

THE IMPACT OF AGRICULTURE ON THE ECONOMIC DEVELOPMENT OF NORTHERN CYPRUS

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Articles

1. INTRODUCTION

Abstract. This survey research was conducted to investigate the impact of agriculture on the economic development of Northern Cyprus. Data were collected from scholarly articles, Journals, and the North Cyprus Ministry of Agriculture and Natural Resources. The analysis of the impact of agriculture on the economic development of North Cyprus is a challenging task, but critical considering the role agriculture plays in the economic development of countries and nations such as Northern Cyprus. The significant finding of this study shows that the agricultural sector of TRCN has a lot of untapped potentials. The reasons for the dearth or decline in the productivity of the agricultural sector is discussed and analysed in this project.

A couple of recommendations, following the challenges facing the promising agricultural sector of Northern Cyprus included: increase in agricultural-based research in the Ministry of Agriculture and in higher educational levels, which will boost the industry a lot, and encourage the discovery of new, better, and improved agricultural practices; more foreign investors should be allowed to come into the agricultural sector of TRNC; The Government should set up a system to monitor and evaluate the success of implementation of funds allocated to the Ministry of Agriculture and Natural Resources; The Introduction and Encouragement of Agriculture related courses such as Agricultural Economics in Colleges & Universities is also a sure way to alleviate the challenges agriculture is facing currently in TRNC; lastly but not the least, we recommend that the Government of TRNC should consider an increase in the overall financial allocation to the agricultural sector, to boost its activities, and encourage loan to farmers and further development in the agricultural sector.

Keywords: *Agriculture, Development, Economic, Production, SWOT, System.*

From time immemorial till the date agriculture has played a vital role in the development of nations and in supplying man's basic nutritional and dietetic needs. The role agriculture has played in the development of nations cannot be overemphasized. The evolution of man according to early scientist and historians has pinpointed agriculture as the primary source of survival and occupation of the first man, as well as the earliest commodity of trade amongst nations before the era of civilization and industrialization.

The changes that overtook agriculture over the last dozen or so years of the century were nearly as dramatic as those transforming industry[1]. Farming still made up a substantial part of the economy but is declining in relative importance [1]. As a country develop economically, the relative importance of agriculture declines. The main reason for the decline was illustrated by Ernst Engel, a German statistician. Ernst Engel discovered in his experiment that as incomes increase the proportion of income spent on food declines relatively. For instance, if the income of a family were to be increased by 100%, the amount it would spend on food might subsequently increase by 60%. Assuming the expenditure on food was 50% of the family's budget before the increase. After the increase, it would amount to only 40 percent of its budget. Based on the analogy given above, we can safely conclude that, as incomes increase, a smaller fraction of the total resources of society is required to produce the amount of food demanded by the population [2].

The aim of this survey is to establish the facts and principles that must be known to an-

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analyse the effect of agriculture on the economic development of North Cyprus. This would lead to an understanding of how the agricultural sector of Northern Cyprus is performing, and based on the findings, what can be done to optimize the agricultural sector to its full potentials for the economic benefit of TRNC.

This project also aims to address and analyse the past and existing state of agriculture in North Cyprus. The future of farming in North Cyprus is dealt with in this research. The percentage of employment agriculture offers in North Cyprus, the percentage share of agriculture in the economy are some of the vital areas of interest that this research focuses and tries to analyse. Finally, an attempt is made to analyse the value added and the SWOT analysis of the agricultural sector of North Cyprus, recommendations as well as suggestions are made at the end of the project in regards to the findings.

The significance of this research cannot be overemphasised, as the findings and recommendations will be of immense benefit to the government of North Cyprus especially the Ministry of Agriculture to proffer ways in which the agricultural sector can be enhanced to boost the economy of the country. This survey will serve as a source of reference to future research in the field of agriculture and the economy of North Cyprus. The recommendations in this study will be of great benefits to universities, colleges and the Cyprus Ministry of Education, to see areas where they can make adjustment to their school curriculum and subjects to incorporate courses aimed at developing agriculture for the economic benefit of TRNC. Farmers are not left out of this advantage. The suggestions will help farmers know the importance or the role agriculture plays in the economy of TRNC. Thereby putting in more effort to boost agriculture for the larger populace. The recommendations presented, will also be of help to business specialist in the agro-industry, the statistical records and analysis will show them how to predict the future of agriculture and the economy as a whole thereby make substantive and strategic plans for the present and the future. In a nutshell, this report will be a great source of reference and educational guide to students,

researchers and their like.

2. THE TERM “AGRICULTURE”

Agriculture is the science, art and occupation of cultivating the soil, producing crops and raising livestock [3]. Agriculture is the very basis of civilization; it is the food we eat, the clothing we wear, the material of our homes, the gardens around us, and many of our traditions and values [3].

Agriculture also entails the processing, marketing, distribution and financing of agricultural products; farm production supply and service industries; health, nutrition and food consumption; the use and conservation of land and water resources; development and maintenance of recreational resources; and related economic, sociological, political, environmental and cultural characteristics of the food and fibre system [3].

2.1. Benefits of Agriculture

The necessity of food for our physical, cultural and economic development makes agriculture a crucial sector. There is strong indication that only agriculture has the greatest tendency of meeting the world's basic food needs in the coming years.

Most of the products we use in our everyday life come from plant and animal by-products. Some of these products include but not limited to pharmaceutical products, ointments, surgical sutures, latex gloves, x-ray films amongst other health care product. How about manufacturing? Products such as lubricants, adhesives, detergents and polymers are some of the derivatives of agriculture. To the educational sector, agriculture provides raw materials for production of crayons, textbooks, pencils and papers among several others. We cannot leave out Personal Care and construction. Shampoo, lotions, cosmetics, toothpaste, fingernail polish etc., are all personal care benefits derived from agriculture. In the construction industry, agricultural products such as lumber, paints, tar paper, brushes, drywall, particle boards etc., are all provided to the building industry from the stable of ag-

riculture and its by-products.

Agriculture has built a partnership relationship with all of these industries over the years. For instance in the health care industry, families and livestock of farmers get health care services from the health care industry, and the healthcare industry makes us of finished products such as wools, produced from agricultural commodities. We now have the technology that provides computers for farmers for tracking market and information about the weather. The manufacturing industry is not left out in this partnership; they provide tools and equipment for mechanized agriculture or farming to the agricultural sector.

More so, agriculture offer by far the world's best and probably the only viable solution to the growing future challenges to protect the environment and to deal with global climate change. Everyone benefits from agricultural research and operations. Agricultural land provides food and habitat for 75% of the nation's wildlife [3]. Agriculture has been greatly enhanced by the age of civilization and technology to a great extent. Biotechnology has contributed a great deal in helping towards the development of new and better techniques used to increase crop yields and farm productivity.

Lastly, only agriculture offers a reliable chance of extending the food choices now available to the wealthy and the world's growing middle class, as well as lower class.

2.2. Turkish Republic of Northern Cyprus

Cyprus is the third largest island in the Mediterranean Sea after Sicily and Sardinia islands, with an area of 9,251 km². The neighbouring countries of Cyprus are Turkey in the north (60 km), Syria in the west (96 km), Egypt in the south (385 km), Greece in the east (380 km), Lebanon and Israel [5]. After the failure of the United Nation's plan aiming at bringing a comprehensive solution to the Cyprus dispute, the island was virtually split within the framework of the fifth enlargement of the EU on May 1, 2004. The negotiations on resolving the Cyprus dispute has restarted in 2014 [5].

The northern part of Cyprus has a surface area of 3,298 km² that is about 35% of the total area of the island. Out of this, the rural area has a quite substantial share of 74,7% (CI N°3) of the area (2,465 km²) with diversified resources [5] The region has semi-arid climate conditions and has been affected by the global climate change over the last years with warmer seasons, less quantity of rain (-25 to -30 %) and higher temperatures that exceed 45 °C in comparison with the average. Extreme events such as droughts and floods in North Cyprus have also taken place increasing soil erosion and landslides [5].

The overall population of North Cyprus has increased by 11.5% between 2006 and 2011. The rural population is about 49.4% of the total population with an amount of 141,475 residents. Although the natural growth rate has been slightly decreased, the rural population has increased by 0,9% between 2006 and 2011 due to an increasing number of foreign students (+6,27%) leaving in rural areas [5]. The rural population is not distributed evenly throughout the territory with a highest share in Kyrenia (30.72%) and Maria (21.98%) and a lower share in Nicosia (15.44%) [5].

2.3. Agriculture in TRNC

Report produced by The State Planning Organisation Annual Statistics, Nicosia, indicates that the agricultural sector is one of the key areas of the economy of TRNC [4]. Although the percentage contribution of agriculture to the GDP of TRNC shows a steady decrease from as the year progresses with effect from 2003 upwards, it is still of primary importance, as far as its contribution to Gross Domestic Product, general export of raw materials, and employment, are concerned. The primary agricultural products farmed in TRNC include but not limited to animal breeding, fish & fish products, citrus, cereals, honey and vegetables.

2.4 . Limitations to agricultural development in TRNC

The greatest limitations to the advancement of agriculture in TRNC may be attributed to the unfavourable climatic conditions of North Cyprus. The severe nature of the soil, scarcity of water, natural disasters, low financing of agriculture and the limitation of TRNC in participating in international trade due to its non-recognition by the international community are issues of great concern in the development of TRNC.

3. ECONOMIC DEVELOPMENT

Economic development is the process whereby simple, low-income national economies are transformed into modern industrial economies [6]. Although Economic Development is sometimes used interchangeably with economic growth, it is used to indicate a change in a country's economy involving qualitative and quantitative improvements.

According to Business Dictionary, Economic Development is a systematic examination and evaluation of data or information, by breaking it into its component parts to uncover their interrelationships, thus providing basis for problem solving and decision making [7].

3.1. Measures of economic development

Countries in the world can be the place in two broad categories: The Less Developed Countries (LDCs) and The More Developed Countries (MDCs). The measures employed in placing countries in these categories are discussed below:

i. GNP per capita

Gross National Product (GNP) is defined as the total market value of all final goods and services produced by a country in one year [9].

ii. Population Growth

It has been observed over the years, and from research reports that poorer countries show a higher rate of population growth. According to the Economic Geography, a useful way to see this is by using the "Rule of 70" [9]. The rule of 70 is a way to apprise the number of years it takes for something to replicate if you know the annual percentage growth rate [9].

iii. Occupational Structure of the Labour Force

Economic geographers divide economic activities into primary activities, secondary activities, and tertiary activities [9]. In the case of LDCs, most of the people engage in major activities. Whereas in high MDCs most people are involved in tertiary activities.

iv. Urbanization

Urbanization is the percentage of a country's population who live in urban areas[9].

v. Consumption per capita

It is assumed that the richer a country is, the more the citizens of the country will consume [9]. A major consequence of consumption is pollution. When fossil fuels are used, Carbon dioxide (CO₂) is emitted, as a result.

vi. Infrastructure

Infrastructure is the bed-rock of a society: networks, communications, urban centres, energy distribution systems, transport, mines, farms, factories, mines, and facilities such as hospitals, police, postal services, and schools, defines the foundation of any society. The higher the development of infrastructure, the greater the degree of economic development is presumed.

vii. Social Conditions

The rate of literacy, caloric intake,

infant mortality rate, the death rate, life expectancy, and others are social conditions of concern when measuring the economic development of a Nation.

viii. Human Development Index [HDI]

The United Nations Development Program (UNDP) computes a Human Development Index for each country year by year [9]. The human development index (HDI), is composed of three indicators: life expectancy, education (adult literacy and combined secondary and tertiary school enrolment) and real GDP per capita. The list of Human Development Index for individual countries is published by the UNDP here: http://www.undp.org/hdr2001/indicator/indic_10_1_1.html

4. FINDINGS AND DISCUSSION

The following conclusions are elaborated from the statistical documents and records made available by the Ministry of Agriculture, Natural Resources and Environment of the Turkish Republic of Northern Cyprus (TRNC).

▪ GNP per capital

Report produced by The State Planning Organisation Annual Statistics, Nicosia, indicates that the agricultural sector is one of the key areas of the economy of TRNC [4]. Although the percentage contribution of agriculture to the GDP of TRNC shows a steady decrease from as the year progresses with effect from 2003 upwards, it is still of primary importance, as far as its contribution to Gross Domestic Product, general export of raw materials, and employment, are concerned. The contribution of the agricultural sector to the GDP increased from 619.3 million TL in 1977 to 1,005.3 million TL in 2003 at constant prices of 1977 with an annual average increase of 1.2%. In 2003, this contribution stood at 10.6% of the GDP an increase from 9.2% in 1990 [4]. However, the GDP contribution declined from 10.6% from 2003 to 5.9% in 2011 according the TRNC Ministry of Finance [4].

Table 1. Statistical Pattern of the Share of Agriculture

	1999	2000	2001	2002	2003
% Share of GDP	9.1	7.9	9.7	10.9	10.6
% Share of EAP*	17.8	17.1	16.5	15.7	14.5
% Share of Exports	38.4	31.7	35.5	41.6	41.1

* EAP refers to economically active population

(Source: Third draft document of the overall analysis of the TC Rural Area by TC experts)

In 2002 and 2003, the percentage of agricultural product exports was 41.6% of the total domestic exports and 15.7% and 14.5% respectively of the working population was employed [4]. Agriculture sector's contribution to the total exports in 1990 was 45.5% and 26.7% employment of the economically active population during the same year [4].

• Population Growth and Labour Force

The contribution of people who are involved in agriculture activities to the general population of Northern Cyprus has been on a steady decline from 14,339 (14.5%) in 2003 to 3,614 (3.7%) in 2011 out of a total TRNC population of 215,790 in 2003 and 291,609 in 2011. respectively. The statistics show a total employment figure of 98,860 in 2003 and 97,103 in 2011, which is also on a decline. In addition, the economic statistic of 2012. provided by the TRNC Ministry of Finance shows that the overall population of people studying agriculture-related programs at the higher education level is also on a decrease from 2003 to 2011 [8].

• Infrastructure and Agricultural investments

Investment projects implemented by The Ministry of Agriculture and Natural Resources in 2012. where a total 19 projects amounting to a total expenditure of 21,820,808.21TL while the total subsidy paid to the agricultural sector in 2012. amounted to a total of 109,034,216.24TL. This leaves us with a difference of 87,213,408.03TL not accounted for

or put into any agricultural development projects [8].

Other measures of finding that were not considered in this research include: urbanization, consumption per capital and social conditions which are not analysed here due to limited data made available for analysis. However, this will not significantly affect the outcome of this survey.

• **Land distribution**

The table below shows the land allocation in the Turkish Republic of Northern Cyprus

Table 2. Agricultural Land distribution (%)

S/No	Kind of Land	Percentage (%)
1	Agricultural land	56.71
2	Forest Land	19.50
3	Grazing and Hali land	4.95
4	Town, Villages, Rivers and Dome Land	10.69
5	Unused Land	8.15

Source: Ministry of Finance, TRNC

Table 3. Farms distribution by areas intervals

S/No	Range(Hectares)	Number of Registered farms	Total Arable land (hectares)	Rate (%)
1	0 – 3	4951	5,895	3.74
2	3 – 20	4957	45,234	28.73
3	20 – 100	1871	75,747	48.10
4	100 plus	221	30,607	19.43
Total		12,000	157,483	100

Source: General agriculture insurance fund – Data, 2013

4.1. SWOT Analysis

<p>Strengths</p> <ul style="list-style-type: none"> ▪ Milk products ▪ Animal breeding <ul style="list-style-type: none"> ○ Sheep and goat ○ Poultry ▪ Dairy products ▪ Citrus products ▪ Honey products ▪ Food processing industries 	<p>Weakness</p> <ul style="list-style-type: none"> ▪ Research in agriculture ▪ Agriculture education ▪ Protection and preservation of arable agricultural lands ▪ Low agricultural infrastructure and facilities in rural areas ▪ Agricultural mechanization ▪ Financial constraint of farmers
<p>Opportunities</p> <ul style="list-style-type: none"> ▪ Animal breeding <ul style="list-style-type: none"> ○ Sheep and goat ○ poultry ▪ Milk marketing and production ▪ Poultry products exportation ▪ Honey exportation ▪ Citrus marketing ▪ Organic agriculture ▪ Food processing industries 	<p>Threats</p> <ul style="list-style-type: none"> ▪ Recognition of TRNC by the international community ▪ Natural disasters ▪ Low quality of water and water facilities declining ▪ Climate change ▪ Increase in cost of energy supply

4.2. Discussion and Conclusion

The analysis of the impact of agriculture on the economic development of Northern Cyprus raises a couple of issues that must be treated in order perfectly to understand the effect on the economy of TRNC. The state of TRNC’s economy is a very necessary consideration that cannot be overlooked. The various sectors that contribute to the economic development of TRNC are yet other issues. Agriculture alone cannot bring about the total development of the entire system (TRNC). Other institutions and entities work together to give us a better view of how agriculture is doing and to what extent it is positively or negatively affecting the economy of TRNC. Is the government putting too many funds and resources into the agricultural sector? Alternatively, NOT?

From statistical records made available to us in the course of this survey, we can make certain conclusions which are appropriate to measuring the growth of the agricultural sector in relation to the economy of the Turkish Republic of Northern Cyprus. To discuss some of the findings of this project, it is relevant to look at the economic status of TRNC briefly.

To start with the population, the overall population of Northern Cyprus has increased by 11.5% from 2006-2011. The rural population is about 49.4% of the total population with an amount of 141,475 residents [5]. Although the natural growth rate slightly decreased, the rural population increased by 0.9% during the same period due to an increasing number of foreign students (+6,27%) leaving in rural areas [5].

In terms of economic development, although North Cyprus’ GNP increased by 21%, up to TL 5.6 Million in 2011, its GNP per capita remained almost unchanged during the period (2006 – 2011) to 14,703 USD which is approximately twice less than the South Cyprus GNP with 27,500 USD in 2012 [5].

This is the environment in which the agricultural sector operates. It will be unrealistic to us to expect too much contribution from the agricultural sector towards the overall development of TRNC. Hence, this research tried

critically to analyse some of the key areas where agriculture can make a greater impact, such as, employment, percentage GDP contribution, infrastructure development and the standard of living.

From the findings and discussion so far, it is clear that the agricultural sector has made great impact in the formulation of the economy of TRNC in the early years of 1999-2003 .as pictured in the statistical pattern of Agriculture sector in **Table one**. However, a sharp decline from 2003-2011. was recorded by the Ministry of Finance, as well as the Ministry of Agriculture's report. Part of this decline was due to the economic recession of past years. This made it a very difficult task for the government of TRNC to get back to its' status-quo with reference to the agricultural sector, or even step up on past achievements in this area. The challenges facing this industry, notwithstanding, there are still a lot of prospects in the agricultural industries if the government can pay more attention to the area as it to other sectors such as the construction and service sectors. However, a couple of recommendations are offered in this research, based on the findings and analysis.

5. RECOMMENDATIONS

The significant finding of this study shows that the agricultural sector of TRCN has quite a lot of untapped potentials. Here are some suggestions that can help put the agriculture sector on a productive side in order to better the economic development of TRNC:

i. Agriculture based research: A sure way to solve the challenges facing the agricultural sector of TRNC is to encourage increase agricultural-based studies in the Ministry of Agriculture and support same in higher educational levels. This will boost the industry a lot, and encourage the discovery of new, better, and improved agricultural practices that will lead to productive and efficient farming methods, yielding significant outputs, and enhancing better productivity.

ii. Foreign Investors: More foreign investors should be allowed, encouraged to come into the agricultural sector of TRNC.

The focus should be on investors with expertise and experience in the field of agriculture. Especially investors from countries where their agricultural sector are known to be efficient and highly productive, leading to a holistic national economic development. The wealth of experience of such investors will be a great asset to the Agricultural sector of the Turkish Republic of Northern Cyprus. To do this, the government of TRNC, should consider working on its' international relations with other countries. They should also work towards a permanent solution to its recognition by the international community, either by reaching a compromise with the South Cyprus side, which would be the most better option, or but in more efforts towards its attainment of the status of a sovereign state that is recognized by the international community.

iii. Encouragement and introduction of agriculture-related courses (programs) in Colleges and Universities: The Introduction and Encouragement of Agriculture related courses such as Agricultural Economics in Colleges & Universities is a sure way to alleviate the challenges agriculture is facing currently in TRNC, especially in the area of management, and industrialized agriculture. This will increase the number of graduates in the field of agriculture, and subsequently, increase agriculture's contribution to employment in the country. As a result, people who have gainful employment in agriculture can attain a better economic status and standard of living. All these will contribute towards a higher GDP for the country.

iii. Monitoring System (Management Information System): One of the most tangible and achievable recommendation of this project, is for the government of TRNC to set up a functional monitoring system to evaluate the proper utilization of resource allocation to the Ministry of Agriculture. A practical and functional management information system can be designed, developed and implemented by the Ministry of Agriculture and other related ministries, which will monitor, evaluate and provide relevantly and associated information to government decision makers. The information supplied by the information system can be used to strategize better ways to

improve agriculture in TRNC for improved productivity. This system will monitor the internal activities of the Ministry of Agriculture, as well as external activities in relation to other major ministries such as the Ministry of Finance. The system will monitor how projects are been distributed and implemented, the various phases and how successful the Ministry of Agriculture implements a development project. This way all resources allocated to the Ministry of Agriculture can be accounted for and properly appropriated. If this system is successful, it can be deployed to other Ministry in the TRNC; this can lead to an overall country development.

iv. Seminars and training program for farmers: The government in collaboration to internationally approved and known agricultural institutes and universities can organize periodical seminars and training programs to update farmers on latest practices in agriculture and keep farmers informed of best, and healthy farming practices that will broaden the scope of farmers on better agricultural techniques that can be implemented in their area of specialization.

v. Reservation of arable land: In order to encourage agriculture in TRNC, fertile lands can be marked as "Government Reserved" specifically for agriculture. The government can also consider having a cluster of land area dedicated to agriculture and other agricultural activities. Lands can also be reserved for researchers and agricultural students for the purpose of research and industrial attachment for both groups respectively.

vi. Financial allocation: Despite the fact that the agricultural sector are not able to completely utilize actually government fund allocation to the unit in past years, we still find it necessary to recommend that more financial allocation be considered for the agricultural sector. This is to boost its productivity, enlargement, and future prospects that will come up as a result of research findings. This allocation is also necessary because the cost of research in agriculture on the high sides. As such, government should consider focusing its allocation to the agricultural sector to agricultural education and establishment of structures that will boost the industry. For instance, the

cost of designing, developing and implementing an information system for the agricultural sector will be huge. The government can also solicit support from the international agricultural research development bodies, and from neighboring Turkish Republic.

Conflict of interests

Author declare no conflict of interest.

REFERENCE

- [1] "Agricultural Economy." American. Eras. 1997. Encyclopedia.com. (November 3, 2014). <http://www.encyclopedia.com/doc/1G22536601563.html>
- [2] D. Gale Johnson. Agricultural Economics. Available at <http://global.britannica.com/EBchecked/topic/9573/agricultural-economics>
- [3] Regents of the University of California DRAFT Version 5/2001
- [4] Olgun, M.E., 'Socio-Economic Profile of the Turkish-Cypriot Community and the Main Issues to be Addressed in Preparing for a Political Solution to the Cyprus Problem', A Research Report prepared for the UNDP - Development Support Services, published by EMU, no: 0003-12-01-92, Nicosia, 1991. State Planning Organisation Annual Statistics, Nicosia
- [5] Third draft document of the overall analysis of the TC Rural Area by TC experts
- [6] <http://global.britannica.com/EBchecked/topic/178361/economic-development>
- [7] <http://www.businessdictionary.com/definition/analysis.html#ixzz3I3TuF4JQ>
- [8] Ministry of Finance TRNC. Economic statistics 2012
- [9] Measures of Economic Development. Available at: <http://harpercollege.edu/mhealy/g101ilec/intro/eco/ecomea/ecomeatx.htm>