



ASSESSING THE COMPARATIVE ADVANTAGE OF ALBANIAN CHEESE PRODUCTION

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Abstract

Using the PAM analysis, this paper provides us with a concise summary of the comparative advantages of Albanian cheese. The outcomes of this paper have never before been made available to the public in a global setting. Aside from the benefits, Albania's aspiration to join the European family would undoubtedly present a number of difficulties, particularly for its economy. Identifying the industry or sector that offers a comparative advantage is essential to bolstering policy-making to raise these sectors' or the industry's own effectiveness. The DRC is equal to 1.107 according to the data, indicating that cheese production does not benefit from a competitive advantage under the current production, cost, and technological conditions. Although it does not guarantee private profitability, this industry is profitable for the producer.

Keywords: Cheese production, PAM, Comparative advantage, Gjirokastra, Albania

INTRODUCTION

Over the past 26 years, Albania's economy has experienced a significant shift. The initial monetarist reforms, which aimed to stabilize inflation and privatize state-owned businesses, were unsuccessful in establishing a long-term foundation for the nation's economic growth. The privatization of state-run firms and the liberalization of the economy and prices that started in 1992 paradoxically paralyzed the nation's output, leading to a sharp decline in GDP and exports. Albania quickly changed to a nation that was import-dependant. The effects of these modifications are still evident in business transactions today. In a brief period of time, the industrial sector accounted for 58.4% of GDP; by 2001, that percentage had dropped to 7.8%. This era is sometimes referred to alternatively as the nation's deindustrialization. The agriculture sector was the only one to resist this change to some extent. Distribution per capita under Law 7501 caused the disappearance of several products, including cotton, sugar beet, tobacco, and sunflower, which indirectly damaged the manufacturing industry that used these products as raw materials. However, the privatization of cooperatives and the distribution of 468,000 small parcels of land continued to be productive and had a positive impact on employment and the reduction of poverty. Because many farmers were unable to cover the costs of agricultural production, there was a major loss in competitiveness in many agricultural operations¹. Conversely, this distribution significantly increased GDP and reduced poverty. The only industry to experience economic growth in the first five years was agriculture, which saw its share of GDP increase from 35.9% in 1990 to 37% in 1995. Even nowadays although agriculture constitutes about 20% of the GDP it employs 47% of the workforce, and this percentage continues to have a significant impact on GDP even now. Although this industry has very low productivity as indicated by the GDP/number of employees ratio, there has been a noticeable shift away from agriculture in recent years, along with a new vision. Fruit trees, particularly those bearing citrus fruits and nuts, are becoming more and more common. Similar trends have been seen in animal husbandry, where there has been a notable increase in milk production, particularly in the southern region. This region is thought to have the most potential in this industry because of its hilly-mountainous terrain and warm climate. It is also known for its cheese-making traditions, which date back to the early 1900s and have made its cheese a well-known product both locally and internationally (Selenica, 1927).

¹ With high production costs we mean the use of machines which was unaffordable because the plots of land were small.

Macroeconomic policies pertaining to the monetary, fiscal, and exchange rate systems as well as domestic variables like land rent, wages, and interest rates are highlighted by the identification of output potentials in the agricultural sector.

Albania is dealing with more challenging macro and microeconomic circumstances. The sectors referred to as the primary pillars of the economy—among them, agriculture—are mostly eclipsed by imported goods on the Albanian market. This picture of change from 1991 to the present day is the result of the shift from a centralized to a free market economy. Just as every industry in our economy was decimated because it was not yet operating under European standards and in an efficient manner. This picture of change from 1991 to the present day is the result of the shift from a centralized to a free market economy. In the same way that every industry in our economy was decimated because it was not yet operating under European standards and in an effective manner. To deal with the long-term transition situation, the agriculture sector, like all sectors, needs serious analyses and investigations. The dairy industry, which is essential to the nation's ability to meet its needs for products, faces a number of issues these days that need to be resolved right away in order for the country to accede to the European Union.

Among the basic foods that make up our daily diet are milk and its byproducts. However, as market demands and Albanian consumers' preferences change, milk and its byproducts become less and less appropriate. What constitutes a dairy product is determined by how a certain animal species is represented and handled. Different animals' milk has varied compositions, including varying levels of water, fat, carbs, proteins, and minerals. The taste, nutritional content, and ultimately customer preferences of milk are influenced by these fluctuating factors. Throughout Albania's years of transition, there has been a notable expansion of the private sector. The business sector is now more competitive both domestically and internationally as a result of the growth of private enterprise. Under this framework, government agencies, policymakers, and domestic companies are focusing their attention on one of the most significant issues: international trade.

Due to its geographic proximity with Greece, the South has been influenced by Greek milk products. This has influenced the way Greek products are positioned, with Dodoni being the market leader both domestically and internationally. Additionally, the owners of the dairy factories in the southern region have benefited from the proximity by exchanging experiences with Greek producers and getting a close-up view of all the dairy processing technology.

Businesses in Albania must adjust as best they can to the trade requirements set forth by the European Union (EU), the World Trade Organization (WTO), and other international organizations in order to pursue market expansion and membership in European structures.

Therefore, one of the difficulties Albanian producers confront is growing exports and making our products competitive in the European markets.

This liberalization and free trade process has an impact on the production of livestock, particularly the production of milk and especially cheese. This procedure affects the cost of inputs due to the potential import tax as well as the cost of production of livestock products. The price of inputs like fuel, livestock vaccination, and basic cattle feed may fluctuate when it comes to milk and its products. This implies that there will no longer be any protection for these products' domestic production.

Economic reforms and market liberalization bring about changes in the nation's macroeconomic policies, such as exchange rate policies, interest rates, etc. The cost of land and labor in rural areas will continue to rise in the future. The liberalization of the markets can also bring about changes in the local factor market.

The milk processing business and its products will be impacted by all of these changes, not just in the southern part of Albania but also in the wider region.

The first question posed is whether the milk processing business has a comparative advantage given the state of milk production and processing technologies today.

The processes of market liberalization and commercial reforms affect society as well as every sector of the nation's economy. Put another way, they have a significant long-term influence on all economic activity. It would be extremely challenging to assess and quantify each of these effects in a single study, Manne (2011). It is also important to examine the tastes of Albanian consumers, particularly those in the southern region. Customers like locally produced dairy products when they meet the standards required by Albanian law and the World Health Organization for livestock product quality, according to some earlier research. Customers prefer to buy dairy products with low fat content because it has been seen that these goods have high fat content, which directly affects their health. The quality of the goods produced by the milk processing sector has been questioned due to the use of outdated equipment that was created in rural areas for their production. (Ministry of Agriculture and Food, Albania, 2002; World Bank, Department of Sustainable Social and Environmental Development for Europe and Central Asia).

Research Objectives

The purpose of this study is to identify the comparative advantages of cheese production in Gjirokaster, Albania in comparison to other significant EU cheese producing countries, considering a range of price and productivity fluctuations.

The aim of this study was achieved using the Private Cost Ratio (PCR) and Domestic Resource Costs (DRC) ratio analytical techniques within the Policy Analysis Matrix (PAM) framework.

METHODS AND PROCEDURES

Because it is the area in Albania that produces the most sought-after cheese in the local market, the district of Gjirokaster was selected as the study area. Due to its history and geographic location, this cheese is regarded as the most sought-after product in Albania. This is because of its proximity with Greece, where it is known as the feta cheese brand, as well as the fact that the hilly mountainous terrain is an ideal location for high-quality products. Every dairy factory in the Gjirokastër district is included in this study. The interviews were conducted between April and June of 2016, which also happens to be the peak volume of work in these dairy factories.

Secondary data such as import and export taxes were obtained from the Ministry of Food and Agriculture (MFA), the Institute of Statistics (INSTAT) and local directory of agriculture of Gjirokastra, World Bank, Faostat, Eurostat.

When we discuss developed countries, the first thing that usually comes to mind is that the majority of their GDP is made up of leading companies in global marketplaces that have established unquestionable trust in many countries. The agricultural sector, which is sometimes seen as one of the most significant economic drivers in the developing world, accounts for the majority of GDP in these countries together with the export of raw resources. Regarding competitiveness, this sector differs significantly from industry; nonetheless, the elements influencing competitiveness and comparative advantages in agriculture are essentially the same. The technological factor, income, prices, and the impact of regulations are all taken into account for this industry as well (Monkey and Pearson, 1989, Masters and Winter-Nelson, 1995; Nelson dhe Panggabean, 1991).

We can say that economists employ a range of methodologies and procedures to measure indicators of the relevant parameters when calculating these indicators and assessing their significance. Trade economists, for instance, make use of the Domestic Resource Cost (DRC) and the coefficient of nominal and effective protection (NPC and EPC) (Corden, 1966; 1971; Greenay and Milner, 2003).

While the Social Profitability Ratio (SPR) is used by project economists Harberger and Gittinger (1982). Experts in agricultural trade, like Josling (1973), created new metrics like the Producer Subsidy Ratio (PSR) and Producer Subsidy Equivalent (PSE). Recent research has shown that the parameters of comparative advantage and policy effects are related to the ever-

widening use of Policy Analysis Matrices (PAM) (Masters, 1991; Nelson and Panggabean 1991; Masters and Nelson, 1995; Yao and Tinprapha 1995; Khan 1997, 2002; Yao 1997; Barichello et al 1998; Khan and Akhtar 2006).

The examination of a particular agricultural product by Finan et al. (1983) is noteworthy because it examines the advantages that the dairy systems in the Azores, Portugal, have for both the private and public sectors. As a result, the authors used the revenue and expenses of the companies included in the study to calculate the private benefit. This method of measurement implies that, even after accounting for transportation expenses, businesses have a comparative advantage in the production of cheese. The writers blame the temporary decline in global market pricing and other nations' trade policy for the socially somewhat pointless production of skim milk and milk powder. According to the same research (DRC), local factor costs for cheese only account for 70% of the total value. According to the same report (DRC), local factor costs for cheese account for just 70% of the value established on the global market. In the production of cheese, the Azores have a comparative advantage, but not in the other two products.

Nelson employed the PAM approach in 1991 to calculate the comparative advantage of sugar in Indonesia. According to the findings, both dryland and irrigated sugarcane cultivation did not show social profitability in 1986–1987. The opportunity cost of the land was the primary cause. The potential cost of the land was equal to a significant portion of the value of the sugar produced for the majority of cultivation methods. It's noteworthy to observe that land has a somewhat lower social opportunity cost than private opportunity cost. This occurs because alternative crops are cultivated on a portion of private land because those crops receive subsidies. Indonesian sugar production is not profitable when considering the advantages to society and the private sector.

Comparative advantage was studied by Bagchi and Hossain (2000) in relation to rice production in India. The assessment of social profitability and the ratio of internal resource costs—which takes into account both the opportunity cost of resources until its cultivation and the value of rice—are the starting points for the study of comparative advantage. The findings demonstrated that higher rice output is a result of fertilizer and chemical use, as well as the implementation of agricultural incentive programs. These elements have helped to increase rice's comparative advantage and competitiveness in India.

Abu Hayat Md. Saiful Islam found that Bangladesh has a comparative advantage in rice production for import replacement using the PAM approach.

The PAM approach was employed by Samarendu Mohanty et al. (2002) to study cotton's competitive advantage in Maharashtra, India. The matrix's findings demonstrated that it is not produced efficiently and that, in that nation, peanuts and sugarcane have major comparative

advantages over cotton. Nguyen and Heidhues (2004) used an econometric model in conjunction with the Policy Analysis Matrix (PAM) to assess the comparative advantage of rice production in Vietnam. The study's findings demonstrated that, in 1998 (the baseline scenario), rice had a comparatively high comparative advantage and that internal resources (such as labor, land, and water) were used effectively from an economic standpoint.

The Policy Analysis Matrix (PAM) was utilized by Ana Mane and Ilir Kapaj (2006) to assess Albania's comparative advantage in olive oil production. Data was obtained from 126 olive oil processing plants. The private cost ratio (PCR), estimated at 0.703, indicated from the PAM analysis shows that Albania is profitable in its olive oil production. Albania has no comparative advantage in producing olive oil, according to the DRC report, which was given a 2.2 rating. This indicates that producing olive oil in Albania is not desirable from a social standpoint, and that using internal variables is not very effective from an economic standpoint.

In order to examine the competitive advantage of potatoes in three distinct agro-ecological northern zones of Pakistan, Khan and Akhtar (2006) employed PAM analysis. According to PAM findings, cultivating potatoes is a very profitable activity in Pakistan's three agro-ecological zones. It is evident from a competitiveness study that national potato production is profitable for import substitution but not for export promotion. The matrix also shows that, given the current agroclimatic, topographical, and policy constraints in the region, none of the three areas can produce potatoes for export; yet, this crop can be cultivated with a comparative advantage of food self-sufficiency/import substitution. The PAM approach was used by Chaudhry et al. (2009) to analyze the competitive advantage of cotton over rival crops including rice and sugarcane in the Punjab province's Multan and Bahawalpur regions. The PAM method's indications unequivocally demonstrate that cotton is the crop grown in the study area with the highest efficiency, whereas sugarcane is produced with the lowest efficiency. The outcomes were in keeping with government plans to supply raw materials for the nation's textile industry and to increase growers' profits and the nation's foreign exchange earnings.

The Pam technique was used by Habibullah (2010) in the Afghan district of Dehbala, and the results unequivocally demonstrate that while growing wheat for home consumption and food security is beneficial for farmers, it is not advantageous for the country as a whole to produce wheat for the purpose of replacing imports. This suggests that the government should only promote wheat for domestic consumption in the study area, as the current mix of agricultural and macroeconomic policies are incompatible with wheat competition for import substitution.

A number of additional research that have made use of the PAM matrix are included in the table 1.

Table 1. Applications of PAM matrix around the world

Authors	Year of study	The product being analyzed	Result
Teeeten	1986	Cereals and soybeans in southern US, USA	Under normal conditions, but with open markets, they have a comparative advantage in the production of cereals and soybeans depending on supply and demand as well as input and output pricing.
Chinna A. Kannapiran and Euan M. Fleming	1990	Coffee, cocoa palm oil and fennel oil (dried coconut) New Guinea	The findings indicate that while the coconut sector has a comparative advantage during the course of the study, coffee, cocoa, and palm oil are competitive in the global market and have a comparative advantage at all levels.
Prayogo U. Hadi, Gelar Setya Budhi	1997	Caoutchouc featuring <i>intercropping</i> , Indonesia	Agroforestry and monoculture on small caoutchouc farms featuring intercropping were not competitive due to policy transfers, input costs, production pricing, and current technology.
M.Nguyen; F. Heidhues	2000	Rice, Vietnam	Rice production in Vietnam shows a strong competitive advantage.
S. Mohanty, Ch. Fang, and J. Chaudhary	2002	Cotton, Sugarcane and peanuts, Indi	Maharashtra's production of cotton, which currently ranks second in India, does not suggest a comparative advantage. However, there is a comparative advantage for peanuts and sugarcane.
Sofia Anëar, Zakir Hussain, M. Siddique Jave	2005	Wheat, in two regions of Pakistan	In Sindh and Punjab and then to Pakistan. It has been observed that Pakistan has not shown a comparative advantage in wheat production over the study period.
Noor p. Khan and Javed Akhtar	2006	Patato, Pakistan	Although the potato product is not competitive in the three largest agro-ecological areas, it is essential to import replacement.
J. Agric. Sci. Technol.et. al.,	2008	Pistachios, Iran	With a DCR indicator result of $DRC < 1$, it is evident that this product holds a comparative advantage.
Huynh Viet Khai and Mitsuyasu Yabe	2013	Soybeans, Vietnam	The analysis revealed that, with DRC being smaller than 1, soybean production enjoys a comparative advantage.
Bakhshinejad Mahmoud	2014	Walnuts, Iran	Iran's walnut product is a strong export and shows competitiveness.
FAO	2004	Wheat, Olives, Tomatoes, Oranges, Milk, Syria	All of these products showed private profitability, according to the results. Only the milk industry showed social profitability.

The study method used in this case was the Policy Analysis Matrix (PAM - Policy Analysis Matrix) and the Domestic Resource Cost (DRC - Domestic Resource Cost) indicator.

Domestic resource cost- (DRC)

Within the PAM matrix's structure, it is the most significant indicator. It is expressed as the social cost ratio between the added value produced by the same source and the cost of local inputs required for the manufacture of a product. According to Yao and Tinprapha (1995), this social report aids in assessing a production system's level of desirability in relation to the global market in terms of economic efficiency. Put differently, DRC quantifies the competitive advantage of producing the product and represents the opportunity costs of using local resources in production. The DRC is expressed in the PAM framework as follows:

$$DRC = \frac{G}{E-F} = \frac{\sum_{j=1}^m W_j(s)L_j}{Pc(s)Tc - \sum_{i=1}^n Pi(s)Qi}$$

The DRC results indicate whether a country's production of a thing has a comparative advantage or not. In other words, they demonstrate how effectively local resources may be used to earn or save a unit of foreign currency. The interpretations of this indicator according to the value it receives are summarized in Table 2 below:

Table 2. Interpretation of DRC results

DRC value	Interpretation	Outcome
DRC = 1	Regarding comparative advantages for the product, the country is neutral.	The economy is balanced
$0 < DRC < 1$	It shows that the savings of foreign currency from non-importation outweighs the social benefit of the local resources utilized.	It shows comparative advantage
DRC > 1	It shows that the social value of using local resources has a higher worth than the foreign exchange saved by not importing.	It does not show comparative advantage
DRC < 0	A good is produced with the use of more foreign currency than it is worth.	It does not show comparative advantage

Source: Khachatryan, 2002

RESULTS

The budget for the production of cheese was created using the PAM analysis. Two columns are used to display the budget: one for the individual price and the other for the social price. Since site revenue and costs are expressed in terms of social prices that represent the primary PAM matrix elements. Private and social prices are used to measure all production revenues and costs, which correspond to the primary PAM matrix elements. The results of PAM construction are as follows:

Table 3. Rezultes from PAM analysis for cheese processing, in Albanian Lek

	Revenues Costs		Profits
	Revenues	Tadable inputs	Profit
Private prices	203400	686550	1158450
Social prices	1166160	718610	-47950
Effects of divergences	867840	-32060	-306500

- $PCR=C/(A-B)=0.1403$
 - Based on the results obtained, it can be concluded that the production of cheese generates private profitability for the local producers.
- $DRC=G/(E-F)=1.1072$
 - Based on the results obtained, it can be concluded that the production of cheese does not generate private profitability for the local producers.

CONCLUSIONS

This research is focused on analyzing the potential of the Gjirokastra District for the production and processing of milk and its byproducts, particularly cheese, and assessing the potential for these products to be marketed both domestically and internationally. It became evident that the agricultural and livestock sector's 1990s reforms had not had the desired impact. The economic reform of Albania has proven to be more challenging than expected.

Empirical research indicated that factors like milk prices have a significant impact on the production of cheese.

In the conditions where we have a $PCR=0.1403$, we conclude that cheese making shows private benefits for the producers of the area under study.

We reach the conclusion that cheese production demonstrates private profitability for the producers in the study area when the PCR value is 0.1403.

The empirical study also revealed that labor costs had little bearing on the final product's cost. Furthermore, bonuses and salary did not effectively raise productivity. These results led to the conclusion that the majority of the dairy factories in the Gjirokastra region are family-run operations, and that labor is a key determinant of quality rather than cost.

Policymakers must act quickly to intervene in the market, industry, and farmer subsidies in order to maintain the competitiveness of this sector.

This paper has its limitations. The study area is limited, even though this area is the most important, both historically and economically, for cheese production in Albania. This paper

will serve as a guide for similar studies for all regions or even at the country level, since the integration of Albania in the European Union will bring great challenges in the competitiveness of local and international markets.

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