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Accounting for the commons: bookkeeping and the stewardship of natural resources in northern Spain (sixteenth to twentieth centuries)

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ABSTRACT
The accountability, which both monitors and other officials have to users, is an important condition for long-lasting common pool resources. This study examines the historical use of accounting techniques as an ingredient of common property regimes, emphasising stewardship theory. The use of accounting by peasant communities, at least from the sixteenth century, is demonstrated through two case studies: a small irrigation community (Regadío de Arbanta) and a large intercommon forest (Sierra de Lóquiz), both in the Spanish province of Navarre. Although other hierarchical institutions, such as royal officers, religious entities and lords, made use of calculation at the time, the peculiarity of peasant accounting is that it was embedded in an egalitarian culture and served to ensure intergenerational reciprocity. Small size and low levels of inequality favoured accountability in a horizontal scheme. The article concludes that those rural communities made use of the calculation technologies available during the Renaissance mainly due to endogenous motivation. The use of accounting served the needs of local communities’ financial control, and reinforced community links, thereby favouring the sustainability of both the communities themselves and their resources.

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Introduction

Commons is an elusive concept. It generally refers to collective access, although its precise limits are not always clear. It is sometimes taken as a synonym of open access, while at others it is assimilated to the ownership of a well-defined group. It can be described as the absence of property rights, but most frequently it is identified as a particular form of collective ownership, or as a combined structure of property and use rights (Béaur 2006). The cultural background of those using the term is not indifferent to the apparent plurality of meanings. To avoid confusion, Elinor Ostrom (1990, 30) proposed the concept ‘common pool resources’ (CPR), defined by two characteristics: low ‘excludability’ (it is difficult to exclude others from the resources) and high ‘subtractability’ (the subtraction of units of resource takes away the ability of others to do so). Pasturelands, forests, fisheries, and irrigation water are examples of common pool resources historically managed by
corporations and groups of different sizes (de Moor, Shaw-Taylor, and Warde 2002). These groups establish social arrangements to share rights and duties towards the resource, regulating its preservation, maintenance, and consumption. These particular arrangements define different common property regimes (McKean and Ostrom 1995).1

This study contributes to a better understanding of the ways by which these groups guaranteed the governance of their natural resources and the reproduction of the group itself. In particular, it has researched the historical use of accounting techniques as an ingredient of common property regimes. What were the accounting forms and systems used? Were they effective? Did they play a role in maintaining the sustainability of the common resources? It also seeks to understand how peasant communities came to assimilate these practices. Why did the accounting systems emerge as they did? Was it royal instruction or self-development?

The remainder of this study is organised as follows. The next section summarises the debate on the commons dilemma (the potential conflict between short-term use and long-term sustainability), paying attention to the question of accountability; and evaluating the alternatives of agency and stewardship theories. The following two sections present two case studies of different types and size: a small irrigation community and a large forest shared by several villages. Subsequently, the study describes the charge-and-discharge bookkeeping system in use in these cases, as well as the rituals associated with its presentation. Lastly, we present a discussion on whether the driving force for the introduction and practice of this accounting is exogenous or endogenous, and offer concluding comments.

Not only tragedies. Co-operation and the stewardship of natural resources

Since 1968, when the seminal article by Garret Hardin was published, the debate on the sustainable management of natural resources and the logic of collective action has amassed a huge amount of literature. Hardin explained the ‘tragedy of the commons’ using the example of a pasture or grazing land available to all for the use of their livestock. As the long-term interests of all the users are in contradiction with the short-term interests of each one of them, every herdsman, as a rational being, would add another animal to his herd, and then another, and so on… The unavoidable result – the ‘tragedy’ – is the depletion of resources. ‘Freedom in a common brings ruin to all’, Hardin says. The solution to the problem would be the sale of the pasture as private property; another option would be to maintain it as public property under governmental control, with the state being the one to allocate the right of access (Hardin 1968, 1244).

The critics of Hardin’s model have argued that this metaphor is misguided, both in theoretical and historical terms. From a theoretical perspective, different outcomes would arise if the players could communicate and share information among them. The outcomes would also differ when the game is played over and over again, and the players could use their memories and reputation to adjust their behaviour (Axelrod 1981; Ostrom et al. 2002). Moreover, history shows that open-access pastures were rare, and local communities have traditionally established complex sets of rules for regulating the access to resources and their gathering (Blum 1971; de Moor, Shaw-Taylor, and Warde 2002; Alfani and Rao 2011; Grüne, Hübner, and Siegl 2015; de Moor 2015; Winchester 2015). Consequently, local management emerged as an alternative to the duality
between privatisation and state control. Some authors – Ostrom (1990), Wade (1994), and Baland and Platteau (1996), amongst others – have identified several facilitating conditions shared by those cases of successful management of the commons. Arun Agrawal has summarised those conditions into four sets: (i) resource system characteristics, (ii) group characteristics, (iii) institutional arrangements, and (iv) external environment. In the first one, he includes features such as the small size and well-defined boundaries of the resource system. The second set also includes small size and clear boundaries (of the group, in this case), as well as shared norms and successful past experience, appropriate leadership, interdependence among group members, and the homogeneity of identities and interests. The set of institutional arrangements includes locally devised access and management rules, easy-to-understand regulations, ease in the enforcement of rules, graduated sanctions, the availability of low-cost adjudication, and the accountability which monitors and other officials have to users. These three sets of characteristics should interact: user group and resource locations overlap; rules link restrictions on harvesting to the regeneration of resources. No less important are the facilitating conditions related to the external environment. Some of them are of political nature, such as the recognition of the right to self-organising by the external powers and the existence of supporting external sanctioning institutions (courts). Low-cost exclusion technology could also be included here (Agrawal 2002, 54–55).

This study focuses on one aspect of the third of Agrawal’s four sets of facilitating conditions, namely, the ‘accountability of both monitors and other officials to users’. The interaction between an agent and a principal has been the subject of extensive literature from the 1970s onwards. Agency theory offers a framework for analysing the relationship inside organisations in which ownership and management do not coincide. Yet is it appropriate to understand accountability problems in the commons? Agency theory proposes a latent conflict between the principal and the agent because both of them tend to maximise their utility, and so the agent does not always act in the principal’s interest. There are therefore some ‘agency costs’; these costs are the sum of the principal’s monitoring costs and the agent’s bonding costs, plus a residual loss (Jensen and Meckling 1976, 308). The mechanisms for overcoming such agency costs include income incentives and pressure from competitive (managerial labour and capital) markets (Fama 1980). Although Fama and Jensen (1983, 318–321) have reported the validity of the model as applied to non-profit organisations, an incongruity seems to exist in trying to explain altruistic behaviour through purely individual incentives and market pressure.

As an alternative (or perhaps a complement) to agency theory, stewardship theory has been proposed as a way of considering motivations other than merely utilitarian ones, such as identity, loyalty, or dependency (Donaldson 1990; Davis, Schoorman, and Donaldson 1997). From this point of view, the goals of the principal and the agent may coincide, and their relationship could be based more on trust and collaboration than on control and incentives. Instead of competitiveness, reciprocity informs the players’ behaviour (Polanyi 1989, 88), and as the ‘long-term interest of a group is placed ahead of personal goals that serve an individual’s self-interest’, there is a sense of ‘intergenerational reciprocity’ (Hernández 2008). Contrafatto (2014) has identified four sources for stewardship theory. One of them relies on a normative grounding and, theologically inspired, it focuses on the ethics of virtue in business (Akrivou and Sison 2016). Another one expresses the use and control of entrusted resources in terms of conventional responsibility (Gjesdal
The third offers an alternative model of governance and organisational leadership that promotes the best long-term interests as a way of maximising organisational performance. The last one is understood to be an extension of social accountability and entails a willingness to look after, take care of, and nurture the resources of others. The concept of stewardship fits well with alternative models to existing capitalism, and particularly to cooperatives (Robb 2012) and non-profit entities, where lower wages and voluntary work can be conceptualised as ‘labour donations’ (Van Puyvelde et al. 2012). Stewardship theory concurs with fields in which the players’ behaviour extends beyond narrow individualism, as in the case of sustainable development, corporate social responsibility, and accountability.

The concept of stewardship fits well with Polanyi’s ‘substantive’ approach, where economic interactions are embedded in wider social and cultural relations, and also invites a consideration of accounting beyond its mere technical and instrumental value. Accounting practices and procedures serve not only to represent and communicate economic and financial reality, but also play a role in the reproduction and transformation of the communities that make use of them (Hines 1989; Miller and Napier 1993; Carruthers 1995). There are political dimensions in these practices that provide and reinforce legitimacy within social networks through ritualised ceremonies. In the words of Meyer and Rowan (1977, 350) ‘rationalized institutions create myths of formal structure which shape organizations’. Accounting is thus embedded in social frameworks where these technologies and routines serve to ensure the survival of the organisations through ritualisation (Uche and Atkins 2015). Accordingly, the use of accounting was not only a key tool for recording relevant information and reporting to users, it also created rituals and routines that reinforced the community.

How did the commoners fulfil the requirements of stewardship for their resources? Did they make use of accounting techniques? The evidence is sparse. This study examines the accounting practices of two communal organisations of considerable longevity and robustness, namely, the Arbanta irrigation board, involved in water distribution, and the ‘Junta de la Sierra de Lóquiz’, involved in woodland management. Both are located in northern Spain, on the central-western side of the historical region of Navarre, between the Ebro River, the Pyrenees, and the Bay of Biscay.

Managing the water: the irrigation community of Arbanta

The first case study focuses on the irrigation community known as Regadío de Arbanta, in the village of Bargota (Navarre, Spain). The infrastructure was built in the final decade of the sixteenth century, and its first byelaws were approved in 1598. The organisation distributed water for irrigation from that time through until 1967, when it was abandoned. Thanks to a lawsuit filed before the Royal Court of Navarre in 1619, we have access to the irrigation community’s accounting records between 1605 and 1616. There is no further surviving information until 1853, with the opening of an accounting ledger, now in the municipal archive. This ledger was closed in 1870, but a second one provides information through until 1922. From that year onwards, the irrigation community’s accounts were included and absorbed as part of the municipality’s general accounts.

The village was a ward of the town of Viana until 1818, when it seceded, pursuant to a Royal decree that established a new municipality. The emancipation of the village signalled the end of a long struggle for recognition that had several episodes. One of
them was the creation of the irrigation community of Arbanta. In a context of demo-
graphic growth and expanding markets, the residents in the village tilled the land and
planted vineyards on a distant dry plain, called Arbanta, which had traditionally been
used as pastureland by the town of Viana. In 1580, the town council sued the village for
trying to lay waste to these lands. However, the vineyards continued to expand, and
after an initial ruling against the village in 1587, the Royal Court legalised the plantations
in 1595. The time was ripe for a major investment to transfer water from the basin of what
was no more than a stream (the Mariñanas) to the plain near the Ebro River. It involved
digging a 14-kilometre channel, and building a stone dam (21 metres long and three
metres high) to create a reservoir for around 5000 cubic metres of water, and a hut con-
taining the mechanism for regulating the flow (see Figure 1).

The irrigation community was created to manage the infrastructure built to irrigate the
vineyards. The byelaws approved in 1598 provided for an organisation with three officers:
deputy (diputado), major-domo (mayordomo), and irrigator (regador). Each one’s duties
were clearly defined. The deputy was to establish the irrigation roster and the fines for
anyone breaching this order. He also mediated between irrigators in the event of disagree-
ments over the roster. Finally, he was responsible for overseeing the collection of fines. The
major-domo was responsible for maintaining and cleaning the canal and collecting fines
from offenders. The irrigator was to supervise the water and ensure that it reached each
one of the fields entitled to it. The officers had to be replaced every year on Our Lady’s Day,
15 August, and as the byelaws state, ‘the outgoing officials should be accountable to the
incoming ones for any fines and expenses’.

The town of Viana complained about the approval of the byelaws without the town
council’s knowledge and consent. They argued that the town and the village ‘are one

Figure 1. Map of the municipality of Bargota dated 1883, showing the Arbanta irrigation system (Scale
1:15,000).
Notes: The vineyards appear in the dark shaded area on the left of the map (South). The water is taken
on the right (North), and the canal is represented by a dark line that borders the village to the West. The
reservoir is in a dark oval in the middle of the map. The light coloured areas are hills and pastures and
the clear areas indicate cereals.
Source: Archivo de la Administración de la Comunidad Foral (AACF) ES/NA/AACF/1/001/02/02.08.02.01/
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sole territory and jurisdiction, and one council without difference, and both are subject to
the jurisdiction of the mayor of Viana' and the village 'could not draw up statutes or
byelaws and could not impose punishments nor collect fines'. They added that the
village ‘has recorded those penalties in certain notebooks and ledgers that some of the
accused have’. The irrigation community’s annual accounts from 1605 to 1616 reflect
a simple arrangement. The charge includes the distribution of taxes among landowners
and the fines imposed upon offenders. The list made to distribute the tax reveals that
the area of irrigated vineyards increased from 1831.50 obradas (a unit of measure consist-
ing of 200 plants) in 1608 to 1895 in 1611, 1934 in 1616, and 1961.50 in 1617. The number
of landowners obliged to pay the tax, according to their land area, was 95 in 1617. If we
calculate the Gini index (a measure of inequality where 1 represents the highest degree
and 0 the lowest one), land ownership in Arbanta was distributed with a certain degree
of equality (Gini = 0.5309). The benefits of the irrigation works were thus shared fairly
among the local population.

The vineyard area continued to expand, but these new lands only had subordinate
rights to irrigate, according to the byelaws of 1635. The struggle over the scarce
water supply could explain the theft of the community ledger that was reported in
1726. The community complained that

the documents pertaining to the irrigation community that explain how to govern the water,
(…) the original book with the register of the entitled fields, have been removed, and
although they tried to recover it, and even threatened to excommunicate the thieves, the
book has not appeared.14

To solve this problem, they drew up and approved the third document of byelaws.
Meanwhile, the confrontation between the town and the village continued. In 1749, the
former sued again, accusing the irrigation community’s officers of favouring the irrigators
of Bargota in detriment to those in Viana, particularly through the sale of the water from
the reservoir. They asked for a second deputy to be appointed by the town to supervise
the water. They also asked for ‘the ruling that no one should keep the accounts for the
irrigation community, appoint officials or sell the water from the reservoir without the
attendance and consent of the deputy of Viana and all interested parties’.15 These testimo-
nies confirm that the irrigation community’s officers continued to be accountable to users
every year, but there are no further accounting records until 1852.

The nineteenth century witnessed a major shift in the regulation of water use in Spain
(Calatayud 2016). During this period, the logic of water distribution also changed in the
community of Arbanta. The byelaws of 1598, 1635, 1726, and 1804 show that water was
distributed among the land plots according to a strict roster. It was then replaced by a
water market, with the sale at auction of the water from the reservoir.16 Several times a
year (except where there was a drought), local winegrowers could bid for the reservoir’s
water at the council hall. The one offering the highest sum of money could make use of
the water to irrigate his vineyard. Once the reservoir had been replenished, a new
auction was held (see Figure 2). The income structure varied according to this shift.
Between 1852–1853 and 1869–1870, almost 80% of the charge came from the sale of
water, whereas the main source of income at the beginning of the seventeenth century
had been the distribution of taxes among landowners. The structure of expenditure
also changed, although wages and building projects continued to be the main items.
During these years, the irrigation community proved to be a key contributor to the council coffers, as the transfers to the municipality accounted for 35% of average annual expenditure. Possibly as a result of this growing joint interest between the irrigation community and the municipality, the former was finally included in the municipal accounts from 1923 onwards. From this year until 1967, the municipality’s accounting ledgers continued to record the income and expenditure associated with the irrigation system. The abandoning of the infrastructure during the 1960s can be explained by a combination of factors related to markets (low prices of wine), technology (deployment of pump engines), and externalities (water percolation from the canal to the village). Until then, this small and fragile irrigation system had been providing water to the vineyards for more than three and a half centuries.

**Village federations: the governors of the Sierra de Lóquiz forest**

The second documentary collection pertains to a supra-municipal organisation called the *Junta de la Sierra de Lóquiz*, which grouped 25 villages in five valleys, today divided into nine municipalities. The organisation’s archive (which the forest board ordered to be kept and held in safekeeping as from 1667)\(^{17}\) holds accounting ledgers with practically continuous records from 1614 to the present day.\(^{18}\)

The forest known as Sierra de Lóquiz covers 3676 hectares.\(^{19}\) It has been owned and managed since 1357 by a specific board of 10 governors (*Junta de Dieces*), with a further 9516 hectares distributed among neighbouring municipalities.\(^{20}\) Holm-oak predominates on the southern side the mountain, whilst beech and oak grow naturally on the northern side and in some humid areas, with scrubland and pastures dominating the higher plains. People from the villages were allowed to cut timber and firewood for domestic use within a logic of subsistence. They could also graze their livestock (cattle, horses, sheep, goats, and pigs), water them in artificial ponds, build wooden pens, and gather manure. Every year, each one of the five valleys surrounding the forest appointed two people to the governing board. Since 1587, there have been precise instructions on
managing the forest and submitting the accounts to the representatives of the villages and valleys. On 29 September every year, Michaelmas, the governors presented their accounts to the assembly and, in particular, to a body of 10 auditors (contadores) appointed by the five valleys (two auditors per valley). This numerical parity reinforced the auditors’ legitimacy and authority to review the governors’ accounts in an original way of resolving the agency dilemma. The Junta’s attorney summarised the situation in 1652 with these words:

The accounts by charge and discharge are given every year by the ten governors to two deputies appointed by each valley for this sole purpose, and they all give and receive the accounts under oath. And all this has been done with such substantiation and satisfaction among all the users that nobody so far (…) has objected to it.21

The governors were allowed to admit a certain number of outside flocks during the summer to cover their ordinary expenses (meetings, monitoring, inspecting boundaries, chaplain, hermit, notary, and repairs). During the 1530s, this number was increased from 300 to 500 head of sheep and goats, as a witness testified in 1541:

he remembers that they [the valleys] ordered them [the governors] to be given 200 or 300 head for their expenses, meals and travel, and it could be 10 or 12 years ago, he knows that they increased this number to 500 head, saying that the previous quantity was not enough.22

In that same year, another witness declared that the governors had complete autonomy to manage the income from these auctions, ‘expending those in utility of the five valleys, such as lawsuits, meetings, collations, messengers, alms and relief for neighbours, and other common needs for the management, government, preservation, honour and defence of the five valleys’.23 In 1587, the figure was increased to 800 head, and in 1700 it was raised again to 1000 head of sheep, until the suppression of this right in 1788. This increase reflects the Junta’s growing financial obligations.

As a consequence of the frequent lawsuits that the governors were obliged to finance in order to defend the community’s property rights,24 there were many years in which this ordinary income fell short. When expenditure exceeded 50 ducados, they had to find extraordinary income. In 1541, a witness expressed it in the following terms:

They meet one day in a general assembly at the church of Saint Cucuphas, the place intended for it, and there they all deliberate, and some of them say that all the residents are to be taxed by household or by head of livestock until the necessary sum is raised. And most of them say that because some neighbours have the resources to pay and others do not it would be better to sell the grass and water of Lóquiz for that year or for the duration of the lawsuit, or whatever necessary, enumerating and referring to X thousand head of sheep.25

This episode reveals potential conflicts of interest among the users in managing the communal project. Some of them defended the distribution of taxes by individual household and head of livestock, although this implies an individual payment in cash, higher collection costs, and a certain amount of arrears. Selling the right to graze to a reduced number of outside flocks during the summer was cheaper, but it also meant ensuring that the buyer of the grazing rights did not exceed the number of animals and days permitted. It seems that this second option was preferred, but some circumstances obliged choosing the first one. In the same year, an elder witness declared that
in the years in which he was a governor, he and the other governors seeking to sell the grass and water could not because at the time there was a fierce confrontation between the factions of Luxa and Agramont. As they could not sell these resources, they taxed every household in the five valleys for the necessary sum.26

A century later, another witness explained the technique used to book these taxes. The notary Bernabé Martínez declared in 1654 that in two of the three years in which he served as governor (1632 and 1649), they distributed the taxes and he was in charge of receiving the statements. He therefore knew it was customary that

the juries in each village have made a detailed count of the number of livestock that every neighbour wanted to declare, and this has been done by recording the number on some sticks, making notches in order to calculate the charge because they did not know how to read or write. Nevertheless, the count from the same sticks was then shortly transferred to a paper detailing what every village declared, saying: such village declares X mares and mules, X oxen and cows, X pigs, X goats, X sheep, plus X households. These simple reports were taken to the Chapel of St. James, where the governors hold their meetings.27

The same witness declared that it was ‘standard practice’ to pay half a real for every hearth and 20 cornados for each head of cattle, with the other livestock being valued according to the proportion of one head of cattle or horse = 2 foals or calves = 5 pigs = 10 sheep or goats.28 In 1656, there were 693 households in the 25 entitled villages, and the number of livestock units (cattle = 1) grazing the forest was 3156.29

The management model did not remain set in stone. In 1652, a feudal lord, Diego Remírez de Baquedano, owner of three palaces and collective tributes (pechas) in the valleys of Améscoa, refused to declare his livestock and pay tax as a user of the forest. After a long and complicated lawsuit, the court finally ruled in favour of the lord, stating that he was not obliged to declare his animals in the event of the levying of taxes by the forest board. In 1668, the governors signed an agreement with the noble whereby the former renounced levying the taxes among the users, and the latter forfeited the privilege obtained from the court through the payment of 550 ducados. In this way, the forest board achieved the annulment of the sentence, paying an important sum of money.30 During the following century, the Junta’s income would come from the auction of acorns, grass, and manure from the forest, not from taxes (Figure 3).

![Figure 3](image-url)
At the end of the eighteenth century, the sources of financial income changed again. The attempt to limit the number of livestock entering the forest was a failure because of the opposition of some users, and the new byelaws in 1788 returned to a grazing-based tax system. They prohibited the introduction of outside flocks, and obliged members to declare the number of animals grazing on the pasture in order to levy a tax on each animal. Bigger changes came about during the nineteenth century, when the growing demand for forest products (timber, firewood, charcoal, and hides), linked to the industrialisation process, had a major impact on accounting procedures. During the 1880s, the auction of timber and wood accounted for 65% of the total charge, and in 1925–1935 it rose to 84% (Figure 3). In this latter period, another 8% of the earnings corresponded to the taxes paid by household for their use of wood and timber (calculated as 10% of the value of the products according to Spanish law). From then on, the earnings from a more complex management system were used to increase investments in infrastructure (reservoirs, roads, and buildings). They also made use of the earnings to extend the financial resources of the entitled municipalities by distributing the surplus among them. This system helped to improve the population’s living standard through municipal expenditure on education, health, and the payment of taxes.

In short, for more than six centuries the forest’s governance was the responsibility of a corporation that took care of the sustainable harvesting of resources. Even considering the pressure from growing livestock density and the expansion of timber extraction from the mid-nineteenth century onwards, the forest did not suffer from deforestation. Today, wooded areas (*quercus rotundifolia*, *quercus humilis*, and *fagus sylvatica*) cover 75% of the land, whilst 20% comprises brushwood (*buxus sempervirens*, *quercus coccifera*, and *thymus vulgaris*), and the remainder is pasture (*festuca ovina*, *plantago lanceolada*) and rock (Remón-Aldave 2004).

**Accounting ledgers and stewardship in peasant communities**

The two examples considered are peasant organisations of different types and sizes that had been using accounting procedures from an early stage in their existence for the better stewardship of their resources. The system employed in both cases is charge-and-discharge accounting, whereby a delegated agent responsible for the administration of certain goods reports to his employer on the income and expenditure derived from the property over a specific period (mostly one year, sometimes three to six years). The charge, arising from income relating to the property, represented the agent’s potential indebtedness to the principal, whilst the discharge, expenses of the property and payments made to the employer, represented a reduction in the agent’s potential liability.

Account records in the Arbanta irrigation community were less elaborated at the beginning of the sixteenth century. After the preamble declaring place, date and participants (the two juries of the village, and the officials of the irrigation community – deputies and major-domos – that finished their term and were newly appointed), the incomes were declared, and then the expenses, without headings (see Figure 4). The order of the records in the book was not systematic. Lists of landowners, byelaws, declarations, and a purchase deed were merged among the accounts. The account book opened in 1853 presents more regular recording and the information is more detailed and precise.
The case of the Sierra de Lóquiz is used to illustrate the form of the account records (see Figure 5). The document begins by stating date and place (in this case, every 29 September, St. Michael’s Day, at the chapel of St. Cucuphas and St. James on the top of the mountain), and the names of those attending (10 past governors, 10 newly appointed governors, and then enters 10 auditors). Once the byelaws approved in 1587 had been read aloud, the 10 governors leaving office that day first stated as a charge against them everything that had been received to be administered or managed. The agent then discharged all the legitimate and proven payments made (as an asset for him and booked against his employer). The document does not systematically record assets and liabilities, but only revenues. The items were not ordered systematically, but instead on a yearly basis, whereby, items were arranged chronologically. There were no subsections or headings, but certain keywords
were written in the left-hand margin to facilitate understanding. It is not unusual to find the entries expressed in different currency units (ducados, tarjas, reales), although the same monetary unit (Navarrese reales) is written in Arabic numerals in the document’s right-hand margin, thereby facilitating the calculation. The difference between the total amounts charged and discharged provided the balance or debt (alcance), which could be favourable or not to the agent. After balancing the accounts, the agent took an oath declaring what he had previously disclosed to be true. It was then the turn for the principal (the assembly of those with an interest in the commons or the legitimate auditors) to ask for any clarifications or additional proof and explanations before the accounts were approved. Once the accounts had been approved, with indication of the debt against or in favour of the agent, a legal bond was declared to pay the debt within a specific term. It also specified the punishment foreseen by the Royal laws for any breach of this obligation.

Figure 5. First page of accounting ledger no. 1 of the Junta de la Sierra de Lóquiz (1614). Source: AJASL, book 1.
The material author of the accounting document was almost always a notary, who received the information from the agent and, accompanied by two or three witnesses, testified to the veracity of the accounting records. He also affixed his signature at the bottom of the document, as did the witnesses and the participants (if they were literate). This process ensured that the principal, which in these cases seems to have been a peasant community, had precise knowledge of the financial flows generated by their property, thereby allowing for its supervision. The document also established a legal bond guaranteeing any payments pending. In addition to this double dimension of an accountable and legal nature, there was a third one of a moral nature (Villaluengana 2013), by which the manager or agent was able to demonstrate the ethical discharge of his duties.

The triple responsibility (accountable, legal, and moral) assumed by the steward was satisfied before the legal representatives of the community assembled at a customary date every year (Our Lady’s Day for Arbanta and Michaelmas for the Sierra). At the meeting, the charge-and-discharge items were read out to the attendants, who could accept or reject them in part or as a whole. The oral exposition of the accounting records before the assembly briefed those members that did not know how to read. The share of the population unable to directly interpret the accounting records would have been very high. In 1860, when the official Spanish Census provides precise statistical information, the number of males over the age of five who could read in the five valleys around the Sierra de Lóquiz ranged from 58% to 86% (see Table 1), whilst the number of females in the same situation was much lower (between 29% and 69%). Illiteracy was also high in the municipality with a vested interest in the water in the Arbanta canal. During earlier centuries, the illiteracy rate would have necessarily been much higher. Between 1626 and 1680, the average number of officials and witnesses who signed the annual accounts of the Sierra de Lóquiz was 8.5 out of 33 potential signatories, or 25.6%. All the others attending the ceremony (24.5 individuals) were therefore most certainly illiterate.41 In the case of the irrigation community, only 35.4% of the men involved in the ceremonies between 1606 and 1616 signed the book.42 Does this mean that users were unable to understand the accounts? Not necessarily. The charge-and-discharge items were read aloud, and there was time to comment before the approval and signing of the account certificate.

At the same time, accounting was also a social ceremony through which the community reinforced its ties. The ritual is described in a lawsuit held in 1637 over political issues of a symbolic nature. The proceedings were between the mayor of one of the valleys and the 10 governors of the forest, and involved preferences during the ritual acts at Michaelmas. In his indictment, the attorney explained how

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<th>Five valleys of the Sierra de Lóquiz</th>
<th>Arboranta</th>
<th>Bargota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Améscoa Alta</td>
<td>786</td>
<td>689</td>
</tr>
<tr>
<td>Améscoa Baja</td>
<td>1228</td>
<td></td>
</tr>
<tr>
<td>Allín</td>
<td>2066</td>
<td></td>
</tr>
<tr>
<td>Ega</td>
<td>1797</td>
<td></td>
</tr>
<tr>
<td>Lana</td>
<td>692</td>
<td></td>
</tr>
<tr>
<td>Bargota</td>
<td>689</td>
<td></td>
</tr>
</tbody>
</table>

Source: 1860 Spanish Population Census.
this day, both in the popular mass that was said in the chapel, and in the offertory, and then in
the refreshments, and in the accounting, and in the general lunch that was celebrated, in all
these five acts, the mayor Juan Bernal had pride of place and occupied the first chair, coming
before the ten former governors, the ten new ones, the ten auditors, the ten guards, and many
other persons from the valleys (...) But in the afternoon, when they were going to draft and
sign the document, the mayor having entered the chapel in the company of many other
persons realised that the defendant governor and his companions preceded him and occu-
plied the first chairs.  

So the ritual consisted of six steps involving at least 40 men in official positions, besides
other people that met in the chapel at the top of the mountain. Following mass and
the offertory, it was time for some light refreshment, after which the accounts were pre-
sented and received. Once all the participants had enjoyed the general banquet, they
returned to the chapel to draw up and sign the certificate. The fact that the account certi-
ficate was drafted and signed inside the church is a reminder of the moral dimension of
the charge-and-discharge accounting system.

The incident reveals another interesting detail. Although the mayor of one of the valleys
sought to reaffirm his jurisdictional superiority, the governors defended the egalitarian
nature of the governance system. Age was the only hierarchy recognised in this
context. The outgoing governors that day ‘gave order to the accused as the eldest
among them to occupy the first chair (...) in order to observe the custom that the gov-
ernors have had and to avoid the loss of rights in the future’. So when the mayor, whose
presence in this act was as an appointed auditor, quarrelled over occupying the chair, the
eldest governor answered ‘that there they were as much or even more than the mayor’,
and ‘therefore he left without signing the account, saying that he left because they did
not provide him with the appropriate place’. Moreover, in symbolic terms, this parity –
even if sometimes contested – seems to have been a guarantee of reciprocity. Mutual rec-
ognition lay at the heart of the confidence attached to stewardship.

In short, these two cases demonstrate that peasant communities adopted and adapted
accounting methods for their own ends at least from the end of the sixteenth century. Cal-
culation techniques were not only the dominion of nobility and church. Accounting in
these two case studies not only assured financial control but it also regularly renewed
community bonds through rituals that expressed equality.

**Was the driving force for accounting exogenous or endogenous?**

The charge-and-discharge accounting system appears to have been a good instrument for
solving the problems associated with stewardship. The flow of information allowed the
assemblies of the entitled villages to monitor the governing board’s performance, and
at the same time, the very act of presenting the accounts reinforced the sense of commu-
nity. However, one might ask how and when this technology of calculation reached
peasant communities. Was it driven from the top, as an obligation imposed by the
Crown’s officers? Or did it arise from the bottom to serve the needs of the controlling
users? Let us examine some facts. After the military conquest of Navarre and its inclusion
in the Crown of Castile in 1512–1521, some Castilian institutions were extended to
Navarre. Such was the case of the ‘juicio de residencia’, a judicial inquiry of Roman inspi-
ration applied to public officials that was presaged in Alfonso X’s *Partidas* in the mid-
In the thirteenth century (Collantes de Terán de la Hera 1998; Quintana Orive 2012), this institution was used by the Spanish Crown to strengthen its control (García Marín 2010). In Navarre, the feudal parliament (Cortes del Reino) resisted the Royal delegates’ use of the ‘juicio de residencia’ to interfere in the governance of the towns. Nevertheless, 124 ‘juicios de residencia’ were held in Navarre between 1530 and 1599, and the office of ‘juez de residencia’ did not legally disappear until 1799 (Usunáriz Garayoa 1998, 498).

In 1547, the parliament of Navarre ordered each one of the villages to appoint an official (thesorero o bolsero) to collect the rents.46 Those officials should give account of the income and the expenditure of the rents of the villages within the customary term every year, and the balance should be paid by the officer to his successor, and the balance should be charged without appeal even though the officer claims he has not collected it.47

The parliamentary act, known as ‘Ordenanzas Viejas de las Cortes’ (Old Ordinances), also ordered two books to be kept, one for the council archive and the other for the treasurer, to keep a record of the ordinary and extra rents and the balances paid to the officer every year. They were to enter the same information in both books, and the outgoing and incoming mayor and council were to sign at the end of each annual account. These instructions for local governors were designed and mandated for large villages and towns, with complex management and interests, whilst small villages were specifically excluded from these obligations.48 The passing of this act at the instigation of three parliamentary bodies (Nobility, Church, and Towns), was part of a political struggle between the central government (the Crown, represented by the Viceroy and the Royal Council of Navarre) and the province (the Kingdom of Navarre, represented in the Cortes). In 1604, the Crown accepted the offer to replace the ‘juicio de residencia’ with the commitment made by local councils to send a copy of their annual accounts to the Royal Council (Consejo Real).49

The origin of the municipal accounting ledgers, therefore, not only seems to have stemmed from an initiative from outside powers, but also responded to precise instructions for their drafting. Royal delegates also audited the municipalities’ accounts and dictated rules on rightful expenses and procedures. We might therefore wonder who the prime movers of the charge-and-discharge accounting system at the local government level were. Did the Royal Treasury effectively play a significant role in the cases of the irrigation community and the forest?

There are certain testimonies affirming that before the Cortes had promulgated their ‘Old Ordinances’ in 1547, the governors of the Sierra de Lóquiz had already made use of accounting techniques. In 1541, a witness declared that during the last 30 years, in which he served as a governor six or seven times,

if something was left over from the selling of the grass, on St. Michael’s Day the surplus was delivered to the other governors, because they are obliged to give and deliver it, telling the rest how and in what way it had been spent, and if there was no surplus but debt, they should explain why there was more expenditure than income, and pay the expense for this year.50

Another witness in the same proceedings mentioned the auditors’ task for the first time. He explained that he

always knew that the governors used to sell the grass and water whenever they wanted, being a case of necessity, by themselves without the deputies’ permission, spending the money on
lawsuits, meetings, travel and other expenses related to the five valleys’ common good and reputation. And each one of the governors obliged the others to account for the expenses and surplus involved in the sale of the grazing, and no other person has taken part in the sale or in the accounting, except that he knows that two years ago the valleys appointed certain persons to receive and control the governors’ accounts.51

References to entries in accounting ledgers appeared in the 1580s. A witness explained that the governors used to settle with payment once their year had finished regarding the expenditure and income involving the persons appointed to manage the land by the neighbours of the five valleys … and they have a ledger in each valley where they wrote down the receipts and expenses of the forest and other matters.52

This process is corroborated in another trial in 1585 when the Court ordered a notary to extract some notes from ‘two account notebooks of expenditure and income of the five valleys’ assets’ that ‘had been admitted and approved by the deputies and auditors appointed in the five valleys’.53

On 6 October 1587, the deputies of the valleys approved a document of byelaws that regularised the forest’s management, as ‘the forest was very indebted’.54 The rules were designed mainly to avoid the officials’ collusions. The first chapter prohibited the co-optation of the governors, ‘because the outgoing governors should not appoint their successors, but instead they [the valleys] should freely choose them’.55 The third one explains that the governors appointed auditors, two for each valley, as they are the governors, and this has been done wrongly because the governor who had to submit the accounts appointed the auditor or deputy of his choice who was a relative or friend to approve the accounts, and prohibited that practice.56

There are several instances of auditors’ due diligence. On some occasions, they corrected the accounts submitted by the governors, detecting errors or rejecting payments that were not sufficiently proven. This was the case in September 1650 (100 reales), 1651 (90 rs), 1669 (16 rs), 1692 (207 rs), 1730 (102 rs), 1733 (22 rs), 1735 (50 rs), 1737 (50 rs), 1765 (110 rs), and 1798 (32 rs). They also reprimanded the governors for permitting larger flocks or longer grazing periods than allowed, as was the case in 1645, 1710, 1724, 1727, and 1756. They also fined some officials individually because they had overstepped their authority in some way, as was the case in 1693, 1695, 1717, 1747, 1775, and 1779.57 A special case was the rejection in 1714 of an expense of 100 ducados in a donation made by the governors to the Basilica of St. Gregory, designed to obtain the Saint’s favour to protect the acorn against an infestation of mice. The donation was financed through a loan, and this transaction led to a lawsuit against the governors that year, accusing them of embezzlement.58 Other interventions sought to avoid nepotism, as when in 1698 the auditors revoked the appointment of a governor’s son for the position of forest guard.59

The institutionalised mechanisms and regulations designed for the management of the Sierra de Lóquiz ensured the governors’ accountability to users. It was not until 1751 that Royal officials had the opportunity to inspect the forest’s accounting ledgers. After a complaint from the public prosecutor, a Royal auditor examined 10 years of accounts from
1741–1742 to 1750–1751, and found that ‘comparing the ten accounts and the balances that the Sierra’s governors have alternatively given to the community, and vice versa, the books balance’. The same Royal auditor acknowledged the community’s autonomy:

that the care and governance of the forest have been delegated, from time immemorial to the present day, to deputies and persons nominated as dieces or governors that are annually appointed by the five valleys, two for each one of them, on the Day of St. Michael in September (…) and they give account every year on St. Michael’s Day to the auditors that are appointed by the same valleys to receive it.

A common feature of the valleys and villages with rights over the Sierra de Lóquiz is that inequality was not very great, as can be seen in Table 2. The Gini indexes calculated from the wealth registers compiled in 1607 and 1612 show lower levels of inequality in the northern valleys, such as Améscoa and Lana, where cultivation was constrained by climatic and soil conditions, than in the southern valleys of Allín and Ega. In these latter valleys and in the village of Bargota cultivation was the main source of income. The distribution of livestock was particularly unequal, with some large stockbreeders, but with many families without any animals at all. The small size of the communities and equality in the distribution of wealth seem to have been appropriate conditions for ensuring co-operation and building robust institutions (Agrawal 2002; Curtis 2016). They could also favour accountability in a horizontal scheme, as power relations inside the community were more balanced.

In short, the accounting ledgers were kept for internal purposes to facilitate the supervision of officials by the users. They also allowed redeeming collective indebtedness. In the case of the irrigation community of Arbanta, the accounting ledger was associated with the construction of the irrigation infrastructure. In the case of the Junta de la Sierra de Lóquiz, the ledger reflects the high expenses derived from long lawsuits. In the two cases examined, bookkeeping was associated with the management of debt, and the accounting officers’ main responsibility was expressly to reduce the amount owed. The fact that many of the entitled users were illiterate peasants invites us to consider the mediating role played by both rural notables and notaries. The former were usually members of government bodies, who answered to the local assembly of entitled users. The notaries, in turn, often played the role of secretary in the village, as well as witnessing private deeds and contracts. Literate and familiar with simple arithmetic in a world of illiterates, they were the direct producers of accounting records. Both rural notables and notaries, as

### Table 2. Distribution of the cadastral wealth in the valleys and villages studied, 1607–1612.

<table>
<thead>
<tr>
<th>Villages</th>
<th>Five valleys of the Sierra de Lóquiz</th>
<th>Arbanta</th>
<th>Bargota</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Améscoa Alta</td>
<td>Améscoa Baja</td>
<td>Allín</td>
</tr>
<tr>
<td>Taxpayers</td>
<td>No.</td>
<td>133</td>
<td>192</td>
</tr>
<tr>
<td>Arable</td>
<td>Hectares</td>
<td>201</td>
<td>208</td>
</tr>
<tr>
<td>Livestock</td>
<td>LSU</td>
<td>1.214</td>
<td>1.867</td>
</tr>
<tr>
<td>Gini index</td>
<td>Land</td>
<td>0.480</td>
<td>0.608</td>
</tr>
<tr>
<td></td>
<td>Livestock</td>
<td>0.534</td>
<td>0.534</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>0.470</td>
<td>0.539</td>
</tr>
</tbody>
</table>

Sources: ARGN, Comptos, boxes 32027, 32028, 32036, 32041, and 32053.
Notes: The valley of Ega includes three villages with usufruct rights, but no right to appoint governors. Livestock units (LSU) equal 1 head of bovine = 0.8 equidae = 0.1 sheep and goats = 0.5 pigs. See: http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Livestock_unit_(LSU).
well as clergymen, could play a role in the transfer of calculation techniques to communal organisations in order to solve the management problems derived from indebtedness. Once established, the accounting scheme was resistant to change because it proved to be a good instrument for stewardship. Given that the irrigation community of Arbanta and the Junta de la Sierra de Lóquiz were not directly obliged to submit their annual accounts to the Royal Council, we could conclude by saying that the local community, rather than the outside power, was the main stakeholder in their introduction and use.

Conclusions

The cases examined in this study demonstrate the important role of bookkeeping as an instrument of stewardship and control in peasant communities. They also confirm the embeddedness of economic interactions in wider social and cultural relations. From the sixteenth century at least, these rural communities made effective use of a charge-and-discharge accounting system. Although this system is an unsophisticated bookkeeping method, limited to the distinction between income and expenditure, it more than met the needs of local communities when properly presented. On the one hand, it served for the direct supervision of the common finances by the assembly of entitled users. On the other, it established a ritualised routine by which the community was renewed every year. Both aspects, the regular flows of information that these practices provided and the ceremonies which they involved, contributed to the sustainability of the common pool resources and the common property regime itself for more than three centuries.

This routine did not happen in isolation, but in interaction with external forces. During the sixteenth century, the outside political powers (Crown and feudal parliament) sought to supervise municipal rents, forcing the appointment of a treasurer and accountability to Royal officials. Nevertheless, the use and understanding of accounting forms and systems by the peasant corporations predate the Royal initiatives of the sixteenth century. Peasants had to pay rents, tithes, and taxes, sell their output, and barter or pay for items that they did not produce themselves. All this could bring them into contact with accounting systems, in the form of wooden tallies and paper manuscripts. This specialised knowledge seems to have pervaded rural society during the Late-Middle Ages and the Renaissance. Crown officials, churches, and local landlords, who were preparing accounts at least as far back as the thirteenth century (Hamilton 1936), could have provided a model to imitate, and public notaries, who were used to drawing up charters and contracts, were also in a position to advise on accounting matters. Whenever certain circumstances, such as high indebtedness or large investments so required, these rural communities decided to exploit calculation and accounting technologies for themselves.

The cases analysed have certain peculiarities that could have facilitated the adoption and adaptation of bookkeeping techniques for accountability in a horizontal alignment. A low level of inequality and the small size of the community could favour participation and control. There were indeed social differences, both in terms of wealth and status, but all the users were political equals within the common organisation. Accounting emerged in an egalitarian culture and allowed for its reproduction. Face-to-face interactions made it easier to request information and impose obligations within a sense of intergenerational reciprocity. Nevertheless, in our estimation, the longevity of the cases analysed depended largely on these accounting practices.
Notes

1. The concept of ‘Commons’ is used in this study to refer to those common pool resources owned and managed under a common property regime by local communities organised as corporations.

2. de Moor (2015, 148–149) and Ongaro (2016) for the accounting of collective properties, and Bowen and Brown (2016) for the management of forests. For the Spanish ‘pósitos’ or public granaries, see Prado-Lorenzo, García-Salinero, and González-Bravo (2017). There are also studies on local government and municipal accounting (Furió and García 1985; Sargiacomo 2006; Sargiacomo and Gomes 2011; Bulgarelli 2012), and on religious corporations (Liyanarachchi 2009; Saguer Hom, Jover Avellà, and Benito Mundet 2013). Hoffmann (2014, 241–278) provides a general overview.


4. Archivo Real y General de Navarra (ARGN), Tribunales Reales (TTRR), no. 89577.

5. Archivo Municipal de Bargota (AMB), books 8 (1852–1870) and 11 (1870–1922).

6. The village offered to pay the Crown for its independence from the town in 1665 (2000 ducados), 1704 (4000 ducados) and 1764 (4900 ducados), but the city of Viana succeeded in avoiding it. In 1818, the village paid 33,750 reales de vellón to secede. (AMB, book 3).

7. ARGN, TTRR, no. 57012. The lawsuit includes copies of documents that show that the conflicts provoked by the expansion of vineyards in this area were already important in 1564.

8. ARGN, TTRR, no. 57012. The ruling of 20/5/1595 ordered the identification of the land ploughed and planted from 1580 onwards, with a 30-day deadline.

9. To finance the works, the village set aside the fines imposed upon those who grazed livestock and felled trees in an oak forest called El Noval. The project seems to have already been under way in 1580, when the town sued the village for having confiscated some animals in this forest. ARGN, TTRR, no. 282575.


11. ‘... son un territorio, y una jurisdicción, y un concejo sin diferencia ni distinción ninguna, y están sujetos a la jurisdicción del dicho alcalde de Viana (...) que no tienen otra jurisdicción civil ni criminal ni pueden tampoco hacer estatutos, cotos ni paramentos, ni llevar para sí penas, ni hacer condenación de ellas. (...) tienen hecho asiento de las dichas penas en unos cuadernos y libros que tienen algunos de los acusados’. ARGN, TTRR, no. 89577.

12. The number of vines rose from 366,300 to 392,300 in 10 years. ARGN, TTRR, no. 89577.

13. ARGN, TTRR, no. 35341.

14. ‘... los instrumentos pertenecientes a dicho regadío que dan la forma del modo con que se deben gobernar en él (...) se ha sustraído el Libro original de dicho apeo, sobre que se han hecho varias diligencias y se han pasado excomuniones para que en su fuerza se hiciese manifestación, y sin embargo de ellas no han podido ser habido’. ARGN, TTRR, no. 53178, 1/3/1726.

15. ‘... la providencia de que no se puedan dar las cuentas de dicho regadío, hacer nombramientos de cargos ni vender balsadas algunas sin asistencia y consentimiento del diputado y demás interesados, mis partes’. ARGN, TTRR, no. 231249, 19/10/1750. The town of Viana appeared to fail in its claims.

16. The change perhaps took place in 1852, when the community approved new byelaws and opened the ledger. AMB, book 8. These byelaws have not been found in the archive.

17. ‘... and the auditors agreed to establish an archive in this chapel to hold the documents belonging to that district and university and they commissioned the district’s newly appointed governors to organise the archive and store the documents in it’. Archive of the Administrative Board of the Sierra de Lóquiz, Zudaire (AJASL), book 1, fol. 236v.

missing are 1616–1617, 1619–1620, 1623–1624, 1663–1664, 1664–1665, 1680–1681 to 1685–1686, 1690–1691, 1724–1725, 1725–1726, and 1802–1803. The first pages of book no. 1 are missing, and from 1614 to 1626 the pages are loose and misplaced. According to the accounts’ preamble, the byelaws of 6/10/1587 (“Escritura de reformación tocante al buen gobierno de la Sierra”) occupied the first pages of the book, being read aloud before the presentation of the accounts. It is possible that the original book began in 1588.

19. *Gaceta de Madrid*, no. 215, 3/8/1915, p. 495, Catálogo de montes de utilidad pública, Provincia de Navarra, districts no. 246 (Sierra de Santiago de Lóquiz) and 247 (Facería de la Mancomunidad de Lóquiz y Contrast.)

20. The surface area of the forest pertaining to the municipalities has been calculated from the *Catálogo de Montes de Utilidad Pública* (*Gaceta de Madrid*, 31/7/1915, 3/8/1915, 4/8/1915). The declaration as a Natura 2000 Site of Community Importance (SCI no. ES2200022) considers 13,145.69 hectares as a whole. Available at: [http://www.magrama.gob.es/es/biodiversidad/temas/espacios-protectidos/ES2200022_tcm7-153648.pdf](http://www.magrama.gob.es/es/biodiversidad/temas/espacios-protectidos/ES2200022_tcm7-153648.pdf)

21. Se an dado y dan cada año por los dichos dieces las quentas por cargo y descargo a las dos personas diputadas por cada valle pa este efecto solamente cada año, y las unas y otras dan y reciven las dichas cuentas con juramento que para ello prestan, y esto a sido y es con tal justificación y beneplácito de todos los gozantes que no a havido hasta ahora (…) ninguno que aya dudado de ello. ARGN, TTRR, no. 10304. Felipe de Elola, attorney, 13/10/1652.

22. … se le acuerda que mandaron dar y dieron dozientas o trezientas cabezas para sus comidas, ydas y benidas, y puede aber diez o doze años sabe y vio que les asentaron y dieron quinientas cabeças diciendo que no les bastava lo que de ante tenían. ARGN, TTRR, no. 64156. Witness: Juan de Elizalde, 72 years old, resident in Ollobarren, 6/9/1541.

23. … gastando aquellos en cosas tocantes a la utilidad de las dichas cinco comarcas, en pleitos, congregaciones, ayuntamientos, colaciones, mensajeros, limosnas y socorros de vecinos, y en otras necesidad comunes que se ofrecían y se ofrecen para la administración, gobierno y conservación, honra y defensión de las dichas cinco comarcas. ARGN, TTRR, no. 64156. Witness: Gil de Hoilo, 85 years old, dweller in Ollobarren, 29/8/1541.

24. There are 90 lawsuits in the records of the Royal Courts from 1510 to 1835 related to Sierra de Lóquiz. Most of them were internal, and reflect conflicts between the Junta and one or more entitled villages.

25. Se juntan un dia en junta general en Sant Cucufat, lugar diputado para ello, y hay entre todos ponen en plática la cosa, y unos dizien que se echasen tasa a todos los vezinos por vezinos o por cada cabeza de ganado que tenían, para la suma y costa que habíen menester, y los mas dezian y dizien que sería mejor, por que halgunos tenían qué pagar y otros no, que los dichos diezes bendiesen les yerbas y aguas de Lóquiz para aquel año, o mientras que durase el pleito, y para lo que será menester, nombrando y señalando para tantas mil cabezas de ganado menudo. ARGN, TTRR, no. 64156. Witness: Ferrando de Metauten, a 70-year-old resident in Metauten, 6/9/1541.

26. … en los años que fue diez, a una con los otros diezes, queriendo bender las dhas yerbas y aguas, no los pudieron porque al tiempo habíá gerra muy gerreada entre Luza y Agramont, y por no poder bender solían echar por tasa a quada casa de las cinco comarcas todo lo que se abía menester. ARGN, TTRR, no. 64156. Witness: Juan de Guembe, a 90-year-old resident in Ganuza, 31/8/1541.

The Navarrese civil war, conducted by the noble lineages of Luxa-Beaumont and Agramont, began in 1450 and ended with the conquest of the Kingdom of Navarre by Castile in 1512 (Desdevises du Dezert 1889, 214–255; Ramírez-Vaquero 1990, 327–336).
27. … que los jurados de cada lugar an tomado por menor el número de ganado que cada vecino quería manifestar, y esto lo han hecho asentándolo en unos palos, yciendo unas muestras, para cobrarlo ellos por no saber ler ni escribir; pero de los mismos palos se an sacado a un papel por mayor lo que cada lugar manifestaba, deciendo así: tal lugar manifiesta: tantos ganados de yeguas y mulares: mas tanto de bueyes y bacas: mas tanto tanto de lechones; mas tanto de cabras; y tanto de obejas; más tantos fuegos; y estos memoriales, escritos así simplemente, se an llebado a la ermita del Sr. Santiago, donde los dichos dieces tienen sus juntas. ARGN, TTRR, no. 103304. Witness: Bernabé Martínez, a 55-year-old notary resident in Galbarra, 7/3/1654.

For the use of wooden tallies for accounting, see Baxter (1989).

28. el estilo es que un ganado mayor paga veinte cornados, y de diez cabezas de ganado menudo se ace un mayor y se paga lo mismo, de cinco lechones se ace otro ganado mayor y se paga lo mismo, de dos muletos lechales se ace otro ganado mayor y de dos terneros de leche lo mismo; y de cada fuego se paga a medio real; y esto corre por costumbre asentada. ARGN, TTRR, no. 103304. Witness: Bernabé Martínez.

29. AJASL, book 1, fol. 190.
30. ARGN, TTRR, no. 105230.
31. The lawsuit record cannot be found in the archive, although it appears in the inventory (ARGN, TTRR, no 7124). The Marquis of Besolla and the village of Metauten opposed the attempt to cut back made by the forest board.
32. AJASL, box 17 (4).
33. Data have been calculated from the account books (AJASL, books 8, 13, and 18).
34. During the business years 1956/1957, 1958/1959, and 1961/1962, the forest board distributed more than one million pesetas each year among the municipalities, mainly raised from timber auctions (AJASL, books 18 and 21).
35. The charge-and-discharge accounting system is described in printed books during the sixteenth century in the context of the assumption of legal responsibility, as is the case of Tratado de Cuentas written by Diego del Castillo (1522) and of Libro de Caxa y su Manual, whose author is Bartolomé Salvador de Solorzano (1590) (Vlaemminck 1961; Villaluenga 2013). For the case of France, Lemarchand (1994).
36. Agents take different names in other cases. One of them is diputado, the Spanish word for representative. The word depositario adds a financial meaning, as the person who holds and manages money for somebody else. Tesorero (treasurer) and bolsero (bursar) have the same meaning. In other cases, the word mayordomo (steward) is employed to add a meaning of service.
37. The first account, presented in 1606 (5 February), only offer the charge-and-discharge as a bulk figure. The document make use of the vocabulary of loans to present the charge (’se les hiço de cargo quatroçientos y un ducados de principal’). This huge amount (401 ducados) suggests that the account book was opened to manage the building of the dam. During the following years, figures were much lower and the charge-and-discharge were detailed, but there was not a fixed day to present the accounts (between October and January). ARGN, TTRR, no. 89577: 1424–1470.
38. The Castilian monetary system was partially in use in Navarre, whose parliament maintained the ability to mint money until the mid-nineteenth century. Navarrese ‘maravedís’, ‘groces’ and ‘cornados’ (1 gro = 6 maravedís; 1 maravedí = 2 cornados) were regularly minted in the province. These were copper coins that were well suited to the retail trade. However, these units were not used for accounting. Instead, artificial currency units such as Navarrese ‘reales sencillos’, ‘reales fuertes’, ‘tarjas’ and ‘ducados’ were used. The Navarrese ‘real sencillo’ was an artificial silver currency unit equivalent to 36 Navarrese ‘maravedís’. It was the equivalent to just under half a Castilian ‘peseta’. To facilitate equivalence, at the end of the eighteenth century the Navarrese parliament introduced the ‘real fuerte’ (1 ‘real fuerte’ = 38 Navarrese ‘maravedís’ = 0.5 Castilian ‘peseta’ = 2 Castilian ‘reales de vellón’). In the credit
markets, and in general for larger operations, the currency unit used was the ‘ducado’, equivalent to 11 Navarrese ‘reales sencillos’ and also to 50 ‘tarjas’ (Yanguas y Miranda 2000/1840, 566–612).

39. The use of Arabic numerals was already common by the end of sixteenth century (Durham 1992). The documents underpinning this study are no exception.

40. The specific term to pay the debt was not always the same. The first account conserved (1614) fixed the term at 20 October. During the 1640s and 1650s, St Andrew’s Day (30 November) was the deadline to pay. At the mid-eighteenth century, the term of 15 days was usual. Yet we also find indefinite terms. In 1699, the debt of the Sierra with the ‘depositario’ (treasurer) that had managed the finances during the previous six years was to be paid ‘from the first incomes’ (‘de los efectos más prontos’). In 1700, it is said that the debt should be paid ‘whenever asked’ (‘cuando los pidieren’) and again in 1722 ‘at their will without predetermined date’ (‘a su voluntad sin plazo prefijado’). The expenses of the payment were charged to the debtor in every case. AJASL, books 1 and 4.

41. AJASL, book 1.

42. ARGN, TTRR, no. 89577.

43. ‘... el dicho día, así en la misa popular que se dijo y celebró en la dicha hermita, como en el ofertorio y después en el almuerzo y cuentas, y en la comida general que se hizo, en todos ellos cinco actos preferió y tubo el primer asiento el dicho Juan Bernal, alcalde, ofreciendo él primero, y ocupando el preeminente asiento, precediendo a los diez viejos, diez nuevos, diez contadores, diez goardas, y a otras muchas personas de las dichas valles que se hallaron presentes (…) asa que a la tarde al tiempo de dificir y firmar la escritura, entrando para este efecto a la iglesia el dicho alcalde en compañía de otras muchas personas, ya para entonces se han anticipado el dicho acusado y sus compañeros y abian ocupado los asientos. ARGN, TTRR, no. 287099.

44. ‘... que al acusado como anciano dieron orden para que se sentasen como se asentó en el primer asiento (…) por goardar la costumbre que asta aqui an tenido los dieces, porque para aldelante no perdisen drecho alguno’ (…). ARGN, TTRR, no. 287099.

45. ‘(…) ‘el acusado le dijo que allí eran tanto o más que el dicho alcalde los dieces’ (…) ‘por lo qual se salió sin firmar la cuenta, deziendo salia porque no le davan el asiento que le tocaba’. ARGN, TTRR, no. 287099.


47. ‘... hayan de dar, y den la cuenta de la recepta & expensa de la renta de los pueblos que huviere administrado dentro del tiempo que se ha usado y acostumbrado en cada un año en los dichos lugares, y lo que se le alcanzare pague luego el thesorero o bolsero al successor y se execute el alcance sin embargo de apelación, aunque diga el bolsero que no lo ha cobrado.


48. ‘... y que los pueblos y lugares pequeños, donde no huviere alcalde ni escribano ni propios de que se tome cuenta, no se comprendan debaxo de estas ordenanzas y capítulos, por evitar la vexacion que podrían recibir sin provecho alguno’. Novísima Recopilación de las Leyes del Reino de Navarra, hechas en sus Cortes Generales desde el años de 1512 hasta el de 1716 inclusive. Pamplona, Aranzadi, 1964 (1st edition 1735), Ley XX, vol. 1, pp. 449–455.

49. This commitment has provided historians with a large, rich, and accessible archival collection (Monteano Sorbet 2014).

50. y si algo se sobraba de la venta de las dichas yerbas, la tal sobra en el día de San Miguel y a los otros diez, que se fazen dar y entregarles, deziendo lo de más cómo y en qué manera se abian gastado; y si no abia sobra sino deuda, dezirles como abia más expensa
que receta, y pagasen la tal espensa en su año. ARGN, TTRR, no. 64156. Witness: Pedro López de Baquedano, 54 years old, resident in Eulate, 29/8/1541.

51. siempre sabe que los ... diez y vendieron y han vendido las ... yerbas y aguas cada ... dinero de la ... benta gastar en pleitos, congregaciones, yudas y benidades, y cosas ... y como los ... diezes se hazen en cada un año los unos ha los otros dar cuenta de lo que se había ... más de la dicha venta y de lo que quedaba de más de la benta sin que ... otro ninguno entendiese en la benta ni en las cuentas, salvo que sabe que a cabo de ... dos años porque la tréria pidió cuenta diputaron ciertas personas para que ante ... ellos los diezes del un año disen cuenta a los dhos diputados. ARGN, TTRR, no. 64156. Witness: Don Diego de Albizu, 57 years old, priest in Eulate, 29/8/1541.

52. suelen dar cuenta con pago, acabado su año de los dichos recibos y gastos que en conservación de la dicha sierra an echo a las personas que para ello an nombrado los vecinos de las dichas cinco comarcas ... y an tenido y tienen en cada valle de las dichas cinco comarcas su libro donde se asientan los recibos y gastos de la dicha sierra y otras cosas. ARGN, TTRR, no. 236640. Witness: Martín de Albistur, 60 years old, dweller in Ollobarren, 18/5/1585.

53. ‘Dos quadernos de quentas de gasto y probecho de los propios de las cinco comarcas de la Sierra de Lóquiz (…) fueron admitidos y aprobados por los diputados y contadores elegidos y nombrados en las dichas cinco comarcas’. ARGN, TTRR, no. 11759, fol. 307. Notary Gonzalo de Albizu, 5/10/1585. The accounting ledgers were 1582/83 and 1583/84.

54. ‘… está la sierra muy endeudada …’ ARGN, TTRR, no. 33837, fol. 142-147. The organisation’s indebtedness was due to the expenses incurred when defending property rights before the Royal Court against some of the entitled villages or against other villages and lords. The governors borrowed money in long-term mortgage loans (‘censales’) from pious foundations and wealthy families.

55. ‘… porque no conviene que los diezes viejos nombre ni señalen quienes han de ser sino que libremente lo hagan’. Ibid.

56. ‘… nombraban contadores, cada valle dos, como son los dieces, y ha habido mala horden porque el diez que ha de dar la quenta nombraba el contador o diputado que le parecía deudo o amigo para que le pasase la quenta’. Ibid.

57. AJASL, books 1, 4, and 5, account of the mentioned years.


59. The governors elected by the Valley of Ega have appointed as forest guard the son of Bernardo Ochoa, resident in Ancín, having been governor of the forest and with this son living in his house and in his company, when there are freemen in Ancín that have not served as governors. And the governors are in breach of the byelaws. AJASL, book 4, account of 1697-98.

60. ‘Cotexadas las diez cuentas y los alcances que alternativamente se han hecho por los dieces a la Sierra, y por esta a los dieces, quedan compensados unos con otros con el que resultó en quenta del año de 1751’. ARGN, TTRR, no. 33837. Auditor: Juan Antonio de Gayarre, 6-3-1752.

61. Que el cuidado y gobierno de la sierra, de tiempo inmemorial acá, a estado diferida a diputados y personas que llaman dieces o gobernadores que anualmente se nombran por los cinco valles, a dos cada uno, el día de San Miguel de Septiembre (…) y dan quenta todos los años el día de San Miguel a los contadores que para reci-virlas acostumbren nombrar los mismos valles. ARGN, TTRR, no. 33837.

62. Similar accounting techniques were also present in religious communities as well as in manors, but in these cases accounting responded to a vertical scheme. The main difference in these peasant accounting practices and those of religious, administrative and nobility institutions is that the former are part of an egalitarian culture, whilst the others reinforce hierarchies.
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