J Euro Eco His.
ISSN : 0391-5115
Volume 7, Issue 3 (2026)
THE JOURNAL OF EUROPEAN ECONOMIC HISTORY

ASYMMETRIC GROWTH IN INDIA'S COIR EXPORTS: A QUANTITY-VALUE TREND ANALYSIS

U S Arkeeynikkitha[1]
Doctoral Research Scholar,
Department of Commerce, PSG College of Arts & Science, Coimbatore, Tamilnadu[1].
arkeeynikkitha37@gmail.com [1]
Dr. K Tamilselvi[2]
Associate Professor, Department of International Business,
PSG College of Arts & Science,
Coimbatore, Tamilnadu[2].
tamilselvik@psgcas.ac.in [2]
Shalini S[3]
Doctoral Research Scholar,
Department of Commerce, PSG College of Arts & Science, Coimbatore, Tamilnadu[3].
shalini.rathina2205@gmail.com[3]

Abstract
The Indian coir industry's green product and natural fibre based exports, constitutes a major source of rural livelihoods and sustainable economic activity. An analysis of the long-term export performance of the Indian coir industry, through a review of coir export quantities and values over the period between 2000-2001 and 2023-2024. Using secondary data from a well-established industry-specific database the study reports on its growth pattern, stability and threats it faces, such as production-level uncertainty, product quality inconsistency and limited adoption of advanced production technologies. The analysis identifies a strong export quantity- and value-export asymmetry, with export quantity exhibiting much higher volatility than the stable, value-exhibiting export value. These export parameters align with the coir export sector's structural characteristics and highlight the value realisation aspect of the sector. Additionally, it identifies how technology upgradation projects, such as mechanised fibre extraction, improved quality inspection procedures and automated packaging, can be introduced as enhancement activities to improve production stability and enhance the sector's export competitiveness. By combining a historical performance analysis approach with an interpretative approach, the analysis offers policy implications to policymakers, exporters and other stakeholders in the industry that can be applied to formulate a strategy for not only retaining the strong position India holds in the global coir market but also identifying a route for a sustainably green industry that is enabled to experience coir production led growth.
Keywords: Indian coir industry, export trends, industrial automation, production stability, Quantity, value, sustainable growth, technology adoption, global competitiveness.

INTRODUCTION

The coir industry is India's oldest coconut based industry, with significant reliance on the rural economy and high environment sustainability link [1][2]. Coir is the fibrous material found between the outer shell and the husk of the coconut, it is strong, water resistant and biodegradable. These characteristics make it a raw material of preference for a vast array of products ranging from mats, ropes, mattresses, brushes, geotextiles and horticultural substrates [4]. Besides its utility attributes, coir is also of great environmental importance as a sustainable,

eco-friendly alternative to man-made fibres [5]. The industry creates large-scale rural employment, especially for women and foreign exchange earnings for India.

India dominates the global coir market, accounting for over two-thirds of the world's coir fibre and over 80 percent of the world's overall export of coir [6]. The highest production units are Kerala and Tamil Nadu and major units of processing and export are districts such as Pollachi and Coimbatore [7][8]. Indian coir is supplied to every corner of the world and the main markets are Europe, North America, the Middle East and the Asia-Pacific region [9]. With increasing awareness of sustainability across the globe, the demand for natural fibre products will keep on rising and new opportunities will open for India's coir industry [10]. Given India's leadership in this industry, examining long-run export performance is essential to understand where the industry is going, where it is doing well and where it is not and how to prepare for future competitiveness. Following trends in value and quantity of exports over long time periods allows one to discern patterns, shifts in patterns and exogenous factors that affect the industry [11][12]. Analysis of this kind also helps identify whether export growth as a production statistic is matched by proportionate revenue growth or whether there are value realisation gaps due to pricing, quality, or market positioning problems [13][14].

Previous studies on the coir industry have been in the direction of production patterns, export performance, government support schemes and socio-economic impacts [15][19]. Researchers have examined issues such as volatile foreign demand, competition from man-made substitutes, labour intensive production and lack of new technology adoption [2][23]. While most studies confirm the importance of foreign technology upgradation, few have attempted an analysis of the possible role of the coir supply chain in catalysing industrial automation towards transformation. Very little research has been conducted establishing a correlation between export performance data and technological preparedness, leaving a knowledge gap regarding the role of automation in eliminating the uncertainty of production, variability of quality and value addition needs. This research attempts to bridge that gap by integrating comprehensive trend analysis of India's coir export with a discussion of industrial automation and its role in enhancing efficiency and competitiveness. It involves more than just plotting trends from historical export data but also connecting trends to the operational issues that can be addressed with automation.

Industrial automation refers to applying control systems, machines and advanced technologies in performing production processes with minimal or no intervention by humans. Automation in the coir industry may include mechanised fibre extraction, automated weaving and finishing, AI-driven defect detection and automated packaging. This technology can solve these problems of supply, product variability, processing variability and overdependence on manual labour. With automation, the firm can be more efficient, it can have consistent export quality product, reduced waste and increased overall price realisation.

The main objectives

• To analyse trends in coir exported from India over the past 20 years, in terms of volume and value and chart the growth patterns, volatility patterns and market development.

• To find a link between volume growth and value growth in export value and export volume, whether growth in export volume translates to growth in export revenue on a 1 to 1 basis.

• To investigate the potential role of industrial automation in enhancing the performance of Indian exports by finding out how technology can make output more consistent and reduce output variability and improve India's edge in the world coir market.

• To analyse the asymmetry between export volume growth and export value growth in Indian coir exports.

Merging historical performance analysis with a technology oriented vision for the future, this study aims to add to scholarly research as well as business practice. It offers suggestions that policymakers, producers, and exporters can use to make strategic choices about where to invest in automation, how to position themselves based on trends, and how to leverage India's natural advantage in coir production. In essence, this two pronged approach aims to connect traditional strengths with contemporary capabilities, turning the coir industry into not only a symbol of India's heritage but also a symbol of sustainable, competitive and technology oriented manufacturing in the global economy.

STATEMENT OF THE PROBLEM

The Indian coir sector, despite its world-champion status and continual growth, faces grave challenges that threaten its long-term viability as a competitive sector. Export volume and value fluctuate, as development is followed by retrenchment driven by market demand, output constraints and external economic shocks. Price and quality instability, inconsistent product quality and increasingly cut-throat competition from synthetic counterparts further aggravate the sector's problems. One of the major challenges, however, is the relatively low uptake of modern processing technology and industrial automation, which limits productivity, output size and supply reliability for the global market. These issues call for a thorough analysis of export trends over time and the technological improvements that can stabilise the sector and enhance its performance.

RESEARCH METHODOLOGY

The research utilises the descriptive and analytical method, making use of secondary data collected from credible sources like the Coir Board of India and trade databases. Analysis was done export value and quantity-wise for the years 2000 - 2001 to 2023 - 2024. Trend analysis was conducted using linear regression to determine growth trends and assess statistical significance [20]. The trend equation formula was utilised to provide estimates of average annual increases and measure the variance explained by time. The method allows one to easily comprehend the direction and trend of the industry's performance and the underlying market behaviour.

OVERVIEW OF COIR INDUSTRY

The coir sector occupies a preponderant position in the international natural fibre trade, appreciated for its eco-friendliness, strength and versatility [1][5]. Coir is obtained from the coconut husk and is used extensively in flooring coverings and ropes, geo-textiles and nursery growing media [3][4]. Its production is located in the tropics since coconut farming is common there. India, Sri Lanka and the Philippines are the prime producers and exporters, followed by others like Indonesia, Thailand and Vietnam [6][9]. India is the preponderant producer and exporter in terms of volume and value, accounting for more than two-thirds of global coir fibre production and holding more than 80 percent of world trade [7][10]. Sri Lanka is famous for high quality brown coir fibre and brushes and brooms and the Philippines deals in white coir fibre and geo-textiles to check erosion [12]. In the Indian context, the coir industry is one of the oldest and most organised rural industries, creating massive volumes of employment, particularly for women [2][15]. The country has a wide range of products, from mats, rugs, carpets, ropes, yarn, curled coir, rubberised coir, geotextiles, coir pith and composite materials. The products are marketed to diversified international markets, from home furnishings in Europe, horticultural applications in North America and infrastructure development in the Middle East. Government agencies, particularly the Coir Board of India under the Ministry of MSME, vigorously promote research, technology upgradation, marketing support and export promotion. Initiatives such as

J Euro Eco His.
ISSN : 0391-5115
Volume 7, Issue 3 (2026)
THE JOURNAL OF EUROPEAN ECONOMIC HISTORY

Coir Vikas Yojana and export promotion activities are aimed at productivity enhancement, product diversification and improved availability in global markets [14]. As the world leader in coir trade, India has a strong record of long-term export performance. For the last two decades, the volume and value of coir exports from India have demonstrated remarkable growth while showing the typical annual variability that results from market and production conditions. Table 1. shows India's export performance of coir over the years from 2000 - 2001 to 2023 - 2024, including fluctuations in quantity, value and growth rate from one year to the next.

Table 1. India's Export Performance

Year	Quantity	Value	Quantity Growth	Value Growth
2000-2001	67493.08	31366.23		
2001-2002	71334.81	32058.35	5.692035391	2.206576946
2002-2003	84182.56	35270.57	18.01049165	10.01991681
2003-2004	102253.4	40749.67	21.46625144	15.53448101
2004-2005	122926.77	47340.27	20.21778249	16.17338251
2006-2007	136026.97	50844.75	10.65691387	7.402746119
2007-2008	168754.75	60516.59	24.05977285	19.02229827
2008-2009	187566.74	59288.08	11.14753214	-2.030038375
2009-2010	294508.05	80405.2	57.01507101	35.61781727
2010-2011	321016.02	80707.1	9.000762458	0.3754732281
2011-2012	410853.9	105262.54	27.98548185	30.42537769
2012-2013	4229501	111602.74	92.94416093	6.023225356
2013-2014	537040	147603.84	-87.30252103	32.25825818
2014-2015	626666	163033.77	16.68888723	10.45361015
2015-2016	752020	190142.52	20.00331915	16.62769008
2016-2017	957045	228164.82	27.26323768	19.99673718
2017-2018	1016564	253227.84	6.21903812	10.98461191
2018-2019	964046	272804.57	-5.166226622	7.730875878
2019-2020	988996	215790	2.588050778	-20.89941895
2020-2021	1163213	377897.91	17.61554142	75.12299458
2021-2022	1234855	434005.1	6.158975183	14.84718188
2022-2023	1264784	399217.97	2.423685372	-8.015373552
2023-2024	1232097	339690.84	-2.584393857	-14.9109345

Source: Coir Board of India

From the above Table I. The information indicates considerable spikes in India's coir export performance during the research period. The export quantity was highest in 2012-2013 at 4,229,501 metric tons, a considerable spike from other years. In terms of value, it was highest during 2021-2022 at ₹434,005 crore. The greatest year-over-year growth in terms of quantity was also seen in 2012-2013 at a record 92.94 percent, possibly due to exceptional market or production conditions. In contrast, the greatest year-over-year growth in terms of export value was 75.1 percent in 2020-2021, owing to high demand from all over the world and good pricing.

J Euro Eco His.
ISSN : 0391-5115
Volume 7, Issue 3 (2026)
THE JOURNAL OF EUROPEAN ECONOMIC HISTORY

Tamil Nadu is a key producer of India's coir industry, with key clusters based in Coimbatore and Pollachi. Tamil Nadu is well endowed with large-scale coconut cultivation, particularly in its western and southern districts, to provide a guaranteed supply of raw materials. Coimbatore is well established as an industrial cluster with a number of coir processing and machinery manufacturing units, several of which are export-oriented. Pollachi, with its large coconut plantations, supports an active cluster of small and medium-sized enterprises involved in fibre extraction, product manufacturing and pith processing [21]. These clusters produce high-demand products such as coir pith blocks, curled coir and geo-textiles, supplied to markets in the USA, Europe, Australia and the Middle East. The state's industry is now increasingly turning towards mechanisation and improved processing to maintain international quality levels, while government training programs and cluster development projects support productivity, skill development and product diversification [22]. All these factors underpin Tamil Nadu's leadership role in sustaining India's world leadership in the coir industry.

TREND ANALYSIS OF COIR EXPORT

A. Trend Analysis in Quantity of Coir Export

Table 2. Descriptive Statistics of Quantity and Year

Descriptive Statistics			
	Mean	Std. Deviation	N
Quantity	736249.7413	879137.64503	23
Year	2011.78	7.090	23

Source: Computed Data

From the above Table 2. illustrates the mean Quantity exported over the period of study was 736,249.74 units, having a high standard deviation of 879,137.65, which reflects high variation across the years. The sample size captures 23 observations (years/months according to your dataset).

Table 3. Correlations of Quantity and Year

Correlations			
		Quantity	Year
Pearson Correlation	Quantity	1.000	.491
	Year	.491	1.000
Sig. (1-tailed)	Quantity	-	.009
	Year	.009	-
N	Quantity	23	23
	Year	23	23

Source: Computed Data

The Pearson correlation between Quantity and Year is 0.491 (p = 0.009), In Table 3. showing a moderate positive relationship as the years progress, export quantity tends to rise.

Table 4. Model Summary of Quantity and Year

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

J Euro Eco His.
ISSN : 0391-5115
Volume 7, Issue 3 (2026)
THE JOURNAL OF EUROPEAN ECONOMIC HISTORY

1	.491[a]	.241	.205	784079.66971
a. Predictors: (Constant), Year				

From Table 4. The correlation coefficient R = 0.491 indicates a moderate linear relationship. R^2 = 0.241 implies that 24.1 percent of the variation in Quantity can be explained by Year, with a standard error of estimation of 784,079.67 units.

Table 5. ANOVA of Quantity and Year

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4093026478668.787	1	4093026478668.787	6.658	.017[b]
	Residual	12910399497367.467	21	614780928446.070		
	Total	17003425976036.254	22			

a. Dependent Variable: Quantity

b. Predictors: (Constant), Year

Source: Computed Data

As shown in Table 5. The F-test statistic of 6.658 with p = 0.017 affirms that Year is a statistically significant predictor of Quantity at the 5 percent level, confirming the trend equation.

Table 6. Coefficients of Quantity and Year

Coefficients[a]						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-121652877.103	47433299.146		-2.565	.018
	Year	60836.159	23577.606	.491	2.580	.017

a. Dependent Variable: Quantity

Source: Computed Data

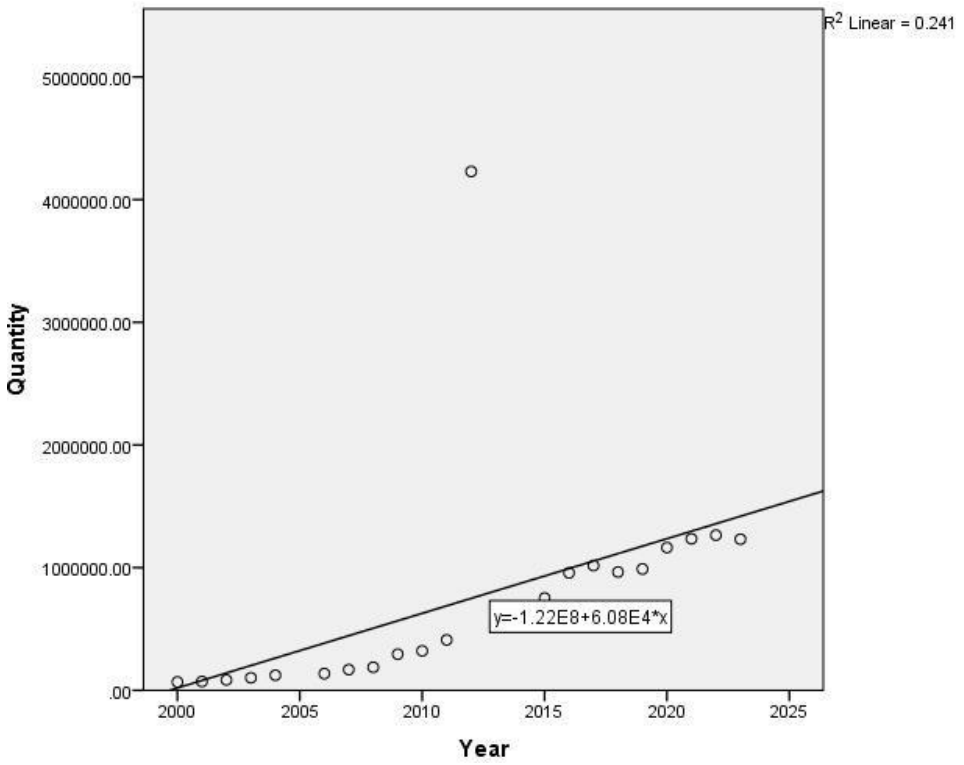
From the above Table 6. The regression analysis between Quantity and Year indicates a positive growth trend over the study period. According to the trend equation: Y = a + bt

$$Q = -121652877 + 60836.159Y$$

The coefficient for Year is positive and statistically significant at the 5 percent level (p=0.017), indicating that Quantity has been increasing over time. The annual average increase in Quantity is 60,836.159 units per year. The R^2 value of 0.241 shows that around 24.1% of the variation in Quantity is explained by the Year variable.

Fig.1. Scatter Plot for Quantity of Export

J Euro Eco His.
ISSN : 0391-5115
Volume 7, Issue 3 (2026)
THE JOURNAL OF EUROPEAN ECONOMIC HISTORY



From the above Fig. 1, the scatter plot also graphically verifies the positive trend of Quantity over time, although the dispersion of points indicates that some years are far from the regression line.

B. Trend Analysis in Value of Coir Export

Table 7. Descriptive Statistics of Value and Year

Descriptive Statistics			
	Mean	Std. Deviation	N
Value	163347.4465	129222.00788	23
Year	2011.78	7.090	23

Source: Computed Data

As shown in Table 7. The mean Value exported was 163,347.45 with a standard deviation of 129,222.01, indicating high variability. The data again consist of 23 observations.

Table 8. Correlations of Value and Year

Correlations			
		Value	Year
Pearson Correlation	Value	1.000	.926
	Year	.926	1.000
Sig. (1-tailed)	Value	-	.000
	Year	.000	-
N	Value	23	23
	Year	23	23

Source: Computed Data

From Table 8. The Pearson correlation between Value and Year is 0.926 (p = 0.000), showing a very strong positive correlation, export value has increased steadily over the years.

Table 9. Model Summary of Value and Year

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.926[a]	.858	.851	49924.86653

a. Predictors: (Constant), Year

Source: Computed Data

From Table 9. The correlation coefficient R = 0.926 reflects an extremely strong correlation. R^2 = 0.858 implies that 85.8 percent of Value variation is explained by Year, with a comparatively low standard error (49,924.87).

Table 10. ANOVA of Value and Year

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	315020862781.064	1	315020862781.064	126.388	.000[b]
	Residual	52342338267.995	21	2492492298.476		
	Total	367363201049.059	22			

a. Dependent Variable: Value

b. Predictors: (Constant), Year

Source: Computed Data

As shown in Table 10. F-test statistic of 126.388 with p = 0.000 reflects that Year is a very significant predictor of Value and reinforces the model strength.

Table 11. Coefficients of Value and Year

Coefficients[a]						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-33790595.740	3020230.240		-11.188	.000
	Year	16877.541	1501.262	.926	11.242	.000

a. Dependent Variable: Value

Source: Computed Data

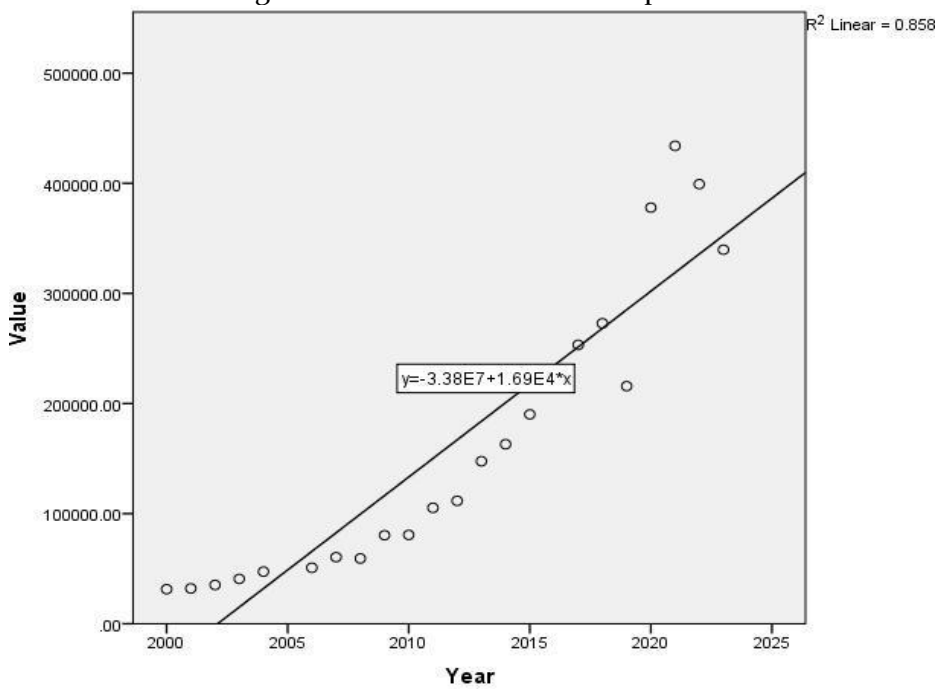
From Table 11. The regression analysis between Value and Year also shows a strong upward trend. According to the derived trend equation: Y = a + bt

$$V = -33790595.7 + 16877.541Y$$

The coefficient for Year is highly significant at the 1 percent level (p=0.000), indicating that Value has shown substantial growth during the study period. The annual average increase in Value is 16,877.541 per year. The R^2 value of 0.858 indicates that about 85.8% of the variation in Value is explained by the Year variable, reflecting a strong linear relationship.

J Euro Eco His.
ISSN : 0391-5115
Volume 7, Issue 3 (2026)
THE JOURNAL OF EUROPEAN ECONOMIC HISTORY

Fig.2. Scatter Plot for Value of Export



As plotted in the fig.2. has a clustering of points close together along the regression line, graphically indicating the high linear relationship between Value and Year.

C. Linking Export Trends and the Need for Process Improvements in the Coir Sector

India's coir export trend pattern over the period 2000-2001 to 2023-2024 is two-faceted. Quantity traces a growth trend of an increase by a mean of 60,836.16 metric tons per year, though it is highly volatile. The R^2 of 0.241 indicates that only 24.1 percent of the variation in quantity is explained by time, indicating that factors like production capacity limitations, availability of raw materials and fluctuations in market demand have a major role to play in determining output levels. Export value traces a much stronger and more stable trend of increase, with a year-average rise of ₹16,877.54 crore and an R^2 of 0.858, indicating 85.8 percent of its variation is accounted for by time. Yet, the presence of value troughs in years of maximum quantity indicates a pricing strategy, product quality and market positioning problem.

These trends imply the imperative of strategic interventions towards the stabilization of production levels and superior value capture. Industrial automation is one of the remedies to these challenges in upgrading the coir production process. Automated fibre extraction machines have the potential to enhance efficiency and provide consistent raw material quality. Mechanised weaving and finishing units have the potential to provide consistent product standards, eliminating variability that can influence market prices. AI-based defect detection can be a key driving force in achieving stringent export quality specifications, reducing rejections and building brand credibility. Automated packaging machinery can accelerate export readiness, minimise handling errors and streamline logistics operations. By incorporating all these automation tools, the coir sector can minimise volatility in production, enhance operational performance and achieve better price per unit. This technological shift would not only fill the gaps identified from the trend analysis but also enhance India's competitiveness in the international coir market.

FINDINGS AND DISCUSSION

India's coir export trend analysis covering the years 2000-2001 to 2023-2024 reveals a general growth trend in terms of quantity and value, with differing stability levels. Quantity grew from 67,493 MT to 1,232,097 MT, a long-term growth trend with very high volatility. With an R^2 of 0.241 in the case of quantity, only a fifth of this volatility is due to the passage of time, which is a significant indicator of the extraneous factors' contribution, e.g. availability of raw material, volatility of market demand and limits on production capacity. The growth trend of export value, however, was strong and stable, from ₹31,366 crore to ₹339,690 crore with an R^2 of 0.858. This indicates high stability, though drops in value in some years, even with high volume, point to issues of pricing, quality and market positioning.

India's strengths are its world-leading position in coir production, an environment where green products are in strong demand and diversification of products with an ability to target different markets around the globe. The existence of well-established production clusters in Tamil Nadu and Kerala points to the presence of a well-established foundation for increased production. Weaknesses include irregular levels of production, most central processes rely on human labour, there is a low complement of sophisticated machines in factories and producers are exposed to volatility in world market trends. The discrepancy between volume and value growth trends suggests that the procedures employed in current production processes do not necessarily aim to maximise revenue per unit produced. The scope for automation is enormous. Automated fibre extraction can minimise the time taken for processing. Mechanised weaving and finishing can ensure more consistency in quality. Defect detection AI can ensure that only export-grade coir products leave factories. In addition to this, digital integration in processes can be done that will enhance efficiency. Online quality assurance, supply chain monitoring and e-commerce offer many new markets to producers. By combining the strengths of existing coir production capabilities in India with the quality and scalability of industrial automation, it is possible to remove some weaknesses in the current production process. With the implementation of relevant automation technologies, in conjunction with skill upgrades for workers and the integration of digital trade elements, it should be possible to stabilise production rates, ensure a consistent level of quality across products and deepen the industry's penetration into high-value export markets.

SUGGESTIONS

To enhance the coir trade's performance, investment in semi-automatic and automatic processing units that increase efficiency and quality of output is the solution. Supporting skill development programs will provide the skills to work and maintain these systems to perfection. Coordination between machinery suppliers and coir exporters at the strategic level will propel technology integration at a faster rate, at reduced costs and with tailored solutions for specific product requirements. Automation also must focus on the capability to produce more value-added coir products such as rubber-backed mats, geotextiles and composite materials to be able to demand superior price levels and enhance India's market share in high-end global trade.

CONCLUSION

The results of the study primarily highlight asymmetries in export growth, export value stability and contrasts to the volatile pattern in export quantity. Indian coir industry has experienced strong export growth over the past two decades and is currently a world leader in natural fibre products. Although the trend analysis indicates that value has risen consistently, quantity has been unpredictable and thus it points to underlying production and operational inefficiencies. Such an imbalance suggests that growth will have to be sustained by strategies to stabilise the

volume of production as well as improve the value of output per unit.

Industrial automation provides a breakthrough solution to addressing these problems. By integrating automated fibre extraction, mechanised weaving, AI-based quality inspection and automated packing, the industry can achieve step changes in consistency, efficiency and quality. Together, automation and digital integration, real-time quality inspection and advanced supply chain management hold the key to boosting India's competitiveness.

With rising global demand for sustainable, eco-friendly products, the coir sector is well placed to enhance its penetration within premium markets. Embracing automation will not only boost performance but also concentrate higher value capture, market resilience and brand image. This strategic move can enable the Indian coir sector to transcend traditional strengths, achieving sustainable growth and long-term global leadership.

REFERENCE

[1] A, F. M., & Padath, P. (2024). Technological Modernization and its Challenges in Coir Industry in Alappuzha. *Journal of Social Sciences and Economics*, *3*(2), 110-117. https://doi.org/10.61363/cp35z418

[2] Balakrishnan, B. S. D., Sree Saraswathi Thyagaraja College, Logesh, & Sree Saraswathi Thyagaraja College. (2024). AWARENESS AND TECHNOLOGY IMPLEMENTATION ON COIR WITH SPECIAL REFERENCE TO TIRUPPUR DISTRICT. In *Chapter*. https://www.researchgate.net/publication/379869965

[3] Banu, M. M., & Divyabharathi, R. (2024). A study on value chain analysis of exported coir and coir products in Pollachi Taluk Coimbatore District. *Journal of Production Operations Management and Economics*, *46*, 1-9. https://doi.org/10.55529/jpome.46.1.9

[4] Dhabliya, D., etal., (2024). Industry Development at COIR: Trade Reforms and India's Export Outcomes. In S. Saluja, V. Nayyar, K. Rojhe, & S. Sharma (Eds.), *Ethical Marketing Through Data Governance Standards and Effective Technology* (pp. 111-118). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-2215-4.ch010

[5] Pramanik, S. (2024). Industry Development at COIR: Trade Reforms and India's Export Outcomes. In A. Ara & R. Thakore (Eds.), *Promoting Multi-Sector Sustainability With Policy and Innovation* (pp. 140-150). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-2113-3.ch006

[6] P. Navitha, M. Jegadeeshwaran (2024). IMPACT OF PERFORMANCE OF COIR INDUSTRY ON INDIAN ECONOMY. In *Indonesian Journal of Management Studies* (Vols. 1-1, pp. 12-19) [Journal-article]. Perkumpulan Dosen Muslim Indonesia. https://dmi-journals.org/ijms/index

[7] Soundaravalli, S. V. (2024). The Role of Indian Rural Industries led by Coir in Building Value and their Performance - An Analysis. *ComFin Research*, *12*, 12-17. https://www.shanlaxjournals.com

[8] Sreekumar, S. N., & Rajnarayanan, B. (2024). A Study about the opportunities and challenges in the coir industry to ensure employees' wellbeing through proper reward and recognition systems. *Afr.J.Bio.Sc.*, *Si4-Si4*, 4658-4669. https://doi.org/10.48047/AFJBS 6.Si4.2024.4658-4669

[9] V. Muniyandi, et.al., "Energy Efficiency Assessment in Small and Medium-Sized Coir Industry," (2024) *23rd National Power Systems Conference (NPSC)*, Indore, India, 2024, pp. 1-6, doi: 10.1109/NPSC61626.2024.10987197.

[10] Chikkannaswamy, B., Sr., & Rajendra Prasad, T. (2023). AN ANALYSIS OF EXPORT PERFORMANCE OF THE COIR INDUSTRY IN INDIA- WITH SPECIAL REFERENCE TO THE MSME SECTOR. In *International Journal of Research and Analytical Reviews* (Vol. 10,

Issue 2, pp. 17-19) [Journal-article]. https://ijrar.org/papers/IJRAR1CYP003.pdf
[11] Hari Kumar, P. (2023). Growth And Development Of Coir Industry In India. *Journal for Re Attach Therapy and Developmental Diversities*, *1*, 1880-1884. https://jrtdd.com
[12] Ramírez, J. F. G., Muñoz, R. C., & Sossa, J. W. Z. (2023). Innovations and trends in the coconut agroindustry supply chain: A technological surveillance and foresight analysis. *Frontiers in Sustainable Food Systems*, *7*. https://doi.org/10.3389/fsufs.2023.1048450
[13] Zainol, F. A. et.al., (2023). Coconut Value Chain Analysis: A Systematic Review. In Giuseppe Timpanaro (Ed.), *Agriculture* (Vol. 13, p. 1379). https://doi.org/10.3390/agriculture13071379
[14] Logesh, T., & Balakrishnan, B. S. D. (2022). PROBLEMS AND PROSPECTS OF MANUFACTURING OF COIR PRODUCTS IN INDIA. *Applied Environmental Education and Communication an International Journal*, 5-5, 397-398. https://www.researchgate.net/publication/362034329
[15] MUNEESWARAN et.al., (2022). GROWTH AND DEVELOPMENT OF COIR INDUSTRY IN INDIA. In *Mukt Shabd Journal: Vol. XI-XI* (Issue V, pp. 695-696) [Journal-article].
[16] Nair, K. S., & Samuuel, L. (2022). Production and Marketing Process of Coir Industry: A Case Study of Alappuzha District [Case Study]. *Shanlax International Journal of Economics*, *11*, 8-17. http://www.shanlaxjournals.com
[17] Dash, M., & Mishra, B. B. (2021). Coir industry in India: An overview on performance, problems & prospects. *GE-International Journal of Management Research*, *9*(6), 1-14.
[18] Dash, M., Mishra, B. B., & Association of Academic Researchers and Faculties (AARF). (2021). COIR INDUSTRY IN INDIA: AN OVERVIEW ON PERFORMANCE, PROBLEMS & PROSPECTS. *GE-International Journal of Management Research*, 1-3. https://www.aarf.asia
[19] Pratheesh, P., & Gopakumaran Nair, N. (2021). Evolution of coir industry in Alappuzha. *Journal of Interdisciplinary Cycle Research*, 651-652.
[20] Bhaskaran, E. (2016). The Performance of Micro, Small and Medium Enterprises in Tamil Nadu. Socio Economic Voices, http://www.indiastat.com/130/socio_details.aspx. 1. 1-33.
[21] K. Kamaleswaran et.al., "Energy conservation potential in rural industry: A case study on coir industry," (2015) *International Conference on Circuits, Power and Computing Technologies [ICCPCT-2015]*, Nagercoil, India, 2015, pp. 1-5, doi: 10.1109/ICCPCT.2015.7159444.
[22] Krishnathulasimani, P., & Sathish, N. (2015). A STUDY ON PROBLEMS AND PROSPECTS OF EXPORT OF COIR INDUSTRY -A CASE STUDY [Research Paper]. *International Journal of Multidisciplinary Research Review*, *Vol.1*(Issue.5), 84.
[23] Ekambaram, K., & RAJA, S. R. (2014). EXPORT PERFORMANCE OF COIR AND COIR PRODUCTS FROM INDIA. *CLEAR International Journal of Research in Commerce & Management*, *5*(7).

WEBSITES

1. http://coirboard.gov.in/