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The Economics of Ottoman Taxation

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Abstract

By mid sixteenth century, the Ottomans had built a vast Empire that covered much of the Middle East, North Africa, and Eastern Europe, deriving revenue from these lands based on a system of taxation that combined Islamic principles with local customs and historical precedent. This paper studies the Ottoman system of taxation from an economic perspective, with two objectives. The first is to classify taxes according to their base. There were three general categories of taxes: personal taxes that depended on the economic, marital, and religious status a taxpayer, trade taxes that were based on commercial exchange, and production taxes that applied to various farming and manufacturing activities. Detailed information from tax registers shows how the details and relative importance of tax categories varied among regions. The second objective is to examine the structure of the tax system and identify what determined the choice of a tax base. Using insights from transaction cost economics, I argue that the choice was determined primarily by the cost of measuring the base.

THE ECONOMICS OF OTTOMAN TAXATION

ABSTRACT By mid sixteenth century, the Ottomans had built a vast Empire that covered much of the Middle East, North Africa, and Eastern Europe, deriving revenue from these lands based on a system of taxation that combined Islamic principles with local customs and historical precedent. This paper studies the Ottoman system of taxation from an economic perspective, with two objectives. The first is to classify taxes according to their base. There were three general categories of taxes: personal taxes that depended on the economic, marital, and religious status a taxpayer, trade taxes that were based on commercial exchange, and production taxes that applied to various farming and manufacturing activities. Detailed information from tax registers shows how the details and relative importance of tax categories varied among regions. The second objective is to examine the structure of the tax system and identify what determined the choice of a tax base. Using insights from transaction cost economics, I argue that the choice was determined primarily by the cost of measuring the base.

The Ottoman system of taxation has been one of the most extensively studied areas in the Empire's history. By mid sixteenth century the Ottomans had built a vast Empire and developed a system of taxation that combined elements from the customs and administrative practices of the Byzantine, Mamluk, Turkish, Hungarian, and other preceding states, generally remaining loyal to the basic principles of Islamic taxation and flexible enough to accommodate regional and historical differences. Despite the enormous complexity of the resulting system, historians have been able to study it in great detail, thanks to the wide availability of tax records dating back to the fifteenth century. Numerous studies have been published to explore the origins, structure, and regional variations of Ottoman taxes from a variety of legal, historical, political, and other perspectives.

Ottoman taxation has not been fully and systematically analyzed, however, from an economic perspective. To fill this gap, this paper will use recent developments in the economics of organizations, specifically ideas about how transaction costs can affect the public sector, to study Ottoman taxation during the fifteenth and sixteenth centuries, commonly known as the

Classical Age. Transaction costs considerations have been useful to understand a variety of phenomena in economic history, including sharecropping, the Open Field system and enclosures, the manorial system, and tax assignment.[1] I argue in this paper that they can also help to understand Ottoman taxes.

Two objectives guide the inquiry. The first is to construct an economic classification of Ottoman tax categories that emphasizes systematic differences in the tax base. I divide tax items into the three broad categories of personal, trade, and production taxes. Using information from the sixteenth century tax registers of the Ottoman Empire, I identify commonalities and differences among the taxes found in each category in various regions of the Empire. I also show how the proportional shares of these categories varied among these regions.

The second objective of the paper is to explain the structure of the Ottoman taxes and identify what determined the choice of a tax base. Whereas personal taxes were based on households or adult males, trade taxes were typically based on the number of units brought to the market for sale. Some production taxes (like the tithes) were based on output and collected as shares of the total product, while others (like taxes on fruits and vegetables) were based on one of the inputs, and yet others (like taxes from manufacturing activities) were based on the unit of production as a whole and collected as a lumpsum payment. Using insights from transaction cost economics, I argue that the choice of a base was determined primarily by the cost of measurement.

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[1] See, for example, Alston and Higgs (1982), Cheung (1969), Fenoaltea (1976), and Coşgel and Miceli (2003).

THE OTTOMAN SYSTEM OF TAXATION

Upon conquering new lands, the Ottomans typically surveyed all taxable resources and activities and recorded the information in imperial registers [*defter-i hākanī*], commonly known as the *tahrir defterleri*. As circumstances changed over time, they conducted subsequent periodic surveys in order to update the information on the empire's current sources of revenue. These registers were used for a variety of purposes, including serving as official registers to establish legal claims to land, assessing the empire's expected tax revenues, and appropriating some of the revenues to the military and administrative officials as remuneration for their services[2]. Fortunately, many of these registers have survived to the present, available to researchers in various archives in Turkey and other countries that were previously under Ottoman domination, making it possible to study the Ottoman system of taxation in great detail.

At the beginning of each district's register was its tax code, a document called *kānūnnāme*.[3] The tax codes of the fifteenth and sixteenth centuries show that the Ottomans did not use any of the complicated tax instruments, like the income or the value added tax, that are commonly used to finance government expenditures in today's economies, because of various constraints they faced in their capacities to gather information and administer taxes during this period. Instead, they relied on simpler and more feasible taxes like lumpsum taxes on shops, personal taxes with standard rates within a district or province, and production taxes that were collected as simple proportions of output or based simply on the amounts of land or another input. The resulting system, however, was still inevitably quite complicated. It was made more

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[2] İnalcık (1954), İnalcık (1994: Chapter 5), Howard (1986), Coşgel (2003).

[3] See İnalcık (1960b) and Howard (1995/96) for the history and types of *kānūnnāmes*. For collections of Ottoman *kānūnnāmes*, see Barkan (1943) and Akgündüz (1990).

complicated by numerous differences among regions in applicable types and rates of taxes. Indeed, it was complicated enough, even perhaps for the agents of the government, for the government to feel obliged to carefully lay out the basic tax regulations of each district in a formal code and to specify the rates at which each tax was to be collected in different circumstances.

Despite the complexity of the Ottoman system of taxation on the surface, it had a simple basic structure. To understand the fundamental elements of this structure, we can use simple insights and concepts from the economic theory of taxation and follow the usual analytical procedure of classifying taxes according to their base. A tax base is simply the item on which the tax is levied. Ottoman tax bases can be grouped into three major categories: personal, trade, and production taxes. The Ottoman budgets included other sources of revenue, such as the tributes from vassal states, profits from government owned enterprises, and revenues from various fees and fines like the marriage fees and criminal fines.[4] Because of our focus on tax revenues, other sources of revenue are excluded from this classification.

Legally, personal taxes resulted from the dependent subject status of the peasants. They had origins in feudal service obligations that prevailed in areas conquered by the Ottomans, which the Ottomans typically converted to cash payments.[5] Although the name and amounts of personal taxes could vary among regions, they were commonly levied on the persons or households. The tax rates could vary among taxpayers, depending on their observable characteristics like land ownership and marital status that served as an index of the ability to

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[4] Extraordinary levies to the state called *avarız-ı divaniyye* are also omitted because of their irregular nature during the fifteenth and sixteenth centuries. For Ottoman state revenues, see İnalcık (1994: Vol. 1, pp. 55-76). See Singer (1996) for revenues as fees and fines from marriages and misdemeanors.

[5] For a detailed account and the historical origins of personal taxes, see İnalcık (1959).

generate income and pay taxes. For example, under the conventional system of taxing subjects, a married peasant who held farm land workable by a pair (*çift*) of oxen paid the *çift* tax, which was higher than the amount paid by bachelors (*resm-i mücerred*) and those possessing less than a *çift* or no land (*resm-i bennāk*). Those unable to work, such as the elderly and the disabled, were exempted from personal taxes.[6]

The types and amounts of personal taxes could vary significantly among the different regions of the Empire. For example, personal taxes were not even fully implemented in all areas, such as in the province of Damascus. The subjects in predominantly non-Muslim lands typically paid taxes of pre-Ottoman origin that were preserved (in cash equivalents) after the conquest to maintain continuity. For example, the subjects in Hungary paid the gate (*kapı*) tax, for which the unit of taxation was the household, rather than adult males, and the tax amount did not change by marital status. In addition, non-Muslim subjects throughout the empire paid a poll tax (*cizye*), whose accounts were kept in separate registers. Personal taxes were typically levied in cash.[7]

The second general category of Ottoman taxes was the trade taxes that applied to market exchange of goods and services. Trade taxes included customs dues and the general market tax known as the *bāc-ı pāzār*, exacted on items brought for exchange into towns and villages that hosted the periodic markets. The tax base was the item brought in for trade. The tax codes, especially of districts with large markets, specified the rates at which various goods, spices,

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[6] Because the amount of land also affected these taxes, İnalcık (1994: 149) insists that "[t]his was actually a system assessing peasants' labor and land in combination." That the tax rates also depended on one's age and marital status, however, suggests that the taxpayer himself was the broader tax base. Although those who owned land paid at a higher rate, even landless subjects were responsible for paying the personal tax.

animals, slaves, and agricultural products were to be taxed. In some places trade taxes took the form of gate dues that applied to items in-transit or brought in for local consumption. Items could also be taxed at ports or river crossings. Although most trade taxes were levied in cash, the tax rates for some items were specified in-kind. In the Jerusalem district, for example, whereas fruits brought to market were taxed at the rate of one-thirtieth, linens were taxed at twenty *akçes* per camel-load.

In the third category were the production taxes that applied to various productive activities in agriculture and manufacturing. These taxes can be further divided into three subcategories depending on the tax base: output taxes that were levied on the total output of an activity, input taxes on one of the inputs used in production, and enterprise taxes on the activity as a whole.[8]

Output taxes consisted of the tithes (*öşür*), applying primarily to grains, legumes, and fibers. The usual rate of taxation was one tenth of total output, typically with an additional one fortieth, called *salāriye*, collected as fodder for the horses of the fief-holder. The rates could also vary among regions, depending on such factors as the status of these lands under Islamic law at

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[7] But in some regions minor labor services continued to exist after conquest for the fulfilment of personal tax obligations.

[8] Note, however, that some activities that were taxed under one category in one region could be taxed in another category in another region. For example, whereas beehive taxes were based on the output of honey as output tax (under some circumstances) in Hungary, they were based on the hive itself as input tax in other regions. Similarly, there could even be differences within the same type of an activity within a region depending on the production technology, as was the case for the taxation of olive products in the Arab lands. A clear distinction was made between the products of *Rumānī* trees (usually interpreted as referring to aged trees), taxed based on output, and *İslāmī* trees (younger trees), taxed based on the number of trees. The foregoing argument (detailed below) would suggest that such phenomena could be caused by differences (between regions or products) in measurement costs, possibly caused by differences in local traditions (such as in the stock of knowledge about expected output) and the production and harvesting technologies.

the time of their conquest and the local rates and system of taxation that the Ottomans inherited. For example, a higher rate of one fifth was applied in some of the provinces annexed after the mid-sixteenth century (İnalcık, 1994: 112-14). The rates could sometimes vary even among the villages within a region. In some districts of the province of Damascus, for example, the rates varied significantly among villages (for example, between one seventh to two fifths in the Palestine, southern Syria, and Transjordan region in 1596), under the system of taxation that the Ottomans adopted from preconquest practices[9]. Output taxes were to be collected in kind.

Input taxes applied primarily in the taxation of such items as fruits, vegetables, and animal products. Taxes from these items were levied on the land, trees, or other inputs used in their production, rather than on total output. For example, taxes on the production of fruits, nuts, and dates depended on the number (sometimes also the age, height, and type) of trees. Similarly, taxes on vineyards typically depended on the number of vines, taxes on vegetables depended on the amount of land allocated to them, and taxes on animal products depended on the numbers of animals or other inputs like beehives.

Enterprise taxes were levied not on the total output or one of the inputs used in production but on the activity as a whole. In towns, they applied to retail stores and manufacturing enterprises like dye-houses, tanneries, juice-makers, slaughter-houses, and soap-makers.[10] This method was also used in the taxation of agricultural production in uninhabited lands called *mezraʿas* and in some small or remote villages. Tax assessments were presumably determined by some estimate of the profitability of the enterprise.

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[9] See Coşgel (2002) for a quantitative analysis of differential taxation in this region.

[10] For urban taxes and activities in Anatolia, see Faroqhi (1979-80)

Table 1 shows examples of tax rates in some districts of the Ottoman Empire during the fifteenth and sixteenth centuries.[11] Representing the differences in rates and the geographical diversity of the Ottoman Empire during this period, the table includes information from such diverse districts as Jerusalem in eastern Mediterranean, Budapest (Budin) in Europe, Bursa (Hüdavendigār) in western Anatolia, Erbil in northern Iraq, and Antep and Malatya in eastern Anatolia. Examples of taxes and rates similarly represent commonalities and regional differences, showing how local conditions affected the tax system. Because enterprise taxes were customized to activities, the tax codes typically did not codify standardized rates for these activities (except for some rare occasions, such as when they specified the tax rates for retail stores as "per store"). Because the lump sum rates thus showed great variability in the tax registers, they are not reported in the table.

The table shows that whereas the rates of taxation for some items, such as animal products, were the same among regions and over time, others could vary significantly. Regional variations in the methods and rates of taxation reflected local conditions and the way previous practices were molded into the Ottoman system of taxation. In drafting the tax code of a newly conquered region, the Ottomans carefully considered the prevailing local practices and rates of taxation, trying to maintain a balance between assimilating the region into a new system and preserving enough continuity to minimize revolts. Although they generally continued existing practices and systems of taxation, they often immediately changed components that were at significant odds with the Ottoman system of taxation and gradually introduced other changes over time as necessary. Despite regional and temporal variations in rates, however, the basic

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[11] See Akgündüz (1990) and Barkan (1943) for the complete tax codes of these and other districts.

principles and categories of Ottoman taxation remained the same, as the Ottomans developed a system with personal, trade, and production taxes.

How important were each of these tax categories for Ottoman finances? Table 2 shows the relative shares of different categories of taxation as proportions of total taxes in representative districts of the Ottoman Empire. The proportions of tax categories show significant variations among these regions and over time, probably based on such factors as differences in tax rates and climatic and soil conditions. Despite these variations, one can see a clear pattern: a majority of the tax revenue in most regions came from output taxes, and trade taxes typically constituted the smallest proportion. The proportions of personal and trade taxes were exceptionally high in the Budapest district because of the religious composition of its inhabitants and the high volume of market activity in its cities and ports. That the inhabitants were primarily non-Muslims meant for them to pay the poll tax in addition to the gate tax, which significantly increased the proportion of personal taxes. Trade taxes were also high because of the significant amounts of market taxes and customs duties that were collected in large settlements like Budapest and Kuvin.

Before we turn to analyzing factors that influenced the choice of a tax base, it may be useful to discuss briefly the advantages of the proposed method of classification over other approaches to studying Ottoman taxes. Whereas some historians have previously examined each tax in isolation and thus avoided the problem of classification, others have classified them based on *ad hoc* or purely legal, rather than economic, categories. As an example of the former, Çağatay (1947) described taxes in an encyclopedic style by taking them in an alphabetical order, making no attempt to group them into categories. Although this work, as one of the earliest studies in the field, undoubtedly contributed to our understanding of the Ottoman system of

taxation, such an approach is ultimately incomplete and unsatisfactory because it fails to provide the framework within which each of these taxes were collected. Indeed, İnalcık's (1959) seminal study of Ottoman personal taxes was successful precisely because it considered the personal tax system as a whole and provided the broad categories of its framework.

İnalcık was not equally successful, however, in going beyond personal taxes and outlining the structure of the Ottoman tax system as a whole. In a recent review of Ottoman taxes, he grouped the tax revenues recorded in the tax registers into four groups: personal taxes, tithes, various fees and fines, and extraordinary levies (İnalcık, 1994: 55-75). Lacking a clear theoretical basis, however, this *ad hoc* classification is unsatisfactory and confusing. It is not clear, for example, why trade and input taxes belong to the same category of fees and fines, and how tithes were to be distinguished from other taxes on agricultural products. Although the distinction between categories may have been based on the method of collection (cash vs. in-kind), this does not explain why personal taxes, collected in cash, were put in a separate category from fees and fines. More important for classification purposes were the differences in the tax base, whether it was the taxpayer, traded items, or the output, one of the inputs or the entirety of productive activities. Although previous *ad hoc* classifications of Ottoman taxes may have served well for some purposes, the method of classifying them by their base has the advantage of providing a coherent framework and a consistent procedure for differentiation.

Ottoman taxes have also been studied within a legal framework by distinguishing between the *şer'ī* taxes that were based on the Islamic legal system and the *örfī* taxes with

customary, non-Islamic origin.[12] Although the distinction may be useful in identifying the legal

and historical precedent for taxes, it does not help to understand the basic structure of the tax

system, particularly because the Ottomans often tried to fit customary taxes inherited from non-

Islamic predecessors into the categories of Islamic law. That is, rather than impose Islamic

taxation principles in newly conquered areas, they adopted most of the existing taxes,

discontinuing only those that were clearly at odds with the Islamic law or the Ottoman system of

public finance. They even sought to justify some of the taxation practices adopted from outside

the Islamic system by trying to fit them into the structure of Islamic taxation, occasionally going

to great lengths for justification. This was the case, for example, when Ebu's-Su ʻud Efendi, the

famous minister for religious matters (*şeyhülislam*) of mid-sixteenth century, referred to the *çift*

tax as belonging to a category of Islamic taxes called *misāḥa*, even though it was clearly

developed after the feudal practices of previous non-Islamic states and thus had a different

origin.[13] Personal and production taxes, however, belong to different categories, just as the legal

and economic functions of taxes belong to different spheres. While it may be important to

understand whether a tax conforms to principles of Islamic taxation, it is also important to

separate the Ottomans' attempts to justify taxes from our attempt to understand their logic and

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[12] For example, starting with this distinction, Kazıcı (1977) examines Ottoman taxes belonging
in the *şer'ī* category. For examples of problems related to the distinction, see İnalcık (1994: 72-
74) and Lewis (1979: 119-20). For a study of Ottoman finance procedures, Darling (1996) finds
it more useful to classify taxes according to the recipient of the tax revenue. Because of our
focus on the generation or tax revenue, we omit issues related to their distribution. See Coşgel
and Miceli (2003) for a study of how transaction costs affected the distribution of Ottoman tax
revenues. For an economic analysis of Ottoman taxes in the nineteenth century, see Sūdī (1996).
[13] For Ottoman methods of conquest and assimilation, see İnalcık (1954).

structure. Once again, classifying taxes by their base makes it possible to study them in a coherent whole and differentiate between them consistently.

EXPLANATION OF THE OTTOMAN TAX SYSTEM

Moving beyond the mere description and classification of Ottoman taxes, let us now turn to explaining them. The issue is to explain the logic and structure of the tax system, why the tax on some items or activities were levied on one type of base and others on another type. For example, why were the taxes on grains typically levied on the output, while those on fruits and vegetables levied on one of the inputs? Similarly, why were trade taxes levied on items brought to the market for trade, rather than on the revenue or profits from the trade or as a personal lump sum payment on the tradesman himself? Within each broad category a number of subcategories could be observed, depending on, for example, whether to base the input tax on land, livestock, trees, or other capital inputs; on which products to levy output taxes; and how to determine the relevant characteristics of taxpayers for personal taxes. Moreover, because new types of taxes could be created by mixing these categories in many different ways, possibilities were numerous.[14]

Previous explanations of Ottoman taxation have typically sought to identify similarities with the tax systems of preceding states. The Ottomans are said to have adopted the local customs and methods of taxation that they inherited in a newly conquered region, combining with the tax codes of other regions as necessary. For example, referring to the sultanic law code

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[14] The issue for taxes is analogous to the problem of choosing among the rich variety of contractual forms observed in history. See, for example, Alston and Higgs (1982) for the contractual mix in agriculture in the American south since the Civil War and Coşgel (1992) for medieval contracts. For reviews of the relevant literature, see Allen (1998) and Otsuka, Chuma, and Hayami (1992).

for land holding and taxation, İnalcık (1994: 105) provides this type of an explanation when he writes: "It was this law code, actually a combination of Islamic and local practices related to the Roman-Byzantine legacy, which administered the relationships in Ottoman landholding and taxation. In fact, the system was closely analogous to that of previous Islamic and Byzantine states, and there was no reason for the Ottomans to revolutionize tested methods as long as the state received its revenues."[15]

The Ottoman principles of taxation indeed shared many elements with historical precedents, molding previous rates and types of taxation in conquered areas into a coherent system. Output and input taxes, for example, were similar in principle to the basic categories of Islamic taxation of production known as the *muqāsama* and *misāḥa* methods.[16] Enterprise taxes were also similar to the *maqṭū'* method of assessment (sometimes also called *dīmūs*, a word of Greek origin from the pre-Islamic period). These categories typically formed the basic structure of the production taxes observed in various Islamic states that the Arab, Persian, Mamluk, Mongolian, and other Turkish rulers had established in the Middle East before the Ottomans. Ottoman personal taxes also resembled those of predecessor states, in particular the Byzantine Empire, and other early modern states, though of course the exact rates and methods of assessment may have been different.[17]

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[15] For the relationship between the Byzantine, Balkan, Islamic, and Ottoman taxation, see Barkan (1938), Boyd (1991), İnalcık (1960a; 1994: 70, 149-53), Lewis (1979).

[16] For Islamic taxation, see Løkkegaard (1950) and Lambton (1962). See also Johansen (1988) for Islamic law on land taxes.

[17] For the commonalities between the Byzantine and Ottoman taxes, see İnalcık (1960a; 1994: 149-53), and Bryer and Lowry (1986). See also Moosvi (1987) and Floor (1998) for the tax systems of other contemporary Islamic states, the Safavid and Mughal Empires.

Although the similarities between the tax systems of the Ottomans and their predecessors seem to support historical explanations, identifying the historical precedents of tax categories does not by itself provide a complete explanation for why a certain mixture of taxes, and not something else, was adopted. The origins and the persistence of a tax system are different things. That there were many components of previous tax systems, such as labor services, which the Ottomans carefully and systematically discontinued, suggests the presence of some rules and a selection process that kept some elements of previous systems and discarded others. To understand the resulting system of taxation, we thus need to determine the rules the Ottomans used for the selection of one type of tax over the others. For a large state like the Ottoman Empire, with land conquered from multiple predecessor states, we also need to know which region's previous tax codes and principles mattered more than others in determining the tax code of a certain region. History did matter, of course, for the Ottoman system of taxation, at least by way of providing a menu of choices available to the Ottomans and in shaping the regional variety. But a satisfactory and complete explanation demands that an appeal to history must be complemented with rules for selection.[18]

Another approach frequently used to explain historical phenomena is to focus on how organizations facilitated the efficient allocation of risk. Using such an approach, one could offer an explanation of Ottoman taxes by examining how the government structured the system so as to distribute the risks between the payers and recipients of taxes efficiently. There is frequently cited evidence from the pre-Ottoman times, dating back to the eighth century, that seems to support the importance of risk considerations in determining agricultural taxes in this region. Based on a petition by the peasants of Iraq during the 770s, the Caliph is said to have agreed to

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[18] For the relative advantages and disadvantages of such historical (or "inertial") explanations

(re)introduce output taxes (the *muqāsamah* method) in order to facilitate the sharing of risks between the government and the peasants (Ashtor, 1976: 40)[19]. Given that the risks were still high during the fifteenth and sixteenth centuries and that the means for insuring against them were still limited, one could extend the argument to the period of the Ottoman rule and argue that it was because of risk considerations that the Ottomans used output taxes for grains.

A complete explanation of the Ottoman taxation of agriculture, however, must account for not just why output taxes existed but also why they coexisted with input, enterprise, and other types of taxes within the same system. The coexistence of taxes can be explained only by factors that varied among activities. If the distribution of production risks was the primary consideration, then one would have expected output taxes to consist of the highest risk products. The typical mixture of input and output taxes observed in Ottoman taxation, however, does not seem to support this expectation. Some of the products that were subject to input taxes were actually more prone to product failure due to pests, disease, and severe weather than some of the other products that were subject to output taxes. For example, whereas all fruits and vegetables, regardless of their delicateness and perishability, were typically subject to input taxes, some of the hardier grains were subject to output taxes.[20] Moreover, if the distribution of production risks was the primary consideration, then there would have been no reason for input and enterprise taxes to coexist as subcategories of production taxes. Under both types of taxes, the

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and "structural" explanations, see Basu, Jones, and Schlicht (1987).

[19] In fact, long before economists justified cropsharing contracts and output taxes on risk-sharing grounds, the Muslim scholar Abū Yūsuf had argued in favor of output taxes because input taxes (the *misāḥah* method) posed greater price risks. See Løkkegaard (1950: 114) for a discussion.

[20] For the different species of food plants, see Schery (1972). See also Arnon (1992) and Pearson (1992, especially Chapter 14) for examples of crop production and field-crop ecosystems in this region.

tax amount would have been independent of the actual level of output and the taxpayer would have thus assumed all the risks.[21]

For a complete and more satisfactory explanation of Ottoman taxation, we turn to recent developments in transaction cost economics. In a hypothetical world with zero transaction costs, it would make no difference which base the government would use to tax an economic activity (by an argument well-known in economics as the Coase Theorem). In taxing production, for example, the government could raise the same amount of revenue by any combination of input, output, or enterprise taxes, ranging from levying the amount on only one of them to an equal or varying amounts of each. But in a world complicated by transaction costs, the cost could vary significantly among taxable activities and bases, making it costlier for the government to collect taxes by some methods than others. In that case, the differences in transaction costs could explain why some activities are taxed by one type of a base and others by another.

The transaction cost that is most relevant in studying taxes is the cost of measuring the tax base.[22] By focusing on measurement, we are able to explain both the choice of taxable economic activities and the choice of a base for their taxation. Efficiency in tax collection typically restricts states to tax only observable activities, and the Ottoman state was no exception. Consumption, for example, was generally not taxed during this period because it was difficult to observe. Non-market exchange and productive activities that took place at home,

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[21] One may also propose an incentive based explanation of production taxes, based on the taxpayer's incentives to utilize resources efficiently under different categories of taxes and the possibility of misaligned incentives between the state and the taxpayers. But the incentive based argument does not fit the evidence well either. Although the state legally owned the land and retained the eminent domain, the possession and usufruct rights belonged to farmers (İnalcık, 1994: Volume I, Chapter 3). The taxpayers' interests in using the land (or trees, animals, and other natural resources) were thus aligned with those of the state.

such as cleaning and cooking, were similarly not taxed. Instead, easier to observe activities like

market exchange and production were taxed. Once the state decided to tax an activity, it was

also important to choose a tax base that could easily be measured. It would not have been

sufficient for the cost of measurement to be low to the taxpayer himself, because he had an

incentive to hide revenue whenever possible. The state or its agents who received the taxes had

to be able to measure the tax base independently at low cost.

Examining differences in the cost of measurement in light of the Ottoman economy of

this period helps to understand the structure of the tax system as a whole. Trade taxes, for

example, were based on observable items like the goods brought for exchange, rather than the

costlier to observe exchange itself, which is consistent with our knowledge of the institutions and

technology surrounding exchange at this time. Similarly, because the state could not directly

observe the marginal product of labor or the income generating capacity of individuals, personal

taxes were based on the household as a whole or on observable characteristics like marital status

and land ownership.

To illustrate the importance of the cost of measurement in detail, let us focus on

production taxes and explain the choice between the output, input, or enterprise as the base in

taxing a productive activity. Comparing the cost of measurement helps to understand the

observed subcategories of production taxes, with taxes on grains levied on the output, those on

fruits and vegetables on one of the inputs, and taxes on manufacturing activities on the enterprise

itself. Once again, if the output of activities could have been measured at no cost, they could all

be taxed under the category of, say, output taxes and there would have been no need for input or

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[22] Allen and Lueck (1992) emphasize measurement costs to explain cropsharing contracts in
modern agriculture. See also Barzel (1982) for the general importance of measurement cost for
the organization of markets.

enterprise taxes. The total output would have been the tax base, and the tax amount would have been determined either as a proportion of output or as its cash equivalent. In reality, however, the cost of measurement varied significantly among activities. Whereas both the producer and the tax collector could easily measure the output of some activities, for other activities the tax collector had to incur significant cost in determining the quality and/or the quantity of the output.[23] The cost to the tax collector was probably the lowest for products like cereal grains, for which characteristics and harvest technologies made it easy to determine both the quality and the quantity of output at low cost. Because the harvested crop was fairly homogenous for these items, the tax collector did not have to incur high cost by inspecting the whole output closely in determining its quality. The quantity of cereal grains could also be determined at low cost. The technology for harvesting these products and the brevity of their harvest period made it easy for the tax collector to observe the output, and difficult for the taxpayer to underreport it.[24] The division of the grain output could be a fairly simple matter of, for example, first threshing all the cut grain together and then dividing it between the parties, or similarly loading every n^{th} wagon (with $1/n$ being the tax ratio) of the harvested grain as the share of the tax recipient.

The cost of measuring the output could be considerably high for other products like fruits and vegetables, because the total output could include products with significant variations in size, taste, shape, and ripeness. Even when the tax collector could have observed the quantity, the taxpayer could still increase his share of the output simply by keeping the best ones to himself. Given the taxpayer's incentive to underreport the quality by such means, the tax

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[23] Court records show frequent disputes arising from the division of harvest, which support the importance of measurement costs for division. Singer (1994: 90-99) discusses harvest related disputes in the Jerusalem court records.

[24] For the relationship between the harvest and tax collection schedules in the Aleppo region, see Venzke (1981: 135-39).

collectors had to incur cost by physically being present (or hiring an agent) for close inspection of the quality of output. Not just the quality but also the quantity of total output could be difficult to determine for some products, in particular those with harvests lasting for a long time. Because continual harvests created opportunities for such concerns as overnight theft, the tax collector would have had to incur cost in trying to prevent any crop from being withdrawn from division, which would have resulted in a high cost of determining the quantity independently.

Whenever the cost of measuring the output of an activity was prohibitively high, the next-best alternative for the state could be to choose one of the inputs as the tax base. For the input tax method to be an efficient alternative, however, the quality and quantity of the base had to be easily observable. Land and trees, for example, were better candidates than seed, water, fertilizers, and labor. The taxpayer could not evade taxes by underreporting the amounts of trees and land used in production, because their amounts remained fixed during the production period and the tax collector could easily observe them. The production tax on fruits was thus typically levied on the number of trees, and the tax on vegetables was levied on the amount of land allocated to them. Whenever it was expensive to measure the output of an activity but cheap to measure one of the inputs, the activity was taxed by the input tax method.

When neither the output nor any of the inputs were easily observable, the last resort for the state was to tax the activity as a whole. This was typically the case for manufacturing enterprises like juice-makers and soap-makers in towns and agricultural production in remote villages or uninhabited fields (*mezra'a*). [25] Because the cost of measuring the output or one of the inputs of these activities would have been very high, the state determined the tax amount as a lumpsum payment that was levied on the enterprise itself.

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[25] For evidence of increasing cost of measurement in distant villages, see Kunt (1983: 19).

CONCLUSION

This paper proposed an economic approach to studying Ottoman taxes, classifying them by their base and using insights from transaction cost economics to offer an explanation of their overall structure. Previous studies of Ottoman taxation have typically chosen to either examine each tax in isolation or to classify taxes based on *ad hoc* or purely legal categories. For an economic classification, I identified systematic differences in their bases and distinguished between personal, trade, and production taxes. An analysis of taxes observed in different regions of the Empire shows that while the types and rates of taxes varied among regions, the basic structure of the three broad categories remained the same.

All three categories could coexist because the cost of measuring each type of base varied among activities. The high cost of measuring the output or revenue from work or exchange meant for personal taxes to be levied on individuals or households and trade taxes on the items brought to the market for sale. The choice of a method for taxing production similarly depended on the cost of measuring the tax base. Output taxes applied to activities for which the tax collectors could easily measure the total product and receive their share. Input taxes, on the other hand, applied to activities for which it was expensive to measure the total output but cheap to measure one of the inputs used in production. Enterprise taxes were lumpsum payments that applied to cases when neither the output nor the inputs were cheap to measure. The system of applying input, output, and enterprise taxes to different productive activities allowed the Ottomans to minimize transaction costs.

Understanding the tax system of the Ottomans should also help to understand other systems observed in the economic history of the Middle East. The Ottoman system shared

various elements with those of its predecessors like the Byzantines and the Mamluks and its contemporaries like the Safavids and the Mughals. By identifying systematic commonalities and differences among these systems and studying how the measurement cost varied between alternative bases, historians can develop a similar economic approach to explaining the tax systems of these states.

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TABLE 1

EXAMPLES OF TAX RATES IN OTTOMAN DISTRICTS

	PERSONAL TAXES			TRADE TAXES	PRODUCTION TAXES			
					Input taxes			Output taxes
	Resm-i Çift	*Resm-i Mücerred*	*Resm-i Kapı*	*Examples of Goods Brought to Market*	*Beehives*	*Animals*	*Vineyards*	*Tax Rate*
Antep (1574)	40	6		1 / camel-load of miscellaneous goods	2 / beehive	0.5 / animal	0.02 / vine	1 / 8
Budapest (1562)			50	4 / wagon-load of pots and cups		0.5 / animal	4 / *dönüm*	1 / 8
Erbil (1542)	50	6		10 / load of butter and honey	2 / beehive	0.5 / animal		
Bursa (1487)	33	9 or 12			1 or 2 / beehive	0.5 / animal	3, 5, or 10 / *dönüm*	1 / 8
Jerusalem (1562)				20 / camel-load of linen	1 / beehive	0.5 / animal	0.1 / vine	variable between 1/7 and 2/5
Malatya (1560)	50	6			1 / beehive	0.5 / animal	0.03 / vine	1 / 5

Notes: All monetary values are in the Ottoman currency of *Akçe*. *Dönüm* is a measure of land. See the text for the definitions of personal tax items. Some figures are missing either because the tax code (*kānūnnāme*) did not specify the rate for those items or because the description was too detailed and complex to be summarized in a single entry. Output tax rates of 1/8 include the *salāriye* of 1/40. Because of the customized nature of lumpsum taxes, their rates are not reported.

Sources: Ottoman provincial *kānūnnāmes*. Akgündüz (1990), Barkan (1943).

TABLE 2

THE SHARES OF OTTOMAN TAX CATEGORIES

REGION	YEAR	PERSONAL TAXES	TRADE TAXES	PRODUCTION TAXES		
				Output	Input	Enterprise
Antep	1536	0.10	0.08	0.21	0.39	0.22
Antep	1543	0.09	0.04	0.53	0.30	0.05
Antep	1574	0.08	0.03	0.38	0.27	0.24
Budapest	1546	0.23	0.30	0.35	0.04	0.07
Budapest	1562	0.23	0.18	0.42	0.09	0.09
Erbil	1542	0.07	0.02	0.70	0.10	0.11
Malatya	1560	0.12	0.06	0.37	0.12	0.32
Mardin	1564	0.21	0.08	0.51	0.06	0.14
Jerusalem	1596	0.00	0.02	0.69	0.23	0.06

Sources: Ottoman *Tapu Tahrir Defterleri* (numbered 142, 161, 186, 345, 373, 388, 406, 410, and 449 in the Prime Ministry Archives in Istanbul and 69, 72, 97, 100, 112, 117, 181, 185, and 192 in the Cadastral Office in Ankara); contents published by Özdeğer (1988), Kaldy-Nagy (1971), İlhan (1994-95), Yinanç and Elibüyük (1983), Göyünç and Hütteroth (1997), and Hütteroth and Abdalfattah (1977).