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BRAZIL IN THE TOBACCO INDUSTRY: DETERMINANTS OF PRODUCTION AND EXPORTS TO CHINA

BRASIL EN LA INDUSTRIA DEL TABACO: DETERMINANTES EN LA PRODUCCIÓN Y EN LAS EXPORTACIONES A CHINA

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ABSTRACT

This article aims to analyze the main factors influencing the production and export of Brazilian tobacco to China, focusing on the economic, political, and social determinants that impact this trade flow. The analysis includes an investigation of the domestic conditions of tobacco production in Brazil and the dynamics of the Chinese market, highlighting the variables that shape the trade relationship between the two countries. The long-term results showed that China's economic growth and the exchange rate are significantly and positively related to the demand for Brazilian tobacco. Production costs exhibited a significant negative relationship, indicating that rising agricultural costs in Brazil negatively affect tobacco exports to China. Lastly, Brazilian tobacco export prices did not show statistical significance.

Keywords: international trade/ tobacco/ exports.

RESUMEN

El presente artículo tiene como objetivo analizar los principales factores que influencian la producción y la exportación del tabaco brasileño a China, enfocándose en los determinantes económicos, políticos y sociales que impactan ese flujo comercial. El análisis incluye una investigación sobre las condiciones internas de la producción de tabaco en Brasil y las dinámicas del mercado chino, destacando las variables que moldean la relación comercial entre los dos países. Los resultados a largo plazo alcanzados mostraron que el crecimiento económico de China y la tasa de cambio están significativa y positivamente relacionados con la demanda por el tabaco brasileño. Los costos de producción presentaron una relación negativa y significativa, indicando que el aumento de los costos agropecuarios en Brasil afecta negativamente la exportación de tabaco a China. Finalmente, los precios de exportación del tabaco brasileño no mostraron significancia estadística.

Palabras clave: comercio internacional/ tabaco/ exportaciones.

Código JEL: F10, F14.

INTRODUCTION

The production and export of tobacco play a significant role in the Brazilian economy, standing out as one of the most relevant sectors of the national agroindustry. Brazil has been one of the world's largest tobacco exporters since 1993, with the state of Rio Grande do Sul being responsible for a significant portion of this production (Sindicato Interestadual da Indústria do Tabaco – Sinditabaco, 2025). Tobacco cultivation is an important economic activity, covering vast planting areas and generating a significant number of direct jobs in the sector (Instituto Brasileiro de Geografia e Estatística – IBGE, 2023).

Given Brazil's relevance as one of the world's leading tobacco producers, it is essential to understand how internal factors and market conditions influence the production and export of this product, especially to strategic markets such as China. This understanding enables the analysis of the challenges and opportunities faced by the sector, aiming to improve production processes and enhance competitiveness in international transactions. Thus, this article aims to analyze the influence of the Chinese market on the production and export of Brazilian tobacco, identifying the factors that determine this trade relationship.

In this context, the strengthening of the trade partnership between Brazil and China, beyond tobacco exports, encompasses a variety of agricultural and agro-industrial products, representing a strong opportunity for Brazil's integration into global production chains. This goal can be achieved, especially through public policies aimed at increasing the competitiveness of sectors, including the tobacco industry. Investments in technology, innovation, and infrastructure, along with the elimination of tariff barriers and the promotion of trade agreements, are fundamental to maximizing the benefits of this relationship and enhancing gains both internationally and domestically (Bastos; Sousa, 2021).

Against this backdrop, this article aims to analyze the main factors influencing the production and export of Brazilian tobacco to China. The analysis focuses on the dynamics impacting this trade flow, by investigating both the domestic conditions of tobacco production in Brazil and the flow of the Chinese market. The work also seeks to highlight the variables shaping this trade relationship between the two countries, considering the particularities of the Chinese market and the role of Brazilian tobacco in the global scenario.

This article is structured into four sections, in addition to this introduction. The second section presents the literature review, which discusses the cultural and social factors of tobacco use in China and its impact on the consumption of the product exported by Brazil; the third section presents the methodological procedures; the fourth discusses and analyzes the results; finally, the main conclusions are presented.

LITERATURE REVIEW

The re-primarization of the Brazilian economy has driven an increase in tobacco production, reflecting a broader trend observed across Latin America and the Caribbean. These countries, especially Brazil, have expanded their participation in global agricultural exports. Brazil, in particular, has shown great dynamism in the export of oilseeds (such as soybeans), sugar, meat, and tobacco, with the latter being a sector that has experienced substantial growth. The increase in tobacco production is directly linked to the dynamics of the agricultural sector, which has strengthened due to growing external demand, particularly from markets such as China, Argentina, the United States, and the European Union (Silveira *et al*., 2020).

Excise taxes on products involving legal drugs, such as alcohol and tobacco, emerged as a government initiative to subsidize their operations and are considered an easy source of revenue (Badii, 2024). However, as society became aware of the harmful effects associated with tobacco use, these taxes began to be seen as a strategy to control its consumption. In this context, the loss of productivity is one of the adversities linked to tobacco use, especially when related to jobs lost due to deaths and illnesses caused by its consumption. This issue has become one of the main concerns justifying the increase in excise taxes. Such impacts primarily affect industries that supply raw materials to the tobacco industry, as well as the tobacco industry itself (Badii, 2024).

Regarding the impacts of tobacco on the social body of each country, it is common for its negative effects to be widely publicized by public health theorists, aiming to encourage government intervention in the fight against smoking and the protection of citizens from this addiction. However, this discourse can be questioned, as consumers are aware of the harms associated with smoking and yet continue to practice it; they are, for this reason, classified as rational consumers (Barcola, 2021). These consumers influence the economy in a particular way because, regardless of an increase or decrease in the price of tobacco, the consumption of the substance will not be affected. This occurs because consumers tend to maintain their level of tobacco consumption, adjusting their expenses on other items, such as food and leisure.

The dynamics of tobacco production and consumption vary by region. Determinant factors for consumption include household composition, food costs, the education and literacy level of the head of the household, and family income

(Adeniji, 2019). Additionally, exposure to secondhand smoke, defined as passive or involuntary smoking, must be considered as a form of tobacco consumption. Tobacco use is one of the main causes of cancer, emphysema, and lung diseases, as well as being a determining factor in the occurrence of miscarriages, premature births, sudden infant death syndrome, and erectile dysfunction (WHO, 2025).

Despite this, in the 2023/24 harvest, tobacco cultivation in Brazil covered an area of 284 thousand hectares, involving 133 thousand integrated producers. Total production reached 508 thousand tons (Turano, 2024). Approximately 90% of production is destined for the foreign market, supplying 107 countries worldwide. In 2024, tobacco exports accounted for 0.9% of Brazil's total exports, totaling US$ 2.98 billion in international sales. Thus, Brazil has stood out globally, remaining the world's second-largest tobacco producer and the largest exporter since 1993 (Sinditabaco, 2025).

From this perspective, the introduction of tobacco in China centuries ago for medicinal and religious purposes resulted in its adoption as a symbol of virility among men, making this group the largest consumers of the product (Kodriati *et al.*, 2018). In Chinese culture, smoking is widely socially accepted, especially among men, and is seen as a sign of masculinity, authority, and status. This behavior is linked to the concept of «*masculine capital*», where the act of smoking is a way for men to express their virility and align themselves with traditional ideals of masculinity. In this context, studies by Mao *et al*. (2015) indicate that the prevalence of smoking among Chinese men aged 24 to 44 reaches 59.3%. This group is particularly relevant as it coincides with the life stage when many men become fathers, which can influence their attitudes and behaviors concerning tobacco consumption.

The impact of smoking on public health is alarming, considering that more than half of adult men in the country are smokers, a rate significantly high compared to other countries. The World Health Organization (WHO) estimates that smoking and exposure to secondhand smoke cause about 100,000 annual deaths in the country (WHO, 2023).

Regarding economic issues, China is considered the world's largest producer and consumer of tobacco, with over 300 million smokers, representing nearly one-third of the global smoking population. It is estimated that more than 4 million Chinese households depend on tobacco for their livelihood, whether as farmers, cigarette industry employees, or cigarette retailers (Expose Tobacco, 2024). The China National Tobacco Corporation (CNTC), the state-owned company that holds the monopoly on tobacco production in the country, annually produces over 1.7 trillion cigarettes, generating nearly US$ 22 billion in revenue in 2022, representing a significant source of revenue for the Chinese government (CNTC, 2022). This scenario places China as one of the largest tobacco markets globally, both in consumption and production.

Concerning the factors that influence the exportation of this commodity, Bittencourt and Campos (2014) estimated a Vector Autoregression (VAR) model with variables representing external income, foreign direct investment (FDI), and the exchange rate, assessing their effects on Brazilian agricultural exports. Through Granger causality, the study did not demonstrate a causal effect of the exchange rate and FDI variables on exports. In the variance decomposition, the model indicated a strong influence of world income on export variances, while the exchange rate has strong participation after 12 periods, even surpassing world income in this regard.

Similarly, Mabeta *et al*. (2015) used an Autoregressive Distributed Lag (ARDL) model to analyze tobacco exports from Zambia, employing variables such as the real effective exchange rate, the real interest rate, foreign direct investment, the real GDP of tobacco importers, and the world tobacco price. The results showed that a 1% increase in the exchange rate raised exports by 0.92% in the short term and 1.79% in the long term, due to the relative cheapening of Zambian products. FDI was significant at 5% only in the short term, indicating that a 1% increase in this variable raises exports by 4.78%, which is explained by the FDI strategy, as it can be «market-seeking» or «resource-seeking», implying the degree of companies' orientation toward exports. The GDP of importing countries led to decreases of 9.73% and 16.14% in the short and long term, respectively, of Zambian exports. The interest rate and tobacco price did not show statistical significance.

Indrayana and Sanjaya (2025) estimated the effects of variables such as production, inflation, and the exchange rate on the volume of tobacco exports from Indonesia to Cambodia. According to the authors, production, export volume, and the exchange rate exerted a positive influence on tobacco exports.

Regarding the determinants of agricultural product exports, Silva *et al*. (2024) analyzed the effects of variables such as external income, the exchange rate, and the agricultural commodity price index on Brazilian agricultural exports. To this end, they used a time-varying cointegration model, a non-linear model that allows for the inclusion of the factor of shocks suffered by emerging economies. For all three variables, the effects were positive. The study identified that a 10% increase in the exchange rate variable can increase agricultural exports by 11.4%; a 10% increase in commodity prices raises exports by 4.5%; and a 10% increase in external income raises exports by 8.6%.

METHODOLOGY

The defined approach to achieve the objectives proposed by the study, an econometric estimation was conducted using Vector Error Correction (VEC) models, allows for assessing the interaction between variables and their magnitudes, especially among economic variables, which often exhibit endogeneity (Bueno, 2018). The first part of this section addresses the Vector Autoregression (VAR) and VEC models and the main tests and diagnostic.

a. Quantitative Approach, Diagnostics, and Tests

The VAR model is characterized, in its summarized form, according to Bueno (2018), as:

$$X_t = \Phi_0 + \sum_{i=1}^{p} \Phi_i X_{t-1} + \varepsilon_t, \quad (1)$$

Where: X is a vector of variables; Φ is a matrix of estimated coefficients; ε is a vector of uncorrelated residuals; t is a time period; and p is the order of the VAR - that is, the number of lags.

The difference between VAR and VEC models lies in the existence of a cointegration equation, which represents a long-term equilibrium in the model, even in the absence of variable stationarity. This equation then represents the long-term model, to which the variables tend to adjust (Bueno, 2018).

First, the ideal method is verified through the stationarity test of the variables, conducted using the Augmented Dickey-Fuller (ADF) test. This test consists of regressing a variable from its lagged self and adding a constant and trend as deterministic terms (Enders, 2015). The ADF thus evaluates the presence of a unit root; if none is found, the series is considered stationary.

If there are no non-stationary series, the optimal number of lags for the system and the Johansen cointegration test are obtained, which analyzes the existence of a cointegration equation in the model. The number of lags is suggested by the Schwarz (SC), Hannan-Quinn (HQ), and Akaike (AIC) criteria and is of great importance for the Johansen test, given its sensitivity (Enders, 2015). If there are cointegration vectors, the VEC is estimated. Otherwise, the VAR is estimated with each variable differentiated at its stationary level. For the number of cointegration equations, the Johansen test seeks the rank of the coefficient matrix through the trace and maximum eigenvalue tests (Bueno, 2018).

After completing the estimation, diagnostics are performed to certify the correct specification of the model, ensuring the absence of autocorrelation in the residuals, using the Breusch-Godfrey test (Hamilton, 1994; Bueno, 2018). For model stability, it is verified whether the inverse roots of the characteristic polynomial are contained within the unit circle (Bueno, 2018). If so, the model is stable and satisfies the conditions for analysis.

The analysis of the VEC results is conducted through the coefficients of the co-integration equation, which returns the long-term relationships of the model. The impulse response function shows the short-term dynamics of an exogenous shock in the variables and the effects on the others, aggregating the feedback effects of one variable on the others (Lütkepohl, 1991). Finally, the variance decomposition of the errors results in the percentage participation of the variables in explaining the others (Bueno, 2018).

b. Model Representation, Data, and Sources

The estimated model includes typical variables from international trade studies –as shown in the previous section– such as the exchange rate, external income, and export prices, in addition to adding a proxy variable for agricultural costs and a seasonal dummy variable. Frame 1 describes the variables and their sources.

Frame 1
Description of variables and their sources

Variable	Description	Source
Exports (X)	Exports of tobacco and its manufactured substitutes (SH2 - 24) from Brazil to China (Kg)	MDIC (2025)
Cost (IPA)	7460 - Broad Producer Price Index by Origin - domestic availability (IPA-DI) - Agricultural products (index jan./2005=100)	BCB (2025)
Exchange Rate (ER)	11757 - Real effective exchange rate index (IPA-DI) – jun./1994=100	BCB (2025)
external income (Y_ext)	Chinese import of goods	OCDE (2025)
Price (P_tobacco)	Average price of exports of tobacco and its substitutes (SH2 - 24) from Brazil to the world (R$/Kg)	MDIC (2025)
@Month*n*	Monthly seasonal dummy variable from January to December, where n represents the month. It equals 1 in the given month and 0 otherwise	-

Source: Elaborated by the authors.

The dummy variable is added to mitigate seasonal effects on Brazilian tobacco exports to China, which show several zero-value periods.

The expected relationships are that export prices, external income, and the exchange rate should have positive effects on exports. The agricultural cost variable represents an innovation, as previous works have not typically considered it a determinant of exports, although it has been used in studies analyzing the transmission of exchange rate variation to export prices (Fraga *et al.*, 2009; Copetti; Coronel, 2021).

Using Equation (1) as an example with a one-period lag and incorporating the analytical variables, the estimated model can be defined as:

$$X_t = \Phi_0 + \Phi_i X_{t-1} + \Phi_2 Y\_ext_{t-1} + \Phi_3 TC_{t-1} + \Phi_4 P\_tabaco_{t-1} + \Phi_5 Custo_{t-1} + \varepsilon_t. \quad (2)$$

Where: X_t is Brazil's tobacco exports to China at time t; Y_ext is external income; ER is the real effective exchange rate; P_tobacco is the price of Brazilian tobacco exports; Cost is the producer cost index; Φ represents the estimated coefficients; and ε is the model residual. It is important to note that all variables were log-transformed (natural logarithm), which allows the estimation of elasticity effects.

The study's temporal scope is from January 2005 to October 2023, based on the availability of data on Chinese imports in the OECD database. This provides the study with 226 monthly observations.

ANALYSIS AND DISCUSSION OF RESULTS

The model estimation begins with the verification of the stationarity level of each variable. As shown in Table 1, the variables ER and X are stationary at level, requiring only a constant as a deterministic term. However, Y_ext, Cost, and P_tobacco need to be differenced to become stationary.

Table 1
ADF stationarity test

Variable	In level			At 1st difference		
	Without intercept or trend	With intercept	With intercept and trend	Without intercept or trend	With intercept	With intercept and trend
Y_ext	2,1	-2,39	-2,56	-21,13***	-21,40***	-21,50***
TC	-0,35	-3,08**	-3,1	-12,16***	-12,14***	-12,15***
X	-0,3	-9,90***	-8,84***	-11,27***	-11,24***	-11,21***
Cost	2,47	-0,23	-2,59	-8,55***	-9,00***	-8,99***
P_tabaco	1,91	-1,5	-1,84	-9,80***	-10,10***	-10,08***

Source: Elaborated by the authors.

The existence of non-stationary variables opens the possibility of estimating a Vector Error Correction model, assuming a cointegration vector exists. Before applying the Johansen cointegration test, a standard VAR was run with the variables in level, and the Akaike (AIC), Schwarz (SC), and Hannan-Quinn (HQ) information criteria were used to identify the ideal lag length. The statistics are presented in Table 2.

Table 2
Optimal lag level according to information criteria

Lag	AIC	SC	HQ
0	3,760	4,691	4,136
1	-10,453	-9,134	-9,920
2	-10,889*	-9,181*	-10,199*
3	-10,82	-8,724	-9,973
4	-10,726	-8,242	-9,722
5	-10,679	-7,806	-9,518
6	-10,62	-7,359	-9,303
7	-10,53	-6,882	-9,057
8	-10,453	-6,416	-8,823

Source: Elaborated by the authors.

All criteria indicated two lags as optimal, so the Johansen cointegration test proceeds with that number. Table 3 presents the Johansen test results using trace and maximum eigenvalue statistics.

Table 3
Johansen cointegration test

		Dash test			Maximum eigenvalue test		
Number of cointegrating equations	Eigenvalue	Trace statistics	Critical value at 5%	p-value	Maximum eigenvalue statistics	Critical value at 5%	p-value
None*	0,206	94,680	69,819	0,000	51,546	33,877	0,000
Maximum 1	0,106	43,133	47,856	0,129	24,903	27,584	0,106
Maximum 2	0,052	18,231	29,797	0,549	11,957	21,132	0,552
Maximum 3	0,025	6,273	15,495	0,663	5,553	14,265	0,671
Maximum 4	0,003	0,720	3,841	0,396	0,720	3,841	0,396

Source: Elaborated by the authors.

Both trace and maximum eigenvalue tests indicated the existence of at least one cointegration equation. Thus, the most appropriate estimation method is the VEC model. Regarding model specification, the Breusch-Godfrey autocorrelation test was conducted, along with a stability check using inverse roots of the characteristic polynomial.

Table 4
Breusch-Godfrey residual autocorrelation test

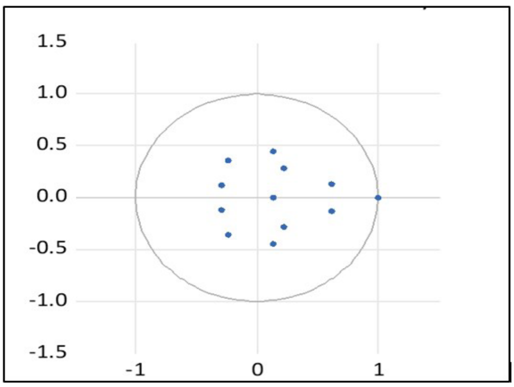
Gap	LRE Statistics	Degrees of freedom	p-value	Rao's F-statistcs	Degrees of freedom	p-value
1	23,788	25	0,532	0,952	25; 711	0,532
2	26,246	25	0,395	1,052	25; 711	0,395
3	27,749	25	0,320	1,114	25; 711	0,320

Source: Elaborated by the authors.

As shown by the p-values of the Breusch-Godfrey test, the null hypothesis – that there is no autocorrelation among the residuals– cannot be rejected. Thus, the model appears to be well specified in terms of both the variables used and the selected lag order.

Finally, the stability test shown in Figure 1 also supports the correct specification of the model, as the inverse roots are contained within the unit circle.

Figure 1
Inverse roots of the characteristic polynomial



Source: Elaborated by the authors.

After presenting the model diagnostics and specification tests, Table 5 shows the estimated cointegration equation of the VEC model, i.e., the long-term equilibrium relationships between the independent variables and the dependent variable (exports).

Table 5
Cointegration equation estimation

Variables	X	Y_ext	TC	Cost	P_tabaco	C
Coefficient	1	-21,865	-22,227	9,642	8,913	579,63
Standard deviation	-	4,775	6,174	3,068	5,455	-
T-statistic	-	-4,579	-3,600	3,143	1,634	-

Source: Elaborated by the authors.

The variable Y_ext, which represents Chinese income, is significant and positively associated with increases in Brazilian tobacco exports. According to the estimation, a 1% increase in Chinese income can lead to a 21.87% increase in Brazilian exports. This result aligns with the findings of Bittencourt and Campos (2014) and Silva *et al*. (2024), who also found a positive and significant relationship between external income and agricultural exports. This effect is explained by the fact that rising national income stimulates demand, which extends beyond borders and increases the demand for imported products such as Brazilian tobacco.

A 1% increase (depreciation) in the exchange rate (ER) results in a 22.23% increase in tobacco exports to China. This outcome is consistent with the findings of Silva *et al*. (2024), and with Mabeta *et al*. (2015) and Indrayana and Sanjaya (2025), who observed that currency depreciation boosts exports by making domestic products relatively cheaper—Brazilian goods, in this case.

Production costs have a significant and negative impact on exports. A 1% increase in production costs leads to a 9.64% decrease in exports. This may be due to a decline in sectoral attractiveness, as increased costs reduce profits in a market where prices are externally determined –thereby limiting exports.

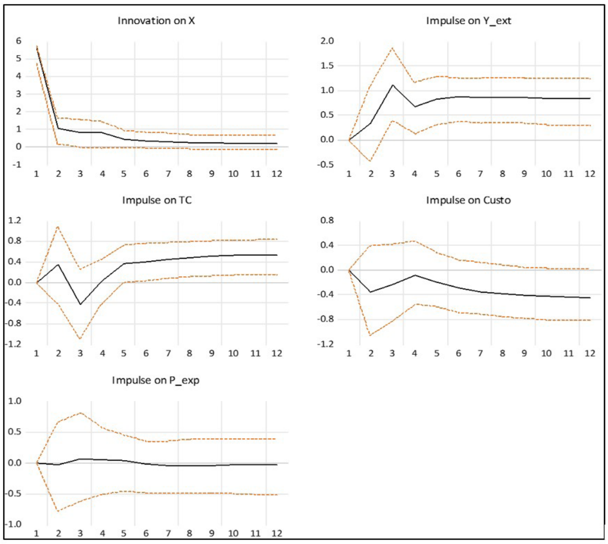
Diverging from the literature, the export price of Brazilian tobacco shows a negative sign but is not statistically significant. This may be attributed to the COVID-19 pandemic, which disrupted economic activity and caused price shocks (Silva *et al*., 2024).

The seasonal dummy variable was significant in months 4, 9, and 10, at a 10% significance level, indicating that Brazilian tobacco exports exhibit seasonal patterns concentrated in those months.

Figure 2 shows the impulse response function, focusing on the response of the export variable (X) to shocks in the model's variables.

Figure 2

Response of the export variable (X) to impulses in the model variables



Source: Elaborated by the authors.

Overall, the responses of the export variable to shocks align with the long-term model. Exogenous shocks to exports produce positive effects on the same variable for up to two periods. When the shock occurs in Y_ext, exports grow by about 15% after five periods and remain elevated. Impulses in the exchange rate (ER) take approximately six periods to become significant, with effects between 15% and 20% over time. In contrast, no significant response was observed from the Cost and P_exp variables.

To further understand the short-term impacts, Table 6 presents the variance decomposition of the export variable:

Table 6
Variance decomposition of the export variable (X)

Period	Standard deviation	X	Y_ext	TC	Cost	P_tobacco
1	5,585	100,000	0,000	0,000	0,000	0,000
2	5,717	98,889	0,342	0,380	0,386	0,004
3	5,901	94,682	1,030	3,758	0,513	0,017
4	5,995	93,592	0,999	4,873	0,514	0,022
5	6,084	91,435	1,235	6,710	0,596	0,024
6	6,176	89,068	1,493	8,621	0,793	0,025
7	6,268	86,690	1,829	10,370	1,081	0,030
8	6,363	84,280	2,225	12,041	1,420	0,034
9	6,457	81,955	2,643	13,584	1,781	0,037
10	6,552	79,727	3,068	15,011	2,153	0,040
11	6,646	77,603	3,481	16,347	2,526	0,042
12	6,739	75,591	3,876	17,598	2,891	0,044

Source: Elaborated by the authors.

The variance decomposition shows that the only relevant variables –those whose influence exceeds the standard deviation– are the exchange rate and the exports themselves. The export variable explains over 90% of its own variance during the first five periods. From the fifth period onward, the exchange rate gained more importance, reaching 17.6% by the twelfth period.

CONCLUSIONS

This article aimed to examine the main factors that influence the production and export of Brazilian tobacco, with a specific focus on the dynamics of the Chinese market. The methodology used was based on Vector Error Correction (VEC) and autoregressive models, which allowed for the analysis of interactions among economic variables such as the exchange rate, external income, and tobacco prices.

In this context, it was found that Chinese income acts as a driver for Brazilian tobacco exports, indicating that China's economic growth is significantly and positively related to the demand for Brazilian tobacco. The exchange rate also presented a positive and significant relationship. Thus, the devaluation of the Brazilian real makes Brazilian products more affordable for Chinese importers, which reflects positively on tobacco exports. Production costs showed a negative and significant relationship, indicating that rising agricultural costs in Brazil negatively affect tobacco exports to China. Lastly, Brazilian tobacco export prices did not show statistical significance.

The results indicated that Brazil, with its significant tobacco production, holds a strategic position in relation to China, which is gradually becoming the leading destination for Brazilian exports of this product. This trade relationship is mainly influenced by external determinants such as Chinese income and exchange rate fluctuations that affect the demand for tobacco, while production is affected in the long term by production costs. Therefore, the study reveals that the dynamics between domestic production and conditions in the Chinese market shape the competitiveness of the tobacco sector, highlighting the need to understand these dynamics in order to outline new strategies that can support the sector's expansion and cope with international market fluctuations.

This paper also provided a clear understanding of the dynamics of tobacco exports to China, which is essential for generating foreign exchange and fostering economic growth. Nevertheless, the study presents some limitations that deserve to be noted, such as the exclusion of other variables that influence exports, including trade barriers, and infrastructure costs, among others.

In this regard, future research is encouraged to adopt Dynamic Computable General Equilibrium (CGE) models to assess, over time, the impact of tariff and non-tariff barriers, as well as studies aimed at measuring the economic effects of transportation and logistics costs, which hinder competitiveness and broader integration into the international market.

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