

Accounting and accountability practices in the *obraje* of San Ildefonso of Quito: An eighteenth century productive proto-capitalist model

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Abstract

The Enlightenment brought a new mercantilist discourse that stimulated new technologies of management to optimise company performance, rendering workers and production phases visible and accountable. This spread to the colonies, including Ecuador. This article uses a governmentality framework to present a case study of the Hacienda of San Ildefonso (in present-day Ecuador). Within the *Hacienda*, an *obraje* (textile workshop) was established for textile manufacturing, replacing the previous putting-out system. The *obraje* was based on division of labour (skilled and unskilled) involving vertical integration of the business in a proto-capitalist model. The integration of these functions within the *Hacienda* required the adoption of new practices of accounting to obtain more accurate control of production and workers and facilitate control at a distance. This article contributes to the literature on accounting by examining the emergence of these new practices in a unique production system developed across all Spanish America from the beginnings of its colonisation.

Keywords

accounting and accountability, *obraje*, manufacture, Quito, eighteenth century

Introduction

This article describes the transformations that occurred in the agricultural-manufacturing complex of the *Hacienda* of San Ildefonso in Quito, a region of the viceroyalty of New Granada¹, during the transition from the administration of the Society of Jesus to the lay *Administration of*

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Temporalidades in the eighteenth century. In particular, the article focuses on the organisation and administration of the *obraje* functioning within the *hacienda*. Its aim is to identify how accounting was used as a tool of control at a distance. In doing so, it highlights that accounting was not exclusively a means for measuring flows; it was also a managerial technology for governing bodies. This article makes two principal contributions to the literature. Firstly, it introduces a new dimension to the accounting history literature by examining the emergence of accounting and accountability practices in a unique production system: the *obraje de tejer*, a form of textile mill developed across all Spanish America from the beginnings of its colonisation. These mills had the particularity of contemporaneously employing free and servile labour, laying the foundations for the definition of different forms of industrial capitalism, compared to those of Western Europe and North America. Secondly, it contributes to the literature on the use of accounting as a technology used for measurement and control, facilitating governance of distant actors.

The Enlightenment of the eighteenth century can be considered among the events that generated the most significant changes in Western society. The impact on political thought and the conception of society are still visible today. The Enlightenment questioned the conception and structure of the power of the *Ancien Régime* and the society on which it was based. Reformist ideas spread rapidly among European courts. The sovereign took on a new guise, no longer the symbol of absolute power deriving from divine grace, but a very human administrator, executor of the projects of transformation of the institutions, at the basis of Enlightenment thought. For this reason, reform took place above all in the economic field. Economics became politics, that is the science of administration and, as such, with a wide range of action (Hyland, 2003). Actions in the economic field were primarily concerned with the definition and transformation of the market. The publication of Adam Smith's essay on the Wealth of Nations in 1776 is probably the most lucid synthesis of the importance of the market for a new society.

In particular, the transformations of the market concerned the removal of all those constraints that had characterised the feudal economy, with the aim of mobilising wealth. The reformers highlighted the importance of private property, criticising the models of collective and common ownership. Agriculture assumed a crucial role in the production of wealth and manufacturing. Increased demand led to reorganisation based on new production models that went beyond the traditional artisan workshop. The transformation and modernisation of the market developed from a national perspective with specific reference to the increase of internal wealth. This discourse developed along the lines of mercantilist politics, first inaugurated by Jean Baptiste Colbert in France during the reign of Louis XIV. The mercantilist discourse became the main theoretical reference of the economic reforms of many European countries which saw the key to increasing wealth through the protection of their internal markets, increasing exports and limiting imports of finished goods through a system of tariffs (Knights, 2010; Mikosch, 1990).

The Spanish Empire, like most European countries, was impacted by Enlightenment reformism. King Charles III, coming from Naples and ascending the Spanish throne on the death of his father Philip V in 1759, was the main supporter of the modernisation of the institutions and the market of the Iberian monarchy. The first actions of the new sovereign concerned the institutional reorganisation of the monarchy. Its structure dated back to the sixteenth century and had been weighed down by the numerous administrative superstructures created over almost two centuries. Mirroring what had already been done in the Kingdom of Naples, its main purpose of the reorganisation was to make the administrative machine simpler and more direct. Above all, it was to ensure direct control of society and the territory by the sovereign without the intermediation of the nobility, which had been a typical feature in feudal society. The reformists viewed these changes as increasing national wealth by freeing economic forces from the numerous existing feudal constraints (Munck, 2000; Outram, 2013).

The same issues also applied to the Spanish colonies. For over a century, the administration of the vast overseas territories had been entrusted to the viceroys and a few local officials. They often centralised different functions, ranging from the administration of justice to the collection of taxes, while control by the capital was erratic and sporadic. According to the proponents of the reformist model, this lack of control had contributed to making the internal market in the colonies inefficient, and to weakening the larger and more lucrative market with the motherland. The system of commercial privileges that, from the beginning of the sixteenth century had harnessed trade between the colonies and Spain, was unsustainable from an economic perspective due to a combination of inefficient management and high transaction costs (Engstrand, 1985).

The modernisation process of the Spanish Latin American viceroys went through two fundamental stages. First, the re-establishment of the administration based on the French model. In this way, the sovereign could be present and control the territory by means of officials who had jurisdiction over a specific geographical area and responded directly to the Viceroy.

The other fundamental step was the expulsion of the Society of Jesus, the Jesuits, from the territories of the monarchy. This was one of the most sensational results of Enlightenment reformism and was mirrored across early modern Europe. The expulsion was a complex political operation, considered by many to be a victory for reason over superstition and over the power of the Catholic Church.

With the Franciscans and the Dominicans, the Jesuits had formed the backbone of the Spanish colonisation of Central and South America. This ensured a widespread process of inclusion of local populations through evangelism. In the mid-eighteenth century, the Jesuits constituted a 'global' religious order with numerous developed economic interests. The first European country to expel the Jesuits was Portugal in 1759, followed by France in 1764; and Spain in 1767. These events had a significant impact on the society and economy of the territories involved, since, with the expulsion of the Jesuits from the national territories, goods and properties belonging to the Jesuit Company were simultaneously confiscated.

The operation was a real test for the reforming forces of the Enlightenment since the management of the seized assets involved the use of rational solutions aimed at the correct management of assets and transparency of all administrative steps. The new technologies of government gave the monarchy the possibility of making people and flows visible and accountable within the huge economic system built by the Society of Jesus (Astigarraga, 2015).

In the American vicerealties of the Spanish Empire, the management of property confiscated from the Jesuits was entrusted to specifically established administrations. In the Audiencia of Quito (the governing body that administered much of present-day Ecuador) the *Administration of Temporalidades* was established with the task of administering the enormous patrimony of the Jesuits (Martinez Tornero, 2010).

The *Hacienda of San Ildefonso* was the name of the largest enterprise of the Jesuits within the Audiencia of Quito. It was a vast agricultural-manufacturing conglomerate in which agricultural production (wheat, legumes, potatoes, wood, wool) were associated with manufacturing, especially woollen textiles, employing skilled and unskilled workers and slaves. The enterprises within the *hacienda* were located in various places in Ecuador, from the coast to the Andean region. The Jesuit organisational model was structured in such a way as to allow the provincial headquarters of the *Hacienda* in Quito to control, through its accounting system, all the activities carried out by the various production sites (Juanen, 1941).

Figure 1 shows the location and the main towns of Quito Province in New Granada. New Granada spread from the west coast of Quito province to the east coast of Guyana and to the north of Panama at the top-left of the main map.



Figure 1. Map of Quito Province.

Source: Covens, J. & Mortier, C., *Atlas nouveau, contenant toutes les parties du Monde, ou sont exactement remarquées les empires, monarchies, royaumes, etats, republicques, &c.* Par Guillaume de l'Isle, c. 1830 edition.⁷

The article is structured as follows: the theoretical framework is presented in the next section. The research methodology is then presented. The third section contextualises the historical context of the case study and, following a macro to micro path, frames the case study within its geographical and social context. Evidence of the accounting system of the *obraje* is then explained and contextualised. Finally, the findings are presented and discussed, and limitations are recognised.

Theoretical framework

Since the mid-1980s, Foucauldian analysis has inspired many accounting studies, beginning with the pioneering works of Burchell et al. (1985), Hoskin and Macve (1986) and Loft (1986). Since then, the adoption of sociological categories of governmentality, control and discipline has been widely adopted across more specialised fields of accounting, including accounting history (Armstrong, 1994; Carmona et al., 1997, 2002; Stewart, 1992). In particular Foucault's 1991 governmentality framework has been adopted by accounting historians as the most versatile tool in order to analyse both the private and the public sector (Jeacle and Walsh, 2002; Miller, 1990; Miller and O'Leary, 1994; Miller and Rose, 1990; Rose, 1991; Neu et al., 2006; Sargiacomo, 2008).

Michel Foucault's term, 'governmentality' refers to peculiar attitudes, arts and rules of government and administration that began to emerge in Europe in the sixteenth century (Dean, 1999; Sargiacomo, 2009). In this sense, governmentality can be defined as a form of activity or a sum of activities to control and conduct a group. This definition can be usefully applied to several different groups, including nations, armies, and social groups (Foucault, 1982). After the seventeenth century, a new governmental rationality became widespread, devoted to knowing and governing wealth, health and happiness of individuals, groups and whole populations (Lazzini and Nicolliello, 2021; Rose and Miller, 1992). Governmentality became the tool used to secure and improve economic performance in a society with a resultant increasingly economic rationality

(Burchell, 1993). According to Rose and Miller (1992), governmentality could be interpreted as a set of political rationalities that consist of a precise definition of ends and means of government as well as the detailed description of tasks between authorities. Government and governmentality are mainly based on 'technologies': the means, tools and mechanisms put in place to know and control a group of people, workers and so on. (Burchell, 1991; Macintosh and Quattrone, 2010). Using such technologies is central to the government-control activity because it is a domain of cognition and calculation (Rose and Miller, 1992).

Another pivotal element of the concept of governmentality, often applied in studies of accounting history, is its link with disciplinary power exercised at a distance. This concept explains the use of accounting as knowledge/government tool. Just as populations and ethnic minorities can be monitored and governed indirectly by centres of calculation, so can the workers of a manufacturer (Miller and Rose, 1990; Robson, 1991). Institutions, including factories, prisons, hospitals, asylums, and so on, can be reorganised through this process in terms of space and time with a focus on the behaviours of individuals and groups (Miller and Rose, 2008; Sargiacomo and Gomes, 2011).

Most recent governmentality studies in this literature have consequently presented a new perspective on the use of accounting systems. Research has shifted from consideration of accounting as an instrument for information and data collection to determine managerial decisions, to a multi-purpose instrument, adaptable to differentiated control needs (Bowden and Stevenson-Clarke, 2020; Ezzamel and Bourne, 1990; Hopwood, 1987, 1990). In this sense, following the outline provided by the studies of Michel Foucault (1979, 1980), the accounting history literature has deepened the relationship between knowledge and power, highlighting the role exercised by accounting as a tool to 'know' (Ezzamel, 1994; Heizmann and Olsson, 2015; Hoskin and Macve, 1986; Maran et al., 2016; Miller and O'Leary, 1987;). Thus, the concept of time and space has become an essential element for exercising knowledge (Carmona et al., 1997; Tyson, Fleischman and Oldroyd, 2004).

Space and accounting are interrelated at different levels (Carmona et al., 2002; Quattrone and Hopper, 2005): (1) accounting can provide information on the use of space and time (production phases); (2) accounting can be used to re-evaluate existing space and functions; and, (3) Accounting can be used to create new space and functions through the repartitioning of the same and therefore through its measurability, which is also accounting measurability (Miller and O'Leary, 1993, 1994). The accounting system can thus be organised to enforce quantification and valuation of activities, developed in, for example, a factory in differentiated physical and non-physical spaces (production phases). The organisation, based on time and space co-ordinating and overseeing the work of labourers, enables control from a distance; while tighter control can be achieved by assigning a single worker, or workgroups, to a specific space. As noted by Foucault (1979), the differentiation and separation of spaces facilitates the supervision of workers or inmates. A factory is an ideal location of separation: an inside world (the factory) versus an outside world, useful to enforce control on workers (Tyson and Oldroyd, 2019).

This article contributes to the existing literature by examining the emergence of accounting and accountability practices in a unique production system: the *obraje de tejer*, a form of textile mill developed across all Spanish America from the beginnings of its colonisation. The focus is on a case study of the *obraje* of San Ildefonso², a town in the Quito province of present-day Ecuador, and at that time, part of the vice-royalty of New Granada. First established in the sixteenth century and still functioning in the eighteenth century, it presents a very particular case. During the eighteenth century, the *obraje*, a former property of the Jesuits, passed to the control of the State, resulting in changes being made to the existing accounting and control system due to a new necessity for 'control at a distance'.

The concept of action at a distance derives from the studies of Latour (1987, 1988) based on the domination of events, places, and people distant from a centre. Accounting presents the means to represent and to know a distant world and to be able to act, making registration, graphs, statistics, diagrams and so on, indispensable tools to transform what is abstract into action (Silva et al., 2018).

This study analyses the combination of accounting and non-accounting techniques enforced by the *Administración de Temporalidades* (the state agency responsible for the management of former Jesuit properties). In doing so, it applies governmentality analysis to the eighteenth century in a phase of deep transformation of the concepts of state and government driven by the pressure of 'enlightenment'. The case study shows how the accounting system can explain the interaction between the accounting control system and the State (by the *Administración de Temporalidades*) and how such a system facilitated the control of events and individuals that acted far from the centre (Espejo et al., 2002; Sanchez-Matamoros et al. 2005). Furthermore, it represents a non-Anglo-Saxon and non-European case based on original archival sources that provide evidence of a different model of production that could lead to consideration of a different form of capitalism that is not found in typical Anglo-Saxon and European governmentality literature.

Research methodology

This study seeks to answer the research question: How were accounting and accountability applied in the management of a proto-capitalist and very peculiar enterprise: the *obraje*? The archival approach adopted involved collecting data that was interpreted through the theoretical lens of Foucault's governmentality and reconstructing the social and historical context of the case study.

The research is mainly based on documentation kept at the *Archivo Nacional del Ecuador* (Ecuador National Archive) in Quito, where a complete section is devoted to *obraje* material. The documents cover almost the whole history of this manufacturing model from the beginning of the colonisation by Spaniards in the mid-sixteenth century. We were able to identify judicial documents produced by local justice courts, and business documents produced by the different enterprises operating in the area. The Ecuadorian documents have been integrated with others held in the *Archivo General de Indias* (General Archive of Indies) in Seville. These latter documents consist of reports sent from the colonies to the King, and the deeds adopted. The aim of considering different archival materials was to achieve a dual perspective on the management of *obraje*, from the centre and from the 'periphery', and so avoid possible bias in the sources. The archival sources used in this study are listed in Table 1.

Table 1. Archival sources used in this study.

Archive Name	Collection	Item identification	Year
Archivo Nacional de Ecuador (Quito)	Corte Suprema (obraje)	Caja 8	1666
		Caja 19	1747
		Caja 22	1766
		Caja 24	1777
		Caja 30	1787
		Caja 32	1794
Archivo General de Indias (Seville)	Audiencia de Quito	Volume 5	1684
		Volume 128	1711
		Volume 133	1737
		Volume 209	1632

An interpretative approach is adopted in this study about accounting practices within the *obraje* of San Ildefonso in Quito province and within the *Administration of Temporalidades*. This approach is based on the description, analysis and interpretation of the data and events studied (Carnegie and Napier, 1996; Miley and Read, 2017; Napier, 2001; Parker, 2004). The study endeavoured to emphasise the role of ideology, consisting of a set of institutions and practices, historically and socially positioning the analysis within a specific context in which the subject of the research resides.

Historical context

From the beginning of Spanish colonisation of South America, it was recognised that essential commodities would need to be produced locally if colonisation were to succeed. In particular, there was a strong desire to increase and improve the agricultural productivity of the colonies by stimulating the production of textile plants, such as cotton, and sheep breeding for production of wool. The *obraje*, as a production unit, was a logical outcome of this situation. It had as its goal the production of low quality, affordable textiles for many consumers who could not obtain imported products, for which self-production was the only alternative. Due to the abundance of a native workforce, manpower was a determinant and decisive factor in the diffusion and development of the *obraje* (Ortiz de la Tabla, 1977); and the success of this form of manufacturing was strengthened by demographic changes in the Spanish American colonies during the sixteenth and seventeenth centuries.

The *obraje* could be considered a form of adaptation of the European production model to the social and economic characteristics of the New World (Bouhrass, 2005). First defined as a 'factory in embryo' by Chavez Orozco in 1938, many have questioned the nature of the *obraje* presenting, as is natural, very divergent positions ranging from small shops with two or three workers to extensive production settlements, organised and based on a workforce of hundreds of workers. Over time, the term *obraje* was used to define larger, more organised manufacturers, with consequently greater manpower. This distinguished them from *telares sueltos* or *trapiche* that indicated smaller, mainly family-based, enterprises. However, there remained no sense of a single framework that fitted all *obraje*. Nor did they have a homogeneous production model or broadly similar management models. Each *obraje* was different but, they all served a common purpose: the production of wool (and partly cotton) textiles that, given the particular type of market of the colonies of New World, could not be imported from the Iberian Peninsula.

The case presented in this article concerns the model of *obraje* developed in New Granada. At the time of the conquest, in the sixteenth century, there were sufficient textile manufactures to satisfy the demand of the local market. But these were handmade products based mainly on cotton and, to a minimal extent, on wool from alpacas and llamas; wool from sheep did not exist there at that time (Borchart de Moreno, 1995). With the arrival of the conquerors followed, very soon, by immigrants coming from the woollen regions of Spain (Castile, Extremadura, Galicia), accompanied by the introduction of sheep, wool manufacture began to develop on a larger scale, partly due to the skills of the immigrants, and partly because of the know-how that already existed locally (Pollard Rowe and Meisch, 2012; Pollard Rowe et al. 2007).

The *obraje* system of the viceroyalty of New Granada

At the time of its conquest by the Spanish in the 1540s, the economy of Ecuador and its *Audiencia* of Quito (province of the vice-royalty of New Granada), established by Royal decree in 1563, was based

primarily on agricultural production and textile processing. It lacked, for example, the large mines to be found at that time in the case of New Spain (Mexico) or Peru. The textile companies that developed around Quito and the two other major centres, Otávalo and Riobamba were, in general, part of production complexes owned by *encomenderos*, holders of land exploitation rights, usually Spaniards (Soasti, 1991). The reference market of these companies was Lima which, at that time, represented a very important commercial centre, through the ports of the Pacific. It was from the Peruvian capital, home of the vice-royalty of Peru, that products from the East (China and the Philippines) and metal utensils from local manufacturers arrived in Quito (Sempat Assadourian, 1982).

The 'system' of the *obraje*, beyond a definition based on dimensions, is identifiable from the separation of production from the family. In contrast, the *trapiches* and *telares sueltos* were small shops organised around family work³. The *obraje* can be considered a productive organisation that corresponds more to a factory than a pre-capitalist medieval artisanal workshop. Characteristically, an *obraje* had (1) a horizontal division of labour, (2) centralised production and, (3) supervision and coordination of activities (Salvucci, 1987). However, typical features of the handcraft workshop persisted, above all the lack of any specialisation of the production site. Furthermore, an *obraje* was located within the owner's home, not in a special structure built for the purpose (Miño Grijalva, 1993). This represents the point of greatest detachment between the *obraje* and the factory, although it is useful to underline that in the mid-eighteenth century, even the manufacture of Spanish *indianas* (cotton printed textiles) had a similar form, with the comingling of the workplace and home, both for the workers and for the owner. Buildings built specifically for the industry only began to spread in Europe and beyond in the nineteenth century.

From an economic perspective, *obraje* met the demand for cheap consumer products, primarily woollen, plus some cotton. This was achieved through the integration of the different production phases and replacement of the imperfections of the colonial market, combined with a reduction in transaction costs. In particular, *obraje* benefited from integrating the production phases with higher added value, such as weaving and colouring of the fabrics, and the lower value phases, such as carding and spinning. In this way, rather than representing a form of embryonic factory, the *obraje* was a proto factory that followed the example of what happened during the same period in the previously mentioned Catalan factories of *indianas* of the Iberian Peninsula.

The *obraje* of the Hacienda of San Ildefonso

The *obraje* de San Ildefonso was one of the longest-surviving *obraje*, dating back to at least the end of the sixteenth century. In 1622, it was owned by a company composed of Antonio Guadalupe Espinosa, Juan Vera Mendoza and the Lopez de Galarza family. It had a workforce of around 60 black slaves. In 1724, it was acquired for 45,000 pesos by the Jesuits, provoking strong reactions to the presence of the slave labourers (Juanen, 1941; Tardieu, 2012). According to an inventory of 1734, the value of the entire San Ildefonso company, including the *obraje* and seven other related companies, amounted to approximately 174,000 pesos which generated an annual income of 14,082 pesos (Borchart de Moreno, 1998). In 1767, when the Jesuits were expelled from the Spanish domain, the company's assets were confiscated by a new institution specifically created for that role by the State: The *Administration of Temporalidades*. This institution had the task of recording all the assets belonging to the Jesuits, verifying the rents and debts and then administering them on behalf of the crown, or selling them, according to whichever was deemed most convenient (Cushner, 2011).

Under an order made by Charles III of Spain in 1767, in 1769 the *obraje* de San Ildefonso became part of the heritage of the *Administration of Temporalidades*. Due to an economic crisis that impacted Ecuador in the last decades of the eighteenth century, the San Ildefonso *obraje*, along with numerous other former Jesuit businesses, remained unsold and continued under the *Administration of Temporalidades*.

The hierarchical scheme shown in Figure 2 demonstrates how the San Ildefonso *hacienda* was subject to the control and coordination of the *Temporalidades* administration. In turn, this administration reported to the *Audiencia* of Quito, the administrative body of the Ecuadorian province within the Viceroyalty of New Granada.

The management of the *obraje* retained the administrative system established by the Jesuits. In essence, the central administration in Quito provided the San Ildefonso company with all the imported raw materials necessary for production (particularly, dyes and etchers), while the finished product's transport costs and wages remained at the expense of the *obraje*. Raw wool was produced and supplied by integrated businesses mainly, as shown in Table 2., from the associated *haciendas* (farms) of Llangagua, Cunuyacu and Pacobamba. Coal and wood came from the *haciendas* of Quichivana and Tontapi. Any unusual additional need for these resources could be met by the local market.

The peculiarity of this case lies in the fact that, unlike many similar manufacturers present throughout the Spanish New World, the *Hacienda* of San Ildefonso was at the head of a production conglomerate (Figure 3.), and its *obraje* was integrated with the other farms that supplied the raw material as well as foodstuffs for the livelihood of the workers. This productive model inaugurated by the Jesuits limited the need to turn to the market for the bulk of the supplies needed by the company, which sterilised the effects of the economic crisis-driven cash shortage prevalent at that time.

The textile products of the *obraje* were of low quality, aimed at a market with low purchasing power. Three types of woollen cloth were produced: *pañó* and *pañete* (coloured heavier woollen), *bayeta* (half-worsted woollen, felt or flannel) and *jerga* (coarse cloth). The products were sold through different channels (Borchart de Moreno, 1998): the local market; Lima (the largest

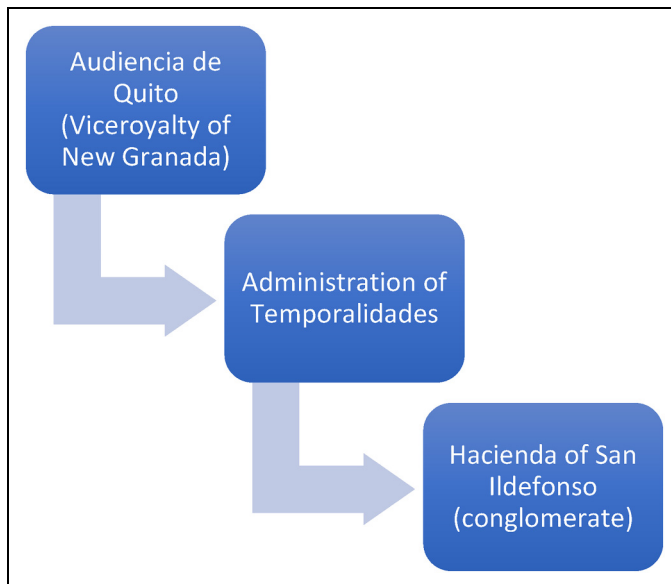


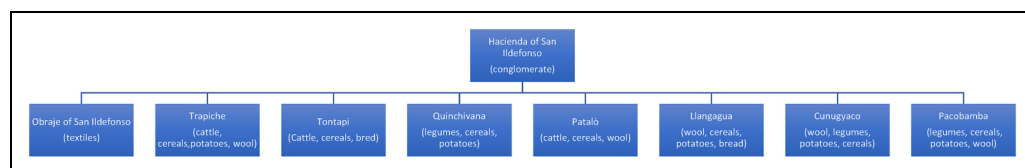
Figure 2. Hacienda of San Ildefonso, control diagram.

Source: Authors' elaboration.

Table 2. *Obraje* of San Ildefonso, origin of wool supply (by weight, in *libras*).

Hacienda/Year	1777–1780	1780–1787	1787–1788	1794	1795
Llangagua	8060	10666	12571	23764	37228
Cunuyacu	12926	14400	14446	14546	15315
Pacobamba (Riobamba)	23382	26241	31926	n.a.	n.a.
Trapiche (Otavalo)	1900	1072	1078	791	713
Tontapi	1234	890	1147	1147	995
Quichivana	1670	1199	1150	1189	938
Patahalò (Latacunga)	1817	1480	1735	1259	954
Sent by General Direction ⁸	26437	368	n.a.	19091	7075
Direct buying	9739	11713	3947	2678	10921
Total	87165	68026	68000	64465	74137

Source: Borchart de Moreno, 1998.

**Figure 3.** Hacienda of San Ildefonso. Organisation diagram.

Source: Authors' elaboration.

Table 3. *Obraje* of San Ildefonso, yearly textile production (by length, in *varas*⁹).

Item/Year	1777–1780	1780–1787	1787–1788	1794	1795
Paño azul (blue cloth)	9154	7768	8199	4789	6826
Paño celeste (pale blue cloth)	103	24	n.a.	n.a.	n.a.
Paño pardo (brown cloth)	208	376	489	152	111
Paño blanco (white cloth)	82	138	n.a.	n.a.	n.a.
Pañete (heavier woollen)	1864	1557	2127	1973	1701
Bayeta blanca (white flannel)	1257	1567	814	427	123
Bayeta azul (blue flannel)	n.a.	n.a.	n.a.	1248	735
Jerga (coarse cloth)	4206	8308	5635	6789	5867

Source: Borchart de Moreno, 1998.

consumer centre in the area); Quito (to the administration of the *Temporalidades* for subsequent distribution on the on the capital market); used as a form of remuneration or benefit to workers; and, sold to workers, which was recorded in a special register: the book of *socorros de obraje*.

The yearly production of San Ildefonso is reported in Table 3.

Work and production in the obraje

The production process was divided into four successive phases: (1) the preparation of raw wool involving sorting, cleaning and carding the fibres, (2) spinning or drawing and twisting the loose fibres into yarn, (3) weaving, in which some yarn, the warp, was laid lengthwise, and other

yarn, the weft, was run across, over, and under the longitudinal lines to form the rough fabric and, (4) the finishing stage, which involved fulling, shearing, pressing and other tasks. Only limited use was made of technology until at least the beginning of the nineteenth century. Where it was used, to Europeans it was obsolete technology, dating back to Medieval Europe. However, when introduced in the 1540s, it was an advanced technology for the New World. Production was labour-intensive and no further technological innovations occurred until the nineteenth century.

As a result, any increase in productivity was only achieved through how labour was organised and used (Salvucci, 1987). Most of all, it required sufficient workers to maintain production, which made the labour market a crucial element in the development, maintenance, and any expansion of manufacturing. But labour was scarce in the colonies, and this turned into a general labour shortage due to a reduction in population from the second half of the sixteenth century. The absence of a real labour market, which developed slowly only from the seventeenth century, and only in areas with greater urban density, meant that the *obraje* operated with a labour force of very diverse characteristics: free workers, indentured workers, convicts, forced workers and slaves, creating a particular overlap between public and private interests (Super, 1976). Nevertheless, as pointed out by Salvucci (1987), because of their use of a differentiated workforce, *obraje* could count on a workforce that was always available without resorting to the imperfect labour market.

The type of labour used not only served to characterise the enterprise, it is considered one of the diagnostic elements of the evolutionary stages of the modern enterprise (Soasti, 1994). From a theoretical perspective, Chavez Orozco (1938) considers the *obraje* as a capitalist-type enterprise, particularly because it used waged labour. Greenleaf (1967) speaks of an evolution of the work from feudal to capitalist, conforming to the different types of labour that occurred throughout the colonial period in the *obraje*. Based on two royal *cedulas* addressed to Peru, he considers that the *obraje* began employing entrusted labour, then labour from *repartimiento* (a forced labour system imposed upon the indigenous population of Spanish America as a tribute-labour system between 1549 and 1621) and finally, in the eighteenth century, using waged labour (AGI, Audiencia de Quito, 209). With the establishment of the *repartimiento* for forced labour, the possibility was established for the judges to assign the Indians to coercive work activities, considered useful for the community. Naturally, the *obraje* was part of these activities (Greenleaf, 1967, 1968).

The use of forced labour by the *obraje* played an indispensable role in the mechanism of social control and punishment imposed on the local population by the Spanish *conquistadores*. Forced labour in an *obraje* was imposed on individuals both as a punishment for crimes committed and as a consequence of an individual's state of insolvency (Moreno Yáñez, 1979). This practice was widely used, supported by pressure from the owners of *obraje* seeking access to cheap labour (AGI, Audiencia de Quito, 128). This use of forced labour conscripted from the criminal and impoverished classes was not unique to Spanish Latin America. A similar system was adopted, for example, in Brazil, supplementing other sources of forced labour: slaves and 'freed Africans' to sustain the expanding economy up to the end of the nineteenth century (Silva et al., 2018).

Because of strong criticism from the Catholic Church (also an owner of *obraje*) and others, one consequence of this use of forced labour in the *obraje* was a perceived concern for the Spanish monarchy. It responded by ensuring that use of forced labour within the *obraje* was regulated so as to avoid or, at least, limit abuse and prevarications (AGI, Audiencia de Quito, 209). As part of these measures, in 1601 Philip III, by *real cedula* (royal order), forbade the employment of *indios* (natives) in *obraje* except for *obraje de comunidad* (*obraje* owned and operated by natives); and owners of *obraje* were encouraged to replace the natives with slave African

labour (Proctor, 2003). However, even this action proved unsuccessful as African slaves were expensive and their supply in this part of South America was far from plentiful and difficult to organise (Greenleaf, 1967).

During the seventeenth century, the Spanish monarchy changed its position on forced labour, moving away from using conscription to forced labour as a punitive measure for common crimes. Before forced labour was abolished in 1621, the *cedula* of 1601 was amended in 1609, limiting use of native labour in *obraje*, and permitting employment of native boys as apprentices, in order to ensure they acquired the technical skills needed in production activities (AGI, Audiencia de Quito, 5). Nevertheless, coercive means were still widely used, both for the punishment of insolvent debtors and for those caught begging. The first colonial period coincided with the highest demand for slaves and with a fast decline of the indigenous population. In the absence of native workers, the main colonial industries such as sugar and mining relied heavily upon a workforce of imported slaves.

After 1640, the increase of the population of natives and the *casta* (mixed race) resulted in the increased availability of free wage labour, making slavery correspondingly obsolete. At the beginning of eighteenth century, the *obrajes* began a slow transition from slavery to indebted labour (Florescano, 1996). During that period of decline, slaves moved into highly skilled positions within the *obraje*, such as weavers and cloth cutters, before disappearing altogether as indebted native workers slowly replaced them in the workforce. By the end of the eighteenth century, indebtedment had become the dominant source of labour. For example, in Querétaro (modern day Mexico), the main *obraje* settlement of New Spain, in 1792, natives represented over 70 percent of the labour force and indebtedment was the primary means of recruitment (Proctor, 2003).

Over the course of nearly three centuries, numerous actions were taken to regulate labour within the *obraje*, imposing increasingly stringent limits on the use of servile or forced labour, without, however, succeeding in eliminating abuses and prevarications. As Von Humboldt (1827) described of the poor working conditions he witnessed within these manufacturers during his trip to South America in 1802, the use of cash advances, supplies of food and alcohol, and providing workers with finished textile products, were the main expedients used by the owners of *obraje* to coerce the workers. In this way the owners created a 'debt tie' with the workers, effectively securing their service by placing them in debt to the *obraje*.

The problem of managing *obraje* is the crucial point for defining this form of production. The *obraje* had an organisational structure headed by the administrator (the property owner was usually absent), while the responsibility for production activities was entrusted to the *mayordomos* (superintendents). Furthermore, each of the main production functions had a supervisor. The control system was underpinned by two elements: the regulations issued by the viceroys and the internal accounting system. The regulations are essential to understanding the nature of the *obraje*, a private enterprise with a public function: import-substitution-production and social control (Andrien, 1995). Hence the regulations issued in the eighteenth century focused mainly on life and working conditions within the *obraje*. More specifically, these regulations established the quantity of food necessary for each worker (free or convicted) and the use of punishment within the factory (AGI, Audiencia de Quito, 133). The typical hierarchical structure of a New Granada *obraje* is presented in Figure 4.

The production technology used in *obraje* was limited to the loom and dyeing processes. The substantial difference and, consequently, the success of the production model of *obraje* resided in the organisational aspects of production. While the *obraje* maintained a workforce (free or forced) disciplined and organised, subjected to skilled supervision, the organisation of the

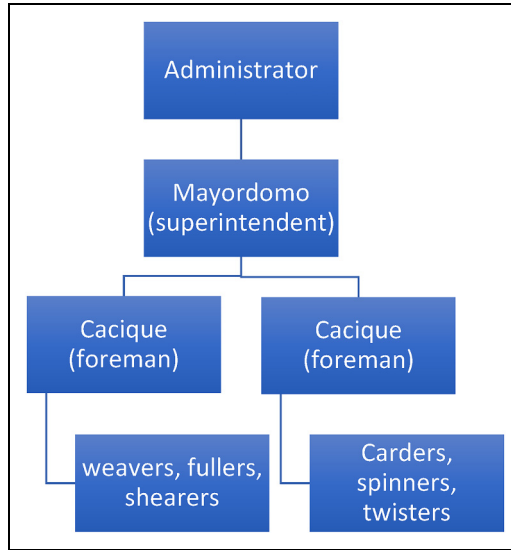


Figure 4. Typical hierarchical structure of New Granada's *obraje*.

Source: Authors' elaboration.

smaller, mainly family-based, *trapiches* and the *telares sueltos* used an artisan production model where the worker/craftsman defined the rhythm of their production and was the owner of the means of production⁴. In contrast, the *obraje* were not owned by the workers and the production rate was determined by the owner of the *obraje* through the supervisors (Miño Grijalva, 1990).

Initially, the role of administrator was usually attributed to 'white' (Spaniards or of Spanish origin) but increasingly, in the eighteenth century, *mestizos* (people of combined European and Indigenous American origin) performed this role. The tasks of an administrator concerned overseeing the organisation of production by the *mayordomo*, a skilled superintendent and specialist in the production process; and control of the native workforce by *caciques* (foremen). The *mayordomo* assigned the workforce to different production phases and controlled the elaboration and quality of produced textiles. The *caciques* were assigned to the different production stages to control the activities of the native *obrajeros* (workforce).

With its labour-intensive production, the impact of the *obraje* on the Ecuadorian labour market was significant. For example, in the province of Quito at the end of the seventeenth century, *obraje* employed about 30,000 people. In 1680, the *obraje* of Licto had 250 workers, Latacunga 384, and Sichos 300 (Ortiz de la Tabla, 1977). A century later, in 1777, the *obraje* of San Ildefonso had 352 active workers (ASE, CS, *Obraje*, caja 24, exp.3) and Licto had 324 in 1784 (ASE, CS, *Obraje*, caja 29, exp. J)⁵.

Accounting and accountability of the *obraje* of San Ildefonso

The analysis of the development of the accounting system and the accountability of the case studied takes place on two parallel levels: a macro plane and a micro plane. The peculiar organisational structure of the company inherited from the Jesuits and the need to understand its functioning within a general administration, made it necessary to integrate the accounting systems.

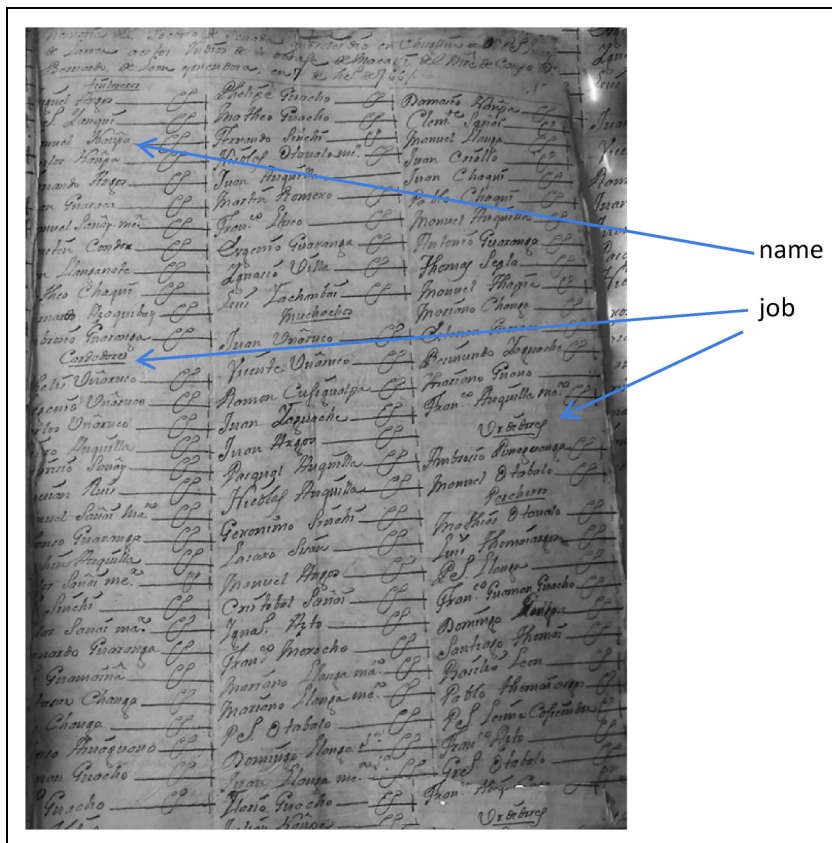


Figure 5. Obraje of San Ildefonso. Libro de Rayas, index of names.

Source: ANE, CS, Obraje, Caja 19, exp. 5.

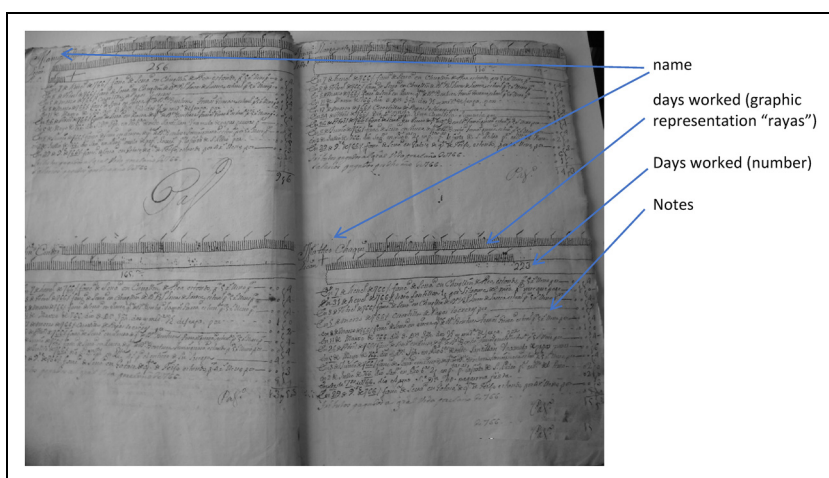


Figure 6. Obraje of San Ildefonso. Libro de rayas, individual registration.

Source: ANE, CS, Obraje, Caja 24, exp. 5.

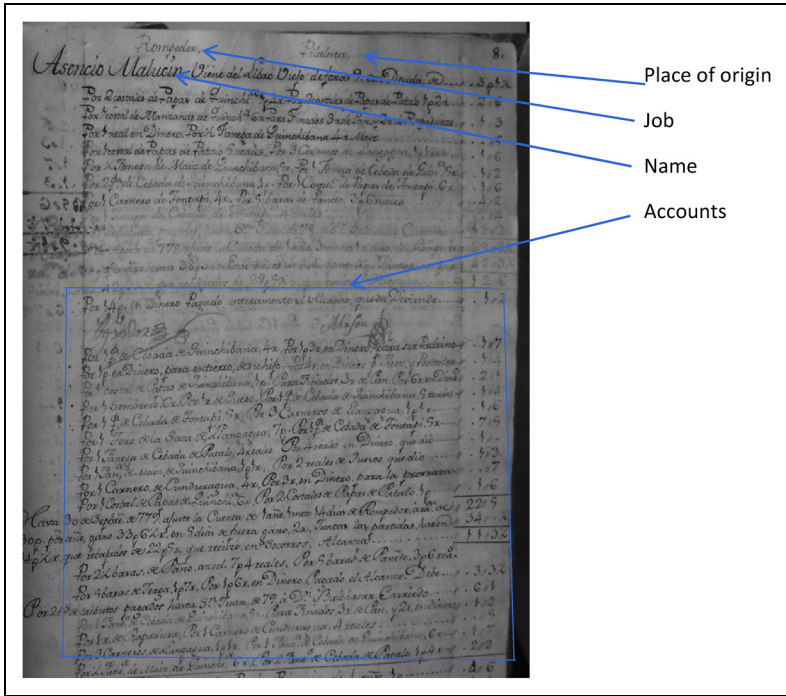


Figure 7. Obraje of San Ildefonso, worker's individual account page in the *Libro de Socorros*. Source: ANE, CS, Obraje, Caja 8, exp. 3.

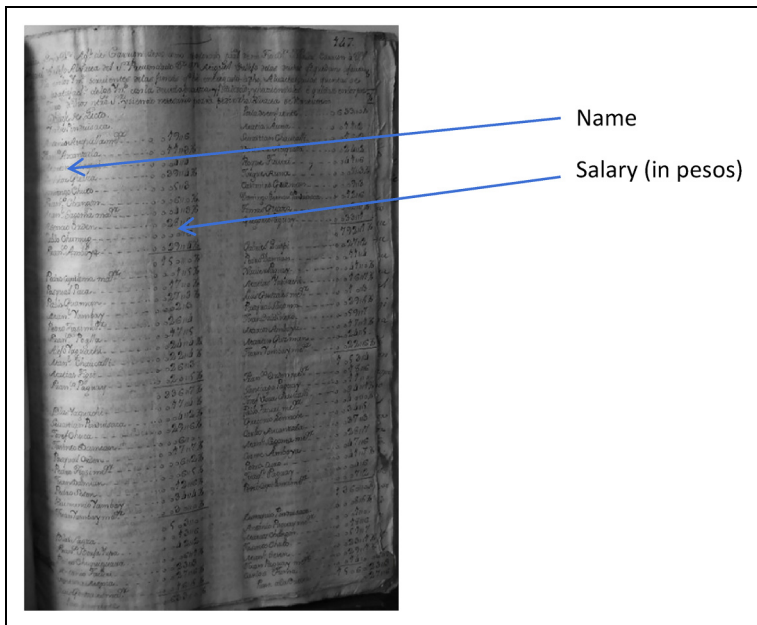


Figure 8. Obraje of Licto (Riobamba). Annual Salaries Sheet for 1783 (in pesos). Source: ANE, CS, Obraje, Caja 22, exp. 7.

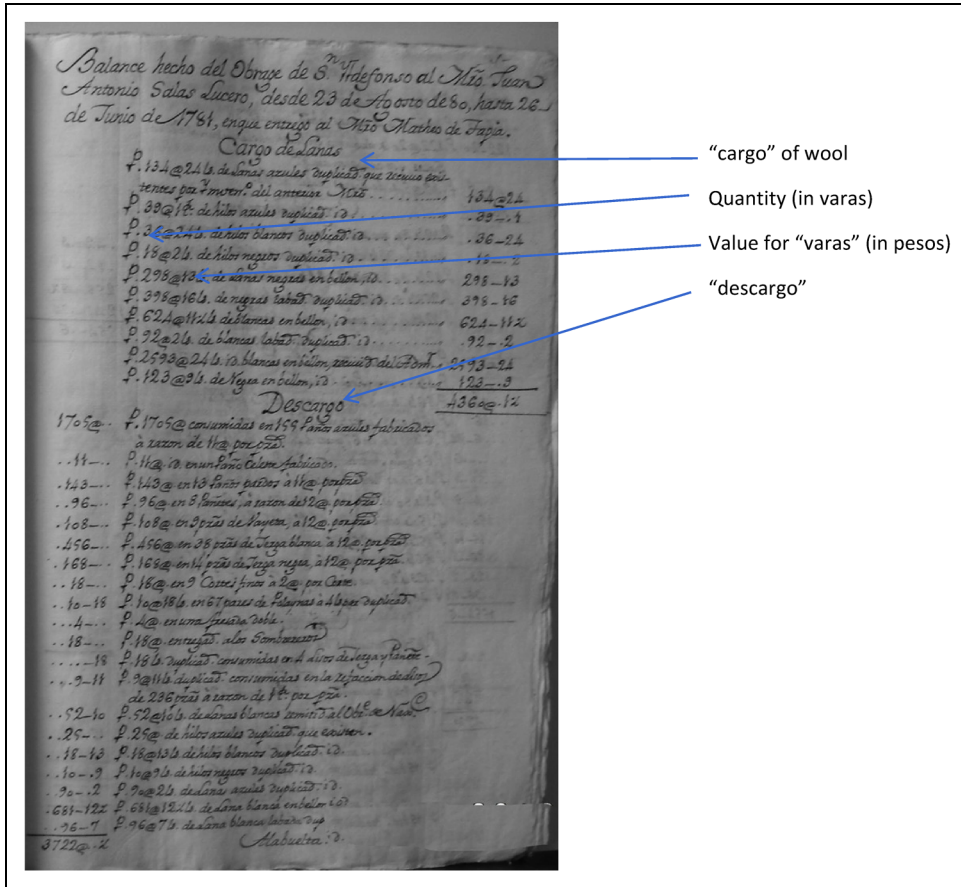


Figure 9. Obraje of San Idefonso. Charge and Discharge Account for wool 1780–1781. Source: ANE, CS, Obraje, Caja 27, exp. 3.

The accounting system implemented by the Jesuits was retained by the *Administration of Temporalidades*. It served two main functions: to monitor the entry and exit flows of both cash and assets and to make processes and functions accountable to improve control. Each of the former Jesuit *haciendas* had a director who was obliged to render the accounts of their work at the end of each administration period (ranging from one to seven years). To do so, the Administration introduced an accounting practice called *cuentas ajustatadas* (adjusted accounts) that was a form of normalisation of the accounts, for each individual company and for every single balance sheet item.

As part of this process, the *Administration of Temporalidades* and its controlled *haciendas* adopted a common and shared charge and discharge accounting system. The property initiated the process through a contractual agreement transferring legal responsibilities to the agent authorising them to manage the entity for a stipulated time. This arrangement ended the link between the parties with the presentation of the accounts duly legitimised with the signature of the accountants or auditors (Villaluenga de Gracia, 2013). The administrator was charged with the amounts for which he was responsible and was discharged by their payment. The difference between both parties gave rise to the scope, this being the amount that the administrator

Descargo

226 P. 226 Cargas concurridas en la peca de 1780

Existencias del Obraje.

Lanas azules	134 @ 24 lb. labas duplicat.
Hilos azules	39 @ 1 lb. duplicat.
Yo. blancos	36 @ 24 lb. duplicat.
Yo. negros	18 @ 2 lb. duplicat.
Lanas negras	29 @ 13 lb. en ballon
Yo.	39 @ 16 lb. labas. 2us.
Lanas blancas	92 @ 2 lb. labas duplicat.
Yo. en ballon blancas	62 @ 14 lb. labas
Tinta amaril	42 lb. 3 g. en las 13 @ 24 lb. de las 13 libras
Yo.	12 lb. 3 g. en las 3 @ 1 lb. de hilo trabaja
Yo.	258 lb. 8 g. en 1200 y zampo.
Azeite	12 @ 12 lb.
Crema	12 lb. en zampo
Cajas	76 pases en manos de J. F.
Lanas azules	24 pzas regulat. a 5 lb. 1 lb. en beneficio
Canes	3 en Felices de a 120 v.
Tergas	4 pzas en Felices de a 120 v.
Caves finos	4 Anel. 2 blancos Todanos cont. 38
Pelaymas	7 pases Todanos
Lanas	7 @ en manos de los Fondos
Beton	14 lb.
Aracil	24 lb.

Algun. el Lig. Balance

Figure 10. The final inventory of the *Obraje* of San Ildefonso, 1780–1781.

Source: ANE, CS, *Obraje*, Caja 27, exp. 3.

should return to the property or keep in charge for the next period (Baxter, 1980). In this way the accounts were made comparable within the overall (consolidated) *hacienda* budget and between different periods.

As part of this system, the *obraje* of San Ildefonso had a system of accounts based on 4 books:

1. *Libro de rayas* (attendance record).
2. *Libro de socorros de obraje* (book of items supplied to workers).
3. *Libro de lanas* (book of wools).
4. *Libro de tintas* (book of dyeing).

Cargo de Cavallo		
	¶ 1. que quedó existente.	20
	Descargo	
4	¶ 1. id. muerto de vicio, contra de hérito, y Orefes.	1
	Cargo de Papá	
	¶ 8. Remas recibidas de la Dirección.	8
	Descargo	
7	¶ 7. Tasas gastadas en venuncio de las Ház.	
1	¶ 1. id. remitida a Navichí.	
8		
Cargo de Tributos		
	¶ 18312. ¶ real alborador de la Dirección a favor de los Cobradores de Tributos por los Cavallos, 17. finaliano de 87, y este se hizo en el año 86.	18312
	¶ 10422. 2. 2. pagados por el Com.	10422
	Descargo	
	730377/4. ¶ 730377/4. E. cargados a los Indios de este Obraje, contra de sus Tasas y Cargas de pago hasta el año de 85 inclusive.	
2118/4	¶ 2118. Arreal a don al Trap.	
870n5/4	¶ 870. 0. 7/4. id. a Fontapi.	
1030n5/4	¶ 1030. 0. 7/4. id. a Quenelutava.	
2370n6	¶ 2370. 0. 6. id. a Parato.	
2516n7/4	¶ 2516. 7/4. id. a Langaguar.	
256n.	¶ 256. id. a Camanatico.	
218n4	¶ 218. 4. id. a Pacobambá.	
113006/4	¶ 113006. 6/4. id. que se hace Cargo de Com. en Dinero.	
18416n3/2		
Cargo Real de Dinero		
	¶ 27632. p. producto de Salencia de 1846 v. de novata a 2. 8. al	27632.
	¶ 312. de 156 v. de Pano Celeste, vendidas a 2. 0.	312.
	¶ 326. 7. id. de 261 v. de Pano blanco, a 1. 0.	326.
	¶ 1111. 2. id. de 889 v. de Pano blanco, a 1. 0.	1111.2
	¶ 1308. 7. id. de 2327 v. de Pano, a 1. 2.	1308.72
	¶ 1148. 3. id. de 4593 v. de Nylon blanco, a 2.	1148.32
	¶ 938. 4. id. de 3798 v. de Tropa, a 2.	938.42
	¶ 98. id. de 98 v. de Tropa doble, a 8.	98.
	¶ 3134. 2. id. de 676 v. de Pano azul de Corte, a 4. 6.	3134.2
	¶ 72. id. de 16 v. de Pano mezclilla de Corte, a 4. 6.	72.
	¶ 182. id. de 52 v. de Pano negro, a 3. 6. id. vendidas.	182.
	¶ 224. id. de 74 v. de Pano blanco, a 3. 0.	224.
	¶ 55. id. de 102 v. de Pano ordinario, a 2.	55.
	¶ 24. id. de 24 v. de Pano, a 1. 0.	24.
	Ala buelta	

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Figure 11. Obraje of San Ildefonso. Charge and Discharge Account for cash 1780–1781. Source: ANE, CS, Obraje, Caja 27, exp. 3.

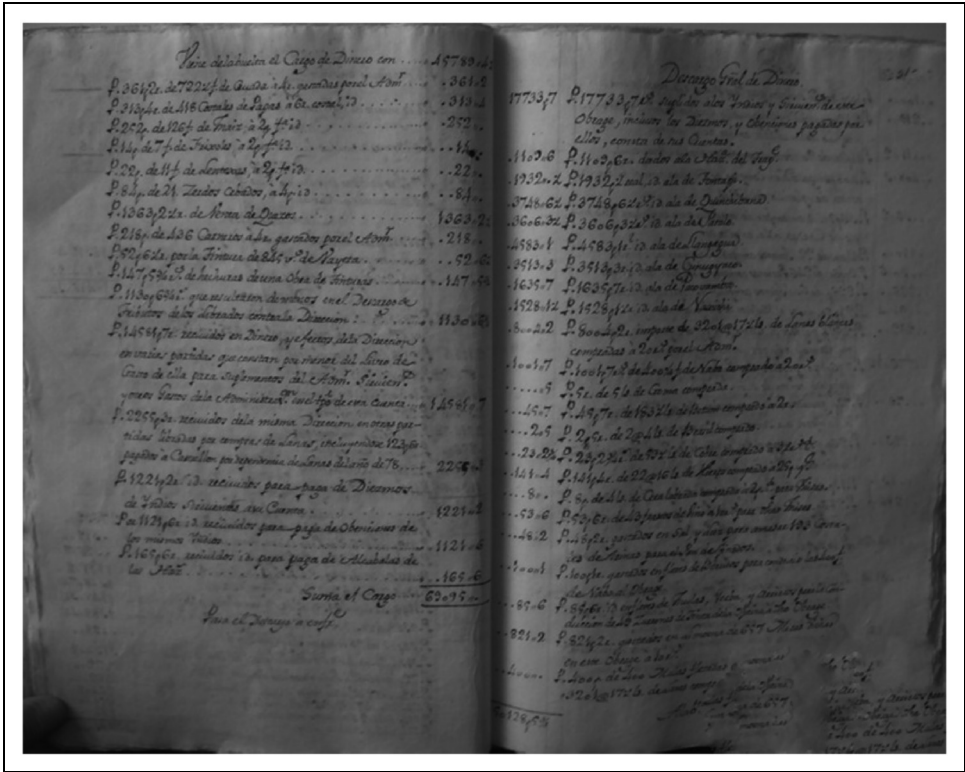


Figure 12. Obraje of San Ildefonso. Charge and Discharge Account for cash 1780–1781 (continued). Source: ANE, CS, Obraje, Caja 27, exp. 3.

Libro de rayas

The *Libro de rayas* was used to record the presence of the workers, indicating the days worked in a month. The book was preceded by an index of the names of all workers grouped by category (dyers, carders, spinners, young workers, warpers, weavers, bricklayers, carpenters, handymen, servants), as shown in Figure 5.

As shown in Figure 6, records of two workers were kept on each page of the book. At the top of each record, was the account of the days worked by the use of a horizontal line (the period) and vertical small lines or *rayas* (the days worked), indicating the number of days worked. Every 10 days worked was reported by a graphic sign (a longer vertical line). Below this, details were inserted showing money advanced, food supplied, or finished products delivered. When the work had been paid for, it was marked as paid and the record was closed. Figure 6 presents an example of the records of four of the workers.

Libro de socorros de obraje

The *libro de socorros de obraje* contained a chronologically ordered record of all the help given to each worker, such as cash advances and supplies of finished textiles, along with the work undertaken and the amount earned. As shown, the total value of the amount of

Table 4. Translation of the summary and plan of San Ildefonso *obraje* under the direction of a master and a mayordomo (superintendent). All the values are in pesos.

	Items	Obraje	Fulling mill	Niton hacienda	Mill	Trpiche (small obraje)	Total
Equipment	Chapel	000	“	“	“	“	000
	Buildings	0.445.4	0.365.0	“	000	0.132.0	0.942.4
	Furniture	0.6.5	Ambabaqui	“	Pelileo	“	0.6.5
	Land	“	000	0.600.0	0.35.0	19.45.0	20.085.0
Cattle	Flocks	“	“	0.434.0	“	“	0.434.0
	Cows	“	“	“	“	0.292.0	0.292.0
	Mules	“	“	“	“	0.48.0	0.48.0
	Mares	“	“	“	“	“	“
Fruits	Products	“	“	0.148.0	“	0.6.0	0.554.0
	Alfalfa	“	“	1.182.0	“	0.400.0	0.400.0
	Paddock	“	“	“	“	1.200.0	1.200.0
	Cane thicket	“	Batan	Forge	Mill	2.512.4	2.532.4
Tools	Tools	“	0.25.0	0.4.0	0.14.6	0.60.3	0.104.5
	Farm tools	“	“	“	“	0.1.7	0.1.7
	Wooden tools	0.220.2	0.28.2	“	“	0.67.6	0.316.2
	Metallic tools	1.624.6	0.20.0	0.64.6	“	1.256.0	2.965.4
	Stone tools	“	0.49.0	“	“	0.68.0	0.117.0
	Pesos	0.23.0	“	0.68.6	“	“	0.23.0.
	Medidas ¹⁰ (wheat)	0.2.0	“	“	“	0.20.9	0.22.0
	Products	Wool	0.370.3	“	“	“	“
	Fabric	3.969.4	“	“	“	“	3.969.4
	Dyeing products	0.94.4	“	“	“	“	0.94.4
	Equipment for prison	0.36.0	“	“	“	“	0.36.0
Total		6.792.1	0.487.2	1.250.6	0.49.6	25.514.4	34.094.3

Source: Authors' elaboration.

- Blue dyeing (indigo)
- Turnips
- Vinegar
- Rubber
- Cardoons (to card the wool)
- Pale blue textiles
- Blue textiles
- Finished textiles
- Jergas (coarse cloth)
- Bayettas (flannel)
- Fine cloths
- Bitumen
- Brazil wood
- Wood
- Charcoal

help given was calculated and then deducted from the amount earned, leaving a balance to be carried forward to the next period (Figure 7). Once again, the book was preceded by an index of the names of all the workers showing the page on which the entries for each worker could be found.

This use of a specific book for the accounting of wages was widespread among the Ecuadorian *obraje* and probably originated during the Jesuit administration. However, in the surviving documents of the *hacienda* of San Ildefonso, no trace of one has been found. The one shown in Figure 8 was from the Licto *obraje* of the *Hacienda* of Halbacea (Riobamba). Given the standardisation evident in the accounting system adopted across these *obraje*, it is likely that the wages were recorded in the same way in all the *obraje*, including San Ildefonso.

Figure 15. Hacienda of San Ildefonso (conglomerate). Summary inventory 1798. Source: ANE, CS, Obraje, Caja 32, exp. 7.

Libro de lanas and the Libro de tintas

The *Libro de lanas* took account of all the raw wool received by the *obraje* and wool out-sourced for spinning and weaving while the *Libro de tintas* reported the purchase of dyeing products.

Each year, all the information present in the account books was collated into an annual balance prepared by the administrator of the *obraje* using the charge and discharge (*cargo y descargo*) method⁶. As shown in Figure 9, the quantity and monetary value of each item is shown separately in chronological order. All the monetary values were reported in *pesos*. One *peso* corresponded to eight *tomines*, every *tomine* amounted to 12 *granos* (Santacruz, 1782). Separate charge and discharge accounts were prepared for inventory and for cash. The one for wool is shown in Figure 9.

In addition to wool, the final inventory for the *obraje*, shown in Figure 10, includes:

The charge and discharge account for cash is shown in Figures 10–12. It begins near the bottom of Figure 11 with entries for cash receipts. The final total on that page of 45,789 is carried forward to the top left of Figure 12. The total receipts of cash of 69,095 is shown at the foot of the page on the left in Figure 12. The total cash payments of 50,128 on the right-hand page is carried forward to the top of the left-hand page in Figure 13. The total of that page is transferred to the top of the right-hand page. The total of that page of 68,013 represents the total cash payments for the period. The calculation at the foot of the page subtracts the total

Table 5. Translation of the Hacienda of San Ildefonso (conglomerate). Summary inventory 1798 General state of the haciendas annexed to the *obraje* of San Ildefonso and owned by Temporalidades under the direction and cure of a especially appointed administrator in the city of Quito.

	Items	<i>Obraje</i>	Quinchibana	Fontapi	Patalò	Llangagua	Total
Equipment	Chapel	000	“	“	“	000	000
	Buildings	0.942.4	0.25.0	0.25.0	0.60.0	000	1.048.4
	Furniture	0.6.1	“	“	“	0.16.3	0.22.4
	Land	20.055.0	4.000.0	19.000.0	10.650.0	77.109.0	130.844.00
Cattle	Flocks	0.434.0	0.444.0	0.668.0	0.966.7	24.44.0	26.556.7
	Cows	0.292.0	0.238.0	0.402.0	0.335.0	5.43.0	6.350.0
	Mules	0.48.0	“	“	“	0.608.0	0.656.0
	Mares	“	“	“	“	0.50.0	0.50.0
Fruits	Products	0.154.0	0.727.0	1.249.6	1.199.4	0.696.0	4.026.3
	Alfalfa	0.400.0	0.50.0	0.292.4	3.725.0	2.0.0	6.467.4
	Paddock	1.200.0	“	“	0.400.0	“	1.600.0
	Cane thicket	2.512.4	“	“	“	“	2.512.4
Tools	Tools	1.104.1	0.58.6	0.55.4	0.67.6	0.42.0	0.328.1
	Farm tools	1.1.7	0.1.0	“	“	0.24.4	0.27.8
	Wooden tools	1.316.2	“	“	0.5.0	“	0.321.2
	Metallic tools	2.965.4	“	“	“	“	2.965.4
	Stone tools	1.117.0	“	“	0.100.0	“	0.217.0
	Pesos	0.23.0	“	“	“	0.16.2	0.39.0
	Medidas (wheat)	1.22.0	0.2.0	0.2.0	0.2.0	0.2.0	0.30.0
Products	Wool	1.370.3	“	“	“	3.754.4	4.85.4
	Fabric	3.969.4	“	“	“	“	3.969.4
	Dyeing products	0.94.4	“	“	“	“	0.94.4
	Equipment for prison	0.36.0	“	“	“	“	0.36.0
	Total	34.094.7	5.545.7	21.690.7	17.511.1	113.365.4	192.207.6

Source: Authors' elaboration.

payments from the total receipts. The final figure of 1,081 represents the amount due from the administrator.

As shown in Figure 14, the inventory of the existing items and raw materials in the *obraje* was reported in a separate sheet at the end of the balance. The Summary Inventory (Figure 14) also reported the value of tools and cattle, while the Charge and Discharge Account only reported raw materials and consumables.

The contents of the summary inventory are shown translated in Table 4.

The summary inventory of the *obraje* of San Ildefonso (Figure 14) and the overall inventory for the entire conglomerate for 1798 (Figure 15) are the most recent available accounting documents. It is probable that the economic crisis generated by the Franco-English war in Europe and the strong earthquake that struck Ecuador in 1797 were fatal for the company's activity, of which no more traces can be found in the following century. The overall results for the *obraje* shown in the final column of Figure 14 (Table 4) are reproduced in the first column of the *Hacienda* of San Ildefonso (conglomerate) inventory sheet shown in Figure 15 (Table 5).

The inventory provides a lot of information relating to the functioning and the accountability model adopted by the *hacienda*. The items of inventory are divided between the various productive functions: *obraje* (spinning and weaving); *batan* (fulling); mill;

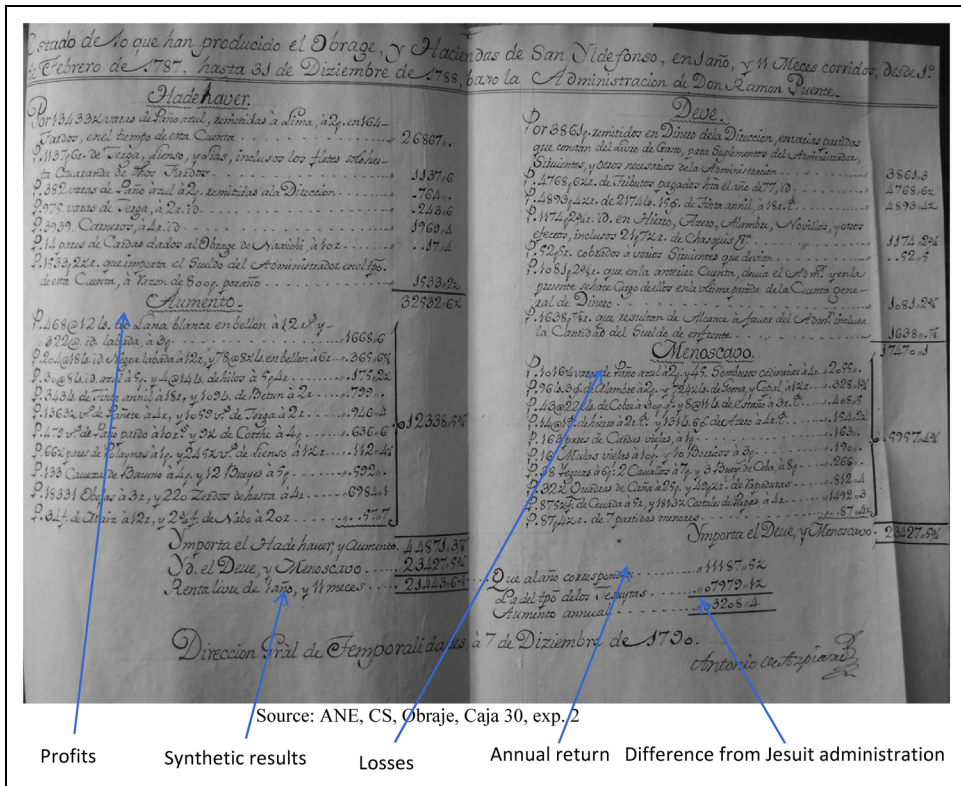


Figure 16. Obraje of San Ildefonso. Balance Statement for 1787–1788 (prepared by the Administration of Temporalidades).

Source: ANE, CS, Obraje, Caja 30, exp. 2.

trapique (spinning), which, we speculate, would suggest a primitive attempt to identify industrial costs (overhead) (Boyns and Edwards, 2012; Edwards and Newell, 1991; Edwards et al. 1995).

The summary inventory for the San Ildefonso (conglomerate) is shown translated in Table 5.

The role of the administration of a single hacienda was towards control over production, costs and cash rather than calculating or monitoring profits and losses. In contrast the financial information was required by the central Administration of Temporalidades which prepared the annual financial balance statement for each hacienda from its inventory balances. This reflected a business model much closer to socialist planned economy (perhaps an inheritance from the Jesuits’ centralised organisation, see Quattrone, 2004) than a mercantile/capitalist one. Figure 16 shows the Administration balance statement for 1787–1788. It is then shown translated in Table 6.

The balance, as shown in Figure 16 and Table 6, reported the increase in production and financial flows and the net profit with the positive difference compared to the previous year. In this sense, the balance represents a control and governing tool on administrators of hacienda and obraje of San Ildefonso by the Administration of Temporalidades.

Table 6. Translation of the *obraje* of San Ildefonso Balance Statement for 1787–1788 (by the *Administration of Temporalidades*).

To have	To give	
For 13433 varas of blue fabric (at 2 pesos for varas) sent to Lima in 164 bales during the current period	26867.0	3861.3
For 1137 items of rough canvas, linen,	1137.6	4768.6
For 382 varas of blue fabric (at 2 pesos for varas) sent to Direction (of Temporalidades)	764.0	4893.4
For 975 varas of rough canvas	243.6	1174.2
For 3939 muttons	1969.4	52.5
14 pairs of combing tools sent to the <i>obraje</i> of Naxichi	17.4	1081.2
Remuneration of administrator (800 pesos per year) for the whole period	1533.2	1638. ^{7/8}
Total	32532.6	17470.1
Increase		
For 468 arrobas of white wool and 308 of washed wool	1668.6	2055.0
For 204 arrobas of washed black wool and 78 arrobas of wool "en bellon"	365.6	328.1
For 30 arrobas of blue wool and 4 arrobas of yarn	175.2	408.5
For 343 pounds of indigo blue dye and 109 pounds of bitumen	799.0	154.2
For 1363 varas of light cloth and 1059 varas of coarse cloth	946.4	163.0
For 479 varas of brown cloth and 9 pounds of short cloth	636.6	190.0
For 66 pairs of gaiters and 245 pounds of linen	112.4	266.0

(Continued)

Table 6. (Continued)

To have	To give
For 133 cows and 12 steers	812.4
For 18331 sheep and 220 pigs	1492.3
34 fanegas of corn and 2 and $\frac{3}{4}$ fanegas of turnips	87.4
Total	5957.4
	23427.5
Total (to have and Increase)	12338.5 Total
Total (to give and Decrease)	44.871.3 Total (to give and Decrease)
Net income (1 year and 11 months)	23427.5
	21443.6
	1187.5
	7979.12
	3208.4

General Direction of Temporalidades December 7th 1790

Source: Authors' elaboration.

Conclusions

The study is a first attempt to investigate a fundamental element of the Spanish colonial economy of the seventeenth and eighteenth centuries: the establishment of a unique production system developed across all Spanish America from the beginnings of its colonisation, organised in a wide network of manufacturers and farms subject to direct control from the centre. In order to obtain more accurate control of production flows and workers and facilitate control, new accounting and accountability techniques were adopted. This facilitated the Spanish Government's goal to build a group of people measurable and governable at a distance (Foucault, 1991; Miller and Rose, 1990; Silva et al., 2019), creating records that could serve the interest of the Spanish Monarchy to reduce the costs of transactions and increase its revenues. To ensure its success, the technologies of management of the *hacienda* and the *obraje* were enforced by the adoption of a hierarchical structure within the company in a manner very similar to how this was being done in European textile mills of the time.

This article addressed the research question: How were accounting and accountability applied in the management of a proto-capitalist and very peculiar enterprise: the *obraje*? In doing so, it contributes to the literature on accounting and accountability practices by examining the emergence of the new accounting and accountability techniques that were adopted, focusing on the case of a former Jesuit enterprise (*hacienda*) that passed to the Spanish Crown after the Jesuits were expelled in 1767. A governmentality framework was adopted to present a case study of the *Hacienda* of San Ildefonso in Ecuador, its controlling institution, the *Tempralidades*, and the *obraje* established within the *Hacienda* based on division of labour and involving vertical integration of the business in a proto-capitalist economic model.

In our analyses of those techniques, this study demonstrates the diffusion and progress of these calculative technologies far from Europe, in a region usually considered to be under-developed or part of a centre-periphery scheme with a centre based in Europe and a periphery constituted by the colonies (Wallerstein, 1974). The evidence shows the existence of a polycentric model, in which autonomous and interrelated markets and institutions develop around the different centres (Cardim et al., 2012).

The management of these properties involved re-distribution of space and production functions within the facility that enabled adoption of an accounting system designed to exercise control augmenting the visibility of groups or phases. The resulting reduction in production costs, improved internal efficiency, and the implementation of work discipline and control in these 'proto-factories' increased production compared to the traditional artisan-made-woollens industry previously in place.

Thus, the organisation structure provided a hierarchical scheme of space. The configuration of space within the *obraje* made it possible to assign specific spaces to workers and vice versa. The cost calculations made each production stage visible (accountable) and then modifiable. This visibility assigned to each unique phase permitted the exercise of disciplinary power on workers. Through accounting, spaces (production functions) and individuals were also rendered accountable 'at a distance'. Furthermore, the control enforced by the accounting system was able to monitor precisely the different production phases and workers. This control at a distance was the intervention tool adopted to guarantee the reproduction of the labour power within a context of 'capitalisation' of economy. It is important to highlight that, despite the 'use' of African slaves, most of the workers in the *obraje* were free workers. In this sense, the accounting system was not a tool to control a social or racial minority (Annisette, 2009; Annisette and Prasad, 2017) but a management tool.

As usual in historical studies that centre around books of account, the limitations of this study lie in the incomplete set of surviving records available to study. However, sufficient have survived to provide confidence in the conclusions presented. Further planned studies on this theme include analysis of privately owned *obraje* in order to compare the efficiency and merits of the accounting systems in use to those adopted in the *obraje* owned and managed by the State.


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Notes

1. New Granada was the jurisdiction of the Spanish Empire in the north of South America, corresponding to present-day Colombia, Ecuador, Panama, and Venezuela.
2. The *obraje* of San Ildefonso was one of several entities within the Hacienda de San Ildefonso. It was coincidentally located in a town with the same name as the Hacienda.
3. “*Obraje* buildings [ranged] from 5,600 to almost 40,000 square feet [or more] could house between 4 and 40 looms, and employ from 40 to 250 men, women, and children” (Encyclopedia.com). Available on 14 November 2020 at <https://www.encyclopedia.com/humanities/encyclopedias-almanacs-transcripts-and-maps/obraje>.
4. The *telares sueltos* or individual looms were characterised by a wide variety of social, institutional and productive relationships; including looms operated by (almost) independent handicraft producers, cottage and domestic workers, often financed by merchants. The *trapiche* (literally: mill) was mainly a small *obraje*, family owned and operated, where common stuffs were woven and dyed (Salvucci, 1987).
5. In 1690, the population of Quito province was about 273,000. In 1764, it was reduced at around 130,000, while the whole capital amounted 63,565 in 1784 (Inec, 2015; Powers Vieira, 1994).
6. ‘Charge and discharge’ was an accounting procedure typically used when the economic activity of an organisation was entrusted to an agent, especially in public, religious and non-profit entities (Hernández Esteve, 2007; Villaluenga de Gracia and Llibrer Escrig, 2019).
7. This map is in the public domain and available at: https://commons.wikimedia.org/wiki/File:1730_Covens_and_Mortier_Map_of_South_America_-_Geographicus_-_SouthAmerica-covensmortier-1730.jpg
8. The General Direction was the headquarter of the Hacienda of San Ildefonso located in Ambato (Quito province).
9. A *vara* was approximately 0.8359 metres.
10. The *medida* was a unit of grain volume that equals between 1,181 and 2,267 kg
11. This is calculated by taking 12/23 of the net income for the 23 months. The adjusted accounts of the hacienda were prepared by the administrator and sent to the *Administration of Temporalidades* for verification. These accounts analytically reported the trends of all the companies belonging to the conglomerate with results and flows (determined in quantity).

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Archivo General de Indias, Sevilla (AGI)

- Audiencia de Quito (Quito)
volumes:
- 5 - Real Cédula al Presidente de la Audiencia de Quito, Lope Antonio de Munibe, ordenándole que él y el Obispo señalen congrua a los indios que trabajan en obraje y a los gañanes y pastores y a los empleados en otras ocupaciones. Se dió otra igual al Obispo de Quito (1684);
- 128 - Real Cédula al Presidente y oidores de la Audiencia de Quito sobre sobre la conveniencia de fundar obraje en el repartimiento de Otavalo para poder cobrar los rezagos de los tributos (1711);
- 133 - El presidente y oidores de la audiencia de Quito avisan el recibo de la cédula en la que se manda cesen del todo las mitas de los obraje, galpones y chorrillos, y que éstos se sirvan de indios voluntarios (1737); 209 - Real Cédula al presidente de la audiencia de Quito sobre los siguientes temas: turno que deben seguir los oidores en la visita de la tierra; que los obraje se visiten por lo menos cada dos años; que avisen de los casos en que el virrey se exceda en temas de justicia; que procuren se reúna el donativo gracioso que está ordenado pues las necesidades crecen cada día; que al escribano de la visita tomada al licenciado Esteban Marañón se le paguen sus honorarios de penas de cámara (1602).

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