

AGRICULTURE&INDUSTRY IN THE CHRISTIAN KINGDOMS

AGRICULTURA E INDÚSTRIA NOS REINOS CRISTÃOS

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Karim Aati Laibi Al-Khazai*

*Department of History, College of Education, Mustansiriyah University, Baghdad, Iraq

Orcid: <https://orcid.org/0000-0001-8737-8716>

dr.karematie36@gmail.com

Kawthar Abdel Qader Ikram*

*Department of History, College of Education, Mustansiriyah University, Baghdad, Iraq

Orcid: <https://orcid.org/0009-0000-9676-0992>

kto12344321@uomustansiriyah.edu.iq

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Abstract

This research focuses on the economic aspect of the Spanish kingdoms, which is of great importance to these kingdoms, as it is considered one of the most important aspects for evaluating the kingdoms existing in northern Spain. Therefore, we find that their kings and statesmen were focusing on this aspect, in order to build it on a prosperous and developed foundation based on agriculture, industry, exchange, and trade relations with neighboring countries and other countries. These relations and trade exchange reflect the level of economic prosperity that prevailed in the kingdoms of northern Spain.

Keywords: Agriculture. Industry. Kingdoms. Castile. Leon.

Resumo

Esta pesquisa centra-se no aspecto econômico dos reinos espanhóis, o qual reveste grande importância para esses reinos, uma vez que é considerado um dos aspectos mais relevantes para a avaliação dos reinos existentes no norte da Espanha. Portanto, constatamos que seus reis e estadistas estavam focados nesse aspecto, a fim de construí-lo sobre uma base próspera e desenvolvida, fundamentada na agricultura, na indústria, no intercâmbio e nas relações comerciais com os países vizinhos e outros países. Essas relações e o intercâmbio comercial refletem o nível de prosperidade econômica que prevalecia nos reinos do norte da Espanha.

Palavras-chave: Agricultura. Indústria. Reinos. Castela. Leão.

1 INTRODUCTION

The economic aspect constitutes the backbone of any existing kingdom, as it helps achieve political stability through economic prosperity, since it is directly linked to the living conditions of the population. Moreover, it reflects the strength and prestige of the kingdom. Therefore, the Spanish kings worked to raise the economic level of the Spanish kingdoms, increase their wealth, and improve living conditions. This economic prosperity came particularly after the Spanish kings took control of territories that had been under Islamic rule, which were characterized by abundant economic revenues and the



availability of fertile, arable land. In contrast, the northern lands where the Spanish kingdoms had originally emerged were mostly rocky, mountainous, and extremely cold, leading to limited agricultural activity in those regions. Consequently, the Spaniards followed the approach adopted by the Muslims in land cultivation, seed planting, and the use of irrigation methods and techniques employed by the Arabs, while introducing numerous improvements to them. In addition, they benefited from the expertise of the Moriscos residing in the Spanish kingdoms prior to the issuance of the expulsion decree against them. Furthermore, the Christian kings devoted great care to supporting various industries, providing the necessary raw materials, establishing factories that produced different types of goods, and relying on scholars and experienced individuals in order to develop industrial activity in the Spanish kingdoms.

2 AGRICULTURE AND INDUSTRY IN THE CHRISTIAN KINGDOMS

2.1 Agriculture

The Spanish kingdoms lived an agrarian life, and agriculture was practiced in many of the lands under Spanish control (Hatun, n.d, pp. 439-440). Therefore, land cultivation and attention to agriculture were among the most important professions associated with the emergence and prosperity of cities, due to their connection with population stability and urbanization since the earliest historical periods. After their establishment, development, and expansion of territorial boundaries, the Spanish kingdoms showed great interest in this field and exerted considerable efforts to cultivate their lands and improve agricultural conditions. They strengthened their relations with several countries, as well as with the Islamic side in al-Andalus, in order to adopt many of the agricultural methods known there, and they transferred to their territories a number of agricultural crops (Al-Akeedi, 2006, p. 161).

After finding vast areas of arable land, they worked to cultivate them until they turned into a green paradise, making agriculture one of the most important fields. Agricultural activity as a whole was prosperous despite differences in geographical conditions, as agriculture gradually became distinguished by growth and prosperity (Abbasi, 2000, p. 420). Ibn Abdun pointed out the importance of agriculture for any

society, considering it the foundation of economic prosperity: “Agriculture is civilization, from it comes all livelihood and most righteousness; in wheat lie souls and wealth, by it cities and men are possessed, and by its neglect conditions deteriorate and all order collapses” (Ibn Abdoon, 1955, p. 5).

The accession of the Spanish kings to the rule of those seven kingdoms—whether the Kingdom of Asturias, León and Castile, Aragon, Portugal, or Catalonia—constituted a real and significant turning point in the history of Christian Spain on all levels, whether political, social, economic, administrative, or other aspects. From the economic perspective, particularly agriculture, this marked the beginning of a deeper phase and major development in agriculture in this region after the stagnation and decline it had reached during the late Visigothic period. It did not take long for agricultural techniques to develop, which led to economic progress (Sweilem, 2001, p. 147). Agriculture developed significantly, undergoing major transformations in its various aspects (Abu Ihsan, 2009, p. 201). They acquired considerable expertise from the Andalusian agricultural school, which reached the height of its prosperity in the fifth and sixth Hijri centuries / the eleventh and twelfth centuries AD, during which a number of Europeans presented several works to the Umayyad caliphs in al-Andalus (Sanchez, 1998, p. 1368). Agriculture and land cultivation are considered the most important fundamental pillar in achieving self-sufficiency, as agriculture and planting constitute the basis of life and the sustenance of souls (Jamiyat, 2022, p. 137). Prior to the Islamic conquest, during the Visigothic period, little attention was paid to agriculture. In contrast, the kings who ruled the north showed greater concern for agriculture. During the era of the Catholic Visigoths, Jews worked in agriculture and owned large tracts of agricultural land; however, due to the severe persecution they suffered at the hands of the rulers, they were forced to abandon and desert those agricultural lands (Al-Khalidi, n.d, p. 371).

It becomes evident that attention to agricultural activity constituted a fundamental pillar and a major responsibility borne by the ruling class of the Spanish Christians, particularly in terms of supporting this activity and providing all necessary facilities to farmers. Such attention would significantly contribute to achieving economic development and self-sufficiency.

2.1.1 The nature of the soil and its impact on agriculture

Soil is considered one of the most important natural resources for humans, as it represents the nurturing environment for all wild plants and the source of their nourishment. This has made it the basic component of agricultural activity, which is regarded as one of the most important professions practiced by the population. Therefore, soil indirectly affects geographical distribution through its connection with agricultural activity, giving it great importance in the establishment of agriculture. Soil also has a direct effect on water resources through the degree of internal infiltration. Soils with coarse textures have large pores, which increases the amount of water infiltrating into deeper layers of the soil, thereby enhancing groundwater recharge, while reducing surface water. Conversely, in fine-textured soils, surface runoff increases and groundwater recharge decreases due to the reduced rate of internal infiltration. In addition, soil contributes to influencing the distribution of natural vegetation types and determining the nature of agricultural production (Rashm, 2017, p. 29).

The saying that “the land fights for its people” did not manifest itself in any region of the world as clearly as it did in the Spanish kingdoms. This expression indicates that fertile land enables its inhabitants to achieve self-sufficiency through their own production. Moreover, the rugged terrain constituted an obstacle to the advance of Islamic conquest armies in those regions. These fertile lands, where agricultural production flourished, were the territories that the Spaniards wrested from Islamic control, since most of the lands of the Spanish kingdoms resembled highland areas. The plateau in the Kingdom of Castile, for example, constituted about 60% of the total area of Spain. It represented not only the heart of Spain but also its impregnable fortress, fostering a dominant sense of elevation that endowed Spain with its harsh character and primitive severity (Sweilem, 2001, p. 79).

Therefore, land is regarded as one of the most important factors contributing to the success of the agricultural process. Farmers in the Spanish kingdoms prepared and readied the land before embarking on cultivation by testing the suitability of the soil and determining its fertility through observation and touch. Other methods used to assess soil fertility included smelling and tasting it, in addition to examining its density and thickness through inspection, as well as identifying the types of grass growing on it. Soils were of

several types: heavy soil was prepared by turning it over with hoes (Al-Ma'ul, 1987, p. 837) twice a month and pounding its surface with heavy rods in order to expose it to sunlight, whereas light soil was turned several times during the spring equinox (Ibn Al-Awwam, 2012, pp. 359-360). As for white soil, it required plowing and turning. Thus, the farmer selected land suitable for cultivation, ensuring that it was fertile and close to water sources (Al-'Amaira, 2021, p. 640).

It is therefore apparent that soil represents the primary and most effective element in creating diversity in agricultural crops; moreover, it determines the type of irrigation used to water the land.

2.1.2 Means of agriculture

After eliminating Islamic rule in al-Andalus, the Spaniards took control of the lands that had belonged to Islamic governance, particularly the territories of the Emirate of Granada, which were distinguished by fertile soil and a diversity of agricultural production. For this reason, they exerted great efforts to preserve the significant level of development that Spain had reached in the economic sphere, especially agriculture. Accordingly, they followed the same plans and sciences used by the Arabs in agriculture, in addition to employing the same tools, implements, and irrigation methods, with the aim of establishing a strong and prosperous economic structure. They also translated numerous works related to agriculture in order to adopt the theories followed by the Arabs in this field. Among the most influential of these works in developing agriculture was "Kitāb al-Filāḥa" by Yaḥyā ibn Muḥammad ibn al-'Awwām (d. 580 AH / 1184 AD), as well as "Books of Agriculture" by Ibn Baṣṣāl and other writings in which he explained soil types and methods of their exploitation: "Know that the land ... is divided into ten types, each with its own characteristics, such as soft, coarse, mountainous, black sandy land ... yellow land and red land ..." (Bassal, 1955, p. 41).

These books played a significant role in the advancement of agriculture in the Spanish kingdoms (Husni, 2009, p. 48). They were translated because they contained detailed information on agricultural operations and all matters related to agriculture, encompassing every aspect of farming (Al-Imam). Agricultural work began with preparing the land by plowing the soil using various tools and implements (Abbasi, 2000,

p. 439), in addition to preparing fertilizers used in cultivation, which were considered among the most important means necessary for the success of agriculture. Agricultural prosperity in Spain reached a high level of development in all cities, particularly Granada, after the end of Islamic rule there (Abu Ihsan, 2009, p. 207).

In addition, scientific experimentation was applied in the Christian kingdoms, including the classification of plants, grafting, and the activities carried out by farmers such as planting, irrigation, transplanting trees, and caring for the soil (Abboud, 2006, pp. 107-109). This pertains to the use of scientific methods. As for the tools and implements used in agriculture, they included the following: *Al-Marjaqīl (Land Leveler)*

One of the agricultural tools, also known as the balance, used to level the land and regulate the amount of irrigation water (Ibn Al-Awwam, 2012, p. 547).

2.1.2.1 *Al-Minqār (grafting wedge)*

An iron tool used to widen the place for inserting sharpened cuttings by striking the cut section; it was also used to split wood in order to insert grafts (Al-‘Amaira, 2021, p. 644).

2.1.2.2 *Al-Istīrlāb (astrolabe)*

A device used to determine time and measure the dimensions of land as well as the distances of stars (Ibn Al-Awwam, 2012, p. 549). It was used with a long board approximately an arm’s length, with a string at the center of a straight line and a hole at one end placed on the ground to measure its levelness. Once leveled and even, canals were dug, with the distance between each canal determined according to the size of the basin (Al-‘Amaira, 2021, p. 644).

2.1.2.3 *Al-Mishāh (spade)*

A tool with a handle and a metal blade shaped like a shovel, used in a manner similar to a hoe with a striking motion. However, the hand movement when using the

spade was less than that required for the hoe, because the angle connecting the handle to the square metal blade allowed for a shorter striking motion (Al-Bahadli, 2015, p. 245).

2.1.2.4 *Al-Minjāl (sickle)*

Resembling a large knife used to cut plants and employed during harvesting (Abu Ali Al-Qali, 1926, p. 129).

2.1.2.5 *Al-Mihrāth (plough)*

One of the agricultural tools, known in Spain as the “faddān”, used to plow the surface of the land (Al-Bahadli, 2015, p. 246).

2.1.2.6 *Al-Mishṭ (soil rake)*

An iron implement with teeth and a central handle, used to level the soil and cover seeds, leaving the land combed and evenly smoothed (Al-‘Amaira, 2021, p. 645).

2.1.2.7 *Al-Minqār (grafting chisel)*

An iron tool used for grafting trees, consisting of a small chisel-like implement without jaws, lighter in the hand than the sickle (Al-Bahadli, 2015, p. 246).

2.1.2.8 *Al-Sikkin (knife)*

A tool with a sharp thin edge and a thickback, used for pruning and grafting operations.

2.1.2.9 *Al-Qadūm (adze)*

Used for digging around trees and exposing roots, as well as for light digging operations in agricultural basins (Al-‘Amaira, 2021, p. 643).

2.1.2.10 *Al-Jarūf (buck scraper)*

A tool pulled by oxen during plowing, used to level and smooth the land with minimal cost and effort.

2.1.2.11 *Al-Minshār (saw)*

Used for cutting with sharp iron blades employed in agricultural work.

2.1.2.12 *Al-Fa's wa al-Minqāsh (axe and pick)*

Tools used for digging the ground and considered essential for leveling land.

2.1.2.13 *Al-Mujannab (plough)*

An iron tool used in preparing land for cultivation (Al-'Amaira, 2021, pp. 643-646).

2.1.3 *Types of agricultural crops*

Agriculture in the Spanish kingdoms, after the elimination of Arab-Islamic rule in al-Andalus, was characterized by climatic and topographical diversity, which allowed for the cultivation of a wide range of crops that had previously been grown by the Arabs. The cultivation of these crops continued even after the fall of Islamic rule in al-Andalus, due to the Spanish kingdoms' control over fertile and arable lands, while the northern regions consisted mainly of plateaus and mountainous highlands. Consequently, the southern regions that came under their control became known for the diversity of their agricultural crops and the large volume of their production, despite variations in production levels from one city to another. This was due to natural conditions, in addition to the skill and experience of farmers, which helped increase agricultural output and diversify crops. Evidence of the intensity of agricultural activity is seen in the fact that, after the Moriscos

settled in the Spanish kingdoms, they revolted as a result of the arduous labor imposed on farmers (Al-Toukhi, 1997, p. 293).

The Moriscos specialized in cultivating water-lifting systems and gardens, focusing on intensive agriculture due to the difficulty they faced in obtaining land. This situation was evident along the banks of the Ebro River and its tributaries in Old Aragon. In the Kingdom of Valencia, after their expulsion from the fertile plains to barren mountains, the Moriscos concentrated on intensive agriculture by constructing terraced platforms on mountain slopes and reclaiming them. They carried out remarkable engineering works to bring water and exploit it in the best possible way. In Valencia, the Moriscos also worked as guards of large Christian livestock farms. Poor Christians in the Kingdom of Valencia accused landless Moriscos of accepting the lowest wages to work on the lands of the nobility, which made them dangerous competitors. They were highly efficient in agriculture (Al-Katláni, 2005, p. 210). Among the most important agricultural crops cultivated were the following:

2.1.3.1 Cereals

Cereals were among the agricultural products cultivated over vast areas (Tama, 2018, p. 41). The cities where wheat cultivation flourished included León and Córdoba (Al-Bakri, 2000, p. 50). Other cities that prospered in the cultivation of wheat, grain, and barley after the fall of Islamic rule in al-Andalus, during the era of the Spanish kingdoms, included Toledo, where it was said: “Grain remains in its silos for seventy years without changing” (Ibn Abd Al-Haqq, 1991, p. 892). Other cities famous for cereal cultivation were Évora* (Al-Idrisi, 1988, p. 544), Sintra* (Ibn Hawqal, 1938, p. 109), Jaén, * (Al-Hamawi, 1995, p. 195) Zaragoza, and Jerez* (Al-Hamawi, 1995, p. 340), among others. This type of agriculture received great attention (Al-Bakr, 1993, pp. 128-129). Among other crops cultivated in cities under Spanish rule was wheat, which constituted the main

* Yabura: A large city in Al-Andalus, populated, with a wall, fortress, and a grand mosque, fertile lands with abundant wheat.

* Shantara: One of the Andalusian cities near Samura.

* Jian: A city with a large district in Al-Andalus connected to Kura Al-Birah, east of Al-Birah, seventeen farsakhs from Cordoba, comprising many villages and towns.

* Sharish: A large city in Kura Shadhuna, main town of the district, today called Shersh..

crop (Bishtawi, 2001, p. 72). Wheat was known in Spain and later became known in the Castilian language as *Adirguma*. Other cereals cultivated included maize, known in the Spanish kingdoms as *Alfatfa* (Jamiyat, 2022, p. 139). In Catalonia, wheat and barley were cultivated, stored, and produced on a wide scale (Al-Bahadli, 2015, p. 252).

2.1.3.2 Fruit trees

Fruit trees were among the agricultural crops whose cultivation spread widely in Andalusian cities that came under Spanish rule, as well as in the Spanish kingdoms of the north. Many of these crops owed their introduction to the Arabs and later to the Moriscos who lived under Spanish rule. Most of them worked as farmers, cultivating lands belonging to nobles and members of the ruling class, as well as the estates of large landowners, planting them with various types of agricultural crops. Among these were fruit trees, which were characterized by great diversity. These included figs, particularly the prickly fig, as well as other types of figs cultivated in “orchards of Gothic and Sha‘ri figs, two varieties which travelers across the world unanimously agreed had no equal” (Ibn Hazm, 1968, p. 52). These trees were irrigated only twice, as they relied mainly on rainfall for watering (Ibn Al-Awwam, 2012, pp. 65-66). Their cultivation spread widely in many cities and villages. Other fruit crops cultivated included pomegranates, grapes, peaches, bitter oranges, and oranges (Al-Bakr, 1993, p. 130), in addition to apples, which were described for their pleasant fragrance: “the marvelous apple tree from which the scent of aloeswood emanates...” (Al-Humayri, 1980, p. 106), as well as for their large size: “some apples measure three spans ”(Anonymous, 1983, p. 51).

2.1.3.3 Other crops

Many other diverse crops were cultivated, such as walnuts, almonds, quinces, pears, and olives (Abboud, 2006, p. 110): “... abundant almonds ... raisins ...” (Anonymous, 1983, p. 54). Among other agricultural products whose cultivation spread was the olive tree (Al-Bakr, 1993, p. 131).

Other crops included sugarcane, cotton, and rice, whose cultivation flourished in the kingdoms of Castile and Aragon. The Arabic names of these crops continued to be

used, as they had been during Muslim rule in al-Andalus (Jamiyat, 2022, p. 139). “Most of the names of cultivated flowers in the Spanish language still bear witness to what was directly borrowed from Arabic ...” (Abu Ihsan, 2009, p. 209). Among these names are naranja (bitter orange), asafran (saffron) (Abu Ihsan, 2009, pp. 209-213), aprikosen (plums/apricots), bananen (bananas) (Hunke, 1993, p. 17), and adelfas (oleander) and jasmines (jasmine) (Husni, 2009, pp. 47-48).

2.1.4 Methods of irrigating agricultural lands

The methods of irrigating cultivated areas were diverse during the period of Islamic rule in al-Andalus, and after the fall of Muslim rule and the Spanish takeover of all lands, the Spaniards continued to use the same methods that had been introduced during the Islamic conquest. One of the irrigation methods employed involved the use of pack animals, whereby water was carried on their backs from wells to irrigate cultivated lands in cases where no nearby water source was available (Driya, 2013, p. 111). Another, more common method of transporting well water was through irrigation channels; this method was used in all periods, as water was conveyed through canals and channels (Dush, 2016, pp. 36-37)

Irrigation systems and agricultural practices applied by Muslims were transferred to the Christian kingdoms. The rulers of these kingdoms ordered their officials in the lands that fell under their control to maintain the same agricultural and irrigation systems that had existed during the Islamic period, including preserving their terminology, especially in the kingdoms of Castile and Aragon, and circulating them among farmers. Examples include acequia (irrigation channel), aljibe (cistern or well), noria (waterwheel), arcaduz (water bucket), alfaba (basin), and alcaria (village) (Glick, 1998, p. 1346). Other irrigation methods included streams connected to rivers, forming systems of canals and rivulets. Another method used was the construction of cisterns, which were basins made of specific types of stone used to store water. Farmers would collect their share of water and store it in circular pools to irrigate their lands (Abbasi, 2000, pp. 441-442).

Among the tools used for irrigation were water-lifting devices (sawani*) (Al-Humaydi, 1995, p. 567), which were used to irrigate agricultural lands (Al-‘Udhri, n.d, p. 122), as well as the arcaduz (Dozy, 2000, p. 198), pulleys (Zanati, 2017, p. 345) waterwheels (nawa‘ir) (Zanati, 2017, p. 345), and underground channels (khattara) (Zanati, 2017, p. 345). This indicates that Spanish Christians made extensive use of water channels for irrigation purposes (Jamiyat, 2022, p. 138). Irrigation was carried out according to two main methods.

The first method involved raising water by confining it between walls constructed in the path of flowing water, known as mesināt, or by confining water within connected lead pipes set to the depth of the well. Water would then rise to a level equal to its source, based on the principle of communicating vessels.

The second method relied on extracting well water from underground using lifting devices, to the extent that it was said that the most reliable irrigation of agricultural lands was achieved through springs or rivers, alongside the use of mechanical devices such as waterwheels (Al-Bahadli, 2015, pp. 246-247).

2.1.5 Factors behind the prosperity of agriculture

There were several factors that led to the continuation and prosperity of agriculture in the Spanish kingdoms after full control was established and Arab-Islamic rule was eliminated in the last Muslim stronghold, the Emirate of Granada, in the year 897 AH / 1492 AD. These factors include the following:

- A. The translation of numerous books dealing with agricultural sciences from Arabic into Spanish. The Spaniards followed the instructions contained in these works regarding land preparation, seed selection, and irrigation methods. Among the books translated were “Al-Majmu‘ fi al-Filāha” by Ibn Wafid (398–466 AH / 1008–1074 AD) into Castilian and Catalan. Other translated works included those of Ibn Bassal, who specialized in agricultural science and compiled botanical knowledge that was translated into Castilian, as well as Ibn al-‘Awwam’s treatise,

* Al-Suwani: A water-lifting device similar to a noria but smaller, used to irrigate crops and palms.

- which remained a reference for Spanish agriculture for a long period of time (Abu Al-Fida, 1907, pp. 7-8);
- B. The use of various methods and techniques that had been prevalent among the Arabs for combating and treating pests that affected agricultural crops (Al-Bahadli, 2015, p. 243);
 - C. The agricultural heritage left by the Arabs after the end of their rule led to the greatest development known in agricultural practices, as these sciences contributed significantly to the advancement of agriculture and the organization of irrigation methods (Al-Ma'mouri & Aqeel, 2023, pp. 57-66);
 - D. The reuse of channels that had been constructed by the Romans since the first century AD; these were rehabilitated and repaired for use in agricultural operations (Bishtawi, 2001, p. 72);
 - E. The migration and settlement of Jews in the Spanish kingdoms led to their involvement in various branches of economic activity, including agriculture (Al-Khalidi, n.d, p. 375);
 - F. The Moriscos worked as guards of Christian farms and were also compelled to work on the lands of the nobility, which made them dangerous competitors due to their high level of efficiency in agriculture (Al-Katláni, 2005, p. 210).

2.1.6 Animal husbandry

The Christians in northern Spain consisted of shepherds and warriors. Christian Spain always had the mindset of a nation of shepherds, and this spirit was deeply ingrained in the national economy. In the Kingdom of Asturias and surrounding areas, sheep were used as a form of currency, and reliance on livestock was a necessity dictated by the nature of war. If a castle or city were raided, shepherds could easily gather their flocks within hours and return inside the city walls (Sweilem, 2001, p. 148).

Large flocks of sheep arrived from Granada after its fall to the Kingdom of Castile. These flocks had been brought from Morocco to al-Andalus and were called Merino, after

the Banu Marin* (Abu Al-Fida, 1907, pp. 7-8). They were distinguished by the quality of their wool, and as demand for this wool increased, the Kingdom of Castile expanded the breeding of this flock, which grew in large numbers. By the late 9th century AH / 15th century AD, the number of sheep in Castile had reached 2.7 million, several times more than what had previously been brought. This led to the expansion of pastures and an increase in the number of shepherds (Al-Mahlawi, *Al-Alaqat Al-Iqtisadiyya bayna Mamlakat Granada wa Mamlakati Qashtala wa Aragon (629-897H / 1232-1492AD)*, 2011, p. 1134)

Additionally, animal husbandry of sheep and cattle flourished in Catalonia due to the abundance of livestock in the region. Cows were present everywhere in Catalonia and were used for agricultural work, while sheep grazing became widespread because they could withstand harsh climatic conditions and search for scattered fodder. These sheep were renowned for their soft wool, used in textile weaving, along with goat meat sold in the markets. The Spanish Christians also extensively raised pigs for food consumption (Al-Bahadli, 2015, p. 257).

2.1.7 Economic damage caused by the expulsion of the moriscos

The expulsion of the Moriscos from Spain caused severe economic damage to the kingdoms, as they constituted the majority of farmers, craftsmen, and skilled workers. They also possessed significant expertise in various economic fields, making them highly productive and a major source of tax revenue. The loss of these groups left many crafts and industries abandoned, such as sugar and cotton cultivation and silk production, in which they had excelled. The expulsion led to a shortage of currency in the Spanish kingdoms, significant losses in noble revenues, and the inability to compensate for the loss of farmers. The clergy, or royal council, also lost a substantial portion of its income, forcing the king to grant food allowances to many of the nobles, who became impoverished due to halted factories and a shortage of laborers on their lands (Gafiria, 2010, pp. 155-157)

* Bani Marin: Arab tribes in Morocco, settled in Taza, ruled Morocco after the decline of the Almohads (642-870H / 1244-1465AD).

It is clear from the above that agriculture and the care of farmland were among the highest priorities of the Spanish monarchs, especially after their control over cities previously under Islamic rule in al-Andalus. During this period, the Spaniards continued to adopt knowledge transmitted through various channels, including traders, Christians, Jews, or translations. After the end of Islamic rule, the monarchs ensured that workers in different cities continued to follow the economic principles applied by the Andalusians in terms of crop cultivation, irrigation methods, seed usage, and land management. Evidence of this continuity is the preservation of Arabic names for crops, seeds, and irrigation tools among the Spanish.

2.2 Industry

The availability of raw materials led to the establishment of numerous industries in the Spanish kingdoms in the north and south (Sweilem, 2001, p. 149), with many industries flourishing, adopted by the Spanish Christians from the Muslims. The kings of the Christian kingdoms encouraged the continuation of these industries. In the Kingdom of Aragon, King Jaime I promoted various industries (Al-Mahlawi, 2011, p. 1125), leading to the spread of industrial areas among the Spaniards (Al-Khalidi, n.d, p. 377). Among the most important industries that thrived in the Spanish kingdoms were:

2.2.1 Sugar refining industry

The sugar industry was introduced by the Muslims to the northern Spanish kingdoms (Abbasi, 2000, p. 494), as this industry was previously unknown to them. It was based on extracting sugar from sugarcane, using special machines called trapiche (De Lalaf, 2006), which spread across many Spanish cities (Al-Bakr, 1993, p. 251). Another name for the sugar-extracting machine was masaria (Al-Naqqash, n.d, p. 182).

2.2.2 Spinning, textile, and carpet industries

The silk textile industry also flourished in the Spanish kingdoms. Records from the kings of Aragon indicate that after King Jaime I successfully annexed the city of Játiva

in 547 AH / 1249 AD, he assigned the locals to produce silk textiles, providing them with all necessary supplies (Al-Hamawi, 1995, p. 309). Islamic workshops that had previously operated in these industries continued producing silk garments after the Christian kingdoms took control. The kings of Castile also supported these industries (Al-Mahlawi, 2011, p. 1125). Other industries that flourished in Spanish cities included clothing, wine, and other textile products (Al-Ghasani, 2005, p. 110)

By the late 8th century AH / 14th century AD, many Spanish regions formerly under Granada had a thriving silk textile industry. At the beginning of the 9th century AH / 15th century AD, wool textiles also flourished. The textile industry remained prosperous under the rule of Castile and Aragon (Al-Mahlawi, 2011, p. 65), producing fabrics and cushions, such as the silk-made coffin of King Alfonso VIII of Aragon's daughter. Kings often gifted these textiles to distinguished figures (Al-Toukhi, 1997, pp. 204-205). Workers in these industries lived in neighborhoods named after their craft (Al-Bahadli, 2015, p. 267). One of the most important cities for this industry was Santiago de Compostela, which held significant economic importance (Sweilem, 2001, p. 151).

The Spanish kingdoms became renowned for producing luxurious garments for royalty made from silk, especially golden-colored textiles. Spain's treasuries were filled with textiles, especially Islamic ones, which were used to wrap the deceased (Jamiyat, 2022, p. 277). Cotton textiles (algodon) were also produced (Abu Ihsan, 2009, p. 213).

The carpet industry was initially unknown to the Spanish kingdoms. However, after conquering many cities and expanding their territories, including Cordoba in 633 AH / 1236 AD, carpet production continued under the Castilian king's patronage. The city of Baeza also produced high-quality carpets (Al-Hamawi, 1995, p. 309). Carpet-making in Spanish kingdoms continued using the methods established during Islamic rule. Cities that flourished in this industry included Binyala, Tintal, Cerez, Linor or Lianor, Valencia, and Majorca. Arabic names were retained for carpets, such as qatifa and tanfisa, with al-hamra and zarabi referring to types of carpets.

The Spanish knot, a specific knot used in carpet-making, became a hallmark of Spanish carpets. It was one of three main knots used in Islamic carpet-making; the other two were the Persian knot and the Turkish Gordi knot. In the Spanish knot, threads are tied using a single warp thread, alternating between single and double threads for the design. The Spanish knot remained the only knot used in Spain until the 17th century,

when the Turkish knot began to dominate, particularly in Cuenca, Salamanca, and Valencia. Wool was the primary material used, occasionally supplemented by goat hair. Silk was rare and used mainly in weaving or embroidery, sometimes blended with wool in luxurious carpets. The primary colors were blue, red, yellow, and white, all naturally derived from wool (Mahrez, 1963, pp. 182-185).

2.2.3 Pottery industry

One of the industries that emerged in the Spanish kingdoms was Granadan pottery. After the Kingdom of Aragon took over the Islamic territories that produced goods during the Islamic period, holy cups, crosses, and Castilian royal crowns were distinguished by beautiful engravings, as well as ceramic vessels used in Spain, which were noted for their beauty (Provençal, 1994, pp. 124-125). By the 9th century AH / 11th century AD, after the fall of the Islamic state, Spanish cities produced types of pottery painted under multi-colored glazes, although their decorations reflected a clear Christian and popular style (Maher, 1985, p. 290).

Other kingdoms where pottery flourished included the Kingdom of Castile, where production continued with Islamic designs for a long period. It focused on naturalistic plant motifs and pure geometric decorations. Some patterns resembled Arabic letters engraved in bands but were unreadable. Some pieces also contained symbols related to the Castilian ruling families. In the city of Malaga* (Al-Hamawi, 1995, p. 43), centers for producing gilded pottery remained active even after falling under Castile. The Castilians adopted and mastered this craft, continuing it in the Islamic style throughout the 7th and 8th centuries AH / 13th and 14th centuries AD. Over time, pottery techniques began to incorporate other methods (Al-Mahlawi, 2011, p. 1128). Pottery factories appeared in the Spanish kingdoms, known as ceramic and qishani workshops in Catalonia and Tarragona, alongside ivory jewelry production in Cuenca and Castile (Affāna, 2002, p. 101).

* Malaga: City in Al-Andalus with walls by the sea, between Al-Jazeera Al-Khadra and Al-Mariya.

2.2.4 Food industries

Among the industries spread in the Spanish kingdoms were food industries, including olive oil production in presses equipped with grindstones, basins, and copper cauldrons. In the Kingdom of Aragon, the Madjani Aragon factories crushed olives using large millstones moved by draft animals, then pressed and treated the olives with boiling water for purification. Other food industries included raisin production, where Castilians carefully sorted grapes and exposed them to sunlight on rooftops. Spaniards were also known for salting fish in Malaga, as well as sugar and wine production (Al-Toukhi, 1997, pp. 210-211).

2.2.5 Weapon manufacturing

The Spanish kingdoms developed arms industries, especially in Burgos (Al-Humayri, 1980, p. 88), the capital of Castile. Among these were sword-making, producing some of the finest Castilian swords (Affāna, 2002, pp. 102-103), and spear-making, which was carried out in small workshops with a limited number of skilled workers due to the expertise required (Bishtawi, 2001, p. 73). Another critical industry was cannon powder production. Castile developed this industry, known as Castilian gunpowder (Jamiyat, 2022, p. 147), which was used in firearms and during the siege of Ronda* (Al-Hamawi, 1995, p. 532) in 890 AH / 1485 AD (Al-Mahlawi, 2011, pp. 1131-1132).

2.2.6 Shipbuilding

Shipbuilding in the Spanish kingdoms has a long history. After the fall of Islamic rule in Andalusia, existing shipbuilding centers in cities such as Murcia, Seville, Tarragona* (Al-Hamawi, 1995, p. 32), and Tortosa* (Al-Hamawi, 1995, p. 30) along the

* Randa: Fortified city in Al-Andalus under Takurna..

* Tarkuna: Town in Al-Andalus connected to Tartusha, on the coast, with river Alan flowing east to river Ibrah.

* Tartusha: City in Al-Andalus, connected to Kura Balansiya, east of Balansiya, near Cordoba, by river Ibrah.

Andalusian coast (Al-Zaghoul, p. 106) continued to operate. These centers produced fleets for both defensive and maritime purposes (Hock, 2006, pp. 210-211). There were various types of ships (Hasan, 2005, p. 268), and this industry developed to meet the demands of trade and warfare to repel any external threats (Bishtawi, 2001, p. 73). Shipbuilding flourished in the Spanish kingdoms due to the availability of high-quality raw materials, including the finest wood suitable for this industry (Affāna, 2002, p. 102).

2.2.7 Other industries

Among the other industries that spread in Spain was saffron production, used for cosmetics and dyeing materials (Jamiyat, 2022, p. 147), as well as jewelry and ornament manufacturing (Hatun, n.d, p. 440), rose water and perfume production, medical-related industries (Al-Bahadli, 2015, p. 266), and the manufacture of shoes and bags (Al-Hamawi, 1995, p. 309).

Other industries that flourished in the Kingdom of Castile included paper-making, which was produced in the city of Játiva* (Al-Hamawi, 1995, p. 309). King Alfonso X encouraged its continued production. Bookbinding also spread across the Spanish kingdoms, known for luxurious bindings, especially in Castile and Aragon. In construction, building techniques flourished during the reign of King Alfonso X, who brought skilled artisans to Castile and Aragon. This craft combined Islamic and Christian artistic elements (Al-Mahlawi, 2011, p. 1134).

It can be concluded that industry greatly prospered in the Christian kingdoms. However, much of the foundation of these industries traces back to the Arabs, who contributed to transferring these crafts to the Spanish kingdoms before the fall of the Islamic state in Andalusia. Spanish kings also played a major role in industrial development by supporting and overseeing these industries to strengthen the Spanish economy, achieve self-sufficiency, and ensure political stability, which depended on economic prosperity.

* Shatba: A city in eastern Al-Andalus, east of Cordoba, a large ancient city, known for producing scholars and paper.

3 CONCLUSION

When studying the topic "Social Life in the Christian Kingdoms," a number of results became clear, which can be summarized as follows:

1. Spain was distinguished by its abundant wealth and great diversity in economic aspects. However, despite this wealth—whether in agriculture, industry, or trade—it was concentrated in the hands of the ruling class, nobles, and clergy, leading to widespread poverty and social injustice among the population;
2. There was significant diversity in the economic activities of the Spanish kingdoms, which included agriculture, industry, and trade;
3. Agricultural activity flourished greatly in the Spanish kingdoms and became a fundamental pillar for building a developed economy. The ruling class made great efforts to support agriculture by providing irrigation methods used by Muslims, which continued to be used after the end of Islamic rule while retaining their Arabic names. Additionally, modern agricultural tools were provided, contributing to the diversification of crops to meet the needs of the population and export the surplus outside the Spanish kingdoms;
4. The Spanish economy suffered considerable damage after the expulsion of the Moriscos living in the kingdoms, leading to a significant decline in the work they used to carry out;
5. Many industries flourished in Spain due to the availability of raw materials and labor. These diverse industries facilitated trade, which positively impacted the overall economic situation of the kingdoms;
6. The exports of the Spanish kingdoms were diverse, including agricultural products, food industries, textiles, and large ships. The kingdoms also imported various goods, especially raw materials not available locally, and used different trade routes, whether by land or sea, imposing taxes and customs duties to regulate commerce.

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All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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