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**ARTÍCULOS DOCTRINALES / ARTICLES**

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**ESTIMATED UNIT COST OF THE SLAVES IN THE SECOND HALF OF THE 18TH CENTURY****Álvaro Pereira de Andrade**

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**Abstract:** Previous surveys based on historical documents on the price of slaves from Africa have contributed greatly to accounting literature. However, most of these studies usually focus on the sale price of slaves in the colonies or on slave purchase prices in Africa. Therefore, no work has been observed in the literature relating to the effective or estimated unit cost of slaves, taking into account the total cost of all phases of the slave trade. This study aims to bring to the literature of accounting history an approach on the estimated unit cost of slaves based on estimated total cost of all costing phases of captive transportation from Angola to Pernambuco. This approach was found in a historical document dated November 12, 1758, written by the governor of the captaincy of Pernambuco - Luis Diogo Lobo da Silva. This document was written in fulfillment of the orders of the king of Portugal, D. José I, in order to prepare a list of ships capable of transporting slaves from Africa and the details of necessary provisions for the slaves, who would be sent from Angola to Pernambuco. Luis Diogo Lobo da Silva was governor of the captaincy of Pernambuco from 1756 to 1763, and he was recognized for his qualities as a good colonial administrator and for adopting good management practices in his work.

**Keywords:** *Slaves, expenditures, cost, estimated unit cost, management, Pernambuco, Angola.*

**COSTE UNITARIO ESTIMADO DE LOS ESCLAVOS EN LA SEGUNDA MITAD DEL SIGLO XVIII**

**Resumen:** Las investigaciones basadas en documentos históricos sobre el precio de los esclavos de África han contribuido en gran medida a la literatura contable. Sin embargo, la mayoría de estos estudios generalmente se centran en el precio de venta de esclavos en las colonias o en precios de compra de esclavos en África. Por lo tanto, no se ha observado ningún trabajo en la literatura relacionada con el costo unitario efectivo o estimado de los esclavos, teniendo en cuenta el costo total de todas las fases del comercio de esclavos. Este estudio aporta a la literatura de la historia contable un enfoque sobre el costo unitario estimado de los esclavos, que se basa en el costo total estimado de todas las fases de costos para transportar a los cautivos de Angola a Pernambuco. Este

documento fue encontrado en un documento histórico fechado el 12 de noviembre de 1758, escrito por el gobernador de la capitanía de Pernambuco - Luis Diogo Lobo da Silva. Este documento fue escrito en cumplimiento de las órdenes del rey de Portugal, D. José I, para preparar una lista de barcos capaces de transportar esclavos de África y los detalles de las disposiciones necesarias para los esclavos, que se gastarían desde Angola a pernambuco Luis Diogo Lobo da Silva fue gobernador de la capitanía de Pernambuco desde 1756 a 1763, y era reconocido por sus cualidades como buen administrador colonial y por adoptar buenas prácticas de gestión en su trabajo.

**Palabras clave:** *Esclavos, gastos, costo, costo unitario estimado, gestión, Pernambuco, Angola.*

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## 1. Introduction

Studies in the history of accounting on slavery, based on primary historical documentation have been done for a long time by the researchers. Those that stand out are the works with specific focus on the slave trade and its profitability. Many authors have written about this theme for various periods (Inikory, 1976; Darity, 1985; Richardson, 1985, 1989; Lovejoy and Richardson, 2007). Other studies include the utilization of slave labor in the textile industry and in America's extensive plantations (Barney and Flesher, 1994; Fleischman, Tyson and Oldroyd, 2004). There are also studies in relation to aspects of the slave as merchandise (Burnard, 2011). Others embark upon the question of mortality during transportation over the Atlantic (Eltis, 1984; Duquette, 2014). Worthy of note is a group of researchers who study this theme in a perspective of a critical theory (Oldroyd, Fleischman and Tyson, 2008; and Annisette, 2009). More recently, a survey by Crane (2013) focused on the modern slavery as a management practice.

A variety of documentation are available in the Portuguese archives, including accounting books from the privileged Portuguese companies of the second half of the eighteenth century, containing important historical information on the slave trade from which relevant papers have been published, such as Pinto (2017a; 2017b), although they are still somewhat scarce. Eltis, Lewis and McIntyre (2010) are other examples who have written paper using this type of historical document to research transport costs in slave journeys realized by the Royal African Company.

In the Portuguese archives other important historical documents about this subject are found such as correspondences, notifications, letters, laws, decrees, king's charters, etc., with a quantitative and qualitative content relevant to the subject in question, some of which can also provide significant information for historians of accounting, in the spirit of promoting accounting instruments and production as valuable fruits of human activity (Carnegie and Napier, 2012). It is important to mention the work of Silva (2013) that uses documents of this nature, focusing upon relevant concerns about slavery, including social, economic and institutional relationships. All of these are important for the literature of accounting.

For this study the main object of analysis is the primary historical document, dated November 12, 1758, which is part of the archive of correspondences, letters and charters available at the National Archive Stacks (Arquivo Nacional da Torre do Tombo – ANTT). This document is also currently available in the archive of the Laboratory of Research and Historical Studies (LAPEH) of the History Department at the Federal University of Pernambuco. The governor of the captaincy of Pernambuco, Luis Diogo Lobo da Silva is the author of that document. Even though Luis Diogo was not a practitioner of accounting, the document presents essential elements of cost accounting and a form of presentation that was very important for managing the slave trade.

This research offers a contribution by bringing to the historical literature an important historical document that contains characteristic criteria of financial management and costs. Its content presents an approach based on the estimated unit cost of the slave, which the unitary cost would be the basis for the management of the business and of the slave trader's profit margin. The determination of this estimated unit cost is based on a detailed inventory of all the expenditures necessary to transport slaves from Angola to Pernambuco in the second half of the XVIII century and are shown by means of tables in the document studied, with all the characteristics of financing and budget control. The differential of this study is its focus on the cost and not on the sale price of the slaves in the colony, nor the purchase price of slaves in Africa, subjects already well discussed in the literature. This work is divided into nine parts.

It begins with an introduction followed by a brief revision of the literature on the subject. Additionally, there is a general contextualization of the political and economic environment of Pernambuco's captaincy. The following is a detailed discussion of the historical document, commenting on its origin, content and its aims, and a few words are written about Luis Diogo Lobo da Silva. The fifth part presents the methodological aspects of the work. In the sixth section, the slave trade on the Coast of Africa in the second half of the eighteenth century is discussed, continuing with a general vision on the slave purchase prices from Angola. In the eighth section, it is analyzed the historical document, by developing a quantitative and qualitative discussion. Finally, this study is concluded presenting its findings and contribution for the literature, and also the limitations of the work and possibilities for future investigations will be pointed out.

## 2. Brief review of the literature: the approach of costs in the environment of the history of accounting and in historiography

The accounting practice for determining the cost of products in the business environment is generally viewed by certain scholars of the accounting of costs as having its seminal moments in the industrial revolution, becoming truly *consolidated* in the period between 1880 and 1925 (Hansen and Mowen, 1999; Hornegren, Bhirmani, Datar and Foster, 2002). Yet historians of accounting have already shown the existence of consolidated controls of costs in Italian factories from 1865, demonstrating the existence of older evidence on products' costing (Antonelli, Cerbioni and Parbonetti, 2000). However, this study does not pretend to deal with subjects related to the evolution or progress of accounting, nor questions on how accounting models have become better (Napier, 2001).

Recently, studies on the history of accounting have looked for elements that prove the systematization of costs and their procedures for control in the period preceding the aforementioned industrial revolution. In the search for this information, factories in the country of Portugal have come under focus. Worthy of mention are papers on the Silk Factory, determining the utilization of structured systems for costs from 1747 to 1748 (Carvalho; Rodrigues and Craig, 2007; Carvalho, Cochicho, Rodrigues and Paixão, 2016), emphasized its occurrence in periods before the industrial revolution and before the implantation of the School of Commerce in Portugal. The conclusion of the findings of these works have been well founded by these scholars, based on the evidence of the practice of foreign accounting professionals in Portuguese businesses in that time.

In relation to studies on costs on slave trade, a considerable number of scholars treated about costs during a period, but they do not focus on the discussion about the process of formation of the unit cost of slaves until the sale of it in the colony. Many works found in the literature about the costs of slave trade invariably discussed the them either in terms of general costs or as systems of costs, with a focus on the management models operating in those periods. Such studies have depicted slave labor in the eighteenth and nineteenth century factory activity (Johnson, 1972; Fleischman and Parker, 1990; García, 1994; Carmona, Ezzamel and Gutiérrez, 1997; and Tyson, 2010). More recently, Rossi (2017) presented a work specifically on the subject of accounting management in the second half of the eighteenth century in Spain, focusing on production methods, work organization, product costs and quality control.

In the literature on economic and social history, the works of Williams (1944), Malheiro (1976) and Gorender (1978) are stands out amongst others. They utilize primary sources for studies on the prices for purchase and sale, as well as those that display profitability, without taking apart elements for the formation of these prices for negotiation, nor do they touch upon

the subject of the slave's unit price. On the other hand, it should be noted that Carreira (1983) presented data on quantities and costs of trade slaves in the second half of the eighteenth century by privileged commerce companies of the Portuguese kingdom. However, the data is based on calculations of average values, obtained by dividing the total value in the accounting books by the quantity of transported slaves, but he did not enter into details on the formation of these costs.

Additionally, the work of Mancall, Rosenbloom and Weiss (2000) gives details on the slave's sales price of South Carolina in the period from 1722 to 1809. They utilized econometric methods to analyze the behavior of prices in the sale of slaves and to establish their relationship with productivity. However, their databases were extracted from secondary sources. In addition, on the subject of slave prices across the Atlantic, there is an important work by Miller (1986) and Santos (2004). These amongst other studies referred to sustain the importance of the current study.

### **3. A few words about the captaincy of Pernambuco and Luis Diogo Lobo da Silva**

In the second half of the eighteenth century, the Marquis of Pombal, within his program of economic recovery of the Portuguese kingdom, took the decision to annex the captaincy of Paraíba to the captaincy of Pernambuco and appoint Luis Diogo Lobo da Siva to govern it as a measure for containment of expenses and improvement of the management of royal treasury revenues (Lara, 1981). The captaincy of Pernambuco was facing serious economic, financial and administrative problems following the expulsion of the Dutch in 1654.

An important measure of the Portuguese crown to promote trade in the captaincy of Pernambuco was the establishment of the Companhia Geral de Comércio de Pernambuco e Paraíba - CGCPP<sup>1</sup> in 1759 (Junior, 2004). In the discourse of the Marquis of Pombal's management policy there was a proposal, in addition to recovering the commerce of the captaincy he intend to expand the supply of essential products to its inhabitants and to promote the well-being of its colonial people. However, in order to face the economic and financial challenges of captaincy, a manager with appropriate administrative skills and experience as Luis Diogo was required.

In 1755, the king of Portugal, D. José I, appointed Luis Diogo Lobo da Silva to govern the captaincy of Pernambuco. He took office on February 16, 1756 and ruled until September 8, 1763. After that, he went to govern the captaincy of Minas Gerais from 1763 to 1768. Little is known about his previous life, only that he was born in the city of Montemor in Portugal. In 1717, he became a colonial administrator. His place of death is also unknown.

Luis Diogo Lobo da Silva during his term of office carried out several actions for the restructuring and reorganization of the public administration of the captaincy of Pernambuco, as well as, he stimulated the activities of leather and slave trade, cane plantation and sugar production, control of the tax collection and in particular he did organize the bureaucratic structure of the captaincy. He fully complied with the orders placed by the sovereign for him to put the captaincy in order, since the interests of the kingdom were clearly put on its products, especially sugar, leather and tobacco. Also the possibility of stimulating the slave trade in Brazil, an activity which, at that period, had been eliminated in Europe, but which would still yield a lot of wealth for Portugal (Lara, 1981, Macedo 1982, Carreira, 1983).

The task of organizing the finances and patrimony of the captaincy of Pernambuco was a priority, above all to send to the king of Portugal a reliable report on the real financial situation

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<sup>1</sup> CGCPP was a privileged trading Company established in the Marquise of Pombal's administration.



and on the money and assets pertaining to the crown. For this, Luis Diogo formed a team with his own personnel for the public administration of the captaincy and invited the managers of the CGCPP to aid him. A financial report were prepared using double entry accounting and forwarded to the King of Portugal in the year 1760, as requested.

After finishing that work, Luis Diogo received from the king of Portugal the task for inventorying the vessels suitable for to establish maximum limits for slaves to be boarded on each ship for trading, to examine the structural conditions of vessels and to report the amount of food necessary for slaves during the journey from Africa. Luis Diogo, accompanied by experienced captains of slave ships, inspected all the vessels anchored in the port of the captaincy. In response to royal orders, he wrote an official document containing, in addition to the King's demands, a demonstration of how to achieve the estimated unit cost of the slave by estimating all the expenditures necessary to transport the slaves from Angola to Pernambuco, in a manner to have prior knowledge of the profits from that trade. This document is discussed in the following.

#### 4. General framework on the historical source

On January 25, 1758, the governor of the captaincy of Pernambuco Luis Diogo Lobo da Silva received orders from the king of Portugal through a letter dispatched by the Secretary of the Navy and Overseas Affairs. The content of this letter requested for the governor to carry out an inventory on all ships capable of the slave's transportation from Angola and the Mina Coast to the ports of Pernambuco. The main objectives of these inquiries were: a) to take an inventory of the ships able to transport slaves, with the respective measurements of their tonnages and of all internal spaces; b) to identify the maximum quantity of slaves that the ships could support, considering spaces in the holds for housing the captives and to reduce the risk of losses by death during the trajectory across the Atlantic; and c) to report the necessary quantity of food for sustaining the slaves and the crew, embarking on the coast of Africa until disembarking at the ports of the captaincy of Pernambuco. It should be pointed out that the practice of this type of diligence was already provided for in the Portuguese monarchist legislation of 1730, to be applied to all slave traders, whether they were from the kingdom or from individuals.

In order to attend to the orders of the sovereign, on October 23, 1758, the governor Luis Diogo Lobo da Silva went to the port of Pernambuco accompanied by a Captain Engineer-also by the Provedor<sup>2</sup> of the Real Fazenda<sup>3</sup>, the Master Marine Clerk, and the Chief of the port and by two captains who were experienced in the ship's tonnage. They inspected three of the nineteen vessels that were anchored in the port.

During the inspection, the following were carried out (a) examinations on the structural conditions of vessels for transporting captives as determined by Portuguese royal legislation; b) measurements of all areas of the vessels; c) calculations of the maximum stocking capacity in relation to the slaves to be transported, considering the internal spaces of the holds and the risk of loss due to death during the crossing of the Atlantic; d) calculations for the maximum weight capacity for the ship to perform a safe navigation; e) list of necessary provisions for the sustenance of the slaves and the crew from Angola to Pernambuco. The results of this work

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<sup>2</sup> **Provedor** was the colonial authority responsible for levying and monitoring taxes, maintaining essential services, administering ports, paying salaries to civilian and military personnel, among other functions.

<sup>3</sup> **Real Fazenda**, also called Junta da Real Fazenda, was a public establishment responsible for the collection and tax administration of the Portuguese kingdom in the captaincies.

were replicated for the other 16 vessels due to their similarity in size and structure, totaling 19 vessels, which were used in the slave trade for the captaincies of Pernambuco and Paraíba.

After completing that work, Luis Diogo Lobo da Silva on November 12, 1758 wrote a nine-page letter explaining in detail all the data collected and sent it to the then Secretary of the Navy and the Overseas Domains - Thomé Joaquim da Costa Corte Real. This letter contains eight annexes, in which the Governor presented the data and detailed calculations in tables, completed by explanatory notes. It is worth noting that annexes 6, 7 and 8 from that letter (Appendices 1) present the list of all expenditures for the maintenance and other operating expenses, including taxes and legal fees considered necessary for the transportation of slaves from Angola to Pernambuco, a summary of the total expenditures and criteria for determining the estimated unit cost per slave. These calculations were based on the three ships inspected. It should be noted that the Governor carried out the total expenditures and the estimated unit cost per slave spontaneously, since they were not part of the sovereign's requirements.

It is emphasized that Luis Diogo, in his letter addressed to the King of Portugal added a note of great importance for the management and control of the expenses with the slave trade. He showed ways of inventory and estimating expenditures with budgetary characteristics. In addition, he demonstrated means to calculate the estimated unit cost of slaves coming from Angola.

In this historical document, written by the governor of Pernambuco, the treatment of variable and fixed expenditures for the slave transportation was also considered. Luis Diogo affirmed that the basic standards for the construction and tonnage of vessels contained in the Universal Dictionary of Commerce written by Jacques Savary de Brûlons were fundamental for the completion of his work and the preparation for the answers to the sovereign. The annexes 6, 7 and 8 objects of this study reported:

- a) details of the internal measurements of the vessels for the transport of captives in a way to avoid losses;
- b) the fact that, based on experience, the percentage of slaves becoming sick and dying on the journey reached on average 6%, thus it was necessary to reserve an appropriate space for a doctor on board;
- c) there was also lists of estimated expenses with the necessary provisions for the slaves during the route from Angola to Pernambuco whose expenditures varied with the quantity of slaves transported. It also included estimation of salaries for the crew of the ship, expenditures on taxes under royal legislation and other small expenditures. The latter were considered as fixed costs. The survey was carried out by quantities, measures and values, whose amounts were estimated on a base quantity of one hundred slaves.
- d) The prices of freight in Angola could be adjusted, but it could not exceed the average purchase prices of slaves in that region that was 30\$000 réis<sup>4</sup> for slaves measuring 5 *palmas craveiros*; and 20\$000 réis for those measuring 4 *palmas craveiros*<sup>5</sup> in height; Finally, the estimated total expenditures and the estimated unit cost for the captives to be disembarked in Pernambuco were presented.

It was pointed out in the aforementioned letter that the calculations shown, even if they refer to trade from Angola (Luanda) for the captaincy of Pernambuco, they could also be applied to the transportation from Mina Coast to Pernambuco. In this case, it would only be necessary

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<sup>4</sup> These values, converted to Euros based on the exchange rate 1 Euro = 200,482 Escudos (in 1999), utilizing the methodology presented in Table IX of this work, are equivalent to, approximately, 670 Euros and 447 Euros, respectively.

<sup>5</sup> **Palmo craveiro** – Antequated measurement corresponding to twelve inches, or 22.5 centimeters. *Dictionary of the Portuguese Language* (Academia de Ciência de Lisboa (2001)).

to double the expenses with food since the journey to Pernambuco from that port took double the time; and customs duties for that port should be added, because they were much higher.

Considering that the control of costs had already been taken in great importance by the Portuguese administrators, since the first half of the eighteenth century, focusing on business management, as shown by the studies developed by Carvalho; Rodrigues & Craig (2007) and Carvalho, Cochicho, Rodrigues & Paixão (2016) who verified the use of cost systems in Portuguese factories in the period 1747-1748, the historical document under study shows the proposal of the colonial administrator Luis Diogo Lobo Silva for applying cost control mechanisms for the slave trade for Pernambuco in the second half of the 18th century.

Based on the analysis of this document and the arguments presented in this paper, it is proposed to follow methodological paths considered appropriate for the achievement of the objectives expected from this work.

## 5. Methodological aspects of the research

For the development of this work, the historical method is essential because it allows of analyzing and bring to light the contents expressed in primary historical sources, permitting of the deduction of their influence in current management practices (Marconi and Lakatos, 2003). As a study that has its scope findings from primary historiography source, It can be thought of as archival research that, in the words of Smith (2007), refers to those studies based on historical documents, texts, newspaper articles, annual reports and disclosure statements by businesses, etc., which bring important discoveries to light in the area of science. Carnegie and Napier (2016) says that the accounting historian enlists archival research where the work is informed through the careful examination and analysis of primary source materials.

Luft (2007) in his treatment on historical research affirms that these studies have developed an increasingly important role in economics and in sociology, providing theoretical bases for research into managerial accounting. He upholds that since accountants use theories from economics and sociology to explain their practice, they can also utilize theories suggested and supported by historical data.

Specifically in relation to that document, a detailed study and analytical exposition of its content was performed seeking to demonstrate aspects of spending management in slave trade activity, which has similarities to the current practices of managerial accounting. In this sense, from the historical point of view the results of this study add new data to the affirmation of Hansen and Mowen (1999), which found that the majority of the procedures in relation to the cost of products and internal controls utilized in the twentieth century were developed between 1880 and 1925. In contrast, the findings of the present study come before the period mentioned by those authors.

Secondary sources are also essential to the development of this research especially in the general economic historical literature on slave trade carried out directly by private business traders and by companies. It is mentioned that this study considers also important for this work the sources which deal with the Portuguese economy in the second half of the eighteenth century and publications in the area of managerial accounting and accounting history, which focused on management tools, which are all considered a relevant body of material and valuable information for a better contextualization that provide foundations for this work.



## 6. Approaches to the subject of slave commerce on the Coast of Africa in the second half of the eighteenth century

In Brazil, slave trafficking from Africa was always open to private initiative, with the exception of brief periods when it was restricted for the crown or for particular companies (Medina & Henriques, 1996). From 1755 on-wards, after the creation of the Companhia do Grão-Pará e Maranhão, an organization dedicated exclusively to the traffic of slaves from Africa to those captaincies (Costa, Lains & Miranda, 2010; Pinto & West, 2017a), the importance of slave labor rose steeply. It reached an average nearly to 100,000 slaves a year trafficked from the Coast of Africa (Mesquita, 1984). In the second half of the eighteenth century, Angola and the Mina Coast were the main providers of slaves to Brazil, particularly to Pernambuco.

As pointed out in the literature, the slave trade at the time of the establishment of the privileged Portuguese trading companies was in decline since there had already been huge pressure amongst European nations to abolish slavery. However, Portugal maintained a firm grip on this commerce during the second half of the eighteenth century until the nineteenth century, as highlighted by Klein (2002).

It is known that slave trade from Angola and the Mina Coast to the captaincies of Pernambuco and Paraíba already occurred even before the institution of the privileged companies that is illustrated in the literature on the manufacture of sugar and tobacco in these regions, which utilized slave labor (Lopes, 2008). After the establishment of the Companhia Geral de Comércio de Pernambuco and Paraíba - CGCPP this trade became systematic and within a business scope from 1760, according to the accounting books of that Company. That can be observed by the records in its journals for the shipments from the Coast of Africa to Pernambuco during all the years of that monopoly, which lasted until 1780 (Career, 1983). It was strong until 1780 (Carreira, 1983; Junior, 2004).

An important fact that should be emphasized is the significant mortality rate of slaves during transportation across the Atlantic since it had a significant impact on the total cost and as consequence on the sale price of the slaves. Numbers for that losses are estimated but not sufficiently proven, Walvin (2001) states that they approached to 13%. (Viana Filho, 1920) as referred to in (Carreira, 1983) estimated a percentage close to 10% of the total slaves crossing the Atlantic in the ships perished. Carreira (1983) considers the percentage of 10% more reasonable. On the other hand, Rodrigues (1998) presents data on the mortality of slaves, which is much more coherent with which had occurred in the period of the CGCPP which the percentage of deaths stayed by 6.6%, coming close to the 6% mentioned by the historical source of this study.

It is important to mention that losses due to the death of slaves already occurred in the ports of Angola and the Mina Coast even before embarkation. Those deaths occurred in larger quantity during overseas crossings, due to poor living conditions, inadequate tonnage of the vessels and no ventilation in their lower decks, these facts when they did not cause the death, caused weakness for the slaves, which meant reduction on the sale price of the slave (Carreira, 1982; and 1983).

The slaves for Brazil came from Angola through the Casa de Luanda<sup>6</sup>, a commercial establishment as the accounting books of the CGCPP referred to it. In that place, negotiations with goods and slaves were performed with Portuguese trading companies, especially with the privileged traders created under the administration of the Marquis of Pombal (Azevedo, 1928; Junior, 2004 and Pinto & West, 2017a).

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<sup>6</sup> **Casa de Luanda** – a commercial establishment located in Angola where the slaves were bought to be sold in the captaincy of Pernambuco

The historical literature is somewhat silent about Casa de Luanda with no mention of its role in Portuguese commercial relations nor even in relation to slaves. According to the accounting records examined, Casa de Luanda, besides the slave trade, traded in other goods from the Portuguese colonies. Medina and Henriques (1996) suggest that the slave trade in the second half of the eighteenth century in Luanda occurred on street fairs and markets and warehouses without mentioning Casa de Luanda.

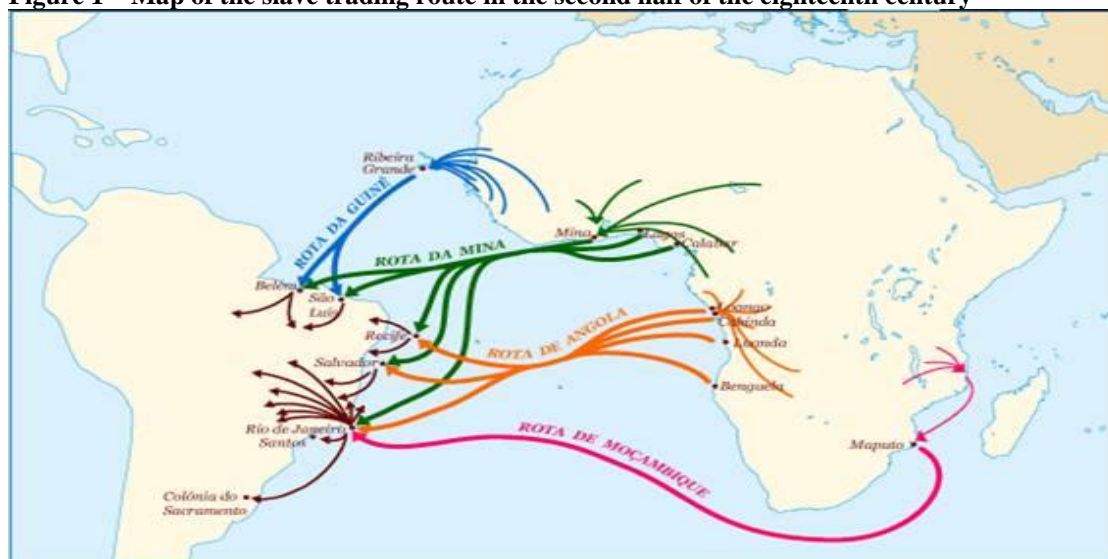
In the second half of the eighteenth century, the institution of privileged trading companies brought greater dynamism to Luanda due to the growth of slave trading. Slave trading was the base of the local economic activity - a business that the Portuguese had greatest interest, especially when they were destined to Brazil (Azevedo, 1928; Lara, 1981).

Costa, Lains and Miranda (2010) point out that the administration of Pombal became subject to relevant reforms in the financial administration and in the accounting bookkeeping of public administration. This affirmation moves in the direction of what is observed in relation to the structured management of the commercial activities of privileged trading companies. These activities became better administered in Portugal and in its colonies when the School of Commerce prepared the first students that became practitioners in diverse areas of public and private business activities in the Portuguese kingdom.

The route of trafficking from the Coast of Africa to the captaincy of Pernambuco started in the port of São Paulo de Luanda and in the port of São Jorge da Mina. The first port was more frequently used for this purpose, and the quantity of slaves transported from Luanda had been close to five times greater than the quantity from the Coast of Mina (Carreira, 1983). The list of reasons for the lesser frequency of boarding from the port of São Jorge da Costa da Mina include: a) at that time, that port was dominated by the Dutch, who imposed enormous impediments against the Portuguese ships, charging a tax of 10% on the tobacco freight of all ships docked there, in compliance with the treaty of 1641, signed between Portugal and Holland (Carreira, 1983)Ma; b) so, the costs for ships came back to Pernambuco were about three times greater than from Luanda. The slaves from the Mina Coast were considered better by their buyers for heavy work and got higher prices when sold in the captaincies (Carreira, 1983).

Below, Figure 1 illustrates the slave trade across the Atlantic in the XVIII century. It displays that, in the period under study, the route from the Ports of São Paulo de Luanda and from São Jorge da Costa da Mina was widely utilized by trading company vessels and by private traders.

**Figure 1 – Map of the slave trading route in the second half of the eighteenth century**



Source: <https://www.sohistoria.com.br/ef2/culturaafro/p5.php>

At the time along the Coast of Africa, slaves were captured in the African *sertões*<sup>7</sup>. They were taken to the warehouses of the Casa de Luanda, to markets or street fairs at Luanda's square. Some traders also bought slaves and resold them to the Casa de Luanda. According to Medina and Henriques (1996), the Portuguese documents related that between the capture and arrival in the ports for boarding there was a loss of 90%. This means that only 10% effectively went on board the ships. However, precise data on this stage of the business is rare.

Because of the larger quantity of slaves purchases in certain periods, the Casa de Luanda often rented warehouses or depots from third parties. This was a stage of the trading in which, besides the purchasing price of the slave, other specific expenses incurred, such as salary for supervisors, clothes and food for the slaves, the cost of ensuring the rights of slaves and losses because of dead slaves. These expenditures had to be accumulated for the sale prices calculation as it is evidenced in the CGCPP accounting books and also by Pinto & West (2017a).

The next stage in the sequence was the embarking of the slaves on the ships. Upon the arrival of the ships expenses incurred, especially because of the delay in embarking which, according to the historical source under analysis, it was around thirty-five days. Examples of these expenditures were baptism, food, clothing, and the organization of slaves by the supervisor who did his job until the end of boarding. Then there were specifically fees related to the ship (Correa, 1937). During this period, there also occurred the loss of captives by death because of illnesses and other causes.

After boarding, the ship left the port and from this moment on incurred the most significant phase of costs. Besides, it also needed food supplies for the long journey, a larger apparatus of personnel and infrastructure for transport by way for arriving at the destination with the larger number of slaves living in poor conditions. Adding to that, children (also named *crias*<sup>8</sup>) were also part of such a sad journey. Examples of these units of expenditures are water, clothes (loincloths), tobacco, seaman's salary, payment for the chaplain, the ship's captain's salary, and freight costs for slaves for arriving to the destination alive, etc.

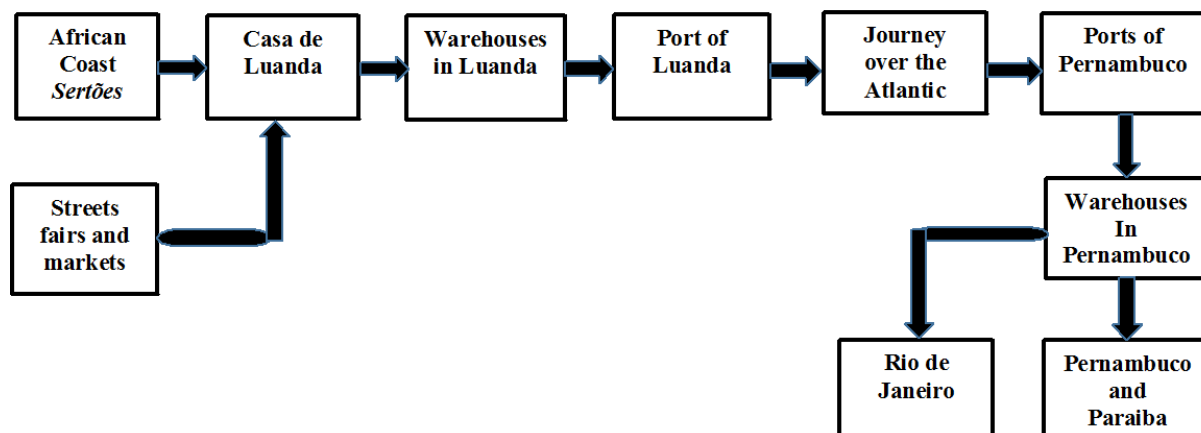
In the last stage of this journey, which was the disembarkation in Pernambuco, other expenditures incurred. Among them were the costs of the ship, fee for the supervision by the Marine inspector, the rent of warehouses for accommodating the slaves, salary for the slave supervisor, food, clothes, tobacco, smoking pipes, and so on.

Visibly, in this phase incurred significant expenses in order to maintain the slave "merchandise" in good condition for sale. These expenditures were higher for various reasons, enumerated as follow: 1) precarious conditions of warehouse infrastructure and transport for slaves; 2) taxation for slave trading by the king laws; 3) dangerous conditions facing by the ships during the journey across the Atlantic, because of natural causes and also for crossing paths with foreign ships; 4) the occurrence of fights among slaves and deaths for various reasons. Concluding that, one can see that slave trade necessarily added many costs and expenses with significant impacts on the sale price. Figure 2 below summarizes these phases of the slave trade process.

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<sup>7</sup> **Sertões:** dry interior of Africa

<sup>8</sup> **Crias** – slave's children who were not old enough for work.

**Figure 2 - Stages of slave trading in the second half of the eighteenth century**

Elaborated by the authors

Expenditures incurred on each stage of the trading process shown in Figure 2 were accumulated until the delivery of the slaves in the warehouses in Pernambuco. At that time, total costs and unit cost were calculated and a profit margin applied to the unit cost to obtain the sale price of the slaves. There is no evidence for specific profit margin applied by individual traders. During periods of demand reduction in Pernambuco, slaves were shipped to Rio de Janeiro to be sold by slave traders in that region.

Traders had many difficulties in determining the slave's sale prices after disembarking in the captaincy of Pernambuco. One of the reasons for that were the different physical characteristics of slaves and the harmful effects on their bodies caused by the precarious conditions of the journey across the Atlantic along the thirty-five days, on average.

However, in the case of the CGCPP its social statute determined a maximum profit margin of 45%, which was the same as applied for farms products from dry interior. Although, profit margins for trade slaves for that Company were never explicated.

The following section presents brief comments about the sale prices for slaves in Angola, especially in the Casa de Luanda for comparison with the average purchase price presented in the Table VII of this paper.

## 7. General overview of the slave purchase price in Angola in the second half of the eighteenth century

Table I contains examples of slave purchase prices in Angola collected from Casa de Luanda's journal of purchases and sales goods, which comprehended the period from 14/06/1764 to 20/06/1764. Pages 40 and 41 from that journal are in the Appendices 2 and 3.

Table I – Purchase of Slaves by Casa de Luanda

Date	Account	Salesman	Unit Price		Quantity
			(In réis/ R\$)	Total	
<b>14/06/1764</b>					
	Purchases	Manoel José da Silva	30\$000	2\$760\$000	92
	Purchases	Feliciano Correia Maya	31\$000	961\$000	31
	Purchases	Domingos Roiz Fialho	29\$000	522\$000	18
	Purchases	Marcos Fernandes	32\$000	672\$000	21
	<b>Total in 14/06/1764</b>			<b>4\$915\$000</b>	<b>162</b>
<b>18/06/1764</b>					
	Purchases	Feliciano Correia Maya	27\$000	378\$000	14
	Purchases	Antônio Fonseca Basto	21\$000	21\$000	1
	Purchases	Domingos Roiz Chaves	30\$000	450\$000	15
	<b>Total in 18/06/1764</b>			<b>849\$000</b>	<b>30</b>
<b>19/06/1764</b>					
	Purchases	Thomé de Souza Coutinho	28\$000	1:932\$000	69
	<b>Total em 19/06/1764</b>			<b>1:932\$000</b>	<b>69</b>
<b>20/06/1764</b>					
	Purchases	João Pio de Aguiar	33\$000	1:419\$000	43
	Purchases	Manoel José da Silva	31\$000	496\$000	16
	Purchases	Francisco Afonso dos Santos	35\$000	105\$000	3
	Purchases	Marcos Fernandes	35\$000	560\$000	16
	Purchases	João Roiz de Souza	30\$000	480\$000	16
	<b>Average Price and Total on 20/06/1764</b>		<b>32\$553</b>	<b>3:060\$000</b>	<b>94</b>
	<b>Average Price for the Period and Overall Total</b>		<b>30\$299</b>	<b>10:756\$000</b>	<b>355</b>

Source: Elaborated by the authors from the data of the Casa de Luanda's journal for purchase and sales goods

Table I reveals that Casa de Luanda purchased 355 slaves from local traders in the four days under analysis<sup>9</sup>. That quantity corresponded to the average load of a vessel, which transported captives to the captaincy of Pernambuco, considering an average load from 200 to 300 slaves per vessel, depending to the age, weight and height of the slaves.

It is observed from Table I above that unit prices varied from 21\$000 réis to 35\$000 réis, whose average for the period was 30\$299 réis. Local slave's traders who purchased larger quantities of slaves were a) Manoel José da Silva, 92; b) Thomé de Souza Coutinho, 69; and c) João Pio de Aguiar, 43. In the journals from Casa de Luanda was used the term "heads" to record the slaves purchased and sold to refer the adult slaves (Carreira, 1983).

Ferronha (1994) states that the region of origin of the slaves, their quality and age had decisive influence on price variation of slaves, adding physical condition and the sex (Burnard, 2007). On the same subject, Taunay (1941) mentions that the height of slaves was an element highly considered by traders which strongly influenced the slave prices. It is also observed on Table I above that the average purchase price of the slaves is very close to that contained in the document studied, presented in Table VI of this work.

<sup>9</sup> A small sample of slaves purchased by Casa de Luanda during four days is used for analysis. Those data were extracted from its books for purchases and sales goods.



## 8. Detailed analyses of historical documents

The analyses of the historical sources first considers the most significant elements of expenditures. A progressive exposition of qualitative and quantitative data contained in the historical document is also provided through tables in order to better explain its content.

### 8.1 Main expenditures on slave trade

As it was said, the expenditures items commented on here, as well as the estimated values are from primary historical source. It is emphasized that items 1, 2 and 3 below are also mentioned by historical literature. However, there are some discrepancies for the unit amount of the expenditure between different sources.

- 1) **Tax on shipped slaves** – Royal tax for the Real Fazenda charged on each shipped slave. Initially the way for collecting this tax was considered difficult to apply, because it was included for freight (Carreira, 1983). Through the Provisão<sup>10</sup> of January 25, 1758, the king of Portugal determined that 1) for each adult slave, with a height greater than 88cm (four *palmas craveiros*), the tax would be 8\$700 réis; 2) for child with a height less than 88cm that could walk the tax would be 4\$350 réis; 3) breast-feeding children were tax exempt.
- 2) **Freight** – freight was charged at 6\$000 réis per slave, according to Carreira (1983) and it was confirmed by the journals of Casa de Luanda and CGCPP. The journals examined show that the amount of the freight was only concerned with the quantity of slaves arriving alive at the port in the captaincy of Pernambuco.
- 3) **Baptism** – slaves had to be baptized independently of age or destination. The value stipulated at that time varied between \$300 to \$500 réis per adult and \$100 réis for child who could walk (Carreira, 1983). However, the value commonly charge was \$300 réis for a child or adult (Gorender, 1978; Carreira, 1983).
- 4) **Crew** – expenditures for the team responsible for navigating the ship till its destination; they were the master captain, the boatswain and the seamen. In these expenditures, besides the pay, food was included. With regard to the costs estimation contained in the historical source, this spending reached an average amount of 3\$920 réis per unit. This amount could highly vary as it could be verified in Pinto & West (2017a).
- 5) **Expenses for ship's tonnage and others in the port** – expenses paid for the authorities for slave's embarkation: Provedor, Real Officer, Secretary of State, adding the payment for the catechist priest and for the ship's manager, including their provisions. These expenditures reached about \$400 réis per slave. It is added that the charges for anchoring ships in the ports of Angola and Pernambuco should be paid for the Navy Inspector. The average unit value per slave was about 2\$664 réis.
- 6) **Subsidies** – tax paid for the King of Portugal for slave transportation from Angola to Pernambuco. This expenses amounts \$300 réis per slave.
- 7) **Loss of slaves** – an amount of 2\$665 réis that ought to be accrued in the records of the journals for losses above five slave's deaths. It was a recommendation found in the document studied.

It is highlighted that the expenditures items 4 to 7 above, collected from the primary document, are aligned with the same data found in the available historical references. However, in relation to the loss by death, the references do not show monetary values specifically applicable in this case.

<sup>10</sup> A kind of rule issued by the king of Portugal that regulate subjects contained in decrees or other royal laws.

## 8.2 Calculation of the estimated unit cost for slaves transported from Angola to Pernambuco

To calculate the estimated unit cost per slave, Governor Luis Diogo Lobo da Silva worked with a hypothetical amount of 100 slaves to be transported from Angola to Pernambuco, during 35 days of navigation, considering possible contingencies. That quantity of 100 slaves facilitated his calculations of the estimated total cost and the estimated unit cost for that number of slaves to be embarked on a ship.

Following this, he separated the costs into three categories in relation to the number of slaves: a) variables expenses; b) fixed expenses; and c) small expenditures not falling under the two previous categories. The next task of Governor Luis Diogo was to list all items of expenditures considered fixed and variables, which incurred before shipment and during the transportation of slaves. Finally, Luis Diogo demonstrated these expenditures by the amounts and quantities individually. It is added that there was included no information about depreciation values for the vessels.

Governor Luis Diogo wrote the following introduction in document when presenting the resume of his work:

*“This is a report on estimated provisions, water, firewood, all of which should be put on board in Angola, related to the subsistence of each slave, for thirty-five days, for the contingencies suffered, but often completed in twenty-nine to thirty days. The aforesaid provisions are computed for each head and in their number as one hundred, for in this way it will be easy to calculate numbers which serve for the tonnage of each embarkation”.*

He also added that the estimated supplies in quantities would total 26 tons. However, he pointed out that in the shipments of slaves from the Mina Coast the quantity of food should be estimated at approximately 54 tons, to guarantee the maintenance of the same 100 slaves. The detail of the expenditure items and the calculations are demonstrated through Tables II, III, IV and V below, which is according to the historical document studied. It is emphasized that Luis Diogo estimated all the monetary values based on the market values of that time.

### 8.2.1 Estimated expenditures demonstration

Below, we present the estimated expenditures divided into variable and fixed expenses included their respective quantities and the monetary amounts, followed by explanatory tables. Table II contains the quantitative data and amounts for the slave's variable expenditures. On the other hand, Table III contains the data and amounts of the fixed expenditures. The contents of Table III are divided into three parts: 1) expenditures in Angola for preparation of the ship; 2) expenditures for the entry and exit of the ship in Angola; e 3) salaries for the ship's crew and other expenses. Table IV presents the summary of the expenditures shown in Tables II and III. Comments and analyzes about the contents are presented following these tables.

#### a) Variables expenses

Table II contains twelve items of variables expenditures in relation to the number of slaves embarked on ship. These expenses were related to food and transportation.

**Table II – Expenditures on food and transport of slaves****Total**

1. Food (flour, beans, corn, fish, dry meat, dendê <sup>11</sup> oil, salt, peanuts and vinegar)	84\$060
2. Utensils (pans, bowls, forks, etc.)	2\$030
3. Firewood for cooking (a thousand pieces)	4\$000
4. Water (20 pipes)	12\$000
5. Barrels for water	8\$000
6. Water tester	\$600
7. Tobacco for smoking	1\$340
8. Loincloth (2 pieces)	11\$400
9. Dispatches in Angola (Provedor da Real Fazenda)	1\$000
10. Baptisms (\$300 réis per head)	30\$000
11. Petty expenses and expenses on the Surgeon	27\$740
12. Subsidies on the Island (Angola)	30\$000
<b>Total</b>	<b>212\$170</b>
<b>Average unit cost = 212\$170/100</b>	<b>2\$122</b>

Elaborated by the authors

- b) Fixed expenses were separated by ship's tonnage, anchorage on arrival and departure from the port of Angola and salaries of the vessel's commander and his crew.

**Table III - Expenditures in Angola for preparation of the ship**

<b>1. Ship's tonnage, housing and warehouse rental, and food</b>	
1.1 For a ship with stone ballast	9\$000
1.2. For mooring	2\$800
1.3 To the Caretaker for Nossa Senhora do Cabo ship	6\$400
1.4 For the sargents 6\$000 and drums 2\$000	8\$000
1.5 House rental for the Master Captain in Angola	19\$120
1.6 Expenses on warehouses	11\$500
1.7 Food supplies for the Boatswain – 2\$400 per month	7\$200
<b>Total</b>	<b>64\$020</b>
<b>2. Expenses on the entry and exit of the ship in Angola</b>	
2.1 Payment for the Provedor	8\$000
2.2 Visits to the Provedor by the Captain of the ship	1\$000
2.3 To sign the book of the dead	2\$000
2.4 Real Fazenda <sup>12</sup> Officer (dispatches, surety and certificate)	2\$400
2.5 Feitoria Real <sup>13</sup> Officer	4\$000
2.6 Real Fazenda Officer (for registers and dispatches)	1\$300
2.7 Real Fazenda Officer (for dispatches, surety and transfers)	3\$000
2.8 Warehouse for provisions stock.	2\$000
2.9 Ship's manager – for exit of the ship	1\$500
2.10 Payment for the Ship's Manager to take provisions on board	2\$000
2.11 Payment for the Secretary of State	6\$400
<b>Total</b>	<b>33\$600</b>
<b>3. Salaries for the ship's crew and other expenses</b>	
3.1. Master Captain	50\$000
3.2 Pilot	30\$000
3.3 Boatswain	60\$000
3.4 15 Seamen - 12,000 réis per each	180\$000

<sup>11</sup> Dendê is a Brazilian fruit that one can extract oil from it.

<sup>12</sup> Real Fazenda, also called Junta da Real Fazenda, was a public establishment responsible for the collection and tax administration of the Portuguese kingdom in the captaincies.

<sup>13</sup> Feitoria Real - Commercial warehouse administered by a merchant in charge of governing commerce and arbitrate the community of merchants and the interests of the King.

3.5 Feeding for crew personnel (4,000 réis per person)	72\$000
3.6 Catechist Priest (for going on board)	6\$400
<b>Total</b>	<b>398\$400</b>

Elaborated by the authors

c) Summary of tables II and III

Table IV – Summary of Variables and Fixed Expenses

Specification	Amount	%
<b>Table II – Expenses on Food and others ( Variables)</b>	<b>212\$170</b>	<b>29,96</b>
<b>Table III - Fixed expenses</b>	<b>496\$020</b>	<b>70,04</b>
1. Expenses in Angola for preparation of the ship	64\$020	9,04
2. Expenses on the entry and exit of the ship in Angola	33\$600	4,74
3. Salaries for the ship's crew and other expenses	398\$400	56,26
<b>Total</b>	<b>708\$190</b>	<b>100,00</b>

### 8.2.2 Commentaries on the about tables

Table II above shows the estimated variable costs for 100 slaves totaling 212\$170 réis, for the whole journey, calculated at 2\$122 réis as an estimated average unit cost per slave. It is observed that the largest amount corresponded to the feeding of slaves, adding the baptisms and the subsidy.

The first part of Table III - **Expenses in Angola for preparation of the ship tonnage, housing and warehouse rental and food** presents the fixed expenses. It contains the expenditures necessary for the tonnage and preparation of the ship, the hiring of shore staff, rental of houses and warehouses for groceries and slaves. These expenses amount 64\$020. The second part of Table III, referred to **Expenses on the entry and exit of the ship in Angola** that totalize 33\$600 réis. That amount was spent on local bureaucracy to meet the demands for the colonial management, whose objective was to authorize the slaves for boarding, according to Portuguese legislation.

The third part of Table III shows the **Salaries for the ship's crew and other expenses**, which totalize **398\$400**. It shows that amount of spending on crew's wages were very significant, highlighting that the largest amount was related to the seamen. Fifteen men recruited as sailors with an individual salary of 12\$000, amounting to 180\$000, representing 45% of the total expenses of 398\$400. Medina and Henriques (1996) asserted that the one of the reasons for this high cost was the difficulty in obtaining men interested in taking up the role of seamen on a voyage due to the fear that was held for frequently unforeseeable situations across the Atlantic Ocean. Medina and Henriques (1996) also stated that, besides being very expensive, the crew were difficult to recruit since the sea caused fear throughout the western world. Similarly, Pinto and West (2017a) described in their work the details and point out the difficulty for preparing the ship for the first voyage performed by the Companhia do Grão Pará e Maranhão.

The highest pay is for the ship Boatswain 60\$000 réis, he was the professional responsible for coordinating and controlling all the work done by the seamen, conforming to nautical rules and instructions. It was, however, a higher payment than that received by the Master Captain, 50\$000 réis, who was the commander of the ship.

Table IV allows us to observe that, up to this point, the estimated total expenditures amounts of 708\$190 réis. The variable costs amount 212\$170, which corresponded to approximately 30% of the total. It can also observed that fixed expenses reaches an amount of 496\$020, equivalent to 70% of the 708\$190 réis.

The next step presents the amount of 20\$330 réis the additional expenses on Merchant Navy and slave loss - referred to the following disbursements a) Real Fazenda taxes on slaves; b) ship's freight for the carriage the slaves; and c) estimated amount for slave losses. These expenditures should be added to that total of variable and fixed expenditures showed in the Tables II and III above, in order to complete the estimated total costs for transporting slaves from Angola to Pernambuco. Below, Table V presented these detailed expenditures.

**Table V –Additional expenses on the Merchant Navy and slave losses**

Items	Total
1. Taxes on royal rights over slaves ( Real Fazenda fees)	8\$000
2. Ship's Freight	6\$000
3. Payment to the seaman who takes care of the ship	1\$000
4 Ship moorage in Angola and Pernambuco	2\$665
5. Slaves losses (in case of more than 5 slaves)	2\$665
<b>Total</b>	<b>20\$330</b>

Elaborated by the authors

Based on the data in Table V, it should be noted that taxes on royal rights on slaves and ship's freight were estimated without considering the changes determined by the king Provisão of January 25, 1758 for taxing a single value of 8\$700 réis per slave (Carreira, 1983), from 1760 on. It should be noted by Table V that although these expenditures were placed separately as in the document, but they could be individualized into: a) variables in relation to slaves, numbers 1, 2 and 5; and b) fixed, number 4.

In order to calculate the average purchase price of slaves in Angola, which was the next phase of this calculation, Luis Diogo took as a base two vessels that already had transported slaves from Angola to Pernambuco under the command of Captain Manoel Correa, with shipments of 217 and 259 slaves respectively in the years of 1756 and 1757. The criterion used was to divide the total amount spent with the cargo by the amount of slaves transported, according to the bill of landing of the ships. Tables VI demonstrates how the average unit purchase price was calculated.

**Table VI – The average unit price per slave**

Quantity	Detailing	Total
217	Slaves in Angola, the first costing	7:726\$000
259	Slaves bought in the Angola	9:504\$000
<b>476</b>	<b>Total</b>	<b>17:230\$000</b>
	<b>Each slave comes to a price of</b>	<b>36\$197</b>

Elaborated by the authors

As can be verified, the average price for purchasing a slave in Angola transported by these two ships was 36\$197 réis. That amount is obtained by dividing 17:230\$000 réis by the 476 slaves, which correspond to the two ships. However, this method was utilized by Luis Diogo to simplify the calculation of the estimated average unit cost. This estimated average purchase price in this Table VI is close to those slave's effective purchase prices showed in the Table I extracted from journals of the Casa de Luanda.

After that, the final step was to calculate the estimated unit cost of the slave that would be disembarked and stocked in the warehouses in the captaincy of Pernambuco. To that, Luis Diogo used as reference the numbers of slaves transported from Angola to Pernambuco by the vessels Galera Aleluia - 303; Curveta Nossa Senhora do Monte do Carmo - 186; and Sumaca



Nossa Senhora do Rosário - 237. In addition to the average unit purchase price, Luis Diogo also calculated the unit fixed cost based on the amount of 496\$020 of the total expenditures calculated in Table III above and divided it by the quantity of slaves by each ship informed above. The amounts of that unit fixed cost are presented below.

a)  $496\$020/303 \text{ slaves} = 1\$637$

b)  $496\$020/186 \text{ slaves} = 2\$666$

c)  $496\$020/237 \text{ slaves} = 2\$092$

Now, the average unit purchase price, variable and fixed expenses were summed by their estimated unit amounts showed in Tables II and III, and then the additional costs of the slave were added by its estimated total amount presented in the Table IV. Table VII below presents these calculations, followed by commentaries and clarifications.

**Table VII –Estimated unit cost for slave traded from Angola to Pernambuco**

	Name of the Ships		
	Galera Aleluia	Curveta Nossa Senhora do Monte do Carmo	Sumaca Nossa Senhora do Rosário
	Quantity of slaves transported		
	303	186	237
1 Unit purchasing price for slaves in Angola	36\$197	36\$197	36\$197
2 Variables expenses (Table II)	2.\$121	2.\$121	2.\$121
3 Fixed expenses (Table III)	1\$637	2\$666	2\$092
4 Additional expenses ( Table V)	20\$330	20\$330	20\$330
5 Total spending per unit (2+3+4)	24\$088	24\$088	24\$088
Estimated Unit Cost (1+5)	60\$285	61\$314	60\$740

Elaborated by the authors

Table VII above shows the estimated unit costs for slaves transported in each of the three ships by the criteria adopted in the historical document examined, which were discussed throughout this work. As it can be seen, the estimated unit cost of the slave for the Galera Aleluia was 60\$285; for the Curveta Nossa Ssenhora do Carmo was 61\$314; and for Sumaca Nossa Senhora do Rosário was 60\$740. It is observed that this estimated unit cost did not present significant discrepancies from one to another, thus ensuring the methodology used by Governor Luis Diogo Lobo da Silva for his calculations.

The procedure exposed in the tables above, the conceptual and technical procedure utilized by Governor Luis Diogo for preparation of this historical document are similar to what is called the *production to order system* in the factory environment (Barfield, Raiborn and Kinney, 2002). In this case, all costs are accumulated to the slaves, but this does not correspond to the technical refinement verifiable in current times.

In order to present the monetary amounts that can be understood at present, Table VIII demonstrates in Euros the amounts of the unit costs exposed on Table VII, based on the criteria for conversion adopted by Vasconcelos (1999). For this proposal the date of January 1, 1999 was taken as a reference, because that was the date when the rules for currency unification came into force, making the Euro available for the countries in Europe. For the calculations of the conversion of Réis (1760) into Euros (1999) Decree-law number 138/1998 of January 16, 1998

and Newsletter number 1280 from the Directorate-General for Budget are utilized, that were edited by the Finance Ministry of Portugal, were also taken into account.

Criteria for Currency Conversion	Name of the Ships		
	Galera Aleluia	Curveta NS Monte do Carmo	Sumaca NS do Rosário
1. Unit Cost in Réis (in 1760)	60,285	61,314	60,740
2. Correspondence in Réis (in 1910)	96,456	98,102	97,184
3. Conversion to Escudos in 1911	96,456	98,1024	97,184
4. Conversion from Escudos to Contos – 1911	0,096456	0,0981024	0,097184
5. Loss of purchasing power of the Currency: 1911-1999 = 2.800%	270,0768	274,6867	272,1152
6. Transformation from Contos to Escudos for January, 1999	270,077	274,687	272,115
<b>7. Conversion into Euros in January, 1999 (1 Euro = 200,482 Escudos)</b>	<b>1.347€</b>	<b>1.370€</b>	<b>1.357€</b>

**Table VIII - Conversion of the unit costs of slaves to Euros – based on January 1, 1999.**

Elaborated by the authors.

The amounts in Euros demonstrated in the line 7 in Table VIII above, represent approximations of monetary expression of purchasing power of the currency (Réis) from 1760 in relation to the Euro of the year of 1999, whose objective is to provide a parameter that permits a financial evaluation of the average purchase price of a slave, based on the value of the present day currency. After that, the amounts calculated into Euros for January 1, 1999 were also monetarily restated by the inflation indexes until December 2018, as shown below.

Now, the estimated unit costs of slaves in Euros above are restated monetarily up to December 2018 through the internet site: <https://www.inflationtool.com/euro-portugal>. In this website, the mechanism used for monetary restatement is by the formula:  $FV = PV (1 + i)^n$ , where: FV: Future Value; PV: Present Value; i: Interest rate (inflation); and n: number of times the interest is compounded (i.e. # of years).

In this case, the future value represents the final amount obtained after applying the inflation rate to the initial value. In other words, the future value is the amount in December 2018 that equals €1,347, €1,370 and €1,357 in 1999 in terms of purchasing power. There are 19 years between 1999 and 2018 and the average inflation rate was 1.9685%. Therefore, one can resolve the formula like this:

$$FV = PV (1+i)^n = € 1,347.00 * (1+0.019685)^{19} = €1,950.830159 \approx €1,950.83$$

$$FV = PV (1+i)^n = € 1,370.00 * (1+0.019685)^{19} = €1,984,140548 \approx €1,984.14$$

$$FV = PV (1+i)^n = € 1,357.00 * (1+0.019685)^{19} = €1,965.312937 \approx €1,965.31$$

We therefore conclude that the approximate unit cost of a slave, from the examples utilized in this work, varied between 1,950.83 Euros to 1,984.14 Euros.

## 9. Conclusion

This study contributes to the accounting history literature on approaches adopted by slave traders to manage the costs of their trade of slaves in the second half of eighteenth century. This approach was based on the accumulation of the estimated total costs that should be incurred for the transportation of slaves from the Angola to Pernambuco, as it was calculated through estimates costs it could serve as budget that allowed traders to calculate in advance the profit or loss expected from a cargo of slaves from the Coast of Africa.

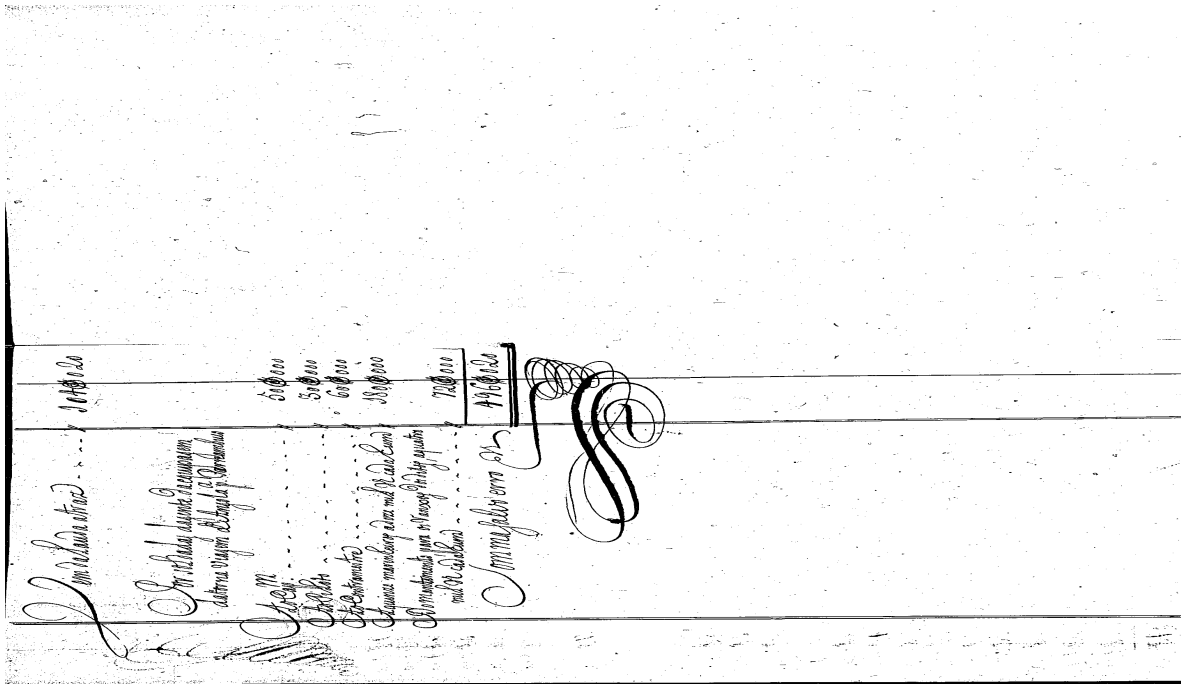
These criteria for estimating expenditures used by Luis Diogo Lobo da Silva, the structured form of presentation of costs, and the demonstration of the estimated unit cost of the slave with budgetary characteristics provided evidences of the advanced techniques for the accounting stage in the Brazil colony, considering that the first contacts with the School of Commerce only occurred in Rio de Janeiro, after the arrival of the royal family in Brazil in 1808.

Therefore, it is an approach that has not yet been verified in the historical literature, since most of the studies have been devoted to the slave sale prices or to the purchase prices for acquisition slaves in Africa.

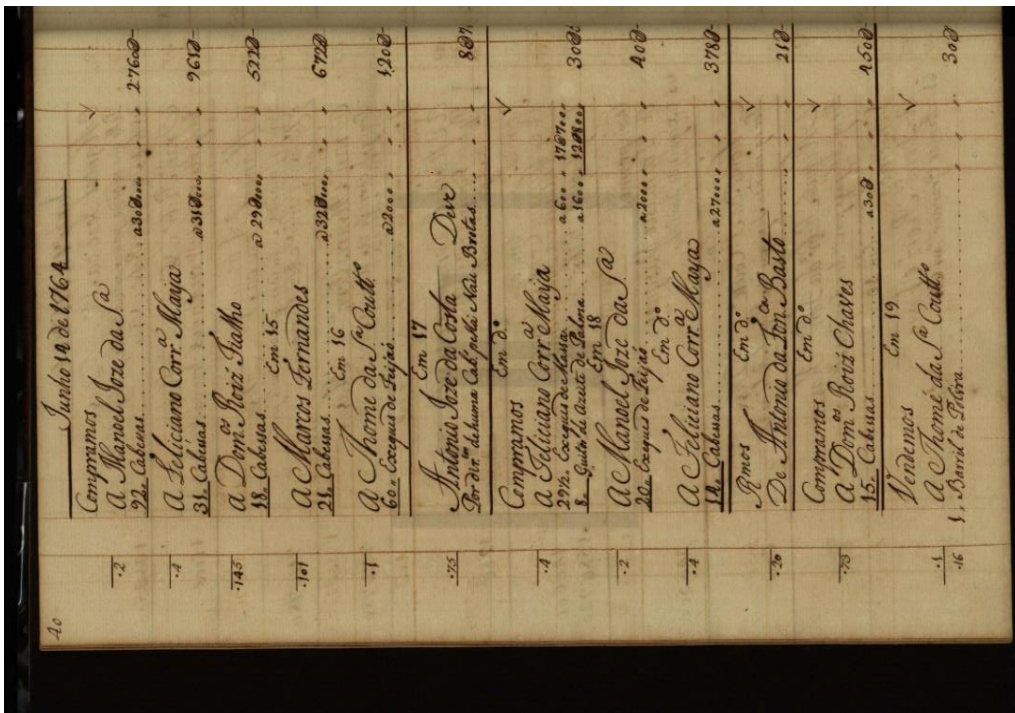
Although the purchase price of the slave can be compared in this study, as shown in Tables VI, and I this comparison is limited because of the absence of similar data in the literature. This limitation of this studied prevents a broad comparative analyzes of these financial information, especially about the estimated unit cost of slaves, which would better improve the results achieved.

As a proposal for future research on the subject of costs related to the slave trade it is recommended to use the historical archives of the privileged trading companies, especially the accounting books and the complementary documents such as letters, laws, etc. which can generate fruitful work for the accounting literature.





2. Page n° 40 from the book of entries and exits of merchandise of the Casa de Luanda



3. Page n.º 41 from the book of entries and exits of merchandise of the Casa de Luanda



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