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External logistics for banana exports to the Netherlands: A comparative study between Peru and Ecuador

Logística externa de exportación de banano hacia Holanda: Estudio comparativo entre Perú y Ecuador

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Abstract

The article addresses the need to analyze whether export logistics costs may act as limitations to a greater introduction of bananas into the Netherlands market from competitors such as Peru and Ecuador. The methodology used was qualitative, using economic and logistical indicators from the World Bank. The main findings were: in construction, external marketing, logistics capacity, traceability and timeliness, Peru is better positioned than Ecuador. This leverage is due to the proximity of the producing areas to the port of shipment (Paita) (comparative advantages) and the improvement of the port structure (competitive advantages**).** This type of port infrastructure advantage has been achieved through concessions of its main shipping ports, thus reducing costs. In addition, Peru's maritime logistics model is optimal compared to Ecuador's chartering model.

Keywords: Export, bananas, Peru, Ecuador, Netherlands.

Resumen

El artículo aborda la necesidad de analizar si los gastos logísticos de exportación tal vez actúan como limitantes a una mayor introducción de banano en el mercado holandés en competidores como Perú y Ecuador. La metodología utilizada fue cualitativa utilizando indicadores económicos logísticos del Banco Mundial. Los principales hallazgos encontrados fueron: en la construcción, comercialización externa, capacidad logística, trazabilidad y momento oportuno, Perú está mejor posicionado que Ecuador. Asimismo, Perú tiene menores costos de transporte terrestre e inferiores costos de transporte marítimo hacia Holanda, comparado con Ecuador. Este apalancamiento se debe a la cercanía de las zonas productoras al puerto de embarque (Paita) (ventajas comparativas) y al mejoramiento de la estructura de los puertos (ventajas competitivas). Este tipo de ventaja de infraestructura portuaria se ha dado mediante concesiones de sus principales puertos de embarque disminuyendo costos. Asimismo, el modelo logístico naviero que utiliza Perú es óptimo en comparación del modelo de charteo de Ecuador.

Palabras clave: Exportación, banano, Perú, Ecuador, Holanda.

Introduction

In South America, delays in cargo movement at border crossings may add between 4% and 12% to logistics costs (Schwartz et al., 2009), with notable cases documented in major economies such as Brazil, Argentina, Peru, and elsewhere. At Brazil's Santos port, customs clearance delays are particularly problematic; research suggests that reducing clearance times by four days could lower logistics expenditures by 16% (Banco Mundial et al., 2010).

Several studies indicate that maritime transport costs directly affect a country's trade performance. Doubling such costs could reduce a nation's trade volumes by 80% or more (Limao & Venable, 2001). The negative repercussions extend further: growth rates could decline by over half a percentage point, foreign investment might dwindle, savings rates could suffer, technology access would be constrained, and overall employment levels would likely deteriorate (Radelet & Sachs, 1998).

Within this context, banana exports to the Dutch market involve multiple suppliers, such as Ecuador, Peru, Colombia, and others, each facing distinct logistics cost structures shaped by transportation modes (predominantly

maritime), infrastructure quality, port facilities, and related factors. Ecuador leads banana exports to the Netherlands with a 32% market share, followed by Colombia at 13%, while Peru ranks sixth with 6% participation (Trade Map, 2012).

Nevertheless, Peru has been expanding its banana export volumes at an annual rate of 18% (2011–2012), yet still commands only a modest 6% market share, competing directly with Ecuador and Colombia. This situation prompted the question of whether external logistics expenditures might be constraining Peruvian banana exports to the Dutch market.

The present study aims to compare the external logistics performance of banana supply chains from Peru and Ecuador to the Netherlands, in order to assess the competitive positioning of Peruvian banana exports within this logistics framework.

Methodology

This article adopts a qualitative, descriptive approach. Six logistics indicators were selected from the World Bank's Logistics Performance Index: customs clearance efficiency; quality of trade- and transport-related infrastructure; ease of arranging competitively priced shipments; quality of logistics services; shipment tracking and tracing capabilities; and frequency with which shipments reach consignees within scheduled timeframes.

A country's logistics competitiveness can be measured using these six indicators, each rated on a scale from 1 to 5, where 1 represents the lowest performance and 5 the highest. Countries are evaluated across these dimensions, and aggregated scores enable international ranking comparisons (Banco Mundial, 2014).

Results and discussion

Banana demand in the European market peaks between October and April, driving price increases during this period, a significant advantage for South American countries entering these markets at that time. Conversely, prices decline from May through September when demand softens and local products (berries and other fruits) fill supply gaps (PROECUADOR, 2013).

Bananas destined for the Netherlands enter primarily through Rotterdam, one of Europe's principal ports, which has been upgrading its facilities with advanced refrigeration chambers and ripening rooms. The banana market is segmented into organic and conventional categories, with fair-trade certifications offering additional marketing channels that enable product traceability while directly supporting producer associations.

Geographic location:

Peru has been increasing its agricultural export volumes, bananas included. Situated in the central western portion of South America, Peru covers 1.3 million km² and has Pacific Ocean access. Ecuador, located on the equator in northwestern South America, spans 283,561 km² and likewise enjoys Pacific coastline.

Both countries have maritime access, yet Ecuador's proximity to the Panama Canal affords a shipping time advantage over Peru. As certain authors have observed, a nation's strategic geographic position, grounded in comparative advantages, can shape its foreign trade policy (Saavedra, 2010).

Inland transport costs (production area to port):

Peru's primary banana-producing region lies in the department of Piura, within Sullana province, which encompasses eight districts (Querecotillo, Salitral, Marcavelica, among others) that serve as the country's leading banana suppliers for export (Huamán, 2005). Ecuador, by contrast, concentrates production in El Oro, Los Ríos, and Guayas provinces (Alaña, 2011).

The principal shipment ports handling banana exports from Peru and Ecuador are Paita and Guayaquil, respectively, with Piura and Guayaquil serving as the relevant production hubs.

Table 01. *Comparison of Transport Costs from Production Areas to Ports: Paita (Peru) and Guayaquil (Ecuador) – (1 x 40-foot Reefer Container).*

Port	Distance to port	Transit time	Road condition	Tariff (dollars)
Paita	67	1 hr 27 min	100% paved	345

Guayaquil	145	2 hr 55 min	100% paved (with cracks)	500

Source: Author's own elaboration (2026), based on the Banco Interamericano de Desarrollo (2013) and Alva - PROMPERU (2013).

Table 01 presents inland logistics costs for transporting one 40-foot refrigerated container from primary production areas to the respective ports of embarkation. A US$155 cost differential exists between Peru and Ecuador, attributable to both the proximity of production zones to the port and the condition of road infrastructure in each country.

Several authors have noted that a country's comparative advantage, rooted in its strategic geographic location, influences logistics costs and can ultimately lower maritime export costs through port selection (Rua, 2006).

Maritime shipping costs to Rotterdam (Netherlands):

Rotterdam serves as the Netherlands' primary port, receiving cargo for domestic distribution while functioning as a key logistical hub connecting various European countries.

Table 02. *Comparison of maritime transport costs from Paita and Guayaquil to Rotterdam.*

Country	Port of embarkation	Destination port	Transit time	Tariff (dollars)
Peru	Paita	Rotterdam	23 days	3.500
Ecuador	Guayaquil	Rotterdam	19 days	3.841

Source: Author's own elaboration (2026), based on Alva - PROMPERU (2013) and PROECUADOR (2013).

Table 02 reveals a significant cost difference for shipping one banana container: Peru incurs US$3,500 compared to Ecuador's US$3,841. This disparity likely reflects differing commercial shipping models, Peru employs a liner service model (container leasing), whereas Ecuador utilizes a charter model (vessel leasing). However, Ecuador's geographic position yields a clear temporal advantage, with an estimated 19-day transit time versus Peru's 23 days.

Proaño (2014) identifies two maritime shipping models: the liner model, which offers greater flexibility and maintains superior banana transport conditions to destination ports, and the traditional charter model, which operators are currently attempting to modernize.

Notably, banana boxes transiting the Panama Canal incur an approximate charge of US$0.85 per box, and shipping companies typically incorporate this fee into the total freight costs charged to exporters.

Logistics performance indicators:

The logistics competitiveness indicators applied in this comparative analysis between Peru and Ecuador reveal how these countries perform across various dimensions relevant to banana shipments to the Dutch market.

Table 03. *Comparison of logistics performance indicators: Peru and Ecuador.*

Components	Peru		Ecuador	
	Score	Rank	Score	Rank
Customs	2.47	96	2.49	92

Infrastructure	2.72	67	2.50	94
International shipments	2.94	69	2.79	83
Logistics competence	2.78	76	2.61	97
Traceability	2.81	83	2.67	95
Timeliness	3.30	66	3.18	77
Logistics performance index	**2.84**	**71**	**2.71**	**86**

Source: Author's own elaboration (2026), based on the BANCO MUNDIAL (2014).

Table 03 indicates that Ecuador outranks Peru marginally in customs performance (rank 92 versus 96, with scores of 2.49 and 2.47, respectively). However, Peru demonstrates stronger positioning across infrastructure, international shipment capability, logistics competence, traceability, and timeliness. This performance may reflect infrastructure modernization in Peruvian ports such as Paita, where concession agreements have driven improvements in construction, traceability, customs systems, and related areas.

As noted by Colombia's National Business Association – ANDI (2014), "Countries with better logistics can grow faster, become more competitive, and increase investment".

Conclusions

Based on the variables analyzed, such as logistics indicators (infrastructure, customs, traceability, etc.), inland freight, and maritime freight, Peru demonstrates stronger positioning than Ecuador, suggesting that the logistics system does not constitute a constraint on Peruvian banana penetration into the Dutch market.

The competitive advantages Peru has cultivated through port concession agreements have improved its international Logistics Performance Index ranking. This progress facilitates greater foreign investment, innovation, and technology inflows, thereby enhancing trade in various fruits, including bananas.

The proximity of banana-producing areas to Paita port reduces transit times and distances, favoring Peruvian banana logistics. Nevertheless, Ecuador's proximity to the Panama Canal affords a four-day maritime shipping advantage.

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