

Articles

Determinants of Wages in Cash Waqfs in the Southeastern European Region of the Ottoman Empire, 1500-1921: An Empirical Analysis

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ABSTRACT

This study provides a quantitative examination of longitudinal changes in wage levels within cash waqf organisations from a long-term perspective. By employing cash waqf contracts, this study estimates long-term trends in the wages of skilled and unskilled workers in the Rumelia provinces of the Ottoman Empire. The new dataset indicates that the wage gap between skilled and unskilled workers remained constant until the late eighteenth century. This pattern shifted in favour of skilled workers from the mid-nineteenth century. This study employs regression analysis to identify wage level trends and determine the influence of economic and non-economic variables on wages, based on cash waqf organisations. The results show that wages had a positive correlation with institutional revenues, especially for skilled workers, while social characteristics such as gender or family status had a limited impact. Despite a decline in capitals, many waqfs continued to pay above-subsistence wages, reflecting a socially motivated approach to compensation. The findings highlight the role of cash waqfs in sustaining employment and contribute to the knowledge of Ottoman labour history by offering an alternative to state- or market-centred wage analyses.

1. Introduction

Over the past decades, a substantial body of scholarly work has focused on the emergence and proliferation of cash waqf organisations in the Ottoman Empire. By analysing a wide range of

sources, including contracts (*waqfiyya*), accounting books, and court records, recent scholarship seeks to understand the functions of these organisations and how they evolved over time (Barkan and Ayverdi, 1970; Çizakça, 1995; Orbay, 2014; Gürsoy, 2017, 2021; Karagedikli and Tunçer, 2018; Kaya and Durmuş, 2019; Adıgüzel and Kuran, 2021; Altay, 2022, 2024; Gürsoy and Özdeğer, 2022; Özvar and Yıldırım, 2022; Altay and Bulut, 2024a, 2024b). These historical sources provide useful information regarding the economic, social, and urban history of Ottoman provinces. Additionally, these sources are also important for price history (Özmucur and Pamuk, 2002; Pamuk, 2004a; Orbay, 2004). Overall, waqf records have a significant potential for both qualitative and quantitative analyses. Additionally, other studies have explored the extent to which economic changes have contributed to the rise of cash waqf organisations. Although this body of literature has provided valuable frameworks for analysing the role of these organisations within the Ottoman economy, research on the wages paid to employees has been limited. A recent study, which concentrated on waqfs in Jerusalem during the eighteenth century, has revealed information regarding the demographic characteristics of employees and the wages paid for specific occupations. Although this research primarily employed qualitative rather than quantitative analysis, it offers insightful data that can be used to compare wage levels across various regions of the Ottoman Empire (Memiş, 2020). While several studies have presented statistical analyses of cash waqf organisations from a long-term perspective, no attempt has been made to examine the influence of economic and non-economic factors, such as capital levels and the socioeconomic characteristics of founders, on employee wages. Furthermore, the scarcity of longitudinal data hinders the development of a more comprehensive understanding of wage levels among cash waqf employees. Consequently, there is a significant gap in the literature on this topic.

This study seeks to address the existing gap in literature by conducting a quantitative analysis of wages in Ottoman cash waqf organisations located in the Rumelia region from a long-term

perspective. To achieve this objective, this study employs a new dataset on wages from cash waqf contracts in the Ottoman Rumelia. This data set provides sufficient variables to analyse the determinants of wages. By examining waqf registers, this study provides insights into changes in employee wages and the factors that influence wage levels over time. The results indicate that wage levels rose over time and shed light on the impact of a range of factors on the wages of skilled and unskilled workers. It is important to emphasise that this analysis exclusively assesses the impact of the internal dynamics of cash waqfs established in Ottoman Rumelia on wages. Specifically, these wages pertain to groups such as mosque officials, madrasah scholars, trustees, and janitors who receive compensation within the framework of cash waqfs, as opposed to the workers' wage index commonly referenced in the literature (Özmucur and Pamuk, 2002). Significantly, this study does not investigate wage levels in Ottoman Rumelia. Instead, it offers a temporal analysis of wage levels within cash waqfs of varying capital scales established in this region. Given the limited information available on wages in Ottoman Rumelia, this study presents a qualitative comparison of wages in cash waqfs and dowry (*mehir*) fees, which may serve as a proxy for minimum wages.

Rumelia held considerable importance for the Ottoman Empire. Despite data limitations that impede research on the economic performance of these territories, few studies have provided information on economic structures. In the early sixteenth century, Rumelia provinces generated the highest share of tax revenues, amounting to 198.2 million akche, which accounted for approximately 48 percent of tax revenues (Barkan, 1953, p. 277). These provinces also housed the largest number of soldiers under the *Timar*¹ institution, with their share amounting to about 38 percent and generating al-

¹ The *Timar* institution refers to the allocation of financial resources within contractual relationships. Through these contracts, the state granted economic and political privileges to administrative and military-based groups. The State's primary objectives were to collect taxes and secure land through military groups and to maintain an army under the institutional structure (Pamuk, 2009, p. 13).

most 44 percent of annual revenues (İnalçık, 1997, p. 90). Agricultural production in Rumelia continued to increase until the nineteenth century, with the number of *chiftliks*² increasing substantially from the early seventeenth century to the mid-eighteenth century (McGowan, 1981, p. 88). Rumelia provinces also played a crucial role in long-distance commerce, with trade routes established in the early sixteenth century (İnalçık, 1997, p. 220). In the late eighteenth century this region also boasted a thriving manufacturing sector which produced commercial items such as cotton, wool, oil, tobacco, and hides. The export of raw cotton from Salonica port to Paris increased from thirty thousand livres in 1701 to 2.1 million livres between 1786 and 1789 (McGowan, 1981, p. 33). Additionally, the judicial districts were densely dispersed within Rumelia, and the population increased according to the head taxes regularly recorded in these courts (McGowan, 1981, pp. 85-94). These figures underscore the economic and military importance of Rumelia during the Ottoman period, which made the economic history of these provinces significant. Examining the proliferation of cash waqf organisations and employee wages from a distinct perspective makes a relevant contribution to the literature of the sector.

This study has two primary objectives. The first one is to highlight the wage levels of various groups working in cash waqf organisations describing the historical development of wages from a temporal and comparative perspective. Although data constraints hinder the completion of comprehensive data, this perspective identifies the basic wage-level patterns. The second objective is to analyse employee wages using econometric methods. The primary aim is to comprehend the long-term impact of economic and non-economic factors on wage levels considering the socioeconomic structure of cash waqf organisations.

² Agricultural production units held by peasant families (İnalçık, 1997, p. 146).

2. The Development of Cash Waqf Organisations in Ottoman Context

Islamic waqf is a private trust fund established by individuals for charitable and pious purposes. The provision of alms is one of the most important obligations in Islamic society. According to Islamic teachings, individuals devote a portion of their wealth to society's well-being. This practice was later institutionalized through Quranic injunctions, Muhammadan precedents, and organisational developments (Koehler, 2014, pp. 117-118). As a result, waqf institutions have emerged as institutional innovations. An individual can endow privately owned properties, known as a corpus, for charitable and pious purposes, and waqf uses the revenues generated through the corpus to fulfil the objectives for the benefit of society (Çizakça, 2000, p. 1). In the earlier forms of waqf organisations, the corpus consisted of tangible assets, such as houses, farmlands, shops, mills, and several types of real estate.

The earliest waqfs were small-scale organisations with a limited corpus and limited revenue-generating capacity. Nevertheless, these organisations played a significant role in financing the poor from the seventh century onwards. As Islamic societies expanded their territories and their commercial activities throughout the Mediterranean, the revenue generated from trade provided higher returns, leading to increased income and capital accumulation in Middle Eastern societies. According to a recent study, there has been a notable rise in both wage levels and per capita GDP in Middle Eastern societies between the years 700 and 1500 (Pamuk and Shatzmiller, 2014). The wealthy individuals who benefitted from this economic growth established waqfs on a larger scale, and the functions and endowments of these organisations extended beyond the relief to the poor to encompass assorted services. In the eleventh century, waqfs became an economic tool for providing financial resources to family members and educational facilities (madrasahs) in Iran (Arjomand, 1998, p. 113). Subsequently, the Seljuq Empire and Mongol rulers continued to promote waqfs as a public policy that facilitated the spread of education (Keser and Kurt, 2016, p. 67).

During the Ottoman period, waqf proliferation increased. The Ottomans employed waqfs inherited from earlier Islamic societies for several reasons. Waqfs were local economic organisations, and their founders had better information about public needs than state authorities. The existing literature shared common belief that waqf organisations increase social welfare (Barkan, 1942; Mandeville, 1979; Göyünç, 1991; Peri, 1992; Çizakça, 1995; Kuran, 2001; Shatzmiller, 2001; Shechter, 2005; Wilson, 2015). In earlier periods, waqfs used their income from the endowed corpus to maintain religious settlements such as mosques, masjids, dervish lodges, and za-wiyas. During the Ottoman Empire, the economic contribution of cash waqfs expanded to cover non-religious social purposes. Public goods that had to be produced through government expenditure were also included among the purposes of cash waqfs. Thus, waqfs played a complementary role in public services. Merchants, farmers, city dwellers, the poor, and the students were the main beneficiaries. The services of waqfs also included poverty relief such as financing soup kitchens, shelters, and clothing (Peri, 1992, p. 167; Kamel, 2014, p. 233; Khan, 2015, p. 985). Some cash waqfs promoted productive economic activities by financing the construction of infrastructure projects such as bedestens (covered bazaars), caravansaries, roads, bridges, and waterways, which also increased the welfare of city dwellers (Barkan, 1942, p. 294; Arjomand, 1998, p. 112; Wilson, 2015, p. 37). Hospitals and educational organisations have emerged to enhance not only economic welfare but also social welfare by promoting employment, human capital, and social services (Keser and Kurt, 2016). From this perspective, waqfs were bottom-up institutions instead of top-down ones, in which each founder and its endowment were better positioned to ascertain the tangible needs of society. These organisations offered a simple and effective means of supplying public goods for government expenditure.

The proliferation of waqf organisations was attributed to the inheritance law, which facilitated the distribution of bequests among successors, similar to earlier periods of Islam (Kuran, 2005, pp. 800-801). These organisations served as indirect means for founders to

secure their assets from fragmentation (Barkan, 1940, p. 159; Layish, 1997, p. 352). Furthermore, in the Ottoman Empire the state had the authority to confiscate the corpus, particularly during extraordinary times (Singer, 2013, p. 352). To circumvent the inheritance law, founders established cash waqfs to prevent the state from seizing their wealth. A notable example is Esad Pasha, who converted his substantial gains from tax-farming contracts into waqfs (Rafeq, 2012, p. 121). Thus, cash waqfs serve the additional economic function of securing wealth against government expropriation (Yüksel, 1992).

The establishment of waqf organisations was motivated by the protection of family assets (Kuran, 2013, p. 400; Kuran, 2016, p. 430). There are two ways to examine the role of families in this context. One of the functions of waqfs is to prevent the fragmentation of wealth, and founders appoint themselves or their relatives as waqf managers (*mutawalli*) or employees to guarantee an income as long as waqf exists (Layish, 1997, p. 386). The primary purpose of the founder was to provide financial resources to beneficiaries, while pious and social purposes became secondary, in order of priority (Yüksel, 1992, p. 424; Çizakça, 2000, p. 22). In other words, self-support became a priority when establishing these organisations. Estimates indicate that from 1457 to 1923 the share of self-support accounted for approximately 71 percent in Istanbul and 40 percent based on Bosnia cash waqfs for the same period (Adıgüzel and Kuran, 2021, p. 22; Altay, 2022, p. 63). Secondly, the main motivation of the founders was to guarantee the sustainability of waqfs by employing themselves or their relatives assuming that family members would devote themselves to maintaining the value of the corpus for their interests (Barkan, 1940, p. 161). These organisations were important for the transfer of financial resources in exchange for education and for the promotion of Islamic principles for both appointed family members and other beneficiaries within the waqf. Thus, family waqfs were not only instrumental in protecting wealth from fragmentation and confiscation but also for ensuring long-term and sustainable financial capital. Among the reasons for the emergence of foundations, the former view continues to prevail over the latter.

The emergence and proliferation of waqf organisations were also influenced by reputation and privileges. The state granted economic and political privileges to individuals in different periods of the Ottoman Empire. The sultans set up coalitions with powerful groups capable of organizing society with regard to military, commercial, and religious matters. These powerful groups included sheiks, ahis, and high-ranking military officers, who were granted privileges in the early years of the Ottoman Empire (Barkan, 1942, pp. 262-263). Each group was given the right to collect taxes from specific lands, villages, or towns, allowing them to expand their financial control over their resources. In return for these privileges, these groups would dedicate their lands or wealth to establish waqfs. During the early years of the Ottoman state, having a good reputation and being honoured within the community was a significant motivator for individuals to establish waqfs (Singer, 2013, p. 353).

The proliferation of waqf organisations during the early periods of Islam up to the fifteenth century was primarily driven by several factors, including a changing economic environment, an increasing population, strengthened commercial relations between towns and rural areas, and heightened circulation of money, all of which resulted in a growing demand for cash capital in the market (Çiftçi, 2004, p. 80). In response to this need, cash waqf organisations emerged as an innovative form of waqf to provide cash capital for the market. The difference between this new form and the earlier one was that the founders could establish their waqfs with cash capital rather than immovable assets. Although there has been considerable debate among Islamic scholars regarding the legitimacy of cash waqf organisations, Islamic jurists generally approve of their existence (Mandeville, 1979). The number of cash waqf organisations continued to rise in the Ottoman Empire, especially from the sixteenth century, and by the eighteenth century, their share surpassed that of the waqfs established with immovable assets. A case study of Bursa waqfs revealed that cash waqfs accounted for approximately 72 percent of all waqfs, whereas waqfs established with only immovable assets accounted for only 7.5 percent (Çiftçi, 2004, p. 82).

The emergence and proliferation of cash waqfs were facilitated by several factors that made these organisations more beneficial and useful to the economic environment. First, unlike traditional waqfs, which require real estate as the basic condition for the establishment, cash waqfs were more accessible to individuals from diverse socio-economic backgrounds (Kaya et al., 2017, p. 51). Consequently, lower-income groups gained the opportunity to establish these organisations, even on a small scale, without any restrictions on their capital. This development led to a rapid proliferation of cash waqfs in the early sixteenth century, particularly in Istanbul.

Second, cash waqf organisations proved to be more effective in preserving the value of capital and ensuring sustainable income (Orbay, 2014, p. 1012). Unlike waqf organisations established with immovable assets, which generated revenue through rent and agricultural production, cash waqfs did not face the burden of the high maintenance costs associated with managing such assets. Consequently, the income generated from cash waqfs was more sustainable, and their resources could be used for other purposes. In summary, the emergence and proliferation of cash waqfs were facilitated by their accessibility, adaptability, and sustainability, making them an increasingly popular method of charitable giving in the early sixteenth century (Gürsoy, 2017, p. 162).

With the proliferation of cash waqf organisations, the utilisation of money in the market increased at an accelerated pace. These organisations, which shared similar objectives with their predecessors, not only provided financial resources for religious purposes but also supported education, infrastructure, trade, and aid for the poor through revenues generated from credit relationships. In other words, cash waqf organisations began to operate as microcredit institutions. Borrowing from these organisations became a widespread practice in Istanbul during the sixteenth century. Based on estimates of Istanbul cash waqfs, the number of these organisations increased from 41 to 677 between the fifteenth and sixteenth centuries (Barkan and Ayverdi, 1970, p. XXXI). A study focusing on 116 cash waqfs in the Üsküdar neighbourhood of Istanbul revealed that borrowers had

taken 1,061 loans from these organisations between 1514 and 1566 (Özcan, 2003, p. 375). In the eighteenth century instead, there were 740 loans for 70 cash waqfs in Uskudar (Kaya, 2010, p. 106). The use of cash waqfs as financial institutions spread to cities near Istanbul, particularly during the eighteenth century. In the second half of the eighteenth century, Bursa, an important commercial city in the Ottoman Empire featured 245 cash waqfs, which provided 2,656 loans to borrowers (Çizakça, 1995, p. 335). The rate of spread has accelerated over time in cities such as Manisa, Edirne, Thessaloniki, and Bosnia (Emecen, 1989; Aydın, 2014; Orbay, 2014; Altay, 2022).

From the early sixteenth century onwards, cash waqf organisations prevailed in the institutional environment. As previously stated, each cash waqf maintained the same objectives as those of traditional waqfs, with a portion of the revenue allocated to funding services as specified in the waqf contracts. Trustees recruited individuals from diverse social strata to carry out various occupations. The subsequent section explores the historical development of certain professions and their wage trends, serving as a foundation for the wage analysis conducted in this study.

3. Source and Data: Long-Term Determinants of Wage Levels

This part of the essay examines from a long-term perspective the wages paid in the cash waqfs of Ottoman Rumelia. Data were collected from 972 cash waqf contracts kept in two main archives: the Directorate General of Foundations (VGMA) and the Sarajevo Gazi Husrev Beg Library (Bulut et al., 2019). The collection of Rumelia cash waqf contracts contained documents dated from 1506 up to 1921 relating to more than 1,000 organisations. While the majority are cash waqfs, some are hybrid organisations established with both cash capital and immovable assets. The hybrids waqfs have been excluded from the study dataset because it was extremely difficult to accurately estimate income generated from immovable assets. Since capital levels form the basis of wage calculations, the inability to de-

termine income from such capital introduces significant distortions. Consequently, the dataset includes only 972 waqfs funded solely with cash capital.

The first step was to construct long-term wage trends for skilled and unskilled workers. Skilled workers comprised religious officials serving in mosques, such as imams and preachers, trustees (*mutawalli*) and scholars (*müderris*), whereas the latter group included employees working as janitors. The average wage level of the former group serves as the basis for skilled worker wages.

One might question the inclusion of trustees in the “skilled” category. This inquiry is both reasonable and understandable given that formal education was not a prerequisite for becoming a trustee, and any relative of the founders could readily be appointed to this role. Nonetheless, it was crucial for an individual to possess certain qualities and competencies to effectively fulfil the responsibilities of a trustee. It is appropriate to classify the trustees (*mütevellis*) of Ottoman cash waqfs as part of the skilled labour force, akin to figures such as imams and müderris (religious scholars). This classification is primarily based on the level of education, responsibility, and institutional knowledge required to fulfil their duties. It could be understood that trustees were typically literate, often possessed backgrounds in religious or legal education, and held a degree of social and professional prestige within their communities. As it is known, like imams and müderris, their roles envisaged more than routine tasks; they were entrusted with responsibilities that demanded intellectual engagement and consistent administrative performance. Managing a cash waqf involved a wide array of complex responsibilities. This suggests that trustees were expected to administer endowment capital, issue loans, maintain detailed financial records, and oversee the distribution of revenue in accordance with waqf deed terms. These tasks require not only basic literacy but also knowledge of accounting practices, Islamic law, and local judicial procedures. In this regard, the role of the trustee extends far beyond that of unskilled labour, aligning more closely with what contemporary scholarship would define white-collar or skilled work. Further-

more, the institutional embeddedness of trustees within the Ottoman legal and bureaucratic framework further supports their inclusion in the skilled labour category. It is commonly known that their activities were subject to court registers (*Şeriye Sicilleri*) and they were required to submit reports, respond to audits, and occasionally defend their management decisions in legal settings. This level of bureaucratic interaction and accountability underscores their work's technical and professional characteristics. Nonetheless, it is important to acknowledge the variations in the backgrounds and qualifications of trustees across different waqfs. While many possessed competencies associated with skilled labour, others may have been appointed based on local standing or personal trust without any formal education. Therefore, including trustees in the skilled labour category is justifiable, provided that the definition of "skilled" incorporates not only formal training but also administrative competence and sustained responsibility.

Waqf contracts, prepared by Ottoman waqf registers at the request of founders, provide detailed information about the socioeconomic status of the founders, locations, capital levels, profit shares, waqf deeds, employees, and their wages. They list all occupations within organisations, including wages paid from revenues. In this study, the wages received by certain working groups were obtained from the data relating to the cash waqf deeds generated at the time of establishment.

Prior to examining employee wages within cash waqf organisations, it would be beneficial to present the long-term proliferation of these organisations in Ottoman Rumelia. The data revealed an upward trend in the number of newly established cash waqfs in the Rumelia region. While only 72 and 89 cash waqfs were established in the sixteenth and seventeenth centuries, respectively, this number increased significantly to 219 during the eighteenth century. In the nineteenth century, there were 425 new cash waqf organisations, and this figure decreased to 167 in the early twentieth century (See Appendix A). However, it is important to note that this decline occurred within a limited timeframe, from 1900 to 1921. These findings are

compatible with the recent scholarship discussed in the previous part. Since this study focuses on long-term wage levels and their analysis, providing detailed historical information on Rumelia cash waqfs is beyond the scope of this study. General descriptions of the other variables are provided along with general statistics in the following part.

The information provided in waqf contracts serves as a valuable yet limited source for understanding the historical wage levels in Ottoman Rumelia. Wages for which employees had income from different organisations are not included in the contracts. These wages are further limited by the revenues generated by the initial capital. The wage analysis presented in this study compares the wages of skilled and unskilled workers employed in these organisations but is not sufficient for discussing market wages in Ottoman Rumelia. Additionally, the data set used for this analysis is incomplete and scattered and has been divided into 11-year periods for the purpose of analysis. Despite these limitations, waqf contracts provide a unique source of data on wage levels from a long-term perspective and are invaluable for conducting quantitative analyses on wage levels in waqf organisations prior to modern periods.

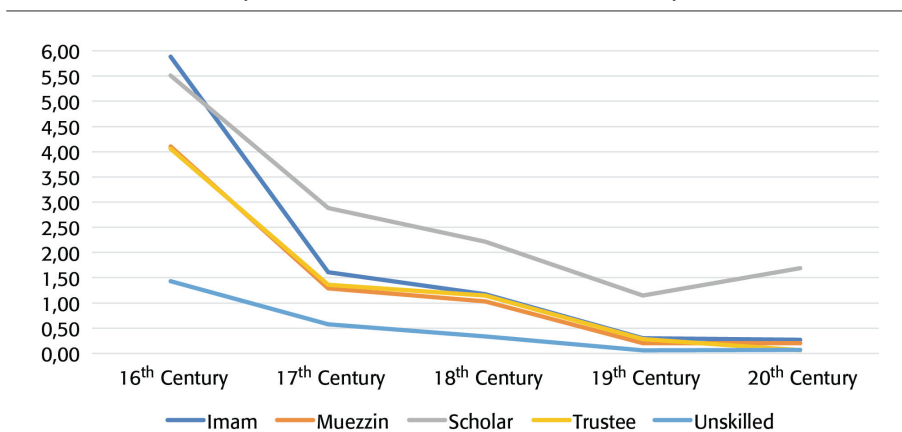
Segmenting the historical dataset into 11-year intervals offers several analytical benefits, particularly when addressing fragmented and unevenly distributed sources, such as waqf contracts (Appendix A). First, this method aids in smoothing short-term fluctuations and irregularities that may arise from sporadic data availability, thereby providing a more stable foundation for identifying long-term wage level trends. Second, organizing the data into decadal-plus intervals achieves a balance between granularity and interpretability, while facilitating the capture of temporal variation. It also alleviates the issue of sparsity associated with shorter intervals, particularly given the limited number of surviving contracts per year. Third, the 11-year period is sufficiently extensive to allow for the aggregation of data points across multiple institutions, enhancing the robustness of the analysis without excessively diluting temporal specificity. This temporal structure is particularly advantageous for time-series-

based econometric analyses, as it enables the detection of structural changes or shifts in wage patterns over time despite the inherent limitations of archival records. Overall, the use of 11-year intervals represents a practical compromise between data availability and analytical rigor in the context of long-term wage analysis in Ottoman Rumelia waqf institutions.

To minimize variations in wage levels, commonly defined professions were utilized in all cash waqf contracts, to any possible extent. As previously mentioned, the first group, comprising skilled workers, consisted of imams, trustees, and scholars. These groups provided the most reliable long-term series and had the highest share among working groups. For unskilled workers, the janitors responsible for the daily maintenance of facilities generated a dataset with a long-term series. Cash waqf contracts also provided information on other groups of unskilled workers such as those who lit candles, students, and those who worked in soup kitchens. However, as these groups appear in very few contracts, their wages were excluded from the sample.

Figure 1 illustrates the average real daily wages paid to various

FIGURE 1
Average Daily Wages of Different Groups
(In akche, Real Values in 1469 Prices)



Source: Author's calculations from primary sources. See also, Bulut et al., 2019.

occupational groups, including imams, muezzins, scholars, trustees, and unskilled workers over a span of five centuries, as derived from the records of Ottoman Rumelia cash waqfs. All figures are adjusted to 1469 price levels, facilitating meaningful temporal comparisons in terms of purchasing power (Pamuk, 2004a, p. 455). A notable aspect of the data is the persistent decline in real wages across all occupational groups from the sixteenth century to the twentieth century. For example, the average wage of an imam decreased from 5.89 in the sixteenth century to merely 0.27 by the twentieth century, indicating significant erosion in real income. Similarly, unskilled workers experienced a decline from 1.43 to 0.07. This trend suggests widespread deterioration in wage levels, potentially driven by long-term inflationary pressures, fiscal strain, institutional decline in waqf revenues, or a shift in the economic significance of these positions (Altay and Bulut, 2024a).

Despite this general decline, the relative hierarchy among occupations remained largely stable. Scholars consistently received the highest real wages among all categories, particularly in the eighteenth and twentieth centuries (e.g., 2.22 and 1.69, respectively), underscoring their continued elite status within the waqf system. Conversely, unskilled labourers consistently occupy the lowest position on the pay scale in every period. The most pronounced decline in wages occurred between the sixteenth and seventeenth centuries, especially for imams (from 5.89 to 1.61) and trustees (from 4.06 to 1.37). This decline reflects the broader structural challenges faced by the Ottoman economy in the seventeenth century, such as monetary debasement, warfare, and increasing state intervention in the finances of religious endowments (Pamuk 2004b).

The nineteenth and twentieth centuries exhibited near-negligible wages, particularly for trustees and unskilled workers. Trustee wages, for instance, fell from 1.15 in the eighteenth century to 0.06 in the twentieth century. This collapse may reflect the declining real revenues of cash waqfs and the increasing marginalisation of these institutions in the face of modern state structures and centralized public finance reforms. Interestingly, while most occupational

groups continued to lose purchasing power in the twentieth century, scholars' wages experienced a rebound from 1.15 in the nineteenth to 1.69 in the twentieth century. This anomaly could suggest selective endowments for scholarly positions or attempts by waqf founders to preserve prestigious roles, even amid a general institutional decline. The data provides a clear depiction of the long-term economic decline within the waqf-based employment system in Ottoman Rumelia, in both absolute and relative terms. However, the persistence of occupational wage hierarchies suggests that social and institutional distinctions continued to hold significance, even though the real economic value of waqf-funded wages diminished significantly over time. This trend underscores the necessity of interpreting waqf-based wage data not only in economic terms but also in relation to the changing institutional, fiscal, and social dynamics of the Ottoman Empire.

It is difficult to determine whether these groups had additional income from other organisations, as stated previously. Furthermore, information regarding living standards in Ottoman Rumelia is limited. One variable that can indicate individuals' minimum need is alimony payments (*nafaka*), which are determined by the court and paid to divorced women. Data from the first half of the seventeenth century in Monastir, one of the most developed cities in Macedonia, showed that the *nafaka* payments for a single woman ranged from four to seven akche per day.³ In terms of 1469 prices, these values range from 1.13 to 1.98 akche per day, which is below the wages for skilled labour but comparable to those for unskilled labour during the same period. In the late eighteenth century, these payments increased to six to nine akches in the same province.⁴ In real terms, these figures are approximately between 0.47 and 0.70 per day, which are lower than those of skilled and unskilled wages paid by cash waqfs in Ottoman Rumelia. By the first half of the nineteenth century, *nafaka* payments in Monastir rose to approximately 10

³ Ottoman Prime Ministry Archives (BOA), *Manastir Court Records* 8, 2/2; 5/2; 30/3.

⁴ BOA, *Manastir Court Records* 63, 15/1; 38/3.

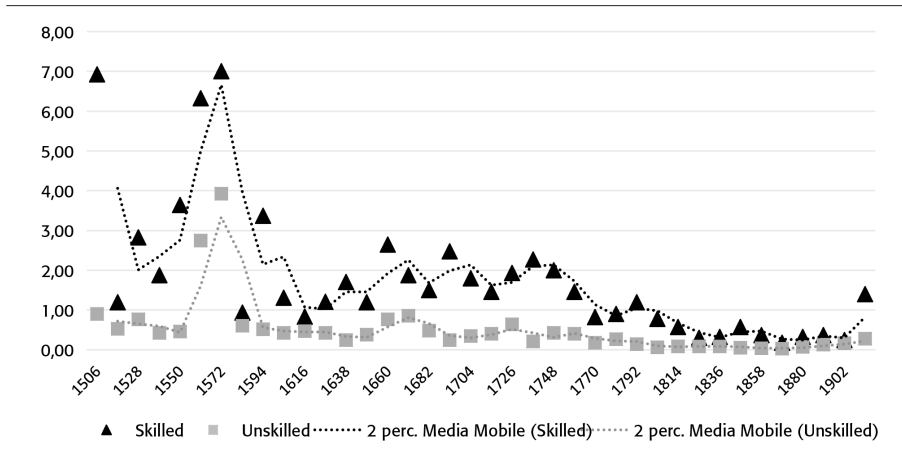
akche.⁵ In real terms, this figure is about 0.13 akche per day, and this figure is close to the one of unskilled wages during the same period. However, wages of skilled workers are still higher than those of nafaka payments that appeared in the early nineteenth century. These findings suggest that cash waqf organisations in Ottoman Rumelia were offering daily wages higher than the minimum subsistence level (Figure 1 and 2). While the daily wages remained close to subsistence levels until the late eighteenth century, the gap between them increased in the early nineteenth century. However, it should be noted that the wages of unskilled workers remained close to the minimum subsistence level throughout all periods.

Most importantly, this downward trajectory in wages is closely linked to a progressive decline in the capital stock of cash waqfs during the nineteenth century (Karagedikli and Tunçer, 2018). Estimates based on cash waqfs located in Ottoman Rumelia indicate significant declines in capital levels in real terms (Altay and Bulut, 2004b, p. 68). As employee wages were funded through the returns generated by these endowments, any reduction in their principal capital inevitably resulted in decreased institutional revenues, and consequently, reduced wage allocations. Therefore, diminishing waqf capital, whether due to inflation, mismanagement, changing donation patterns, or economic contraction, emerges as a significant structural factor contributing to the persistent decline in real wages observed in the dataset (Altay and Bulut, 2024a, p. 635). This underscores the broader vulnerability of the waqf-based remuneration system in the face of long-term fiscal and institutional pressure.

Figure 2 illustrates the average real daily wages, adjusted to 1469 price levels, for skilled and unskilled labourers employed in Ottoman Rumelia cash waqfs and seen from a long-term perspective. The data reveals a pronounced and enduring decline in real wages for both categories, although the trajectory and magnitude of this decline differ according to skill level. From the sixteenth to nine-

⁵ BOA, *Manastır Court Records* 103, 9.

FIGURE 2
Average Daily Wages of Cash Waqf Employees
(In akche, Real Values in 1469 Prices)



Source: Author's calculations from primary sources. See also, Bulut et al., 2019.

teenth centuries, real wages for both skilled and unskilled workers show a consistent and substantial decrease. Skilled workers' wages fell from 3.79 to 0.42, whereas unskilled workers experienced an even more pronounced decline from 1.21 to 0.07. This erosion of real wages suggests not only a contraction in the economic capacity of waqf institutions but also broader macroeconomic challenges, such as inflation, war-related disruptions, and the decreasing fiscal sustainability of charitable foundations. During the early centuries, particularly the sixteenth and seventeenth centuries, the wage gap between skilled and unskilled workers was relatively wide, with skilled workers earning more than three times the wage of unskilled workers. This differential narrowed by the eighteenth and nineteenth centuries, reaching a ratio of approximately 6:1 in the nineteenth century, which may reflect an increasingly symbolic or nominal wage structure rather than one that is responsive to labour market conditions. Notably, by the twentieth century, skilled wages rebounded slightly to 0.82, whereas unskilled wages rose to 0.22. Although modest, this partial recovery may indicate targeted efforts by some waqfs to sustain skilled positions or may reflect relative

price stabilization or selective endowment inflows. The overall decline in wages for both skill groups can be largely attributed to the gradual depletion of cash waqf capital over time. Since wages in these institutions were financed through the returns generated from invested endowment funds, a reduction in capital stock – due to inflation, loss of donor interest, or administrative mismanagement – directly undermined income flows. As returns diminished, so did the institutions' capability to remunerate labour, particularly in nominally fixed roles tied to stagnant or shrinking financial resources. The data clearly reflects the long-term erosion of real wages for both skilled and unskilled labourers within the cash waqf system of Ottoman Rumelia. While skilled workers consistently commanded higher wages, the decline in their compensation mirrored broader institutional fragility. The core driver of this trend appears to be the progressive weakening of waqf capital, underscoring the dependency of wage structures on the financial health of endowments rather than on broader labour market forces. This reinforces the need to interpret waqf-based wage data not only as economic indicators but also as reflections of institutional viability over time.

The longitudinal analysis of skilled and unskilled wage trends in Ottoman Rumelia, as presented in this study, reveals a general pattern of decline from the sixteenth century to the nineteenth century. This trend is consistent with the findings of Özmucur and Pamuk (2002, 306) up to the early nineteenth century. However, a significant divergence was observed thereafter. While Özmucur and Pamuk (2002, 301) report a modest increase in real wages, particularly for construction workers in Istanbul during the nineteenth century, data from Ottoman Rumelia continue to demonstrate a persistent downward trajectory. This discrepancy can be attributed to geographic and occupational differences in the datasets. Specifically, Özmucur and Pamuk (2002)'s analysis is based on a wage series for urban construction workers in Istanbul, who were likely more integrated into commercial labour markets and influenced by changing demand conditions. In contrast, the present study focuses on cash waqf employees – such as imams, muezzins, trustees, and

scholars – whose wages were determined not by market forces but by the revenues generated from endowment capital.

This distinction is crucial; by the nineteenth century, numerous Rumelia cash waqfs had undergone a gradual depletion of their capital bases, significantly constraining their capacity to maintain historical wage levels. Consequently, the downward pressure on wages persisted even as broader urban wage trends in Istanbul began to recover. Therefore, the divergence from Özmucur and Pamuk (2002)'s findings should not be perceived as contradictory but rather as a natural consequence of institutional differences – specifically, the unique reliance of waqf-based wages on diminishing endowment capital, which resulted in a structurally distinct wage trajectory in Ottoman Rumelia (Altay and Bulut, 2024a, 2024b).

In general, an examination of the estimates for skilled and unskilled worker wages yields noteworthy results. On average, scholar wages are higher than those of the other groups, indicating a substantial level of wage payments for these groups. Only imam wages appear comparable to these wages. Surprisingly, trustee wages were significantly higher only in the nineteenth century than in other periods. It is possible that the increasing share of family waqfs in the nineteenth century played a crucial role in increasing trustee wages. Furthermore, it can be assumed that centralization efforts in the institutional structure of waqf organisations played a crucial role in decreasing trustee wages in the early twentieth century. The observed trends in daily wages are the primary focus of the quantitative analysis in the following part of this study. Therefore, this study investigates the determinants of wages through an analysis of the economic and non-economic variables.

4. Analysis: Determinants of Wages in Cash Waqf Organisations

This study employs a regression analysis to examine the determinants of daily wages, utilizing data from waqf contracts spanning from the sixteenth century to the early twentieth century. This study

incorporates information on several economic and non-economic factors that are expected to influence wage levels, as well as an explanatory variable constructed from reliable secondary sources, namely the silver content of the akche. Given that all data reflect real values in accordance with the Istanbul Consumer Price Index, the CPI is excluded from the model because of its lack of impact. Specifically, wages and income derived from the capital of cash waqfs are adjusted from nominal to real values. The dataset includes a second group of variables to determine their impact on wage levels, as specified in Table 1.

Revenues of cash waqf organisations – as a proxy for waqf revenues generated from cash capital through different profit rates, which are used in the analysis for both skilled and unskilled worker wages – represent the nominal values of revenues that were crucial for waqf deeds. These revenues depend on the gains generated from cash capital through credit relationships, and each waqf contract provides information on profit share (*rihb*).⁶ Due to the interest ban, cash waqf organisations have employed different borrowing methods, including *muâmele-i şer'iyye*, *karz*, *bey'*, *bey' bi'l-vefâ*, and *bey' li'l-istiğlâl*.⁷ The most widely used method is *muâmele-i şer'iyye*, which accounts for approximately 83 percent of all the methods (Özcan, 2003, p. 375). The primary sources include the rate of return or profit shares from borrowings, which varied between 9 and 20 percent in Ottoman Rumelia. This study employs these rates to determine the revenue

⁶ The term “rihb” denotes the profit rate, which encompasses the borrowing expense. Conversely, the term “riba” signifies all forms of usury in the institutional context of debt transactions.

⁷ The purpose of these methods is to prevent interest-based credit relationships. The most common method, *muâmele-i şer'iyye*, involves organizing credit relationships through the exchange of goods between lenders and borrowers. In this method, the lender purchases an item from the borrower at a price equal to the loan and then sells the same item back to the borrower at a higher price on a term basis for a period of 12 months. The practice of *karz* is similar, with the only difference being the unknown maturity period. The terms *bey'*, *bey' bi'l-vefâ*, and *bey' li'l-istiğlâl* are similar in principle, as they all involve borrowers providing valuable collateral to the lender, which is then returned with an additional payment when the debt is repaid.

of each organisation, which are essential financial sources for wages and services and are obtained by multiplying capital levels and profit shares.

The titles of waqf founders consist of two main groups: founders with titles and commoners. Although contracts may not provide explicit information about whether these titles are honorific, this study assumes that all titles are relevant for understanding the effects of these variables on wages. If a contract does not specify a title for the founder, the founder is considered as an ordinary individual or a commoner. The results indicate that approximately 69 percent of the waqf founders held titles. Another significant variable in the analysis is the gender of waqf founders. Within the dataset, it is indicated that a substantial majority (85 percent) of cash waqf organisations were established by males. The proportions of both males and females were expressed in logarithmic form.

The share of services – as a proxy for religious services and other services – represents the proportion of cash waqf organisations that provide financial resources to religious services as well as other services. A substantial portion (81 percent) of cash waqf organisations allocated financial resources to religious services. Additionally, 66 percent of all observations were attributed to cash waqf organisations funding other services. Since some cash waqf organisations funded more services, the share of services added up to more than 100 percent. The analysis also included a variable based on the number of services financed by cash waqf organisations. Of the organisations, 68 percent funded only one service, while the remaining 32 percent provided financial resources for two or more services. Furthermore, the variables in the analysis were expressed in logarithmic form.

Family Waqfs – as a proxy for self-support – represents the proportion of cash waqf organisations that provided funds for self-support and non-family support. The proportion of cash waqf organisations that funded self-support was approximately 45 percent. Waqf contracts provide comprehensive information about family support. This support can be classified into two categories: first,

when the founders appointed themselves as trustees and received wages, and second, when the founders assigned their relatives or children to a specific task and ensured that they were paid from waqf revenues. The analysis focused on organisations that contained these two categories, whereas the rest generated non-family waqfs. In the regression analysis, these variables were transformed into logarithmic forms, similar to the other variables.

Number of Services Funded by Cash Waqfs – as a proxy for employment – is used in the regression as a determinant of wages. The number of services provided by an organisation has two implications for wages. First, if an organisation allocates financial resources to several services, it will employ a substantial workforce. However, owing to the limited resources resulting from revenue dependency on capital, workers' wages are reduced. Second, an organisation that finances only one service can offer higher wages to its workers. In the sample, cash waqfs that financed a single service constituted approximately 68 percent, while organisations that financed at least two services accounted for about 32 percent in Ottoman Rumelia.

Table 1 presents descriptive statistics of the variables used in the regression analysis. A significant difference in the average annual wage levels of skilled and unskilled workers is evident. Additionally, the dataset reveals a significant difference in revenues for 38 sub-periods, ranging from 1506 to 1921. Furthermore, among cash waqfs based on socioeconomic variables, titled founders and males have higher shares than commoners and females, which also applies to cash waqfs financing religious services, self-support, and organisations funding only a single service. It is important to note that the annual wage levels presented in Table 1 must be used because cash waqf revenue is calculated annually.

This study uses regression analysis to examine the impact of various variables on wage levels for both skilled (SWW) and unskilled (UWW) workers, with wage levels serving as the dependent variables. The analysis includes a range of combinations of these variables in the equation, and the results are presented in Tables 2 and 3. It is important to note that all variables are expressed in natural

TABLE 1
Descriptive Statistics

Variables	Min	Max	Mean	Standard Deviation
Skilled Worker Wages (SWW)*	857	34,055	8,260.68	8,727.92
Unskilled Worker Wages (UWW)*	240	8,200	1,762.03	1840.54
Silver Content of Akche (SC)*	0.00802	0.65700	0.21998	0.23001
Revenues (REV)*	3,850	1,103,827	123,967.55	206,979.61
Proportion of Titled Individuals (TITLE)	0.33	0.90	0.70	0.15
Proportion of Commoners (COM)*	0.10	0.67	0.30	0.15
Proportion of Males (M)	0.54	0.96	0.80	0.10
Proportion of Females (F)*	0.04	0.46	0.20	0.10
Proportion of Religious Services (REL)	0.25	0.97	0.68	0.17
Proportion of Other Services (OTHER)*	0.03	0.75	0.32	0.17
Proportion of Family Waqfs (FAM)*	0.13	0.86	0.53	0.18
Proportion of Non-Family Waqfs (NFAM)*	0.14	0.87	0.47	0.18
Proportion of 1 Service (SINGLE)	0.16	0.93	0.49	0.21
Proportion of 1+ Services (MULTIPLE)*	0.07	0.84	0.51	0.21

Notes: All variables are used in logarithmic forms within the regression analysis. * represents variables which have a unit root. The first difference is taken for these variables to make them stationary to run a regression model. Abbreviations in parenthesis.

log values; therefore, the coefficients represent the elasticity of wages for both skilled and unskilled workers in natural logs in response to changes in the variables. To comprehensively assess the influence of all variables on wage levels, the analysis includes six models for each group of skilled and unskilled workers' wages (Tables 2 and 3).

To assess the impact of economic variables on wage levels, this study utilises "the silver content of akche" and waqf revenues in various combinations. Initially, the analysis focuses solely on these two variables. Additional socioeconomic variables are incorporated into the regression model to demonstrate their influence on wages. The second model specifically aims to evaluate the disparate effects of cash waqfs established by titled individuals and commoners. The third model examines the effects of the founders' gender. Each model employs socioeconomic variable pairs in addition to the eco-

conomic variables within the regression model. Owing to the constraints of historical data, each variable has restricted values, necessitating the use of a Tobit model to estimate the impact on wage levels. The implementation of this method allows for a discussion of the coefficients associated with each variable.

TABLE 2
Regression Analysis of the Determinants of Skilled Worker Wages

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
SC	-0.22 (0.48)	-0.33 (0.47)	-0.32 (0.50)	-0.22 (0.49)	-0.32 (0.47)	-0.23 (0.50)
REV	0.19*** (0.07)	0.21*** (0.06)	0.19*** (0.07)	0.20*** (0.07)	0.20*** (0.06)	0.19*** (0.07)
TITLE		0.81* (0.40)				
COM		0.04 (0.20)				
MALE			0.63 (0.84)			
FEMALE			-0.04 (0.20)			
REL				0.51 (0.40)		
OTHER				0.13 (0.20)		
FAM					-0.40* (0.21)	
NFAM					-0.03 (0.33)	
SINGLE						0.03 (0.23)
MULTIPLE						0.05 (0.25)
CONSTANT	-0.01 (0.11)	0.28 (0.18)	0.11 (0.22)	0.20 (0.19)	-0.03 (0.11)	0.01 (0.21)
N	972	972	972	972	972	972
R ²	0.20	0.29	0.22	0.24	0.27	0.20
F	4.25	4.39	2.31	2.54	4.14	2.01

Note: Parentheses gives standard errors. *** indicates significance at 1%, ** at 5%, and * at 10%.

Table 2 presents the findings, revealing the effects of determinants on skilled worker wages. The influence of cash waqf revenue on skilled worker wages is consistently demonstrated by the positive and statistically significant coefficients across all the models. Moreover, the values of these coefficients are relatively similar, hovering at around 0.20, despite the varying combinations of other variables controlled in the analysis. Conversely, the coefficient representing the silver content of akche is consistently negative and insignificant in all the models. Taken together, these findings suggest that cash waqf revenues play a role in determining the wages of skilled workers.

To examine the impact of socioeconomic status on skilled worker wages, this study employs a regression model that incorporates the titles of founders in Model 2. The model utilises logarithmic forms to generate variables for the shares of cash waqfs established by titled individuals and commoners and includes both variables to differentiate their differential effects. The coefficient for titled individuals is positive and statistically significant, whereas the coefficient for commoners is positive but insignificant. Additionally, the results indicate that titled individuals have a greater effect on skilled worker wages than commoners. Model 3 introduces founders' gender as a determinant of skilled workers' wages, with the coefficient for males being positive but insignificant, whereas the coefficient for female cash waqfs is negative and insignificant. Although these findings are not statistically significant, the model suggests that cash waqfs established by males tend to pay higher wages than those established by females.

This analysis also examines the effects of functions on wages. The dataset indicates that a considerable proportion of cash waqf organisations funded religious services and a single service. According to Model 4, the effects of the functions on skilled worker wages are positive, but not statistically significant. The data in Table 2 reveal that cash waqf organisations that financed religious services had a higher impact than those that funded other services. Model 5 presents different results, indicating that family waqfs have a negative

and statistically significant effect on the wages of skilled workers. This suggests that founders were willing to pay lower wages to their family members and themselves. Finally, Model 6 shows that the coefficients for cash waqfs that financed one or more services are close to each other and have a positive but insignificant impact on skilled worker wages.

TABLE 3
Regression Analysis of the Determinants of Unskilled Worker Wages

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
SC	0.04 (0.57)	-0.10 (0.53)	-0.24 (0.55)	-0.03 (0.58)	-0.10 (0.58)	0.03 (0.58)
REV	0.10 (0.08)	0.15** (0.08)	0.11 (0.07)	0.11 (0.08)	0.09 (0.08)	0.09 (0.08)
TITLE		1.54** (0.58)				
COM		0.34 (0.23)				
MALE			2.15** (0.93)			
FEMALE			0.16 (0.22)			
REL				0.05 (0.48)		
OTHER				-0.19 (0.23)		
FAM					0.07 (0.43)	
NFAM					0.35 (0.40)	
SINGLE						-0.14 (0.27)
MULTIPLE						-0.04 (0.29)
CONSTANT	0.06 (0.13)	0.61** (0.25)	0.53** (0.24)	0.06 (0.23)	0.04 (0.13)	-0.05 (0.25)
N	972	972	972	972	972	972
R ²	0.04	0.21	0.18	0.06	0.08	0.05
F	0.74	2.15	1.80	0.56	0.74	0.42

Note: Parentheses give standard errors. *** indicates significance at 1%, ** at 5%, and * at 10%.

The analysis of unskilled worker wages employs a comparable methodology and models to evaluate the impact of the independent variables. As shown in Table 3, the results differ from those of the previous analysis. The influence of the silver content of akche is predominantly negative, although these values are lower than those reported previously. The coefficient of cash waqf revenue remains positive for unskilled worker wages. This effect is significant only in Model 2. In Model 2, the coefficient for titled individuals is positive and significant, while having a stronger impact on unskilled worker wages than skilled worker wages. The coefficient for commoners is positive but insignificant and its influence on unskilled worker wages is lower. In Model 3, founders' gender is a crucial variable that affects unskilled worker wages, as cash waqfs established by males have a positive and significant impact, whereas those established by females have a positive but insignificant effect.

The following models employ the functions of cash waqf organisations as independent variables (Table 3). The coefficient of cash waqfs that financed religious services is still positive and insignificant for unskilled worker wages. Surprisingly, the coefficient of cash waqfs that funded other services is negative and insignificant. This finding indicates that financing other services decreases unskilled workers' wages. Additionally, the coefficient of family waqfs is positive and insignificant, contrary to the former analysis. However, the effect of non-family waqfs on unskilled worker wages is higher, even if the finding is insignificant. Contrary to previous findings, the coefficients of cash waqfs that financed one or more services are negative and insignificant.

The relationship between wages of skilled and unskilled workers in Tables 2 and 3 is subject to different variations that have not been thoroughly examined in the existing literature. This study aims to fill this gap by using new datasets, including cash waqf organisations in Ottoman Rumelia, and provides a quantitative and explicit analysis of wage levels for both skilled and unskilled workers employed in these organisations. It is expected that holding a title in the Ottoman Empire would confer social and economic privileges

to certain groups and that these groups would have greater financial resources to establish larger-scale cash waqf organisations. Consequently, this would result in higher wage levels for workers in these organisations. The results of this study support this hypothesis and demonstrate the significance of these factors in determining wages.

As anticipated, the coefficients of cash waqfs established by males, as presented in Tables 2 and 3, exhibit a more significant influence on wage levels than those of females. An unexpected outcome is the impact of family waqfs on the wages of skilled workers. Contrary to expectations, the impact of family waqfs on skilled worker wages is negative. This kind of contradictory result is also applicable to the effects of the number of services provided by cash waqf organisations. The impact of cash waqf organisations that provide funding for one or more services on the wages of skilled workers is positive. However, the effect of these variables on the wages of unskilled workers is negative.

Compared with skilled workers (Table 2), unskilled workers exhibit weaker and less consistent correlations between wages and institutional characteristics. Although waqf revenue is significant for both groups, its impact is more pronounced and stable among skilled workers. Furthermore, variables such as male founder and titled founder are significant for unskilled workers, suggesting a more segmented labour structure where formal affiliations and gender play a more prominent role in wage determination for lower-status roles. The comparative analysis revealed notable structural and statistical differences in the determinants of wages for skilled and unskilled workers. While waqf revenue positively influences wages in both groups, this effect is stronger and more consistent for skilled workers. This indicates that increases in waqf income is more likely to result in wage gains for skilled personnel, whereas unskilled workers remain more marginal. For unskilled workers, variables such as male founder and titled founder demonstrate statistically significant and substantial effects, indicating that wages in this group are closely tied to social status and gender-based factors. In contrast, these social indicators appear to play a more limited

role in shaping the wages of skilled workers. From a model performance perspective, regressions for skilled workers exhibit higher explanatory power (R^2) and stronger overall statistical robustness. These findings suggest that while the wages of skilled employees are more directly influenced by institutional and economic variables, such as revenue levels, the wages of unskilled workers are shaped by a more complex set of factors, potentially including informal social and local dynamics that were not captured by the model.

5. An Assessment of Results

This study's findings are related to three different pieces of literature. The first is the relationship with Istanbul-based work on long-term wages in the Ottoman Empire. Owing to the lack of long-term wage analyses for different regions of the Ottoman Empire, the findings need to be compared with those of Istanbul. The results displayed in Tables 2 and 3 are noteworthy because of the absence of quantitative analysis of wage levels in cash waqf organisations of the Ottoman Empire. However, comparisons with previous studies are not possible. The results pertaining to the wage levels of skilled and unskilled workers corroborate certain well-known findings in the recent literature on the long-term trends of wages (Özmucur and Pamuk, 2002). The dataset, which refers to different provinces of the Ottoman Empire, is relatively comparable to that of Istanbul. Özmucur and Pamuk (2002, 301) mention that there was a rapid increase in the wages of both skilled and unskilled workers during the first half of the nineteenth century. This increase in wage levels is also evident in this study's findings for the same period (see Figure 2).

Second, existing literature suggests that in the Ottoman Empire the primary objective of family waqfs was self-support (Kuran, 2005). Although this assumption holds strong in the literature, the findings suggest that family waqfs paid lower wages to skilled workers. In other words, an increase in family waqfs leads to a decrease in wages. Furthermore, cash waqf organisations that financed

more than one service paid lower wages to unskilled workers. This means that these organisations allocated their financial resources to services and skilled workers.

The third finding of this study has implications for economic growth literature. Prior research has shown that the economic growth of the Ottoman Empire became more prominent from the nineteenth century onwards, leading to an increase in wealth for its citizens and the establishment of cash waqfs with higher capitals (Okyar, 1987; Pamuk, 2006; Bulut and Altay, 2022). The results indicate a general relationship between economic growth and the rising wages charged by these organisations. It is noteworthy that as waqf income increases with higher capital, the wages of skilled workers also increase in a statistically significant and positive manner. This relationship is particularly relevant to explain the historical increase in wage premiums for skilled workers since the nineteenth century. Since these findings are unique, further discussions on the wage levels of cash waqf organisations should be conducted through quantitative and explicit analyses.

Furthermore, the findings of this study provide significant insights into wage dynamics within cash waqf-funded institutions in Ottoman Rumelia over several centuries. Despite certain limitations, waqf contracts offer rare longitudinal data that illuminate real wage trends across occupational categories. The data indicate a pronounced and sustained decline in real wages for both skilled and unskilled workers, particularly in the post-sixteenth century period. This downward trend is closely associated with the diminishing capital base of many cash waqfs, as reduced returns on endowments limit the resources available for salary expenditure. Regression analyses further emphasize the pivotal role of waqf revenues in determining wage levels, especially for skilled workers, whose wages are more responsive to fluctuations in institutional income. Conversely, the earnings of unskilled workers appear to be more influenced by social attributes of founders such as gender and occupational status, indicating deeper inequalities and informal mechanisms within the wage-setting process. These results suggest that the decline in waqf

capital not only led to a general erosion of wage levels but also reinforced stratification among different types of labour. Thus, the evolution of wages in these institutions reflects broader fiscal and social transformations, underscoring the importance of institutional capacity and social hierarchy in determining economic outcomes in the pre-modern Ottoman world.⁸

The implications of this study can be evaluated under four main arguments:

1) *Waqf Institutions and the Pursuit of Minimum Livelihood Standards*: Despite experiencing a reduction in financial resources over time, cash waqfs have consistently demonstrated normative commitment by providing wages that meet at least a basic standard of living. Even during periods of declining revenue, many institutions continued to offer wages that, although modest, were not merely symbolic or nominal. This indicates an institutional obligation towards the subsistence of workers, rooted in the moral and religious foundations of the waqf system. The data further reveals that skilled workers in particular received relatively higher wages, reflecting both the scarcity of their expertise and the waqf's commitment to attracting and retaining qualified personnel within religious, educational, and charitable functions. Moreover, this tendency to provide subsistence-level wages, even amid diminishing capital, underscores an inherent social responsibility in the operation of waqfs. Unlike market-driven employers, waqfs function within a framework that prioritizes social utility and long-term service provision over short-term efficiency or profit maximization. The institutional structure of waqfs thus facilitated a degree of wage stability that, while insufficient to foster upward mobility, helped mitigate the extremes of poverty for employees, particularly during times of fiscal uncertainty or economic contraction.

⁸ Such differences based on social capacity appeared according to wealth levels of individuals in which titled individuals had higher wealth levels than those of commoners from a long-term perspective. See, Coşgel and Ergene (2012), Canbakal and Filiztekin (2021), Altay et al. (2022).

2) *Contribution of Cash Waqfs to Employment:* Cash waqfs, functioning as semi-autonomous socio-economic entities, played a pivotal role in labour absorption, particularly within the urban centres of Ottoman Rumelia. By financing a diverse array of positions, including imams, muezzins, scholars, trustees, and daily workers, these institutions offered stable employment opportunities outside the formal state apparatus. This employment function was especially crucial during periods when other sources of wage labour were either volatile or limited, such as during times of war, fiscal crises, or rural-to-urban migration. However, this analysis reveals structural limitations. The diminishing capital and revenues of many waqfs over the centuries resulted not only in wage stagnation, but also in potential constraints on new hiring or the expansion of service functions. Consequently, while waqfs undoubtedly contributed to employment, their capacity to serve as long-term engines of labour market growth was compromised by their static or declining financial base. In this context, their role in employment was more palliative than transformative: they provided modest and relatively secure jobs but were not scalable or growth-oriented employment.

3) *Contributions to the Ottoman Wage Literature:* This study makes a significant contribution to the expanding body of the literature on Ottoman wages by introducing a novel and underutilised source: waqf contracts. In contrast to previous research that predominantly focuses on construction workers' wages (e.g., Özmucur and Pamuk, 2002), this study investigates salaried positions funded through religious and charitable institutions. This distinction is critical as it broadens the scope of wage history in the Ottoman Empire by shifting the focus from market-determined wages in the state or private sector to institutionally fixed wages in the waqf sector. Furthermore, by tracing real wages in cash waqfs over several centuries and for both skilled and unskilled labour, this study offers a unique long-term perspective. It not only reveals the trajectory of wage decline but also highlights the internal heterogeneity among occupational groups. This approach facilitates a more nuanced understanding of social inequality, institutional resilience, and labour segmentation in

Ottoman economic history. In doing so, it underscores how waqf-based wage structures operate alongside, and occasionally in contrast to, broader market dynamics and state-wage policies.

4) *Contemporary Relevance* – What Can Cash Waqfs Teach Us Today? From a contemporary perspective, the historical experience with cash waqfs provides several valuable insights. First, they exemplify a wage-setting model that balances institutional sustainability with social responsibility. Unlike purely market-driven approaches, waqfs demonstrate how semi-public institutions can offer employment that safeguards basic livelihoods even under financial constraints. In an era characterized by increasing precarity and wage stagnation across many sectors, the waqf model prompts a re-evaluation of the relationship between revenue generation and social wage commitment. Second, historical data on waqf wages cautions against overreliance on fixed capital for long-term employment strategies. The decline in waqf capital and the corresponding wage erosion highlight the risks associated with institutional inertia and lack of financial innovation. For modern foundations, endowments, or philanthropic entities, this serves as a reminder that capital must not only be preserved but also adaptively invested to sustain their social mission over time. In this regard, Ottoman waqfs offer both inspiration and caution: they illustrate the potential of value-driven employment while also highlighting the limitations of static financial models in dynamic economic contexts.

6. Concluding Remarks

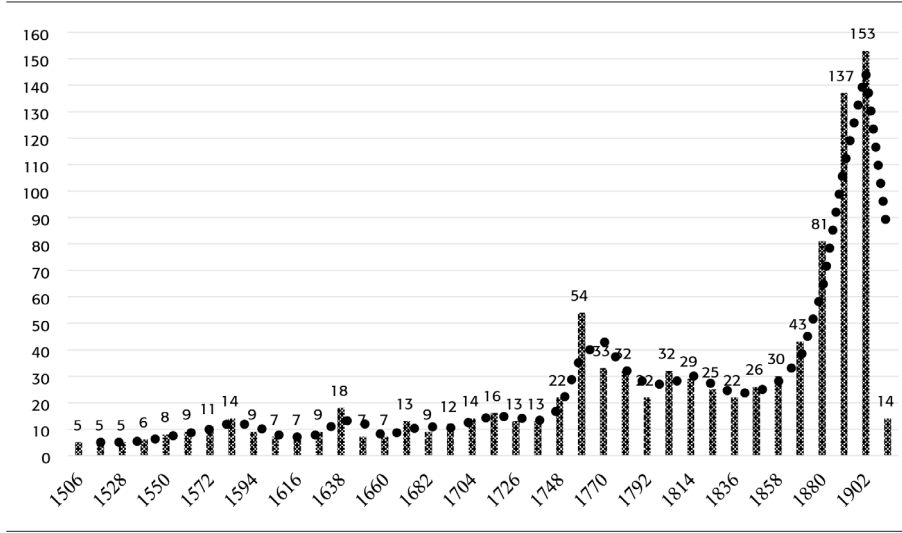
This study investigates wage patterns in Ottoman cash waqfs by utilizing an original dataset of institutional salary registers from sixteenth- to twentieth-century Rumelia. A series of regression analyses demonstrated that both skilled and unskilled workers employed by waqfs received wages that, although modest and gradually declining in real terms over the centuries, generally exceeded subsistence thresholds. The findings reveal a consistent, al-

beit limited, institutional commitment to ensuring basic livelihood standards for employees, even amid shrinking capital and revenue bases. Notably, the positive correlation between waqf revenue levels and skilled worker wages indicates a wage-setting logic that is responsive to institutional capacity yet not entirely dictated by market principles.

Beyond the quantitative evidence, this study offers three broad contributions. First, it positions cash waqfs as significant, albeit underexplored, labour market actors within Ottoman urban economies, providing relatively stable employment in both religious and administrative domains. Second, by expanding the empirical scope of Ottoman wage history beyond construction wages and state records, this study highlights the heterogeneity in wage formation across institutional contexts. Third, the analysis suggests that the waqf system embodied a form of embedded social responsibility, whereby institutional actors negotiated between declining fiscal means and normative obligations to workers.

Collectively, these findings invite a reconsideration of how wage labour and institutional employment are conceptualised in early modern empires. The waqf's capacity to maintain wage payments under fiscal constraints, while ultimately limited, offers a counterpoint to strictly market- or state-determined wage systems. Furthermore, the long-term erosion of real wages in the waqf sector from the sixteenth century to the twentieth century underscores the vulnerability of static endowment models in dynamic economic environments. As such, the study not only contributes to the historiography of Ottoman labour and institutions, but also prompts broader reflections on the sustainability, equity, and resilience of semi-public employment systems, both past and present.

APPENDIX A
Allocation of Cash Waqfs by Periods



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