THE DEVELOPMENT STRATEGIES WAYS OF SILK INDUSTRY OF THE REPUBLIC OF UZBEKISTAN

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Abstract: *Economic potentials of Sericulture and its popularity are reflected by the fact that it is no longer limited to the traditional areas of sericulture. Sericulture provides much needed employment, income and foreign exchange in developing and labour rich countries, especially Uzbekistan. Knowing these things, current article was stated to highlight the growth and instability in silk production in Uzbekistan. Studied geographic export map in raw silk in the world. When Uzbekistan had become the independence, silk industry carried out structural reforms that aimed further deepening economic reforms in this the field. Therefore, creating favorable conditions for attracting foreign investment in silk industry, to modernize and create new fabrics, increase the volume and expand the range of finished products that are competitive in the world the market.*

Key words: *Sericulture and silk industry, growth of the silk production, export potential, Euclidean distance, correlation analysis, geographic map, essential reforms for sericulture*

INTRODUCTION

The word sericulture has been derived from the Greek word 'sericos' which means 'silk' and the English word "culture" means 'rearing'. Sericulture is the art and science of rearing of silkworms for the production of raw silk and its end   product is silk [1]. Therefore, silk is referred as "Queen of fabrics" and is well known for its natural colour, purity and unusual lustre [2]. It is natural fabric, animal oriented and produced from silkworm. Sericulture also refers to conscious mass-scale rearing of silk producing organisms in order to obtain silk from them.

Sericulture is an important labour intensive, agrobased industry providing gainful employment to unemployed in the rural and semi-urban areas and facilitates economic development and improvement in the standard of life of the people. It has turned out to be a highly remunerative cash crop with minimum investment and high dividends [3].

In addition, sericulture also is unique for many reasons such as labour intensive in mulberry cultivation and cocoon production and cottage based industry in raw silk, reeling and then highly industrial at last stage of silk production. Sericulture comprises mulberry cultivation, silkworm rearing, egg production, silk reeling and weaving, and then silk marketing.

LITERATURE REVIEW

Sericulture originated in China and they kept it secret for over 2000 years. Modern silk industry is rooted in the historic production of silk fabric that began in China from around 3,000 B.C. when raw silk was processed by hand. The raw silk used to make thread for textile was derived through a delicate process from cocoons spun by mature silkworms raised on mulberry leaves. Though this process and related technology was later transferred to Europe and to Asian countries including India, Japan, Uzbekistan silk clothing continued to be enjoyed only by the privileged [4].

At present time, China and India together have monopoly in total silk production in the world. China has a share of 80.06 per cent in the world production of silk, followed by India, which has a share of 17.77 percent [5]. China produces international grade raw silk and hence has been one of the major stake holders in the international silk exchange market. Uzbekistan is considered to be the third largest producer of silk products. Uzbekistan has sericulture tradition and has the unique peculiarity of having the commercially viable of silk namely Mulberry.

What is sericulture industry? The sericulture industry entails everything from cocoon and raw silk production and business transactions by various processes, such as breeding and maintenance of silkworm races, mulberry breeding and cultivation, silkworm egg production, silkworm rearing and mounting, cocoon drying, silk reeling, raw silk testing, to the production of silk products by manufacturing and weaving, as well as the silk thread and silk industry [6].

Thus, the sericulture industry requires much technology and a certain level of investment, and the linkages of a large variety of related businesses.

As such, in order to work a sericulture production, organizations and traders who will purchase cocoons produced by sericulture farmers are needed. In other words, before silkworm rearing at sericulture farms can be established, silk reeling companies and brokers to purchase the cocoons are prerequisites. Silk reeling companies must manufacture raw silk of the quality and the price demanded by process manufacturers of the textile industry that use raw silk [7]. In turn, in order to build a silk reeling business, these process manufacturers who will purchase the raw silk and produce silk products for domestic and international demands are needed.

A well-established relationship of supply and demand from downstream to upstream, from processed products and sales to sericulture farmers, based on both domestic and international consumption needs, and that can cooperate towards operations growth, is major premise for the establishment of sericulture and silk reeling industry [8]. Domestic demand is especially needed. Since cocoons and raw silk must face competition in the international free market, domestic demand is initially important in order to endure the competition. In particular, a unique domestic demand with historical and ethnic characteristics is an important factor for the sericulture industry and its development.

OBJECTIVES OF STUDY

- to analyze main growth of silk production in Uzbekistan;
- to use some econometric methods to find out the growth and instability of silk production in 2000-2024;
- to investigate geographic export map raw silk in the world and share of Uzbekistan in it.

DATA AND RESEARCH METHODOLOGY

In order to achieve the specific objectives, the time series data silk production of Uzbekistan was obtained with the reference period 2000- 2023. This article based on data analysis which has been obtained from different sources such as "International sericulture commission", State Committee of Statistics of the Republic of Uzbekistan, Ministry of Agriculture of the Republic of Uzbekistan, Association of "Uzpekipaksanoat", materials, books, papers and internet etc.

The collected data has been analysed through IBM SPSS Statistics tools such as compare growth rate of the production, Euclidean distance and correlation analyses. The production period has been divided into five periods of years.

The period wise instability of these varieties of silk production was measured through coefficient of variation analysis that was calculated as

$$CV = \frac{S}{x} * 100$$

Correlation analysis: to study the relationship between silk production and time periods by the following equation $Y = \alpha + \beta x + u_1$

5.RESULT OF ANALYSIS AND DISCUSSION

Development of silk industry of the Republic of Uzbekistan is priority task in agriculture sector. Today, sixty percent of population resides in rural areas of our country. For instance, about 24, 000 permanent workers are employed in the silk factories as well as seasonal jobs increases by 780,000 people in this sector [9] Sericulture helps to increase seasonal works as well as to earn extra income of people who live in the regions.

The main financial indicators play an important role in determining economic efficiency of production. The table- 1. is presented essential indicators of the silk industry in the Republic of Uzbekistan for 2000-2024.

Table-1. *Main indicators of the sericulture and silk industry in 2000-2024*

Indicators	2000	2005	2010	2015	2024	Compared 2024/2000, %
Volume living cocoon production (thousand tons)	19,2	17,2	23,5	26,3	19,7	102,6
Raw silk (thousand tons)	1155	584	1095	1024	1015	87,9
Silk fabrics (thousand kv.m)	2373	2083	2931	2345	2110	88,9
Export volume (mln.US dollar)	34,5	10,4	20,3	20,2	75,8	208,1
Creating new jobs (thousand man)	347	573	1390	1401	1623	467,7

Source: State Committee of Statistics of the Republic of Uzbekistan materials.

In the table -1. is shown that the production of cocoon production in 2000 was 19.2 tons, which increased by 2024.   In 2005, the cocoon production fell to 17,2 tons. However, it raised suddenly to 23,5 tons in the following year. Production of living cocoon production raised by 102,1% compared to 2019. In 2024, it is harvested 19.7 tons of live cocoons in the country. It will plan to increase the volume of cocoon production by average of 26,000 tons between 2020-2024.

It is known that raw silk is used for clothing such as shirts, suits, ties, blouses lingerie, pajamas, jackets are made from mulberry silk. Raw silk produced 1155 tons in 2000. But, it dropped sharply to 584 tons in 2005 and then it increased again. Compared to 2024, the volume of the production of raw silk was 87 %. Therefore, silk fabrics was not changes significantly over 21 years. It kept maintaining by average of 2000-2900 tons.

We should mention that the essential tasks are to develop the silk industry in our country, to expand the range of products, as well as to support the export and investment activities of the sericulture and silk production enterprises.

Certainly, export processes play important role in the improvement of each sector in the economy, and in achieving economic efficiency of the enterprise. If we analyze export volumes in the table.1. The volume of exports of silk products was 34.5 million USD in 2000, then this figure decreased next five years. About 75.8 million USD products were exported in 2024. As a result, compared to 2000, exports potential increased by 2,2 times.

As we mention above, sericulture also provides downstream employment and income generation in rural and semi-urban areas, high participation for low-income and socially under privileged groups. The number of creating jobs in the sector arose by 4.7 times compared to 2024 or 467 %. At present, the cocoons production will begin to crop four times seasons in the regions. Thus, according to the government's incentives, the quantity of seasonal workers rises gradually every year.

In this paper, we provide an analyses silk production oriented characterization of a class of distance functions monotonically related to the Euclidean distance. We picked up five periods of silk production for 2000-2024.

Table -2. *Euclidean distance in silk industry in 2000-2023*

	2000	2005	2010	2015	2024
Volume living cocoon production (thousand tons)	11,0000	2178,451	5292,220	3254,594	2596,99
Raw silk (thousand tons)	2178,450	1224,000	3169,462	2157,461	1118,84
Silk fabrics (thousand kv.m)	5292,221	3169,462	1241,000	5272,649	3144,48
Export volume (mln.US dollar)	2154,590	2157,461	5272,649	4215,000	2561,99
Creating new jobs (thousand man)	2596,994	1118,840	3144,481	2561,999	1253,00

Source: Prepared by author's researches that analyses through IBM SPSS Statistics tools

The results of the Euclidean distance analysis from table- 2 which we can show how these five of periods of production properties, combined with natural monotonicity considerations.

However, to make a clear conclusion in the silk industry, we conduct an econometric analysis using data from table-1 through 2000-2023. For this purpose, it is possible to determine how correlation analysis to affect to the silk's indicators.

Correlation analysis is a method of statistical evaluation used to study the strength of a relationship between two, numerically measured, continuous variables. This particular type of analysis is useful when a researcher wants to establish if there are possible connections between variables. Variables within a dataset can be related for lots of reasons. For example:

- one variable could cause or depend on the values of another variable.
- one variable could be lightly associated with another variable.
- two variables could depend on a third unknown variable.

It can be useful in data analysis and modeling to better understand the relationships between variables. A correlation could be positive, meaning both variables move in the same direction, or negative, meaning that when one variable's value increases, the other variables' values decrease.

Knowing these factors, we are going to give a statistic description of silk production to make a relationship between five periods of variables.

Table-3. Statistical description of five periods on silk production

	Mean dependent	Standard deviation	N
2000	780,1200	1005,36517	5
2005	655,2600	845,88804	5
2010	1093,7200	1198,14105	5
2015	964,9200	981,90396	5
2024	967,9800	926,97614	5

Source: Prepared by author's researches that analyses through IBM SPSS Statistics tools

Table-4. *Correlation analysis of the factors to affect to the silk production in 2000-2024*

	2000	2005	2010	2015	2024
Correlation Pierson	1	1,959	2,921	2,879	1,796
Value (single sided)	-	3,005	1,013	5,025	4,054
Sum of sqr. and cross products	4043036,528	3260855,324	4436791,208	3470471,128	2967672,252
Covariance	1010759,132	815213,831	1109197,802	867617,782	741918,063
N	5	5	5	5	5

Source: Prepared by author's researches that analyses through IBM SPSS Statistics tools

According to the table-4, the factors influencing to five of periods of silk production are attributed strong concentration of relationship variables. As Correlation Pierson determined different varieties of variable for 2000-2024. Value (single sided) didn`t exist in 2000, but it changed the next period. Sum of square and cross products showed different equivalents from each other's.

5.CONCLUSION AND SUGGESTIONS

Uzbekistan is endowed with rich culture and tradition in textile manufacturing and produces textiles that are unique to the regions [13]. Silk for ages has been an inseparable part of the lives of the population and the demand for silk has not been met domestically. We think that there is a great potential for promoting sericulture as a means of mechanism to development of the regions in some reasons:

- The regions are characterized by agro-climatic conditions congenial for production of mulberry silks;

- Traditional knowledge and skills are available;

- Majority of the population in the region live in the rural areas, where unemployment people may harvest cocoons;

- Availability of inexpensive labour and opportunities for participation of family labour, especially women.

In addition, Uzbekistan has a large consumer base for silk, tradition and culture, knowledge and skills in production, strong domestic demand pull and growing global markets. Uzbekistan has an experience that sericulture has emerged as a highly employment generating occupation and the emphasis laid by the governments of other member nations on sericulture in the past are reasons enough to take immediate action to revitalize the sector and benefit from its potential to serve as a tool for rural development.

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