



Working papers series

WP BSAD 09.01

Cost calculations, religion and commerce: the Book of Good Government of the Souk of Malaga in the 13th Century

Jesús D. López-Manjón

Fernando Gutiérrez Hidalgo

Francisco Carrasco Fenech

[\(jdlopman@upo.es\)](mailto:jdlopman@upo.es)

Universidad Pablo de Olavide, de Sevilla

Departamento de Dirección de Empresas

The authors are grateful for the financial support of the Junta de Andalucía (Spain) and Spanish Ministry of Education grants SEJ 00919, SEJ 01913, and SEJ 4129. They also acknowledge the various comments and suggestions received on earlier drafts of this work.



UNIVERSIDAD
**PABLO
OLAVIDE**
SEVILLA

Department of Business Administration

Abstract

This paper analyzes the cost calculations in the 13th Century *Book of Good Government of a Souk (Zoco)*, written by Al-Saqati and dealing with the Malaga souk. This helps us to appreciate the historical accounting patrimony of al-Andalus and to consider the influence of religious doctrine on cost procedure. We inquire into the genesis of complex cost accounting techniques by considering their social, political, and cultural inspiration and not their hitherto strictly economic rationality. The study provides evidence of the following peculiarities: the price fixing related to retail commercial activities, aimed to avoid fraud and was in defense of the final consumer, and was above all, supported by a religious motivation.

Keywords: Cost calculation and religion; 13th Century; al-Andalus

Introduction

The present work analyzes the cost procedures defined in the Andalusí *Book of Good Government of a Souk (Zoco)*, referred to as the *Kitabⁱ fi Adab Al-Hisbaⁱⁱ*, and dating from the last quarter of the 13th Century. This manuscript includes a set of laws and cost calculation procedures whose objectives were the detailed regulation of commerce, mainly to avoid the possibility of fraud in the Souk of Malagaⁱⁱⁱ. Chalmeta (1967a, 1967b, 1968a, 1968b) has already translated and commented upon this regulation in Spanish. The justification is twofold. First, to show the accounting patrimony of al-Andalus^{iv}, a Muslim state recognized for its influence on the development of European culture, and second, to consider the influence of religious doctrine on cost calculation procedures (Carmona & Ezzamel, 2006).

In terms of the first objective, we wish to present the historical accounting patrimony of al-Andalus by finding possible reciprocal influences on accounting skills used in the Islamic al-Andalus and in the contemporary Christian Iberian kingdoms during this period. In this sense, and concerning mathematics^v, “...influences from Arabia on mathematics and on some other antecedents of accounting developments in the West are undoubted. It has also been obvious for many years that several features of pre-double-entry accounting were used in the Muslim world before they were used in the West” (Nobes, 2001, p.212). Therefore is reasonable to believe that there was a transfer of accounting knowledge or calculating procedure as occurred in mathematics. Zaid (2004, p.169) has suggested that the “...relationship between the accounting systems developed in the Islamic state and subsequent developments beyond it remain a

subject for historical research”. More specifically relating to commercial activities, García Sanjuan (1997) used the treatises of *hisba* to prove the influence of Islamic rules in the development of later Christian Hispanic trade and merchant organizations.

As far as the influence of the religious beliefs on accounting skills is concerned, and specifically in the case of the Islamic religion, Abdul-Rahman and Goddard (1998, p.198) quoting Al-Attas (1995) pointed out that: “Islam does not concede to the dichotomy of the sacred and the profane. ... The secular aspect is seen as a preparation for the sacred aspect. Everything in Islam is ultimately focused on the sacred aspect without implying any neglect or unmindfulness of the secular aspect”. In particular, and according to Zaid (2004), the influence of Muslim beliefs on accounting appears to be important. Zaid (2004, p.155) asserted that the development and practice of accounting in Muslim society “...reflected Islam as a comprehensive code of spiritual and material life”. Some years before this, Carmona and Zan (2002) had pointed out that these influences have received scant attention. Moreover, they suggested that future research focus on accounting practices in Muslim societies, among other topics, might well benefit the international community of accounting historians.

In a similar way, Carmona and Ezzamel (2006) have indicated the necessity to revisit the role of accounting in the sacred/profane debate. The seminal works of Laughlin (1988) and Booth (1993) improved a distinction of two separate spheres, sacred and a profane, belonging accounting to this last. Nevertheless, different studies have found scarce the works of Booth and Laughlin, questioning such clear distinction between sacred and profane (Parker, 2001; Lightbody, 2000). Jacobs and Walker (2004)

have shown that in the Iona Community there was no difference between the sacred and the profane. Hardy and Ballis (2005) criticize Laughlin's absolute separation of the sacred and the profane as oversimplified. For Ezzamel (2005), the sacred and the profane spheres are intertwined in ancient settings as Egypt.

In summary, we consider the genesis of relative complex cost accounting techniques. We do this first by looking into the social, political, and cultural context, not strictly because of economic rationality (Fleischman & Tyson, 1993; Hoskin & Macve, 2000; Boyns & Edwards, 2000). We then show examples of the use of these techniques outside Anglo-Saxon settings (Boyns & Edwards, 2000). Regardless, we concur with Carmona and Zan (2002, p.300) that the "...present emphasis of investigations on the 1850–1940 period implies that too little is known about accounting and managerial practices in proto-industrial, medieval and ancient settings".

The context: al-Andalus^{vi}

The rise and fall of al-Andalus

Al-Andalus is the Arabic name given to the parts of the Iberian Peninsula governed by Muslims at various times in the period 711–1492 (Esposito, 2003). It therefore refers to the Umayyad Caliphate^{vii} province (711–750) (see Map 1), the Emirate of Cordoba (750–929), and the Caliphate of Cordoba (929–1031) and its *taifa* successor kingdoms (1031–1492). As Christians eventually regained the Iberian Peninsula by reexpanding southwards^{viii}, the name al-Andalus also came to refer to the

Muslim-dominated lands of the former *Visigoth* Hispania, initially including much of Spain, Portugal and parts of southern France, although in the final period limited to the Kingdom of Granada^{ix}.



Map 1.

Map of the Islamic Caliphate (672-750). Al-Andalus is in the West

At first, governors appointed by the Umayyad Caliph ruled al-Andalus. Under the orders of the Great Umayyad Caliph Al-Walid I, Tariq ibn-Ziyad led a small force that landed at Gibraltar on April 30, 711. After a decisive victory at the Battle of *Guadalete* on July 19, 711, in a seven-year campaign Tariq ibn-Ziyad brought most of the Iberian Peninsula under Muslim occupation. They crossed the Pyrenees and occupied parts of southern France, but were eventually defeated at the Battle of Poitiers in 732. The Iberian Peninsula, except for the Kingdom of Asturias, then became part of the expanding Umayyad Empire, under the name of al-Andalus.

In 756, the exiled Umayyad prince Abd-ar-Rahman I^x ousted Yūsuf Al-Fihri to establish himself as the Emir of Cordoba. He refused to submit to the Abbasid^{xi} caliph and Abd-Al-Rahman III^{xii} not only rapidly restored Umayyad power throughout al-Andalus but also extended it into western North Africa. In 929, he proclaimed himself Caliph, elevating the emirate to a position competing in prestige with not only the Abbasid caliph in Baghdad but also the Shi'ite caliph in Tunis^{xiii}.

Muslim writers see the period of the Caliphate as the golden age of al-Andalus. Among European cities, Cordoba, as capital city of the Caliphate, eventually overtook Constantinople as the largest and most prosperous city in Europe^{xiv} (see Map 2). Within the Islamic world, Cordoba was one of the leading cultural centers. The work of its most important philosophers and scientists^{xv} had a major influence on the intellectual life of medieval Europe^{xvi}. This transmission was then to have a significant impact on the formation of the European Renaissance.



Map 2.

The Caliphate of Cordoba at its apogee c. 1000

The Cordoba Caliphate effectively collapsed during a ruinous civil war between 1009 and 1013^{xvii}. Al-Andalus now broke up into a number of mostly independent states called *taifas*. The Almoravids, fundamentalist Islamic rulers from the Maghreb, conquered the *taifa* kingdoms in 1108. The Almohads, another Magreb dynasty, succeeded the Almoravids in 1195. Nevertheless, in 1212, a coalition of Christian kingdoms under the leadership of the Castilian king defeated the Almohads^{xviii} and forced their sultan to leave Iberia. Portugal, Castile, and Aragon quickly conquered the *taifas*, newly independent but now weakened. In 1236, the *Reconquista* proceeded to the last remaining Islamic stronghold, Granada, and gained by the forces of Ferdinand III of Castile.

Granada was a vassal state to Castile for the next 256 years, until 1492^{xix} when Boabdil surrendered complete control to *Los Reyes Católicos* (the Catholic Monarchs)^{xx}. The Portuguese *Reconquista* culminated in 1249^{xxi}. With regard to the city in our study, Malaga^{xxii} became the capital of a distinct kingdom, dependent on Granada after the fall of the Umayyad dynasty in 1055 (Burrell i Floría, 1988, p.192) (Map 3).



Map 3

**The Caliphate broke up into many *taifa* states in 1031
(one being Malaga in the south of the Iberian Peninsula)**

Religion, law, and commerce

Regarding the circumstances in al-Andalus during the period in which *Kitab fi Adab Al-Hisba* was written, Chalmeta (1967a) identifies a strong tendency towards single-crop farming, the development of production, and a tendency towards exportation. The religious element was also important in the society although it did not suppose an exclusive role as in the Christian kingdoms. In the first stage of Muslim domination, permissiveness with respect to Christians and Jews was noteworthy. Some even occupied high positions in the administration.

For Muslims, the Koran not only contained the revelations of Allah through the prophet Mohammed, but also provided a source of knowledge and the most secure

guideline to advance in the correct moral way. Because of this, Muslims employed the Koran to resolve juridical questions, with jurists entrusted the enterprise of adapting customs and practices to the rules of the Koran. In general, the Koran favorably accepts commercial activity, production and the search of profits. For instance, according to the oral tradition, *Hadit*, "...the just merchant will revive" and "...[on] the Day of Judgment the worthy merchant of confidence will be sat in the shade of Allah's throne" (Chalmeta, 1967a, p.138). In a similar vein, religious jurisprudence condemned practices that disturbed the free interchange of offer and demand and tradition condemned any agreed to prices established by any authority (Chalmeta, 1967a, p.139).

An oral tradition (*Hadit*) complemented the rules of the Koran. It is remarkable that there is not a unique point of view in Islamic juridical tradition on the question of the fixation of mandatory prices in basic foodstuffs (García Sanjuan, 1997, p.224). In this sense, Al-Saqati's book argues that price fixation is not lawful (Article 7), but later closely describes the procedures required.

The treatises of Hisba

Hisba was the magistracy in charge of the vigilance of the Arabic-Islamic souks (García Sanjuan, 1997, p.201). The treatises of *hisba* are the practical manuals of the inspector of the market or *muhtasib*. They are very pragmatic accounts, as they do not speak about desires or legal impositions, rather about the daily observable habits in the organization and working of the souk: for instance, closely describing the frauds and more common deceptions in the market (De Castro, 2000).

According to García Sanjuan (1997), there are four Andalusian treatises on *hisba*. The most ancient is by Ibn Umar who wrote it in 9th Century in Seville. Ibn Abd Al Rauf wrote another in the 10th Century. Unfortunately, we have not found any available translation of this particular book. More recent are the treatise published by Ibn Abdun in 12th Century in Seville, and finally, the main object of our research, the *Book of Good Government of the Souk* by Al-Saqati dated in the last quarter of the 13th Century and written in the city of Malaga. We next summarize the contents of the Treatises by Ibn Umar and by Ibn Jaldun.

The Treatise of the Seville Souk in the 9th Century

García Gómez (1957) translated into Spanish an orderly about the Souk of Seville in the 9th Century. This is the translation of the oldest antecedent of the *hisba* by an Andalusian, Yahyá ibn ‘Umar, who lived most of his life in Tunisia. He was successful and masterful and had excellent disciples. He explained and spread basic legal works, wrote legal opinions and solved legal consultations with brilliance. He composed many titles, although most are now lost. However, the decrees of the souk have been conserved. Following García Gómez (1957, p.260) this work is of extraordinary importance from several different points of view. For example, as it points out several aspects of ordinary life in al-Andalus, it is of interest to historians as well as economists. The treatise comprises 56 separate articles, although they are not structured in chapters.

This Treatise includes the necessity of fixing prices to avoid abuses by salesmen (Article 6), although does not define any procedure to calculate them. It regulates the

use of correct measures and describes several possible frauds (Articles 2, 3, 4 and 14). On the other hand, it also provides advice on the obligation for selling products of an accurate quality. In this sense, for instance, in order to follow the Islamic tradition, the Treatise forbade the selling of bread below weight (Article 10), watered-down milk (Article 11), honey of different qualities (Article 21), an incorrectly sacrificed sheep (Article 50), and a mixture of meat and viscera (Article 56). Moreover, in the case of mixing different kinds of milk, the seller had to advise the client. In addition, the orderly refers to the property of remainders. For instance, Article 49 refers to material remainders remaining after the making of garments. The ultimate justification for all of the regulations contained is that it is the correct way of following Islamic rules.

The Treatise of the Seville Souk in the 12th Century

García-Gómez and Levi-Provençal (1981) have translated into Spanish the Treatise of Ibn ‘Abdun. This treatise entails the valuation of harvests and cereals (Article 4), references to the accuracy of weights and measures (Articles 6, 91 and 215), and compensation for remainders (Article 91). The standard also refers to the necessity of avoiding frauds in figs (Article 108), the quality of meat (Article 112), eggs (Article 113), and prohibitions against mixing meats (Article 114) and vinegar with water (Article 126). It also refers to the quality of doughnuts and felt (Articles 133 and 161). As far as the property of remainders is concerned, the treatise specifies the cases for wool residues (from weaving for the owner of the clothing) (Article 174) or in relation to the manufacture of packing (Article 175).

With respect to the control of benefits, the author forbids the sale of wheat in large volumes to avoid speculation (Article 104). Moreover, the standard says that the sellers of meat, fish, or similar items should not obtain great benefit because these foods are not like others (Article 187). In this sense, it also prohibited usury (Article 214). References to quality are also common, including, among others, silk thread (Article 212), cupboards (Article 217), parchments (Article 219), scissors and knives (Article 220), saffron (Article 225) and shoes (227). Importantly, while this orderly does not refer to either the costs of products or their accounting, through its style and objectives it is possible to affirm that it is a precursor of the manuscript by Al-Saqati in the last quarter of the 13th Century.

Contemporary Christian Regulations

The Siete Partidas (Seven Part) Code was a Castilian statutory code first compiled during the reign of Alfonso X of Castile (1252–1284) for the purpose of establishing a uniform body of normative rules for the kingdom. It is now considered Spain's most important contribution to the history of law. Although the code concentrates on legislative issues, it has also been described as a “humanist encyclopedia” as it also addresses philosophical, moral and theological topics. According to one of the earliest versions, it was written between June 26, 1256 and August 28, 1265 by a commission of the principal Castilian jurists of the day under the personal direction of Alfonso X. However, other time periods have also been proposed,

including 1254 to 1261, 1256 to 1263, and 1251 to 1265. Regardless, most historians believe that it was not until 1265 that it was completed.

The code is organized into seven parts (or books) called *partida*. In turn, each *partida* is divided into articles (182 in total), and these are composed of laws (2,802 in total). The provisions are normally accompanied by references to authors and texts, allegories and examples. They also include, especially, a reasoned explanation of their origins and etymological, religious, philosophical, and historical background, as they were not intended to be merely prescriptive.

The fifth *partida* consists of 15 titles comprising 374 laws on the subject of private law: this pertains to the common legal acts and contracts that people participate in throughout their lives. It deals with, among other things, the practices of tradesmen, including purchases, sales, exchanges, and leases, and contracts governing companies and corporations, including verbal contracts, contracts of surety, mortgages, and collateral. The *Partida* also deals with payment and the surrender of property and includes references to weights and measures. For instance, in Law I, Title VII: “[the tradesmen] have ... to use weights and measures according to the customs of the area”. In addition, there are also references to prices when it is stated that tradesmen “... have to fix a true price of each measure of cloths and for each measure of other things, and not less” (Law I, Title VII, Chapter 5). The following law describes the custom of the merchants of forming groups that decided prices for the merchandises and did not allow to trade to any person that was not a member of this group. The standard considers these

practices harmful and details that they only be set in place (as for the creation of groups for price fixing) with the knowledge and the approval of the king. However, the *Siete Partidas* does not define the process required to calculate cost or the procedure for fixing prices.

The *Kitab fi Adab Al-Hisba*: The management regulations of the Malaga Souk by Al-Saqati

The manuscript and its author

In 1967, Chalmeta (1967a, p.125) identified six different versions of *Kitab fi Adab Al-Hisba* in the Islamic Studies Institute (Madrid), the National Library of Rabat (Morocco), the National Library of Cairo (Egypt), the Royal Library of Morocco, the Al-Qarawiyyim Library of Fez (Morocco), with the last in a private library.

The manuscript is undated, although Chalmeta (1967a, p.137) established that it was published between 1275 and 1300. While this regulation closely describes many activities of the Souk of Malaga, it does not include mention of other important activities in Malaga, like those relating to the city's port or some of the important guilds (Chalmeta, 1967a, p.145).

According to Chalmeta (1967a, 139), the book is like an economic treatise, the most extensive known in the West. It is practical not theoretical. The manuscript closely describes the defrauder merchants, also human descriptions, and roguish activities (Chalmeta, 1967a, 161). According to Chalmeta (1967a, p.143), the detailed

descriptions therein suggests it can be also be thought of as a precursor of the Spanish literati genre known as the “spice novel” in 16th Century Spain.

The book includes a prologue (Chalmeta, 1967b, p.359–334), and 176 articles grouped into eight chapters with the following titles.

- Chapter I^{xxiii}: Introduction to the *hisba* and *almozzenasgo*^{xxiv}.
- Chapter II^{xxv}: About measurement.
- Chapter III^{xxvi}: Regarding scales.
- Chapter IV^{xxvii}: With regard to people who work with flour and bread.
- Chapter V^{xxviii}: About workers who slaughter animals and sell mutton. Also with regard fish and diverse kinds of food.
- Chapter VI^{xxix}: Regarding people who make perfumes and pharmacists.
- Chapter VII^{xxx}. Regarding the sellers of slaves. This chapter includes a specific subchapter about agents and brokers^{xxxi}.
- Chapter VIII^{xxxii}: About craftsmen.

De Castro (2000) defines the book as the memoirs of a retired civil servant whose intention was not to write a manual of *hisba*, rather an authentic account of the governance of the souk. In this sense, Chalmeta (1967a, p.160–161) argues that the value of the instruction comes from its practicality because its author did not generally describe theoretical cases only those cases experienced by him. The author of the instruction, Al-Saqati, had been born in Malaga and was a manager of Souk of Malaga (Chalmeta, 1967a, p.132), knew the social and economic life of the city (Chalmeta, 1967a, p.130) and even provided in the volume frequent autobiographical references.

The main objective of the instruction: The avoidance of fraud

Regarding the objectives of the regulation, the rules included aimed to avoid fraud in the commercial activity of the Souk of Malaga, referred to as “ruse”^{xxxiii}. The author commented that he had “...proposed to publish a treatise that contained the description of fraudulent tradesmen or craftsmen who were established in the souks and their traps with regard to the measures and weights” (Article 1). Thus, the standards largely regulated weights, scales, measures and the activity of the traders. The articles of instruction also included specific mention of tradesmen, such as bakers, millers, butchers, makers of turbans, blacksmiths, locksmiths, livestock sellers, dry and fresh fruit sellers, cooks, chemists, slave sellers, artisans, and painters.

Vigilance of trader behavior was justified by the religious precepts of the Koran. Consequently, the author quotes the religious doctrine of the Prophet Mohammed in several paragraphs of the instruction. For instance, Article 5 states: “...who defrauds is not of ours” and in the Article 6 “God is compassionate with the honest man on having sold, on having bought, and to the reclaim the payment of a debt”. The instruction aimed to be a glossary that contained a typology of frauds and deceptions produced in the Souk of Malaga by the artisans and merchants (Chalmeta, 1967; De Castro, 2000). That is, it was to be the standard for regulating buying and selling, and therefore the guide for economic life and production in the town.

In any case, the frauds described in the instruction had scarce economic value if you considered them in isolation. The instruction refers to actions such as the compression or the shaking of goods, dents in measuring devices or the practice of

putting a thumb into a capacity measure. These descriptions describe a market whose transactions were of very low scale. Thus, people went to the souk to buy, for instance, only a cup of flour, a pinch of salt or a bulb of garlic. In this context, we can understand the need to discuss frauds such as the sale of dead (Articles 74, 78 and 87) or dog (Article 78) meat, the adulteration of pharmaceutical products (Chapter 5), or the stretching of pieces of cloth when measured (Article 135). The manager of the Souk in charge of controlling for these frauds was the *muhtasib*.

The controller of fraud: the *muhtasib*

Many of the rules focused on the manager or person in charge of the Souk (*muhtasib*). Thus, Al-Saqati described the duty of the manager as a merger between the religious and the civil spheres: “He joins an aspect of the religious law, with the rule of temporal power” (Article 1). Even the judge of the city, or *Cadi*^{xxxiv}, was in charge of appointing the person to this post. Chalmeta (1967a) provides the following characteristics for this manager: (i) he was an inspector; (ii) his aim was to reduce fraud and that is why he fixed prices and attempted to reduce the deceptions of sellers and fabricants; (iii) he needed to be equitable, vigilant, and incorruptible; (iv) had wide jurisdiction based on custom; (v) he regulated commercial transactions; and (vi) he did not levy any duties. De Castro (2001) likewise identifies three functions of the *muhtasib*, including cleanliness and urbanism, the control of weights and measures, and more interestingly, price fixing. From 1086, juridical knowledge was necessary for performance of the post.

The *muhtasib* had a wide jurisdiction with barely any practical limits. Avoiding waste was one of his missions, especially with the objective of preventing fraud and deception by sellers. He also controlled the artisans and their production, with the *muhtasib* making the employer responsible for any frauds committed by his employees. He watched the accuracy of the measures of capacities and weights as well as the precision of the scales. He imposed penalties according to the grade of the fraud committed. The *muhtasib* also undertook surprise inspections without trusting his assistants, called *alamines*.

The *muhtasib* choose a member of each guild as its *alamin*. The *alamin* helped the *muhtasib* to control the artisans and their production. They were to be experts in commercial activity and people of recognized honesty, with refined moral and technical knowledge. The *alamines* were consulted when any doubt arose about the quality of a product, the amount given in a sale, the calculation of raw material consumption, or the cost of a product. According to García Sanjuan (1997, p.224) the treatise by Al-Saqati is alone among the four Andalusian treatises of *Hisba* that mentions the fixing of prices among the duties where the *alamines* must assist the *muhtasib*.

The fixing of prices and the cost calculations

One of the surest ways used to avoid fraud was the fixing of a fair price for products. To obtain this fair price, the *muhtasib* had to calculate the cost of the merchandise. Al-Saqati began by stating that cost calculation was not lawful, supported by the opinion of the Prophet Mohammed (Article 7). However, he later described how to calculate the cost of several products, including flour (Article 50), bread (Articles 55, 56 and 169), meatballs (Article 67), meat (Article 75), nougat (Article 170), horseshoes (Article 171), pots (Article 172) and ropes (Article 174) (Chalmeta, 1967a, p.150).

With regard to meat, when the *muhtasib* fixed its price (Article 75), he had to be informed about how much it cost and added to this *cost of acquisition* a profit margin depending on the kind of meat (for instance, two *dirhams*^{xxxv} for sheep). Later, he deducted the weight of the bones and the cost of sacrifice of the animal, less the estimated price for the sale of the leather and any remains. Thus, the unit cost of meat was as follows:

$$\frac{\text{Acquisition Cost} + \text{Butcher Margin} + \text{Cost of Sacrifice} - (\text{Sale of Remains})}{\text{Weight of the Animal} - (\text{Weight of the Bones})}$$

The article also remarks that the salesman had to write this amount in a visible place for the buyer. Thus, the process underlying the fixation of meat prices included the following items: (i) the acquisition cost of each meat piece; (ii) the benefit margin granted according to the type of meat; (iii) allowance for commodity wastage; (iv) the

cost of commercialization; and (v) the selling of remains. Another interesting example is the process underlying the cost calculation for bread:

Article 56. What the bread has to be worth.

For this ends, we remember one formula (derived) of the custom in the use among (bakers), which makes the evaluation in the presence of *muhtasib* useless. Take a *quintal*, that is 1,600 *auquías*^{xxxvi}, to the price which is sold by the miller, that is currently of 30 *dirhemes*, then add 800 *auquías* (of water), being 2,400 *auquías*, once kneaded. In order to work them, 3 kneaders are necessary, at the rate of one *dirhem* and a half, one assistant, one man in the oven, to half *dirhem*, half *ochavo*^{xxxvii} of salt and water, and five *ochavos* of firewood, with an amount of 33 *dirhemes* and half *ochavo*. The *muhtasib* will indicate, according to his opinion, a certain profit for the bakers, diminishing the one that they obtain at the present in the souks by each *dinar*^{xxxviii} inverted.

Finally, Al-Saqati included a suggestion for relating quality and profit. In his opinion, it would be better to allow bakers to obtain a higher profit in exchange for asking of them a perfect elaboration and cooking. Concerning the calculation of the unit cost of the bread, Article 56 adds:

If we put 6 *dirhemes* of expenses of manufacture and divided the total number of *auquías* that there is in a quintal (of flour) kneaded by 36 *dirhemes*, it is that to each *dirhem* correspond 66 *auquías* and two thirds, and to each quarter

of *dirhem* 16.5 *auquías* and two thirds; leave this small pick due to its reduction, since it loses one and a half *auquía* for the cooking, being equivalent a quarter of *dirhem* to 15 *auquías* [of bread] cooked.

Regarding the calculation of the amount that one could buy with one *dirhem*, they made the following calculation:

$$\frac{\text{Flour (1.600 } auquías) + \text{Water (800 } auquías)}{\text{Cost of the Flour (30 } dirhemes) + \text{Manufacturing Cost (6 } dirhemes)}$$

Then:

$$2.400 \text{ } auquías / 36 \text{ } dirhemes = 66.66 \text{ } auquías / \text{ } dirhem$$

Therefore, with one *dirhem* one could buy 66.66 *auquías*. With a quarter of a *dirhem* one could buy 16.66 *auquías*. However, even more interestingly, they have in mind a practical rounding down when they considered a decrease in production. Thus, standard adds: “Do not considerer this small peak (1.66 *auquías* = 16.66 – 15.00) due to one and a half *auquía* is lost in the cooking”. Consequently, someone with a quarter of *dirhem* could buy 15 cooked *auquías* of bread.

The case of the price of the bread is also a good example of the inclusion of labor costs that depend on the staffing structure. Article 56 states that the process needs the work of three kneaders at the rate of one *dirhem* and a half and one assistant and one person in charge of the oven for half a *dirhem*. Interestingly, the same rule also makes reference to the imputation of indirect costs (cooking in this case), and to the calculation of unit costs, because the cost was initially calculated for quintals of flour, and finally

divided among the number of *auquías* (weight units in which bread was sold). Again, the treatise takes into account wastage because the calculations include the loss of weight that takes place during cooking. In a certain sense, Article 56 also considers quality when it suggests that “... although it would be better to obtain a perfect elaboration” (allowing the bakers more profits).

Also relating to the cost of bread, Article 60 describes the calculation of the cost of flavor bearing in mind the different salaries of each employee and the price of the commodities (mainly wheat). In a similar vein, Article 86 (which focuses on the elaboration of cakes) closely describes the manufacturing procedure, including the exact weight of every commodity, again taking into account any wastage during cooking. Article 79 also describes the receipts needed to elaborate sausages and meatballs and the Article 83 is for buns.

In all of these cases, the text includes the exact weight of the necessary commodities. This level of detail is not only included in selected manufacture processes, but also in the definition of each unit in specific articles. For instance, Article 25 deals with the different units of weight for cereals and their equivalents. However, in addition to the details on quantitative measures and cost, the instruction also refers to attributes and qualities. In this sense, Chapter 7 provides abundant references about the advantage and disadvantages of slaves according to their attributes. Thus, some slaves were good for working in the fields, others for working in homes, and others even for reproduction.

Conclusion

The *Kitab fi Adab Al-Hisba* describes the procedure for fixing prices for several products based on their: (i) acquisition cost; (ii) estimation of profits; (iii) commodity wastage during the process of elaboration and commercialization; (iv) the selling of byproducts; (v) exact measures; and (vi) costs of quality. As discussed, while we found reference to the necessity of calculating prices in the orderly published in Seville in the 9th Century, there is no reference to any calculation procedure. In a similar way, the *Hisba* by Ibn Jaldun includes reference to the controlling of profit, especially in determined goods and to the quality of merchandise, but it does not contain any calculation procedures. Even more, the contemporary Christian Regulation on trade and merchants, did not include any process of cost calculation

Therefore, the analysis of the Al-Saqati treatise allows us to show evidence of the use of the procedures for complex cost calculation, but with some peculiarities that differ to the cases previously studied. Firstly, the cost calculation relates to retail activities. To date, almost all of the cases studied have related to productive activities. The book by Al-Saqati, as with the earlier Andalusia Hisba treatises, aimed to avoid fraud in defense of the final consumer. Until now, any advances in cost techniques have been justified, mainly for economic reasons and the need for organizations to be more competitive in the market (Fleishman & Tyson, 1993). The cost calculations procedures described in Al-Saqati Treatise aimed for regulating the market looking for a social balance in which merchants obtain a fair profit and consumers could buy in a fair price. In this sense, it is remarkable that bread, one of the most basic foods, is the only one

case in which Al-Saqati calculated a standard price. Even more, he detailed the weight of bread that should be sold in exchange of a concrete sum of money. In the rest of cases, Al-Saqati proposed a formula whose components (i.e. cost of acquisition or margin of profit) had to adapt to each case.

Nevertheless, the use of these techniques was justified for moral and religious reasons. Al-Saqati himself described the labor of the manager of the Souk as vigilance of both the religious and civil laws, that is, it related to both the sacred and profane sphere. This is a contribution to the debate on the location of accounting in one or the other. Nevertheless, previously, Ezzamel (2002, 2005) had argued that the domains of sacred and profane spheres were strongly intertwined in the temples of ancient Egypt. In the Islam case, Abdul-Rahman and Goddard (1998, p.198) asserted that the “...world-view of Islam encompasses both sacred and profane aspects and the secular must be related, in a profound and inseparable way, to the sacred.... Everything in Islam is ultimately focused on the sacred aspect without implying any neglect or unmindfulness of the secular aspect”. The study of the Book by Al-Saqati suggests that not only accounting in general, but cost calculations procedures in particular, are also located in the intersection zone between sacred and profane spheres.

This particular contribution is also novel in terms of the period and the geographical setting, with most other work in this area drawn from 19th and 20th Century Anglo-Saxon countries. Zaid (2004, p.161) also describes an accounting system implemented by the Islamic state for cattle. This system was very detailed; requiring a register of animals classified according to species, gender, and age, and took into

account the price of the meat. However, it is remarkable that unlike the Al-Saqati book, this system did not refer to the selling of byproducts such as leather. Zaid (2004, p.168) also pointed out that Muslim merchants and businessmen probably imitated the accounting systems used in the Islamic state with the objective of calculating their own profit and for accurately fulfilling the payment of *zakat*^{xxxix}.

Finally, according to Chalmeta (1967a), Glick (1992) and De Castro (2000, 2001), the treatise of Al-Saqati was important because it was the basic instruction for the Maghribian *muhtasibs*^{xl}. Moreover, the value of the work by Al-Saqati is not limited to the Maghrib, but appears to have influenced Spanish Christian law, specifically the regulations of the cities of Malaga, Seville, and Granada, and the *Llibre de Mustaçaf*^{xli} (Chalmeta, 1967a, 162). Even more remarkable is that this instruction maintained its relevance in Salé^{xlii} (Morocco) until at least 1923.

References

- Abdul-Rahman, A. and Goddard (1998), “An Interpretative Inquiry of Accounting Practices in Religious Organizations”, *Financial Accountability & Management*, 14 (3), pp. 183–201.
- Boyns, T. N. and Edwards, J. R. (2000), “Pluralistic approaches to knowing more: A comment on Hoskin and Macve”, *The Accounting Historians Journal*, vol. 27, pp. 151–158.
- Burrell i Floría, (1988), *Crónica de España*, Barcelona, Plaza y Janés.
- Carmona, S., Ezzamel, M. (2006). “Accounting and religion: a historical perspective”, *Accounting History*, Vol. 11, nr. 2, pp. 117–127.
- Carmona, S., and Zan. L. (2002), “Special Section: Mapping variety in the history of accounting and management practices”, *European Accounting Review*, 11 (2), pp. 291–304.
- Chalmeta Gendrán, P. (1967a), “El Kitab fi Adab Al-hisba” (El Libro del Buen Gobierno del Zoco) de Al-Saqati, *Al-Andalus*, 32:1, pp. 125–162.
- Chalmeta Gendrán, P. (1967b), “El Kitab fi Adab Al-hisba” (El Libro del Buen Gobierno del Zoco) de Al-saqati (continuación), *Al-Andalus*, 32:2, pp. 359–397.
- Chalmeta Gendrán, P. (1968a), “El Kitab fi Adab Al-hisba” (El Libro del Buen Gobierno del Zoco) de Al-saqati (continuación), *Al-Andalus*, 33:1, pp. 143–198.
- Chalmeta Gendrán, P. (1968b), “El Kitab fi Adab Al-hisba” (El Libro del Buen Gobierno del Zoco) de Al-saqati (continuación), *Al-Andalus*, 33:1, pp. 367–434.

- Chandler, T. (1987), *Four Thousand Years of Urban Growth: An Historical Census*. St. David's University Press (etext.org). ISBN 0-88946-207-0.
- De Castro, T. (2000): El abastecimiento alimentario en el Reino de Granada (1482–1510), disponible en <http://www.geocities.com/tdcastros/Historyserver/Tes2/fuentes3.htm>.
- De Castro, T. (2001), “La Organización del Comercio Alimentario en el Reino de Granada en la Baja Edad Media: ¿Una Deuda con Al-Andalus?”, *Anuario de Estudios Medievales*, 31 (2), pp. 834–865.
- Esposito, John L. Ed. (2003), *Oxford Dictionary of Islam*. Oxford University Press. Oxford Reference Online. Oxford University Press. Accessed 12 June, 2006.
- Fleischman, R. K. and Tyson, T. (1993), “Cost Accounting during the Industrial Revolution: The Present State of Historical Knowledge”, *Economic History Review*, vol. 46, nº 3, pp. 503–517.
- García Gómez, E. (1957), Unas “ordenanzas del zoco” del siglo IX”, traducción del más antiguo antecedente de los tratados andaluces de *hisba*, por un autor andaluz, *Al-Andalus*, XXII, 269–270, 37, p. 292.
- García Gómez, E. and Levi-Provençal, E. (1981, 2ª ed.), *Sevilla a Comienzos del Siglo XII. El Tratado de Ibn Abdun*, Biblioteca de Temas Sevillanos.
- García Sanjuan, A. (1997), La Organización de los Oficios en al-Andalus a través de los Manuales de Hisba, *Historia, Instituciones, Documentos*, 24, pp. 201–233.
- Glick, T. F. (1992), “New Perspectives on the *Hisba* and its Hispanic Derivates”. *Al-Qantara*, 13 (2), pp. 475–489.

- Hoskin, K. and Macve, R. (2000), “Knowing more as knowing less? Alternative Histories of Cost and management Accounting in the U.S. and the U.K.”, *The Accounting Historians Journal*, vol. 27, nº 1, pp. 91–149.
- Jacobs, K. and Walker, S.P., (2004). “Accounting and Accountability in the Iona Community”, *Accounting, Auditing & Accountability Journal*, Vol.17, 3, pp. 361–381.
- Nobes, C.W. (2001), “Were Islamic records precursors to accounting books based on the Italian method? A comment”, *The Accounting Historians Journal*; 28, 2; pp. 207–214.
- Vernet, J. (1999), *Lo que Europa debe al Islam de España*, Barcelona, El Acantilado.
- Wasserstein, David J. (1995). *Jewish elites in Al-Andalus*. In Daniel Frank (Ed.). *The Jews of Medieval Islam: Community, Society and Identity*. Brill. ISBN 90-04-10404-6.
- Zaid, O.A. (2004), “Accounting Systems and Recording Procedures in the Early Islamic State”, *The Accounting Historians Journal*; 31, 2; pp. 149–170.

ⁱ This is the Arabic word for book (in Arabic, كتاب).

ⁱⁱ This is the Islamic doctrine of keeping everything in order within the laws of Allah (in Arabic, تقبّلح).

ⁱⁱⁱ Malaga is a city located in the south of Spain.

^{iv} In Arabic, س ل د ن أ ل ا (Al-Ándalus).

^v The 13th Century had at least one notable mathematician, the Italian Leonardo Pisano, also known as Fibonacci, influenced by Muslim culture. He was a tradesman, as was his father, and lived in North Africa, where he learned Indian procedures for calculation. He travelled through practically all of

the Mediterranean and finally became a mathematician at the court of Emperor Federico II (1194–1250). Here he interacted with scientists who had worked in Spain and maintained relations with Muslim wise men from the Iberian Peninsula and Jews such as Judá Salomó Cohén from Toledo, a disciple of Meir Abulafia (died 1244).

^{vi} Based on: <http://en.wikipedia.org/wiki/Al-andalus>. Accessed 21 August 2007.

^{vii} The Umayyad dynasty (Arabic, *بنو أمية*) (Banu Umayyah), whose name derives from Umayya ibn Abd Shams, the great-grandfather of Muawiyah I, was the first dynasty of the Muslim Caliphate, 661–750.

^{viii} In the process known as the *Reconquista*.

^{ix} Southeast of the Iberian Peninsula.

^x Later titled as *Al-Dākhil*.

^{xi} The Abbasid Caliphate (Arabic: *العباسيون*, al-'Abbāsīyūn) was the third of the Islamic Caliphates of the Arab Empire. The Caliphate is one of the high points of Islam, and at the time Muslim civilization, together with Byzantium, China and India, were the most developed parts of the world [citation needed]. The Caliphate was ruled by the Abbasid dynasty, who built their capital in Baghdad after overthrowing the Umayyad caliphs from all but Al Andalus.

^{xii} He succeeded him in 912.

^{xiii} With whom he was competing for control of North Africa.

^{xiv} With a population of nearly 500,000 inhabitants.

^{xv} Notably *Abulcasis* and *Averroes*.

^{xvi} Muslims and non-Muslims often came from abroad to study in the famous libraries and universities of Al-Andalus. The most noted of these was Michael Scot, who took the works of *Ibn Rushd* (*Averroes*) and *Ibn Sina* (*Avicenna*) to Italy.

^{xvii} Although not finally abolished until 1031.

^{xviii} At the Battle of *Las Navas de Tolosa*.

^{xix} January 2nd.

^{xx} Ferdinand and Isabella.

^{xxi} With the conquest of the Algarve by Afonso III.

^{xxii} During this time, the city was called *Mālaqah* (in Arabic, مقلام.)

^{xxiii} Chalmeta, 1967b, 365–380.

^{xxiv} *Almotacenes* were the inspectors of the al-Andalus markets.

^{xxv} Chalmeta, 1967b, p.381–385.

^{xxvi} Chalmeta, 1967b, p.386–397.

^{xxvii} Chalmeta, 1968a, p.143–165.

^{xxviii} Chalmeta, 1968a, p.166–182.

^{xxix} Chalmeta, 1968a, p.182–195.

^{xxx} Chalmeta, 1968b, p.367–400.

^{xxxi} Pages 391–400.

^{xxxii} Chalmeta, 1968b, p.400–420.

^{xxxiii} See for instance the Article 44 about the deception of the flour makers.

^{xxxiv} Also known as Qazi or Kazi or Kadi (in Arabic, قاضي) is a judge ruling in accordance with Islamic religious law.

^{xxxv} The *dirham* (in Arabic, درهم) was an old silver currency used in several parts of the Islamic world. (Wikipedia).

^{xxxvi} A measure of capacity.

^{xxxvii} One-eighth of a *dirham*.

^{xxxviii} The *dinar* was first coined at the end of 7th Century in Al-Andalus. Its weight varied between 3.85 and 4.25 grams of gold and was worth ten *dirhemes*.

^{xxxix} Religious tribute imposed on Muslims in the second year of the Islamic era.

^{xl} He was a civil servant in charge of the governance of a souk.

^{xli} A law book for the city of Valencia concerning the duties of the *muhtasib*.

^{xlii} Near Rabat.