairy products (Sijbren Cnossen, 2017). However, the supply of food and soft drink may be liable to VAT at a reduced rate when it is supplied in catering or via a vending machine. Whereas, certain countries (Latvia, Lithuania, Estonia, Bulgaria, Ukraine, Belarus, Denmark, and Sweden) have a standard VAT rate on dairy products, varying between 20-25%.

In terms of Georgia's neighboring countries, Armenia and Azerbaijan charge VAT on dairy products at a standard rate of 20% and 18%,[15] respectively, while Turkey has a reduced VAT rate of 8% for foodstuffs, including dairy products.[16]

There are varying opinions regarding VAT exemption or reduction for the dairy sector. For instance, according to Oosterhuis (2007), it is reasonable to have VAT exemption for the organic production of dairy products, meat, and meat products, as organic food has higher production costs that are reflected by higher prices. The exemption of organic production from VAT somehow then leads to the equalization of prices between the non-organic and organic sectors, represented by increased consumer demand for organic products.

In 2018, there was a proposal in Lithuania to lower the VAT tariff on food products, including dairy, bread, and vegetables, although, interestingly, than the Prime Minister, Andrius Palionis halted the initiative. Even though VAT is perceived to be a consumption tax paid by consumers, their main argument was that VAT reduction would not stop growing prices and the benefits would remain with the sellers. Nevertheless, a 2015 VAT reduction from 24% to 9% in Romania was perceived to have a positive effect on dairy consumption; from which Romanian consumers gained greater purchasing power. As a result, the range of products and brands expanded significantly throughout the country (Romanian Dairy Products Annual Report, 2016).

Milk and dairy products are subject to the reduced VAT rate of 8% in Moldova. Jörg Radekea and Jürgen Ehrke (2016) conducted an impact assessment into the reduced rate, 8% from the standard 20%, for different food categories including dairy products. Their study reveals that reduced VAT rates indirectly benefit producers by increasing demand for the respective products, which thus allows for higher retail prices. With the revenues that might be generated through VAT, the government could then finance and implement other more efficient support measures aimed at strengthening and developing local production.

Ukraine is a further good example of the use of VAT as a policy instrument to support dairy sector development. The country has a standard 20% VAT for dairy products, however they offer a special VAT system for meat-packing and dairy producers (VAT in Agriculture: Ukrainian experience and international evidence, 2014). Within this system, between 1998-2009 meat-packing and dairy producers had to transfer the due VAT into special non-budgetary accounts.

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[15] See: http://www.investinarmenia.am/en/value-added-tax
[16] See: https://www.avalara.com/vatlive/en/vat-rates/international-vat-and-gst-rates.html

The VAT generated was then used to subsidize agricultural producers selling raw milk and meat. The main purpose of this provision was to support the development of livestock production through subsiding the primary milk and meat producers. From 2010-2011, meat-packing and dairy producers paid VAT into a special fund in the central budget and therefore producers of milk and meat could immediately receive VAT from this fund. In 2012, the system changed: meat-packing and dairy producers transferred 20% of their VAT to a central budget special fund and the final 80% into a special non-budgetary account. The VAT transferred into the special budget fund was reserved for financing state program livestock support measures, while the VAT on special non-budgetary accounts was allocated into subsidies for livestock companies. In 2013 and 2014, the proportion of VAT directed to the special central budget fund was set at 40% and 50%, respectively. Since 2015, meat-packing and dairy producers have again had to transfer VAT into the special central budget fund.

3.4 Problem Definition

Due to various bottlenecks within the Georgian dairy value chain (the high price of milk, milk shortage and seasonality, sanitary issues, etc.), dairy factories have an increased demand on imported milk powder and milk cream/butter to substitute for domestic raw milk. The logic of the initiated draft changes suggests that if VAT is exempt for raw milk dairy products, they will become cheaper inputs for dairy factories, thus disincentivizing the use of imported milk powder and butter, which are subject to VAT. If so, the demand for raw milk would increase and dairy farms would have greater motivation to expand and supply additional milk to dairy factories.

While milk is a main input in the production of dairy products, its pricing is often problematic for dairy factories. One of the reasons why dairy factories prefer milk powder over raw milk, is its lower price. However, considering recent international price increases on milk powder, and milk cream (e.g. butter) required to normalize fatless milk, alongside the depreciation of the Georgian lari against the USD, the difference in price between one liter of reconstituted milk compared to milk at an industrialized farm gate shrank in 2019. Using the price and exchange rate in August 2019, the difference in price between 3.5% fat raw milk and reconstituted milk was only 6 tetri per liter.

There are two types of farm gate price in Georgia, industrialized farms and the extensive farm gate. The latter is cheaper and the gap between the two milk prices has had an increasing trend over the last four years. However, it should be mentioned that the correlation between these two prices are high – the weighted average farm gate prices for industrialized milk as well milk produced by extensive farms increase[17]. As an alternative for dairy factories to substitute the milk produced by industrial farms is milk from extensive farms, and reconstituted milk normalized with animal fat (butter) or with vegetable fats and oils, which remains cheap (Figure 7).

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[17] See: http://georgiandairy.org/ka/post/nedli-rdzis-pasebi-gamokitkhvis-shedegebi-18-10-19
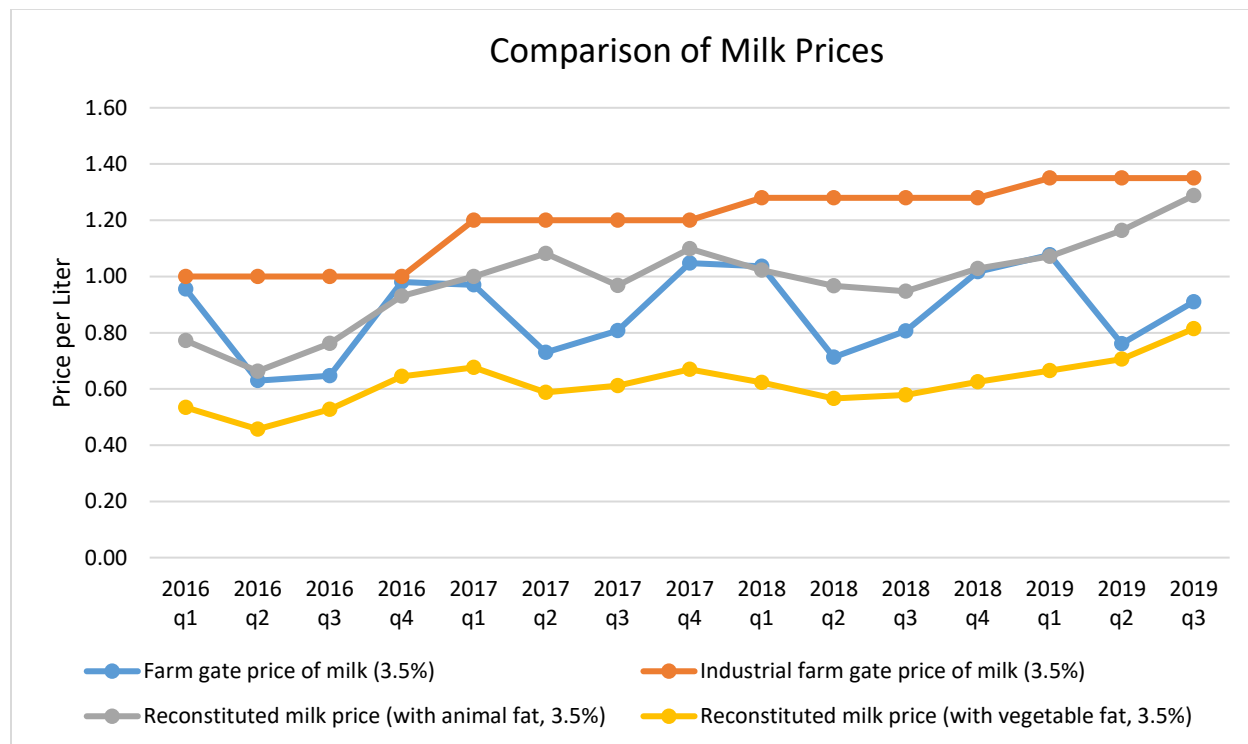
Source: The authors' calculations are based on data derived from the following sources- interviews (industrialized farm gate price of milk), Georgian Dairy (farm gate price of milk), Trademap (import data of milk powder, butter, and vegetable fats and oils), the National Bank of Georgia (exchange rate).

The farm gate price of milk in industrialized Georgian farms is higher than the average farm gate price in the European Union (for more information please refer to Annex 2).

3.5 Constraints in the Dairy Sector

Aside from pricing, there are other factors that hinder the development of the dairy sector in Georgia. A few key constraints on the supply side are:

1. **Low productive breeds.** Most livestock in Georgia is low productive, and the high productive foreign breeds (Holstein and Swiss Brown) might not be affordable for the majority of local livestock and dairy producers;

2. **Small scale farms.** Most farms are small-scale and there are few intensive farms adequately satisfying food safety standards;

3. **Poor feeding practices and lack of veterinary services.** While intensive farms provide adequate feeding and veterinary services to their cattle, most dairy producers represent

non-intensive farms, which spend very little on cattle feed or veterinary services (particularly in the case of preventive services).

4. **High feed costs.** Feeding costs are key in the production of milk, especially for intensive and semi-intensive farms. Currently, feed costs are quite high and still increasing due to the exchange rate depreciation, while some inputs (soya, additives, etc.) are also imported.

5. **Lack of knowledge.** This constraint is relevant to the dairy sector as well Georgian agriculture in general. Farmers do not have experience in caring for high-breed cows, thus they lack relevant knowledge in many aspects of modern dairy farm management.

While for the demand side constrains, a notable few are listed below:

1. **The high price of raw milk.** The price of raw milk in Georgia is currently quite high, and increasing it further still may eventually raise the price of dairy products (especially cheese) and thus reduce demand, which could negatively affect both dairy producers and consumers.

2. **The quality and safety of domestic raw milk.** There is a lack of safe and high-quality domestic milk. In addition, seasonality and the shortage of locally produced milk increases dairy producers' import dependency. Furthermore, even if dairy factories are offered VAT exemptions for domestic raw milk products, they still may require imported inputs (for instance, milk cream to normalize milk to make sour cream).

4 The Economic Impact of VAT Exemption

4.1 Theoretical Background

There is considerable evidence to show that taxes impose a deadweight loss or burden on members of society.[18] Reductions in taxes, therefore, reduce this burden and improve economic welfare. The magnitude of this excess burden varies by time, place, and the form of taxation. Consequently, there is a standard proposition in public finance that the imposition of taxes imposes welfare costs on a population.

Standard Keynesian analysis predicts that tax reduction would:

1. Increase disposable income;
2. Increase consumption spending.

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[18] A deadweight loss is a cost to society created by market inefficiency, which occurs when supply and demand are out of equilibrium. Mainly used in economics, deadweight loss can be applied to any deficiency caused by an inefficient allocation of resources. Price ceilings, such as price controls and rent controls; price floors, such as minimum wage and living wage laws; and taxation can all potentially create deadweight losses. With a reduced level of trade, the allocation of resources in a society may also become inefficient.

The precise amounts depend on the marginal propensity to consume (MPC), which is measured as the ratio of change in consumption to the change in income, thus giving a figure between 0 and 1. In a standard Keynesian model, the MPC is less than the average propensity to consume (APC) because in the short-run certain (autonomous) consumption does not change with income. Falls/increases in income do not lead to reductions (increases) in consumption because people reduce (add to) savings to stabilize consumption. Over the long-run, as wealth and income rise, consumption also rises; the marginal propensity to consume from long-run income is closer to the average propensity to consume.

The initial increase in autonomous[19] consumption would be subject to an expenditure multiplier,[20] leading to:

1. Increase in the equilibrium level of money or nominal total output;
2. Higher real output of goods and services (potential impact).

The more elastic the supply and demand are in any market, the more taxes in that market distort behavior, and the more likely it is that a tax cut will raise tax revenue. There is no debate, however, about the general lesson: the amount of revenue the government gains or losses from a tax change cannot be computed just by considering tax rates. It also depends on how the change in tax affects people's behavior.

The deadweight loss and tax/growth literature suggests that any undesirable inflationary impact that a tax cut would have from increasing aggregate demand should be quickly offset, if not simultaneously, by increases in the aggregate supply arising from the reduction in deadweight losses and stimulus to the formation and use of human and physical capital. The inflationary effects of higher aggregate demand would be offset (and perhaps more than offset) by the deflationary effects of higher aggregate supply.

Depending on the value of the elasticity coefficient, one can judge the size of the deadweight loss imposed by tax and therefore the size of the overall impact of tax relief to society. When supply is relatively inelastic, the deadweight loss of tax is small, while for elastic supply, the deadweight loss of a tax is large. As to demand elasticity, when demand is relatively inelastic, the deadweight loss of a tax is small. Whereas, when demand is relatively elastic, the deadweight loss of a tax is large.

Two markets are considered in our analysis: the raw milk market and dairy product market. The analysis provides estimates on the supply and demand elasticity for raw milk and dairy products, as well as assesses changes in demand, supply, and the price of raw milk and dairy products during VAT exemption.

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[19] The key with an autonomous change is that it is not happening in response to an increase in income.
[20] The simple expenditures multiplier is the ratio of the change in aggregate production to an autonomous change in aggregate expenditure when consumption is the only induced expenditure.

4.2 Data

In order to assess the economic impact of VAT exemption, data on supply, demand, and price were collected from both secondary and primary sources.

Demand for dairy products

When assessing demand for dairy products, the analysis studied goods that would be subject to VAT exemption if the draft law is adopted. Those products include bottled milk, matsoni, yogurt, kefir, nadughi, and sour cream. Geostat's household (HH) survey, which provides quarterly consumption data from 2009 to 2018, was used within the analysis.

Since HH consumption data does not cover restaurants, hotels, or any other type of consumption, in order to generate the total consumption of the aforementioned products, it was assumed that the share of a given dairy product (e.g. matsoni) in the total (countrywide) consumption is the same as its share in HH consumption. The same was assumed about the quarterly distribution of consumption at the country level, and it is thus expected that quarterly distribution is the same as the HH level.

Supply of dairy products

The total supply of dairy products consists of three components:

1. Supply from registered business operators;
2. Supply from non-registered farmers;
3. Imports of dairy products.

The supply from registered business operators was estimated based on 2013-2016 data from the Georgian Dairy report (see Table 8). While the average growth rate of production for 2013-2016 was calculated and applied to the given production quantities to determine estimates for 2009-2018.

Table 8: Production of Dairy Products by Business Operators (ths. tons)

Dairy Products	2013	2014	2015	2016
Milk	6.9	7.9	6.4	6.9
Matsoni	9.2	10.4	9.7	10.5
Yogurt	1.2	1.7	1.8	2.2
Kefir	1.8	2.2	1.8	1.5
Nadughi	3.1	3.4	3	3.6
Sour cream	8.3	8.7	8.9	10.1
Total	30.5	34.3	31.6	34.8

Source: Georgian Dairy, 2017.

The import data was readily available from the Georgian Ministry of Finance, however, the supply of dairy products from non-registered farmers had to be estimated by the research team due to a lack of data. In order to access the dairy production quantity produced by farmers, the following difference was calculated.

Difference = Demand - Supply (business operators + import)

The share of the *difference* in total demand for dairy products was used as a proxy indicator for the share of non-registered farmers' supply in the total supply of dairy products.

Price of dairy products

The prices of dairy products were also derived from the household survey data. Dairy product price is a weighted average of prices for the abovementioned products with respect to their share in total HH consumption. The prices have also been adjusted for inflation.

Demand for raw milk

The demand for raw milk is visible from the milk and dairy product balance sheet produced annually by Geostat. In order to generate quarterly figures, the yearly figures are adjusted to the consumption pattern of HHs from the HH survey data.

Supply of raw milk

The supply for raw milk is derived as quarterly data by Geostat on the domestic production of raw milk.

Price of raw milk

The price of raw milk is the average farm gate price of milk from commercial farms and HHs.[21] The monthly data from the Georgian Dairy Association for August 2016 to December 2018 was used to generate the average quarterly prices. As the farm gate prices for 2009-2015 were unavailable, the retail price of milk was adjusted to farm gate prices provided. The data reveals that the farm gate price between 2016-2018 constituted, on average, 45% of the respective retail price (this figure varies by quarter). Thus, the retail prices for 2009-2015 were converted to farm gate prices and adjusted for inflation.

4.3 Estimation Strategy

A regression analysis was applied to derive the elasticity coefficients for the demand and supply of dairy products and raw milk. Separate equations for the dairy products market and raw milk market have been estimated to assess the respective elasticity coefficients (see Annex 3).

A partial equilibrium analysis was conducted to analyze the impact of VAT exemption on dairy product prices and demand. Given that the raw milk and dairy product markets, and their prices, are interrelated, the equations were solved jointly through clearing squared excess supply on the two markets.

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[21] This does not include milk prices from industrialized farms.

4.4 Results

The estimation results reveal the demand elasticity for dairy products is -0.30, while supply elasticity is 0.69 (see Annex Table A1). Both the demand and supply are inelastic because the elasticity coefficients are less than one in absolute value. Inelastic demand and supply imply that the deadweight loss of a tax is small, therefore a tax cut would result in relatively minor relief to society.

While in the raw milk market, the elasticity of demand is -0.06 and the elasticity of supply is 0.16. Both the elasticity coefficients are low, suggesting an inelastic supply and demand for raw milk. The respective elasticity coefficients are presented below in Table 9.

Table 9: Elasticity Coefficients

Variable	Value
Elasticity of demand for dairy products	-0.30
Elasticity of supply for dairy products	0.69
Elasticity of demand for raw milk	-0.06
Elasticity of supply for raw milk	0.16

A joint solution through clearing squared excess supply on the two markets leads to the conclusion that if dairy products were exempt from VAT, both the demand and supply of dairy would increase by 3.4%, while the price of dairy products would decrease by 11.0%. Equally, if the demand and supply of raw milk increased by 1.0%, the price of raw milk is expected to increase by 6.7% (Table 10).

Table 10: Estimation results for VAT exemption

	Baseline	Vat Exemption	Change
Dairy Products			
Supply (thousand tons)	58.1	60.1	**3.4%**
Demand (thousand tons)	58.1	60.1	**3.4%**
Dairy product price (GEL/kg)	4.63	4.12	**-11.0%**
Raw Milk			
Supply (thousand tons)	555.2	561	**1.0%**
Demand (thousand tons)	555.2	561	**1.0%**
Milk price (GEL/liter)	0.90	0.96	**6.7%**

Note: The data for 2018 is considered to be a baseline.

5 Input/Output Ratios for Dairy Products

The price of dairy products differs based on their inputs, namely whether they are created from domestic raw milk or from reconstituted milk (domestic raw milk commands higher prices). Certain processors also have special raw milk product lines,[22] created in response to increasing consumer demand.

The research team calculated the **input/output price ratios** as a measure of productivity, using a single input - milk. With a partial productivity measurement, it is possible to observe how efficient production is using domestic raw milk vs. reconstituted milk. A lower ratio is better and signifies that it is more efficient to use this factor as a single input. Though productivity is measured only partially, it helps the interpretation of results in practical situations.

       i)   Input = reconstituted milk price;[23] Output = price of final product created by reconstituted milk.[24]

      ii)   Input = domestic raw milk price;[25] Output = price of final product created by domestic raw milk.[26]

Based on the results of our analysis (Table 11), if VAT becomes exempt, the price of raw milk would increase by 6.7%, and the price of dairy products decrease by 11.0%. These findings, in Table 11, identified as scenario 1 (if VAT exemption is adopted), can be compared to scenario 0, the current status-quo, where dairy products are charged VAT. The price differences for final products have also been considered within our analysis.

Table 11: Input/Output Price Ratios for Dairy Products (Scenario 1)

#	Dairy Product	Retail Price Difference on 1 kg (or liter) of product*	Product made from reconstituted milk (normalized with imported milk cream) (i)	Product made by domestic raw milk (ii)	
				Scenario 0: with VAT (status-quo)	Scenario 1: if VAT exempted
1	1-liter packaged milk (2.5% fat)	2%	39%	35%	36%
2	Sour Crème (20% fat)	29%	70%	46%	45%
3	Matsoni (3.5% fat)	8%	43%	36%	37%
4	Yogurt (2.5% fat)	42%	20%	14%	15%

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[22] The Santino brand name under Sante and the Rcheuli brand name under Soflis Nobati.

[23] Milk powder is reconstituted by adding milk cream (butter).

[24] All prices are as of August 2019.

[25] We took average milk price at industrialized farm gate (as of August 2019 = 1.35 GEL per liter), because most of the stakeholders assume that the dairy products (except cheese) created from raw milk are made with milk derived from industrialized farms (because it is less contaminated).

[26] All prices are as of August 2019.

| 5 | Cheese (or cheese type product) | 75% | 79% | 77%** | 82% |

*Considering a 11.0% decrease in the price of dairy products made from domestic raw milk (after VAT exemption). **VAT is already exempt for cheese.*

Source: The authors' calculations. Note: August 2019 prices have been used in the calculations (milk powder and butter prices, as well as the USD/GEL exchange rate). The milk price is taken as a weighted average for August 2019 at the industrialized farm gate = 1.35 GEL/liter, which increases by 6.7% to 1.44 GEL/liter).

The results show that the input/output ratios are slightly better (except for cheese, which ratio has worsened) when products are created from raw milk (ii), rather than reconstituted milk (i). However, dairy factories still prefer to use reconstituted milk over raw milk. This might be explained because the price of the input (milk) is not definitive, and there are many other crucial factors in dairy processing, aside from just the price of raw milk. Interestingly, if VAT is exempt, the ratios for products made from domestic raw milk do not really change between the baseline ratios (scenario 0) and the ratios when VAT exemption is adopted (scenario 1), somehow because the prices of dairy products decrease beside the fact that VAT is exempted and raw milk price increases. In addition, dairy products (except cheese) made from domestic raw milk are still about 24% expensive on average[27], thus less affordable for average Georgian consumers.

Many dairy industry stakeholders do not expect dairy product prices to reduce if VAT becomes exempt. Table 12 below depicts scenario 2, where VAT is exempt but dairy product prices remain unchanged, while the price of raw milk increases by 6.7%.

Table 12: Input/Output Price Ratios for Dairy Products (Scenario 2)

#	Dairy Product	Retail Price Difference on 1 kg (or liter) of product*	Product made from reconstituted milk (normalized with imported milk cream) (i)	Product made by domestic raw milk (ii)	
				Scenario 0: with VAT (status-quo)	Scenario 2: if VAT exempted (but prices of dairy products stay unchanged)
1	1-liter packaged milk (2.5% fat)	14%	39%	35%	32%
2	Sour Crème (20% fat)	45%	70%	46%	40%
3	Matsoni (3.5% fat)	22%	43%	36%	33%
4	Yogurt (2.5% fat)	60%	20%	14%	13%
5	Cheese (or cheese type product)	75%	79%	77%**	82%

*Considering the dairy product price differences (food made from raw milk is priced higher than from reconstituted milk), as of August 2019 (status-quo prices). **VAT is already exempt for cheese.*

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[27] It is weighted average price difference for four major dairy products, which are subject to VAT exemption: packaged milk, sour crème, matsoni and yogurt.

Source: The authors' calculations. Note: August 2019 prices have been used in the calculations (milk powder and butter prices, as well as the USD/GEL exchange rate). The milk price is taken as a weighted average for August 2019 at the industrialized farm gate = 1.35 GEL/liter, which increases by 6.7% to 1.44 GEL/liter).

The results from scenario 2 identify that the input/output ratios are slightly better (excluding cheese, which ratio has worsened), if the end prices of dairy products created from raw milk and reconstituted milk do not change. However, the difference is marginal, and, in this instance, dairy factories might still use more reconstituted milk because of its many advantages, such as: no seasonality, ease of storage, no contamination, not perishable good (unlike raw milk), no need for milk collection infrastructure, among others. In addition, dairy products (except cheese) made from domestic raw milk are about 40% expensive on average[28], thus less affordable for average Georgian consumers.

6 Attitudes and Perceptions among Georgian Dairy Value Chain Actors towards VAT Exemption

The various attitudes and expectations among Georgian dairy farmers, processors, and associations are often different. The main arguments in favor of the exemption of VAT for dairy products made from the local raw milk are:

Increase the competitiveness of raw milk – the current price of industrially produced raw milk is higher than that of reconstituted milk. Besides which, processors claim that the quality of raw milk from extensive farms is very poor and that they are concerned about milk safety. VAT exemption would increase the demand for locally produced raw milk and thus encourage farmers to increase production, become industrialized, and produce high-quality milk.

Support local dairy production – VAT exemption would encourage local processors to use domestically produced raw milk (rather than reconstituted milk), which would increase the volume of locally produced milk and support the development of local production. On the other hand, VAT exemption would lead to the decreased price of Georgian dairy products and, accordingly, domestic dairy products would become more competitive against imported products.

Decrease informal production – the VAT exemption of dairy products made by locally produced raw milk would increase the demand on raw milk, which might encourage unregistered family farms and households to register and move their business from the shadow to the formal economy. Furthermore, this might have additional fiscal benefits, as registered farms might generate more revenues to the state budget via income and profit taxes.

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[28] It is weighted average price difference for four major dairy products, which are subject to VAT exemption: packaged milk, sour crème, matsoni and yogurt.

Create a fair and competitive environment – households and family farms are not currently obliged to be registered as business operators. Therefore, they are not subject to food safety regulations and their operations are not taxable. The share of family farms (or unregistered farms) in whole milk production is very high. Whereas, processors pay all taxes, including VAT. They moreover have to ensure food safety, which requires significant financial resources and investment in proper equipment. VAT exemption would help reduce the costs to processors and create a more competitive environment in the dairy sector.

The main concerns regarding the draft law are:

Ambiguity of the draft law – processors have concerns that the draft law is extremely vague in determining the terms and proportions for the use of milk powder and other supplements in production. Accordingly, they are worried that it will become difficult to deal with tax inspectors, and they would rather simply pay VAT than having to undergo trials in court. Besides which, it is unclear who is responsible for the execution of the draft law and, more importantly, how the law will be executed.

Difficulties with its execution – the draft law does not address questions regarding its execution. Even if the revenue service were to become responsible for tax inspections, it is practically impossible to check how much raw milk is used in production when raw and reconstituted milk are mixed. Some processors are very skeptical and claim that it will be difficult to ensure the execution of the law based only on invoices and financial documentation. Furthermore, they are very dubious about the technical aspects of the execution.

The quality of locally produced raw milk – some processors claim that the main reason for using milk powder in dairy production is not the price of raw milk, rather its quality. If farmers do not improve the quality of raw milk in accordance with food safety standards, processors will be unwilling to use raw milk in their production.

The distribution of benefits – further controversy behind dairy product VAT exemption relates to the distribution of benefits. Farmers are concerned that VAT exemption will not be reflected by an increased in the price of raw milk. Consequently, only processors would benefit from these amendments to the law. However, processors expect farmers to increase the price of their milk corresponding to expectations on the market.

Potential negative impacts on consumers – the price of locally produced raw milk is already high. The VAT exemption on dairy products made by locally produced raw milk is intended to increase the demand for raw milk. This in turn will make locally produced raw milk even more expensive. Thus, cheese processors think the price increase of local raw milk will increase the production costs of cheese – the proportion of which in consumer expenditure out of total dairy products' is 56.4%. Subsequently, the price of cheese is also expected to increase. It should also be mentioned that such price increases may only occur in the short-run. In the long-run, however, increased prices should push industrial farms and their production to grow; this, in turn, ultimately places downward pressure on milk prices.

Sectoral challenges – a major drawback within the dairy sector is with its inputs and low productivity, which directly relate to the high cost of inputs, inadequate animal nutrition, poor

fertility of dairy cows, low genetic potential, inefficient reproduction management, and short lactation periods. These factors are often not addressed at the farm level because of gaps in knowledge, a lack of surplus income for upgrades, and the inadequate capacity of semi-subsistence farmers. Most stakeholders believe that VAT exemption alone cannot support the development of the Georgian raw milk production and dairy sector.

7 Conclusions and Recommendations

This study has estimated the potential effect of VAT exemption on milk and dairy products made by locally produced raw milk. The research revealed the estimated impacts on different stakeholder groups, as presented in Table 13.

Table 13: The Estimated Impacts on Stakeholder Groups

Stakeholder	Impact
State Budget	The state budget will experience a deficit from the VAT exemption and from the reduction in VAT paid on imported milk powder and milk cream.
Raw Milk Producers Farmers	Raw milk producers and farmers will benefit due to the increase in raw milk prices.
Dairy Product Producers	Dairy factories will benefit due to the VAT exemption.
Dairy Product Consumers	Consumers will benefit due to the reduced dairy prices.
Cheese Makers (and Cheese Consumers)	Cheese makers (and consumers) will suffer due to the increases in raw milk prices.

Combining the quantitative and qualitative results, there are several additional issues regarding the draft law:

Fiscal effects – the estimation showed that the expected annual revenue loss from VAT exemption to the state budget would be around 9.5 mln. GEL in 2018, which accounts for around 0.21% of total VAT revenue (4,427 mln. GEL) and 0.10% of the total tax revenue (9,696 mln. GEL). However, farmers, dairy companies, and consumers would benefit from the surplus which would compensate for the budgetary loss. Cheese makers would be worse off due to increase in raw milk prices and cheese consumers, potentially, could be worse off due to potential increase in cheese prices.

Execution of the amendments – while the expected fiscal effect of VAT exemption on the state budget is comparatively low, the administrative costs of the execution of the amendments might be high. While the draft changes in the tax code suggest that only dairy products created from 100% raw milk can be subject to a VAT exemption, some stakeholders believe that it is technically impossible to check how much raw milk is used in production when both raw and reconstituted milk is mixed (processors claim that the production of dairy products requires the use of imported milk powder and butter for normalization).

The distribution of benefits – in terms of the distribution of benefits, farmers believe that VAT exemption will not be reflected by an increased price of raw milk and, therefore, only processors will benefit from amendments to the law. Processors, though, expect farmers to increase the price of raw milk correspondingly. The estimation showed that the supply of raw milk is inelastic (0.16); this implies that increases in raw milk prices would be reflected by smaller increases in the raw milk supply. In the short-run, farmers cannot increase the production of raw milk: they either need to purchase new milk cows or increase the productivity of their cattle, which is impossible without long-term investments in assets.

The high price of locally produced raw milk – there are currently two types of raw milk on the dairy market: 1) milk produced by extensive farms (96% of total milk) and 2) milk produced by industrialized farms (4% of total milk). While the price of raw milk produced by smallholder farmers is comparatively low (0.9 GEL/l), according to processors, the quality is also very poor and such milk fails to meet food safety requirements. On the other hand, the quality of raw milk produced by industrial farms is high, therefore, it is more expensive (1.35 GEL/l- higher than in the EU) than the price of raw milk produced by smallholder farmers. The estimation showed that the price of raw milk will increase by 6.7%, and according to the draft law, only those processors producing milk and dairy products from domestic raw milk will benefit from the VAT exemption. However, the production cost to processors who mix raw and reconstituted milk will increase because of the higher milk prices. It is also noteworthy that real cheese can only be produced from raw milk and its production is already exempt from VAT. This suggests that cheese producers might be disadvantaged by the amendment, as they would have to purchase raw milk at higher prices. Correspondingly, they would likely increase the price of cheese, which would have a negative effect on consumers: the consumption of cheese amounts to almost 60% of the whole consumption of all dairy products.

The main purpose of the draft law is to strengthen the dairy sector and support local milk and dairy production via the VAT exemption of milk and lactic acid products created from local raw milk. The main motive being that VAT exemption would increase the demand for locally produced raw milk, and that would increase the price of raw milk in the short-run. While in the long-run, the increased prices of locally produced raw milk would encourage farmers to expand their production, become industrialized, and produce high-quality milk, and thus hopefully to benefit from economies of scale.

However, the main constraints within the dairy sector are not connected wholly to the price of raw milk, rather to the quality of milk, and the low productivity of cows, which directly relate to the high costs of inputs, inadequate animals' nutrition, inefficient reproduction management, the poor fertility of dairy cows, their poor genetic potential, and short lactation periods. Most stakeholders believe that VAT exemption alone cannot support the development of the Georgian raw milk production and dairy sector. VAT is not an ideal tool for subsidizing farmers or dairy companies, rather it is a consumption tax aimed at household. Considering the vast levels of ambiguity regarding the technical execution of the law, there may be better tools for supporting the domestic production of milk. For example, with revenues generated through VAT, where a special fund in the central budget could be created (as in the case of Ukraine, see above), through which the state could implement and finance more efficient support measures aimed at strengthening and developing local milk production.

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5. [Global SPC](#);
6. [International VAT and GST rates for 2019](#);
7. [Worldwide Tax Summaries](#);
8. [Trade Map](#).

9 Annexes

Annex 1: List of the Interviewed Stakeholders

#	Name, Surname	Organization	Position	Place / Type of Interview
1	Merab Chkhartishvili	Association Georgian Dairy	Head of Association	Tbilisi / Face-to-Face
2	Kakha Koniashvili	Sakrdze Association	Head of Association	Tbilisi / Face-to-Face
3	Zura Masurashvili	Dairy Farmer	Farm Owner	Dedoplistskaro / Telephone
4	Giorgi Aslanikashvili	Martkopis Baga	Industrialized Farm Manager	Tbilisi / Face-to-Face
5	Giorgi Khanishvili	Ministry of Environmental Protection and Agriculture of Georgia (MEPA)	First Deputy Head	Tbilisi / Face-to-Face
6	Gia Mikadze	National Food Agency of MEPA	Head of the Food Safety Department	Tbilisi / Face-to-Face
7	Erekle Gamkrelidze	Sante	General Director	Tbilisi / Face-to-Face
8	Levan Tsirekidze	Soplis Nobati	Financial Manager	Tbilisi / Face-to-Face
9	Mamuka Baratashvili	Ministry of Finance	Head of Department	Tbilisi / Face-to-Face
10	Giorgi Kandelaki	Ministry of Finance	Deputy Head of Department	Tbilisi / Face-to-Face
11	Nika Japaridze	Association Georgian Dairy	Market Price Analyst	Tbilisi / Face-to-Face
12	Zurab Tskitishvili	Scientific Research Center of MEPA	Dairy Expert	Tbilisi / Face-to-Face

Annex 2: Milk Price Data

Unit	EU: Farm Gate Price of Milk GEL/liter	Georgia: Farm Gate Price of Milk GEL/liter	Georgia: Industrial Farm Gate Price of Milk GEL/liter	Price of Reconstituted Milk (with Animal Fat, 3.5%) GEL/liter	Price of Reconstituted Milk (with Vegetable Fat, 3.5%) GEL/liter	Average Price of Imported Milk Powder USD/kg	Average Price of Imported Milk Cream and Butter USD/kg	Average Price of Imported Vegetable Fats and Oils USD/kg	Average Exchange Rates USD/GEL	Average Exchange Rates EUR/GEL
2016 Q1	0.78	0.96	1.00	0.77	0.53	0.17	3.42	1.35	2.44	2.69
2016 Q2	0.66	0.63	1.00	0.66	0.46	0.16	3.27	1.30	2.21	2.50
2016 Q3	0.69	0.65	1.00	0.76	0.53	0.18	3.54	1.40	2.32	2.59
2016 Q4	0.85	0.98	1.00	0.93	0.64	0.21	3.87	1.41	2.50	2.69
2017 Q1	0.92	0.97	1.20	1.00	0.68	0.21	4.06	1.38	2.60	2.77
2017 Q2	0.88	0.73	1.20	1.08	0.59	0.19	5.95	1.38	2.42	2.66
2017 Q3	1.01	0.81	1.20	0.97	0.61	0.20	4.64	1.42	2.42	2.84
2017 Q4	1.15	1.05	1.20	1.10	0.67	0.21	5.11	1.47	2.59	3.05
2018 Q1	1.05	1.04	1.28	1.02	0.62	0.19	5.09	1.57	2.48	3.05
2018 Q2	0.94	0.71	1.28	0.97	0.57	0.18	5.03	1.42	2.45	2.92
2018 Q3	0.99	0.81	1.28	0.95	0.58	0.17	4.71	1.54	2.53	2.94
2018 Q4	1.09	1.02	1.28	1.03	0.63	0.18	4.71	1.40	2.68	3.05
2019 Q1	1.05	1.08	1.35	1.07	0.67	0.20	4.74	1.39	2.67	3.03
2019 Q2	1.04	0.76	1.35	1.16	0.71	0.21	5.00	1.29	2.74	3.08
2019 Q3	1.09	0.91	1.35	1.29	0.81	0.24	4.77	1.11	2.90	3.24

Source: The authors' calculations are based on data derived from the following sources: through interviews (industrialized farm gate price of milk), Georgian Dairy (farm gate price of milk), Trademap (import data for milk powder, butter, and vegetable fats and oils), the National Bank of Georgia (exchange rate).

Annex 3: Estimation Strategy in Detail

The following equations are estimated:

Demand elasticity for dairy products (1)

$$\log(Qddairy) = \alpha_0 + \alpha_1 \log(Pdairy) + \alpha_2 sin + \alpha_3 cos + \alpha_4 \sin_{cl} + \alpha_5 \cos_{cl} + \alpha_6\, trend$$

Supply elasticity for dairy products (2)

$$\log(Qsdairy) = \beta_0 + \beta_1 \log(Pdairy) + \beta_2 quarter1 + \beta_3 quarter2 + \beta_4 quarter3$$

Where:

Q_{ddairy} – quantity of demanded dairy products;
Q_{sdairy} – quantity of supplied dairy products;
P_{dairy} – average price of dairy products;
quarter 1, quarter 2, quarter 3 – dummy variables for respective quarters of the year;
trend – trend;
α_1 – dairy product demand elasticity coefficient;
β_1 – dairy product supply elasticity coefficient;
sin and cos – functions for seasonal patterns;
sin_{cl} and cos_{cl} – functions for seasonal cycles.

Demand elasticity for raw milk (equation 3)

$$\log(Qdmilk) = \gamma_0 + \gamma_1 \log(Qddairy) + \gamma_2 \log(Pdairy) + \gamma_3 \log(Pmilk) + \gamma_4 trend + \gamma_5 trend^2 + \gamma_6 d1 + \gamma_7 d2$$

Supply elasticity for raw milk (equation 4)

$$\log(Qsmilk) = \mu_0 + \mu_1 \log(Pmilk) + \mu_2 sin + \mu_3 cos + \mu_4 \sin_{cl} + \mu_5 \cos_{cl} + + \mu_6 \, trend$$

Where:

Q_{dmilk} – quantity of demanded raw milk;
Q_{smilk} – quantity of supplied raw milk;
Q_{ddairy} – quantity of demanded dairy products;
P_{dairy} – price of dairy products;
P_{milk} – price of raw milk;
trend – time trend;
γ_3 – raw milk demand elasticity coefficient;
μ_1 – raw milk supply elasticity coefficient;
d_1 and d_2 – dummy variables for influential observations (outliers);
sin and cos – functions for seasonal patterns;
sin_{cl} and cos_{cl} – functions for seasonal cycles.

Table A1: Demand and Supply Elasticity for Dairy Products (Equations 1 and 2 in logs)

Independent variables	Independent variable – demand for dairy products	Independent variable – supply of dairy products
Dairy product price	-0.297 (0.191)	0.694** (0.275)
sin	0.066*** (0.014)	-
cos	-0.032** (0.015)	-
sin_cl	0.025* (0.013)	-
cos_cl	0.017	-

	(0.013)	
trend	0.005***	-
	(0.001)	
quarter 1	-	-0.036
		(0.041)
quarter 2	-	0.098**
		(0.047)
quarter 3	-	-0.022
		(0.625)
constant	2.804***	1.634***
	(0.239)	(0.364)
R squared	0.68	0.27
N	40	40
Note: *** indicates 1 percent significance level, ** 5 percent significance level, * 10 percent significance level. The first line shows coefficients, standard errors are given in parentheses.		

Table A2: Demand and Supply Elasticity for Raw Milk (Equations 3 and 4 in logs)

Independent variables	Independent variable – demand for raw milk	Independent variable – supply of raw milk
demand for dairy products	0.304*** (0.098)	-
dairy product price	0.092 (0.170)	-
raw milk price	-0.064 (0.040)	0.155* (0.086)
trend	0.006 (0.003)	-0.001 (0.001)
trend squared	-0.0001** (0.00007)	-
d1	0.140** (0.052)	-
d2	-0.095* (0.048)	-
sin	-	-0.285*** (0.020)
cos	-	-0.406*** (0.025)
sin_cl	-	-0.026 (0.019)
cos_cl	-	0.017 (0.018)
constant	4.099*** (0.355)	4.970*** (0.030)
R squared	0.55	0.96
N	40	40
Note: *** indicates 1 percent significance level, ** 5 percent significance level, * 10 percent significance level. The first line shows coefficients, standard errors are given in parentheses.		