

Review Article

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Global Perspective on Silk: An Economic Analysis of International Sericulture Trade

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ABSTRACT

The global silk industry, with a rich historical legacy, continues to evolve amidst changing dynamics. This study examines the international sericulture trade, focusing on major producers like China, India, and Italy. It analyzes production trends, export-import scenarios, trade dynamics, and the role of tariffs. China emerges as the dominant player, while India exhibits potential for silk waste, fabrics, and garments. The study identifies challenges, including fluctuating demand, pests, and quality control issues, and highlights prospects driven by sustainability, technological advancements, and luxury market growth. The review underscores silk's versatility and emphasizes the need for innovation, adaptation, and sustainable practices to ensure the industry's continued prosperity.

Keywords: Sericulture, Silk Trade, Export-Import, China, India, Italy, Sustainability, Innovation, Production, Fluctuating demand.

1. Introduction

Silk, a naturally derived fiber renowned for its environmental friendliness and diverse applications, proves itself ideal for both apparel and countless other uses [1]. Though synthetic fibers reign supreme in affordability, silk's luxurious touch, delicate strength, and shimmering elegance keep it crowned "Queen of textiles" [2], [3]. Mulberry silk leads the production, consumption, and international trade of silk, holding the largest share in overall silk production and finding extensive use in textiles such as silk, deluxe, satin, chiffon, chignons, crepe, and brocade, as well as in various clothing items, including scarves, ties, blouses, shirts, skirts, dresses, suits, jackets, and socks, often designed by renowned designers, while other types like eri silk, tasar silk, and muga silk serve diverse purposes [4]. Silk is also utilized in the creation of sophisticated carpets, furniture covers, draperies, pillow and sofa covers, bed sheets, wall sheets, and more [5], [6].

The origins of silk production and the dissemination of its production technique entail a long and fascinating history. Around 5000 years ago, evidence of silk was discovered in China, with Chinese legend attributing the invention of sericulture and silk cloth weaving to Hsi-Ling-Shih, the wife of the mythical Yellow Emperor, also known as the "Goddess of Silk" in Chinese texts, where the legend tells of a cocoon falling into the empress's teacup, unraveling to yield silk thread [7]. The term "sericulture" pertains to the agricultural activities associated with silk production; a practice that has its roots intertwined with the ascension of China as a prominent civilization. Silk, one of the most ancient known textile fibers, is

reported to have been utilized as early as the twenty-seventh century BC, initially exclusive to China until its dissemination to Japan and India around 300 AD [8].



Fig 1: Empress Leizu and Yellow emperor.

Source: [9]

<https://www.shenyun.org/blog/view/article/e/NOxQ55iXVE8/story-of-silk.html>

The spread of sericulture and silk to Europe and other Western countries occurred through the famous "Silk Road". The term "Silk Road" has colonial origins, as it refers to the ancient trade network dating back to the fourth millennium BC, spanning Eurasia through Central Asia, which was reconceptualized in the late nineteenth century as a connection between China and the Roman Empire, sidelining the historical role of the steppe and its nomadic cultures [10]. The notion of the "Silk Road(s)" is anachronistic, projecting contemporary perspectives onto the historical past, especially considering that silk was just one of the various significant commodities exchanged, including horses, cotton, precious stones, and furs [10].

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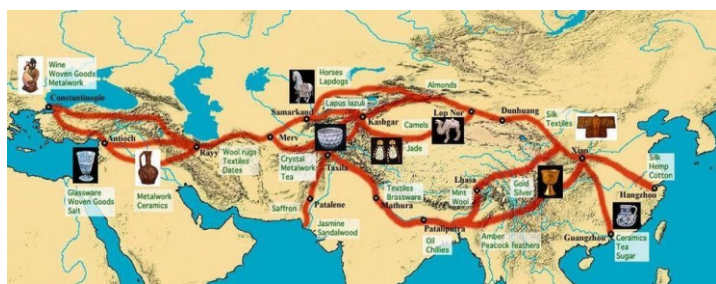


Fig 2: The goods exchange through the Silk Road during the Ancient period

Source:

<https://tvtropes.org/pmwiki/pmwiki.php/UsefulNotes/TheSilkRoad>

The 6400 km long Silk Road, originally a caravan tract, commenced from present-day Sian, traversed the Great Wall of China, extended northwest across the Pamir mountains and the Takla Makan deserts, crossed Afghanistan to Antioch in Syria, and then continued via Egypt and the Mediterranean ports to Europe, constituting a perilous route with few travelers covering its entirety, including the renowned Marco Polo [11]. While Indian caravans, laden with luxury goods like spices and indigo, journeyed on this legendary road, exchanging their wares for Chinese silk, and today, a portion of this historic route remains in the form of a paved highway linking Pakistan and Sinkiang in China [11].

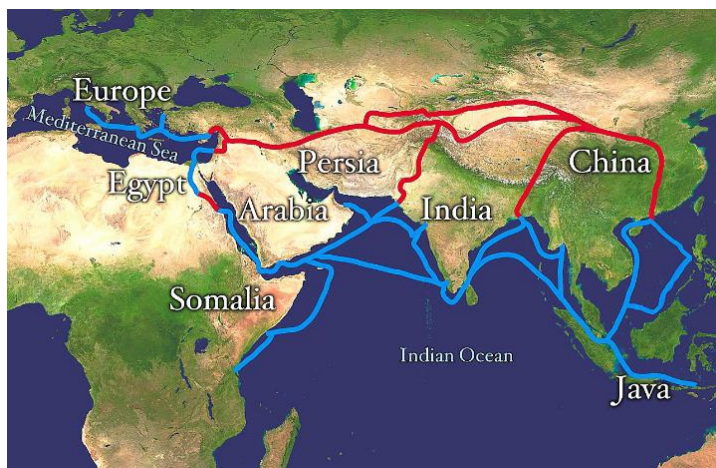


Fig 3: Silk Road Map covering European and other Western countries

Source:[12]

Woven fabrics, raw silk on thrown, silk waste, silk yarn, and yarn spun from silk waste constitute the most globally traded

products, although there has been a decrease in both exported and imported quantities due to heightened demand within the domestic markets of the primary producers [6]. The demand for silk is steadily rising for the production of fabrics and clothing, highly sought after by both men and women for its exceptional fineness, pleasant and delicate feel, durability, distinctive sheen, and elegant appearance [13], [3].

Major silk producers, primarily located in Asia, contribute 90 percent of mulberry production and nearly 100 percent of non-mulberry silk, while developed countries like Japan, Italy, France, and South Korea have experienced a significant reduction in silk production due to uneconomical labor costs resulting from industrialization [14]. Notably, in India, the key states involved in mulberry raw silk production include Karnataka, Andhra Pradesh, West Bengal, Tamil Nadu, and Jammu & Kashmir, and the share of silk imports to total textile imports of the country has decreased from 0.067 percent to 0.024, reflecting the increased production of import substitute bivoltine silk within the country to meet the growing domestic demand [14]. The export and import of silk and silk goods play a major role in the economic upliftment of a country's GDP. The flourishing silk business, requiring small initial investments, not only employs millions, thereby stemming and reducing urban migration but also yields substantial returns for producers in underdeveloped rural areas, contributing to significant inflows of foreign currency into the developing nations' payment balances [6].

Silk production and distribution:

Although silk is produced in more than 60 nations worldwide, its contribution to the global textile market is quite small and shares less than 0.2 percent [14]. Several countries, including China, India, Uzbekistan, Brazil, Japan, Republic of Korea, Thailand, Vietnam, DPR Korea, and Iran, are major silk producers, while a few others such as Kenya, Botswana, Nigeria, Zambia, Zimbabwe, Bangladesh, Colombia, Egypt, Japan, Nepal, Bulgaria, Turkey, Uganda, Malaysia, Romania, and Bolivia are also involved in silk production on a smaller scale [14]. In the case of the global silk production scenario Together, China and India produce almost 94.95 percent of the world's raw silk, i.e., 86317 metric tonnes, in 2021–2022 (Dasari & Venkataraman, 2023). According to ISC 2023 report the total global raw silk production in 2022 is 91221 MT. In the silk sector of China, about 1 million workers are employed and hold the title of the world's single biggest producer cum supplier and India gains the title of second largest producer [15].

Table 1: Global scenario of silk production (MT)

Source: <https://inserco.org/en/statistics>

Countries	2015	2016	2017	2018	2019	2020	2021	2022
China	170000	158400	142000	120000	68600	53359	46700	50000
India	28523	30348	31906	35468	35820	33770	34903	36582
Uzbekistan	1200	1256	1200	1800	2037	2037	2037	2037
Vietnam	450	523	520	680	795	969	1067	1067
Thailand	698	712	680	680	700	520	503	435
Brazil	600	650	600	650	469	377	373	375
North Korea	350	365	365	350	370	370	370	370
Iran	120	125	120	110	227	270	272	275
Bangladesh	44	44	41	41	41	41	41	35
Japan	30	32	20	20	16	16	10	10
Bulgaria	8	9	10	10	10	10	9	10
Madagascar	5	6	7	7	8	8	8	8
Turkey	30	32	30	30	5	5	5	5
Indonesia	8	4	3	3	3	3	3	3

Uganda	-	-	-	-	3	3	3	3
Colombia	1	-	-	-	1	1	1	1
Egypt	1	1	1	1	2	2	2	1
Romania	-	-	-	-	1	1	1	1
Philippines	1	2	2	2	2	2	2	1
South Korea	1	1	1	1	1	1	1	1
Syria	0	0	0	0	1	1	1	1
Tunisia	3	2	2	2	2	2	2	1
Total	202073	192512	177507	159855	109111	91765	86311	91221

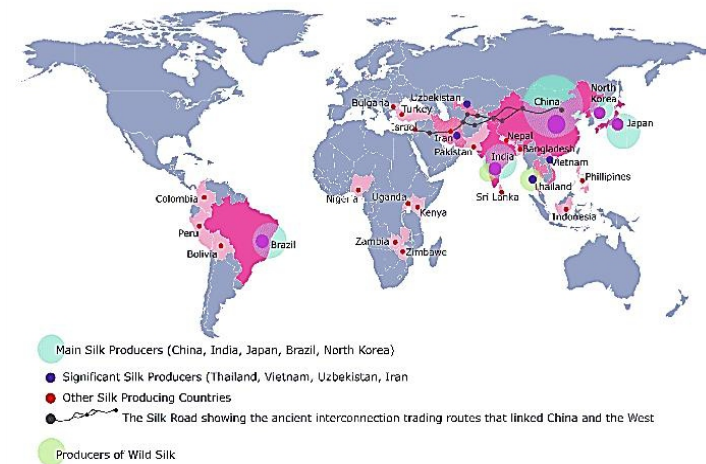


Fig 4: Distribution of Silk-producing countries in the World

Source: <http://sff.arts.ac.uk/Fibre%20Origins/silkmap.html>

Current Scenario of International Sericulture Trade

The international trade in sericulture is currently a complicated situation with both positive and negative aspects. Producing more than 90% of the world's mulberry silk, China continues to be the unchallenged leader. According to the ISC Report from 2023, India is ranked second, followed by Uzbekistan, Vietnam, Thailand, and Brazil.

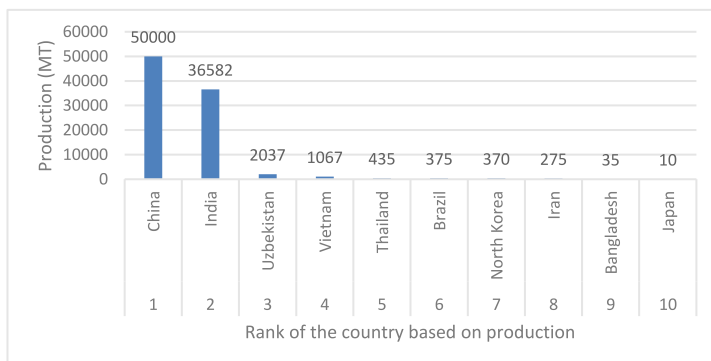


Fig 5: Graphical representation of the rank of the major 10 silk-producing countries based on silk production in 2022 year

Source: [20]

While nations like China might dominate silk production, the spotlight doesn't end there. Several developed nations are recognized for their significant consumption of raw silk instead of its production which helps in driving the global demand for this luxurious fabric. These major silk consumers include the USA, Italy, Japan, India, France, China, United Kingdom, Switzerland, Germany, UAE, Korea, Viet nam, etc [20].

For over two centuries, Japan remained isolated, nurturing a unique culture while witnessing a flourishing silk production that made raw silk a dominant export by 1907. However, World War II led to a steep decline in silk production and exports. Despite a post-war recovery, Japan's booming economy in the

1960s led to a surge in domestic silk consumption, eventually causing Japan to shift from being a major exporter to an importer of raw silk by 1965 [21]. Japan imports a range of silk products in addition to producing its silk goods. The production of "kimonos" consumes about 50% of its raw silk output [4]. Italy with 20% of the world import of silk became the leading consumer among the developed country [22]

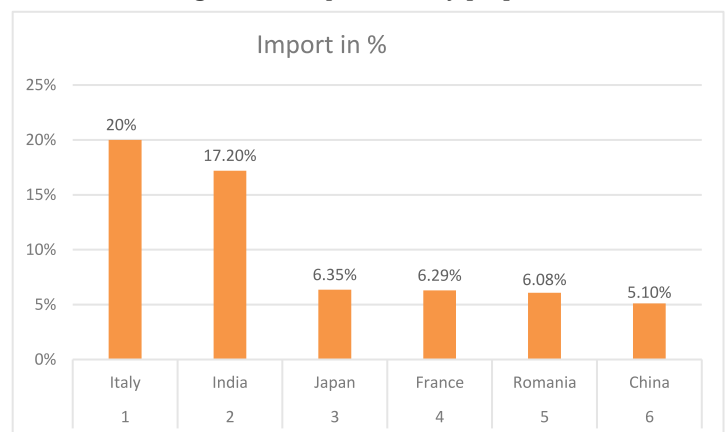


Fig 6: Top five major global silk consumer with their import percentage.

Source: [22]

Global silk export and import scenario:

I. Silk export- With a substantial market share, China is the world's leading exporter of raw silk. Following closely behind is Italy, renowned for its luxurious finished silk products and craftsmanship. Vietnam has emerged as a major player, exporting raw silk and woven fabrics. India, with its rich heritage in silk, holds a steady position, known for its vibrant handloom products and sarees. Finally, Uzbekistan's contribution cannot be ignored, focusing primarily on raw silk exports. These major silk export countries each hold a unique position in the industry, shaping the market with their diverse offerings and expertise. According to Trend Economy (2024) report the top exporters of silk in 2022 are China With 49% of the world exports (\$932 million), Italy 14.2% (\$270 million), Vietnam 7.54% (\$143), India 4.99% (\$94 million), Uzbekistan 4.95% (\$94 million).

Table 2: Past 5-year scenario of major 5 global silk exporters based on the quantity (Kg) of silk export

Source: [23]

Country	2018	2019	2020	2021	2022
China	4580823	4305183	2355513	1863427	4534516
Vietnam	496098	858852	1020330	1165318	1554125
Uzbekistan	593140	781840	517080	406940	432027
Italy	339983	376391	319473	429455	344306
India	4766	4552	21017	129358	46131

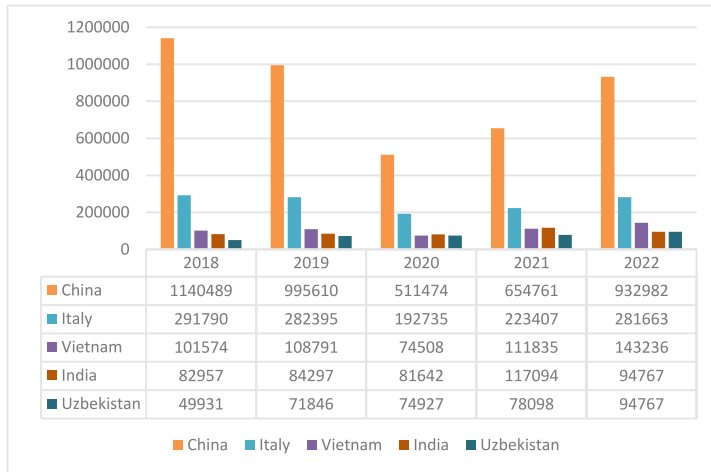


Fig 7: Graphical representation of the export value (in US dollars) of 5 major countries of the world analyzing the past 5 years export data

Sources: [24]

Silk import- As of 2022, Italy has emerged as the top importer of silk, commanding a significant 20% share of the global market. With annual silk imports reaching \$320 million, Italy has solidified its position as a key player in the silk industry. India closely follows with a 17.2% market share and imports valued at \$274 million, underscoring the country's historical significance in silk production and its continued participation in the global silk trade. Japan secures the third position with a 6.35% market share and \$100 million in imports, reflecting a strong cultural and industrial affinity for silk. Notably, despite being a major silk exporter, China ranks sixth among importers, highlighting its multifaceted role in the global silk market. These statistics depict a diverse landscape of silk importation, with established fashion centers like Italy and India leading the way, followed by nations with deep cultural ties to silk such as Japan [22].

Table 3: Past 5-year scenario of major 5 global silk importers based on the quantity (Kg) of silk import.

Source: [23]

Country	2018	2019	2020	2021	2022
Italy	660150	639570	437986	536001	543053
India	2728249	3263819	1919777	2031351	3865583
Japan	303374	292388	147310	185027	219471
France	275625	131345	138222	114682	172785
Romania	1541534	1224509	962101	627136	1068368
China	226391	291069	93833	541751	912759

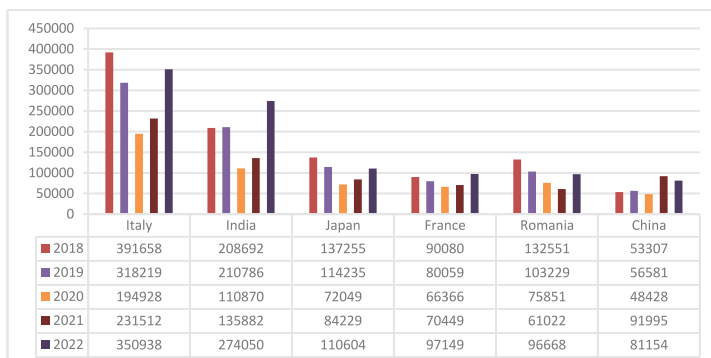


Fig 8: Graphical representation of the import value (in US dollars) of 6 major countries of the world analyzing the past 5 years' import value data.

Sources: [24]

Global trade dynamics of silk

The global trade dynamics of silk have been shaped by a complex interplay of factors, reflecting changing economic, technological, and social landscapes. While China maintains its dominance, the future of the industry lies in embracing sustainability, innovation, and adapting to evolving consumer preferences.

i) Trade dynamics of silk export price

Table 4: Past 5-year export share dynamics of the major 10 countries

Source: [24]

Exporter	Share in values in the world exports in %				
	2018	2019	2020	2021	2022
China	52.5	49.9	41.4	43.1	48.5
Italy	13.4	14.2	15.6	14.7	14.6
Vietnam	4.7	5.5	6	7.4	7.4
India	3.8	4.2	6.6	7.7	4.9
Uzbekistan	2.3	3.6	6.1	5.1	4.9
Romania	4.9	5	4.7	4.4	4.8
France	3.1	3.6	3.7	3	2.6
Japan	2.3	2.3	3.1	2.5	1.7
Republic of Korea	2	1.9	1.4	1.4	1.5
Brazil	1.6	1.4	1.6	1.7	1.4

The table shows that the share in values in the world exports in the percentage of the top 10 exporting countries is highest in the case of China which ranges between 41.4% and 52.5% of the world's total export value. Italy is in the 2nd position with a range between 13.4% and 15.6%. Vietnam owns the 3rd position with a range of 4.7% and 7.4% and India holds the 4th position with a share percentage range between 3.8% and 7.7%. On the other hand, Brazil holds the 10th position with a small share percentage range between 1.4% and 1.7%.

Table 5: Past 5-year dynamics of exported growth in value/ price in % of the major 10 countries

Source: [24]

Exporter	Exported growth in value in %			
	2018- 2019	2019- 2020	2020- 2021	2021- 2022
China	-13	-49	28	42
Italy	-3	-32	16	26
Vietnam	7	-32	50	28
India	2	-3	43	-19
Uzbekistan	44	4	4	20
Romania	-7	-41	17	38
France	5	-36	-1	8
Japan	-5	-17	-2	-16
Republic of Korea	-15	-54	19	36
Brazil	-15	-29	31	-1

In the analyzed period (2018-2022) in the case of China, the export value or export price declined to -13% in 2018-19 and a huge decline of -49% was seen in the period of 2019-20. In the case of Italy, it declined to -3% during 2018-19 and 2019-20 a sharp decline of -32% was seen. Vietnam showed a decline of -32% during 2019-20. In the case of a developing country like India, the export value shows a negative result of -3% during 2019-20 and a decline of -19% is observed during 2021-22. Romania showed the negative result of -7% and -41% during 2018-19 and 2019-20 respectively. In the case of the Republic of Korea, export value declined to -15% during 2018-19 and -54% during 2019-20. Brazil showed a negative value of -15% and 19% during 2018-19 and 2019-20 respectively and a slight decline of -1% in export value during 2021-22. During the analyzed period among the 10 countries, Uzbekistan is the only country showing positivity in export value or price from 2018 to 2022.

On the other hand, Japan is the only country showing only negative results in export value from the period of 2018 to 2022.

ii) Trade dynamics of silk import price-

Table 6: Past 5-year import share dynamics of the major 10 countries

Source: [24]

Exporter	Share in values in the world import in %				
	2018	2019	2020	2021	2022
Italy	22	20.3	18.4	18.9	20.9
India	11.7	13.4	10.5	11.1	16.3
Japan	7.7	7.3	6.8	6.9	6
France	5.1	5.1	6.3	5.8	5.8
Romania	7.4	6.6	7.2	5	5.7
China	3	3.6	4.6	7.5	4.8
United States of America	4.9	4.6	4.8	4.3	4.3
Vietnam	3.2	3.3	2.5	2.2	3
Republic of Korea	3.2	3.1	2.4	2.6	2.3
Tunisia	2	2.2	2.7	3	2.3

The table shows that the share in values in the world imports of silk in percentage of the major 10 importing countries is highest in the case of Italy which is in the range between 18.4% and 22% of the world total import value. India is in 2nd position with a range between 10.5% and 16.3%. Japan holds the 3rd position with the range of 6% and 7.7% and France owns the 4th position in the case of world import share with the range between 5.1% and 6.3%. On the other hand, Tunisia holds the 10th position with a little share percentage range between 2% and 3%.

Table 7: Past 5-year dynamics of imported growth in value/ price in % of the major 10 countries

Source: [24]

Exporter	Imported growth in value in %			
	2018-2019	2019-2020	2020-2021	2021-2022
Italy	-19	-39	19	52
India	1	-47	23	102
Japan	-17	-37	17	21
France	-11	-17	6	38
Romania	-22	-27	-20	58
China	6	-14	90	-12
United States of America	-17	-30	4	36
Vietnam	-10	-49	2	83
Republic of Korea	-13	-48	26	22
Tunisia	-3	-18	31	5

In the analyzed period (2018-2022) in the case of Italy, the import value or import price declined to -19% in 2018-19, and a decline of -39% was seen in the period of 2019-20. In the case of India, it declined to -47% during 2019-20 and during 2021-22 a huge increase of imported growth in value of 102% was seen. Japan showed a decline of -17% during 2019-20 and a decline of -37% was observed during 2019-20. In the case of France, the import value shows a negative result of -11% during 2018-19, and a decline of -17% is observed during 2019-20. Romania showed the negative result of -22%, -27%, and -20% during 2018-19, 2019-20 and 2021-22 respectively. In the case of China, import value is showing a huge positive result of 90% during 2020-21. Among all 10 major countries highest decline in import growth value (-49%) was observed in the case of Vietnam during 2019-20 and the highest increase in import growth value (102%) was observed during 2021-22.

Role of tariffs in the global silk market

A tariff is a levy imposed by a government on goods that are brought into the country from abroad. Essentially, it is an additional charge imposed on items entering one country from another.

Tariffs have played a significant and interconnected role in the history of the silk industry worldwide. Originally, they were used as a means of protectionism, supporting the growth of silk production in European countries such as France and England. These nations implemented high tariffs on imported silk to safeguard their domestic industries from established Asian producers, thereby promoting local manufacturing and technological advancements. This approach, as documented in Taussig's 1905 work "The American Silk Industry and the Tariff," proved successful in establishing European silk industries. However, it often resulted in higher prices for silk goods, negatively impacting consumers.

China, among other countries, didn't just use tariffs for protectionist purposes; they also employed them as a means of generating revenue. By imposing substantial taxes on exported silk, China was able to earn considerable income while retaining influence over this prized commodity. This approach, as detailed in Allen's (2014) "Silk Road: Trade, Travel, War and Culture," underscores the complex role of tariffs and their effects on producers and consumers involved in the worldwide silk trade. As the industry progressed, tariffs became intertwined with global political conflicts. Trade disputes and trade wars frequently resulted in higher tariffs on silk, causing disruptions to established trade routes and profoundly affecting economies heavily dependent on the silk trade. For instance, the trade tensions between China and the United States in the 20th century led to substantial fluctuations in silk tariffs, affecting both Chinese exporters and American consumers. These examples illustrate the capacity of tariffs to disturb global supply chains and underscore their extensive economic and political implications.

Tariffs on silk have a less significant impact in the modern, globalized world because of trade liberalization agreements and international collaboration. Nevertheless, knowing the historical relevance of tariffs is still essential to understanding the intricate dynamics of the world's silk trade and how it has changed over the centuries.

Current scenario of sericulture and silk industry in India

India, with a silk production of 36,582 metric tons during 2022-23, is the second-largest silk producer globally, following China. This production figure represents 89.7% of the targeted production of 40,800 metric tons. Raw silk production has seen a 4.8% increase compared to the previous year, which stood at 34,903 metric tons (CSB annual report, 2022-23).

India has a unique position among the silk-producing countries as it produces all 4 kinds of silk namely mulberry, muga, tasar, and eri. However due to the growth of industrialization, global warming, climatic factors, and migration of labor to the urban areas, the total raw silk production in the country shows both positive and negative growth results. During 2021-22 the total mulberry plantation in the country was 242277 ha which is showing a total of 253182 ha during the recent period of 2022-23 i.e., a 4.5% area under mulberry has increased (CSB annual report, 2022-23).

Table 8: Raw silk production in India

Source: CSB annual report, 2022-2023

Particulars	2021-22	2022-23		Increased in % over 2021-22
		Target	Achievement	
Mulberry Raw silk (MT)				
i. Bivoltine	7941	9250	8904	12.1
ii. Cross breed	17877	19510	18750	4.9
Vanya silk (MT)				
i. Muga	255	290	261	2.4
ii. Eri spun silk	7364	7900	7349	-0.2
iii. Tasar	1466	3850	1318	-10.1

The table shows that among all 4 kinds of silk the Bivoltine mulberry raw silk shows a positive growth rate of 12.1% in the case of production. But in the case of tasar silk, the production is reduced to -10.1% as compared to the year 2021-22.

In recent years, this drastic decline in tasar silk production in the major tasar silk-producing states like Jharkhand, Chattisgarh, Orissa, Maharashtra, West Bengal, and Andhra Pradesh is due to multiple factors such as the loss of natural habitats due to deforestation and urbanization, leading to a diminished supply of food plants for tasar silkworms. Additionally, the shift of rural communities from traditional sericulture to alternative livelihoods has impacted tasar silk cultivation. Unpredictable weather patterns and climate change have further negatively influenced tasar silk production in India. In recent years Central Silk Board took various revitalization efforts that include the promotion of sustainable silkworm rearing practices, the conservation of natural habitats, and providing support to sericulturists to foster the sustainable production of tasar silk and also provide various schemes to help the tribal people of tasar producing states financially.

Silk export of India: During 2022-23, the primary export destinations for Indian silk goods were the UAE, the USA, China, the UK, and Australia, contributing to 25%, 18%, 9%, 8%, and 5% of the total export earnings, respectively (CSB annual report, 2022-23).

Table 9: Export earnings of Silk goods and Silk by India (2017-18 to 2022-23 in \$ US million)

Source: Compiled data obtained from the CSB annual report 2018-19 to 2022-23

Items	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Raw silk	-	0.19	0.16	0.192	2.46	0.22
Natural silk yarn	2.42	3.35	2.2	3.76	4.61	4.60
Fabrics and made-up	134.18	145.85	138.95	98.65	112.41	121.00
Readymade garments	100.93	107.30	71.18	60.84	90.43	60.92
Silk carpets	2.69	16.11	20.30	14.53	10.63	11.55
Silk waste	15.71	18.56	13.88	20.33	28.02	22.29
Total	255.93	291.36	246.67	198.30	248.56	220.58

During the analyzed period in the case of silk export earnings of India, the highest export earning is received from Fabrics and made-up products and the lowest export earnings is seen in the case of Raw silk. In the case of total export earnings from all the silk goods and silk, the highest amount of 291.36 million dollars was collected during 2018-19 and the lowest amount of total export earnings was recorded during the year 2020-21.

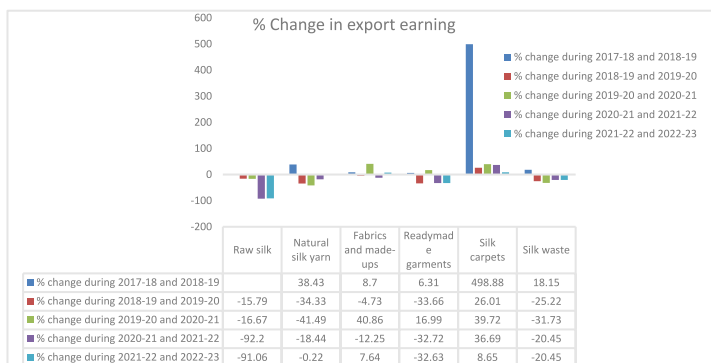


Fig 9: Graphical representation of the % Change in Export Earnings from Silk in India during 2017-18 to 2022-23.

Source: Own design and calculation based on the data provided by CSB annual reports.

Silk import of India

During the 2022-23 period, raw silk emerged as the primary import item, constituting approximately 75% of the total imports, with fabrics and made-ups following behind. The value of imported silk goods increased significantly from Rs.1,143.59 crore (US\$153.14 million) in 2021-22 to Rs.2,284.59 crore (US\$284.94 million) in 2022-23 (CSB annual report, 2022-23). The table below provides a breakdown of the import value for raw silk and other silk goods from the years 2017-18 to 2022-23.

Table 10: Value of import of Silk goods and Silk (2017-18 to 2022-23 in \$US million)

Source: Compiled data obtained from the CSB annual report 2018-19 to 2022-23

Items	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Raw silk	189.01	148.38	162.38	77.24	109.75	214.26
Natural silk yarn	17.35	16.34	14.42	8.37	11.90	25.41
Fabrics and made- up	45.43	35.78	33.48	14.34	28.84	41.31
Readymade garments	2.70	22.77	3.91	2.06	1.80	2.75
Silk carpets	0.04	0.002	0.21	0.33	0.05	0.12
Silk waste	1.86	5.22	2.55	0.39	0.80	1.09
Total	256.38	228.49	216.95	102.73	153.14	284.94

India's raw silk imports witnessed a remarkable jump of 96%, going from 1,978 metric tons (MT) in 2021-22 to 3,874 MT in 2022-23 (CSB annual report 2018-19 to 2022-23). The quantity of raw silk imported over the last five years is illustrated below.

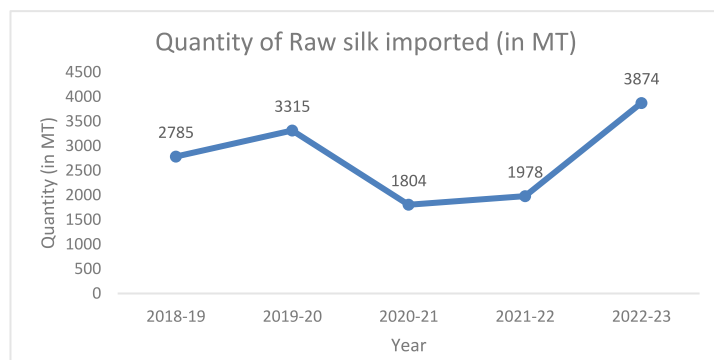


Fig 10: Graphical representation of the quantity of Raw Silk imported during last 5 years in India. Source: Own design based on the data provided by CSB annual reports.

Government initiative to sericulture and silk sector of India

The Indian government recognizes the importance of sericulture and silk production and has implemented various initiatives to support the sector. The major initiatives are as follows-

I. Silk Samagra

The Government of India, through the Central Silk Board, has been implementing the "Silk Samagra" scheme, an Integrated Scheme for the Development of the Silk Industry (ISDSI) from 2017 to 2020. This initiative aims to enhance silk production by improving quality and productivity and to uplift underprivileged and backward families through various sericulture activities across the country. The scheme consists of four main components, including research and development, training, technology transfer, and IT initiatives; seed organizations; coordination and market development; quality certification systems, export brand promotion, and technology upgrading [25].

Again, the Union Cabinet of India has sanctioned the "Silk Samagra-2" scheme with a total outlay of Rs. 4679.86 crore for execution from 2021-22 to 2025-26 (CSB annual report, 2022-23).

ii. Silk marks schemes-

The Silk Mark Scheme, a part of the Quality Certification System (QCS) of Silk Samagra-2 by the Central Silk Board, aims to strengthen quality assurance, assessment, and certification. The scheme includes the Silk Mark, a label ensuring the purity of silk products, and the Silk Mark Organization of India (SMOI). In 2022-23, SMOI enrolled 399 new Authorized Users, bringing the total to over 5000 across the country. Over 40 lakh Silk Mark labels were released during the year, totaling more than four crores.

Additionally, 2396 salespersons were trained, and 461 Silk Mark magazine subscriptions were collected (CSB annual report, 2022-23).

iii. NERTPS (North- East Region Textile Promotion Scheme)-

The Government of India has prioritized the consolidation and expansion of sericulture in the non-traditional area of North East, with special interventions across the production chain. The main objective of this scheme is the revival, expansion, and diversification of sericulture in the state with a special focus on eri and muga silk. Under the NERTPS umbrella scheme, 38 sericulture projects have been approved for implementation in potential districts of all North Eastern states, with a total cost of Rs. 1115.62 crore, of which the Government of India's share is Rs. 963.74 crore. As of March 2023, Rs. 882.97 crore has been released for the completion of these projects under the NERTPS and Silk Samagra-2 schemes.

Challenges and Future Prospects of International Sericulture Trade

Challenges: The international sericulture trade faces several challenges that hinder its growth and development. One of the major challenges is the fluctuating demand for silk in the global market, influenced by changing fashion trends and the rise of alternative fabrics. Additionally, the industry is confronted with the threat of diseases and pests that affect silk production, leading to quality issues and economic losses. Moreover, the lack of standardized quality control measures and certifications across different silk-producing regions poses a challenge for ensuring consistent product quality in the international market.

Future Prospects: Despite these challenges, the prospects of international sericulture trade are promising. With the increasing focus on sustainable and eco-friendly practices, there is a growing demand for silk as a natural and biodegradable fabric. This trend offers an opportunity for silk-producing countries to emphasize the environmental benefits of silk production. Furthermore, advancements in technology and research are leading to innovations in sericulture, such as the development of disease-resistant silkworm strains and sustainable farming techniques. These developments have the potential to enhance productivity and quality in the sericulture industry, thereby boosting its competitiveness in the global market. Additionally, the rising interest in luxury products in emerging economies presents new avenues for the expansion of international sericulture trade. Overall, while challenges persist, the international sericulture trade holds significant potential for growth and sustainability in the coming years.

Conclusion

In conclusion, this study provides a thorough analysis of the global silk industry, focusing on international sericulture trade

and the current status of silk production, export, and import of major silk-producing countries like China, India, and Italy. During the study the results obtained from analyzing the data suggest that China remains the dominant player in the silk market, but faces increasing competition from other countries and synthetic fibers. The study also suggests that India has a high export potential for silk waste, woven fabrics, and ready made garments made up of silk but needs to invest more in research, innovation, and market diversification to enhance its competitiveness and reduce its dependence on imports. The current study has also identified some attractive markets for silk products, such as Vietnam, Korea, and the USA, based on their demand, access conditions, and export and import share to the global silk market. Tracing the historical origins and contemporary dynamics, the study explores major players, trade influences, and challenges faced by the industry. It underscores the potential of silk as a sustainable and versatile fiber, especially in developing nations. Emphasizing the need for sustainability, innovation, and adaptation to consumer trends, the review suggests strategic measures for the continued growth and prosperity of the global silk industry.

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