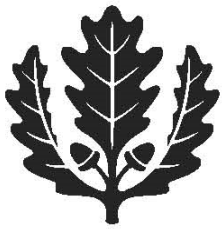

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The Fiscal Regime of an Expanding State: Political Economy of Ottoman Taxation

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THE FISCAL REGIME OF AN EXPANDING STATE: POLITICAL ECONOMY OF OTTOMAN TAXATION

by

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ABSTRACT:

An expanding state has to decide how to tax the newly conquered lands, most likely taxed under a different regime. It can either preserve the prevailing system of taxation or change it to conform to its own system. The choice depends on the relative efficiency of the two systems, political constraints, and the political legitimacy of the ruler (formulated here as his ability to collect the tax revenue). This paper examines the problem of how an expanding state would establish a fiscal regime by focusing on the tax system of the Ottoman Empire during its expansion between the fourteenth and sixteenth centuries. After outlining the general structure of the Ottoman system of taxation, it develops a simple theoretical framework to analyze the political economy of an expanding state's choice of a fiscal regime, applies this framework to the Ottoman Empire, and analyzes the interaction between tax rates and bases in a more specific context, namely the system of discriminatory taxation that the Ottomans inherited in the Fertile Crescent.

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As empires expand into new territories, they face the problem of how to tax the newly conquered resources which were most likely taxed under a different regime. An expanding state has a choice between preserving the existing system of taxation in newly conquered lands, or changing it to conform to the system prevailing in other parts of the empire. The choice may depend on the relative efficiency of the two systems, particularly if one system is vastly superior to the other owing to lower cost of collection or higher benefits for productivity. Political constraints are also important, since taxpayers generally resent taxation and may even join a revolt because of exorbitant rates or drastic changes. In the same vein, the ruler may not have sufficient legitimacy to collect the tax revenue. To acquire legitimacy and avoid the risk of revolt, the conqueror has to evaluate his options carefully in light of new political realities.

To examine the problem of how an expanding state would establish a fiscal regime, this paper will focus on the tax system of the Ottoman Empire during its expansion between the fourteenth and sixteenth centuries. Starting from a small tribe settled in northwestern Anatolia at the end of the thirteenth century, the Ottomans kept expanding in the next three centuries and eventually built a vast Empire that spanned the area from the Black Sea in the north to Egypt and the Arabian Peninsula in the south, and from the Persian Gulf in the east to central Europe and

North Africa in the west. Conquering land from multiple predecessor states, they inherited the tax systems of various legal and political traditions that needed to be molded into a coherent whole and applied to local conditions.

The paper is organized as follows. In the next section, I outline the general structure of the Ottoman system of taxation. Using information from Ottoman tax registers of the fifteenth and sixteenth centuries, I categorize taxes into a coherent whole and discuss briefly how the central government assigned tax revenues to different recipients. Second, I develop a simple theoretical framework to analyze the basic parameters of an expanding state's choice of a fiscal regime. Using a political economy model of choice, I identify how the net surplus available to a ruler would depend on not just the available gross revenue but also his legitimacy and the likelihood of a successful revolt against his regime. In the third section, I examine the political economy of this system in a specific context, namely the question of how the choice of tax bases and rate structures depended on the cost of measurement. The fourth section analyzes the interaction between rates and bases in a more specific context, namely the system of discriminatory taxation that the Ottomans inherited in the Fertile Crescent. Discussing the reasons for why the Ottomans continued this system, I use data from tax registers to study quantitatively how discriminatory rates affected production and tax revenue. Finally, I use the theoretical framework to explain how the political economy constraints affected the regional variation of the Ottoman tax system.

THE GENERAL STRUCTURE OF THE OTTOMAN SYSTEM OF TAXATION

Studies of the Ottoman system of taxation have typically used the detailed information recorded in imperial registers (*defter-i hākanī*) for source. Upon conquering new lands, the Ottomans typically surveyed all taxable resources and activities and recorded the information in tax registers commonly known as the *tahrir defterleri* (Coşgel 2004). As circumstances changed over time, they conducted subsequent periodic surveys in order to update the information on the empire's current sources of revenue. The registers were used for a variety of purposes, including serving as official records 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. Fortunately, many of these registers have survived to the present, 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,* which showed the bases and rates that prevailed in that district. Tax codes show that the Ottomans did not use complicated tax instruments like the income tax or the value added tax for public finance, because they faced various constraints in their capacity to gather the information required to administer taxes. 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. Because taxes were levied on numerous groups of persons and activities, however, the resulting system was still inevitably complex. The types and rates of taxes could vary significantly between regions, making the system more complicated. It must have been complicated enough, even perhaps for the government's own agents, that the

government felt obligated 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 enormous 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 taxes levied on the persons or households, trade taxes on the goods and services brought to market for sale, and production taxes on various farming and manufacturing activities. [1]

Legally, personal taxes resulted from the dependent status of the subjects. [2] Although the names and rates 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, which served as an index of their ability to generate income and pay taxes. For example, under the conventional system of taxing subjects, a married subject 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 ç*ift* or no land (*resm-i bennāk*). Those unable to work, such as the elderly and the disabled, were exempted from personal taxes.[3]

Table 1 shows examples of personal taxes in the Ottoman Empire during the fifteenth and sixteenth centuries. Representing the differences in rates and the geographical diversity of the Empire during this period, the Table includes information from such diverse districts as Jerusalem in eastern Mediterranean, Budapest in Europe, Bursa in western Anatolia, Erbil in northern Iraq, and Antep and Malatya in eastern Anatolia.[4] Personal taxes were typically levied

in cash. The rates for the ç*ift* tax, for example, were specified in terms of the Ottoman currency of *akçe* and varied from being 33 *akçes* in Bursa in 1487 to 50 *akçes* in Erbil in 1542 and Malatya in 1560.

*** Table 1 about here *****

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, 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, 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.

Output taxes consisted of the tithes (*öşür*), applying primarily to grains, legumes, and fibers. Taxes on these products were to be collected in kind, as a share of the total output. The

usual rate was one tenth, typically with an additional one fortieth, called *salāriye*, collected as fodder for the horses of the fief-holder. As Table 1 shows, the rates could vary significantly between regions, sometimes even between villages within a region. Despite such variations, however, output taxes throughout the Empire had the common property of being based on the harvested product and collected at rates specified as a percentage share of the total output. The usual rate of one-tenth, for example, meant for the tax collector to claim his share immediately after the harvest as ten percent of the output of wheat, barley, lentils, and so on.

Input taxes applied primarily in the taxation of fruits, vegetables, and animal products. Taxes for 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.[5] This method was also used in the taxation of agricultural production in uninhabited lands called *mezra'as* and in some small or remote villages. The tax rate for enterprise taxes was specified as a lump-sum payment, presumably determined by some estimate of the profitability of the enterprise. 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 Table 1.

The Ottomans allocated tax revenues within a multi-tiered governmental system that divided the Empire into provinces, provinces into districts, and districts into fiefs. Combining elements from the customs and administrative practices of previously existing states and the basic principles of Islamic taxation, they developed a system of government finance that assigned tax revenues to various recipients, including the central treasury, provincial and district governments, military personnel, and various non-governmental groups like tribes and pious foundations. Although in principle all revenue belonged to the central government, tax revenues from some sources could be assigned exclusively to other levels of government in order to minimize transaction costs (Coşgel and Miceli 2005). Because the Ottoman system of tax assignment differed significantly from less centralized European systems, central government's share of overall tax revenues were lower in the Ottoman Empire than in European states (Karaman and Pamuk 2010). But the overall tax burden that included all types of taxes paid to all levels of government could still be very high.

LEGITIMACY, REVOLT, AND TAXATION

The Ottoman system of taxation described in the previous section was the outcome of a long process during which the state expanded significantly from a small tribe to a vast empire that spanned three continents. To study the fiscal regime of such an expanding state in an abstract political economy framework, consider a ruler whose primary objective is to extract as much surplus from the population as possible for his own consumption. The citizenry produces a

gross surplus equal to *S*, which the ruler can extract as taxes levied on persons, wealth, production, or trade.

The ruler has to rely on agents for tax collection, who act as intermediaries between him and the subjects. The agent could represent a religious authority, a military authority, or an aristocratic class (nobility). His role is to support, or legitimize, the ruler and collect taxes on his behalf[6]. If he legitimizes the ruler, the latter is able to extract a fraction β of the gross surplus, which reflects the degree to which citizens view the ruler as legitimate: a higher value of β means that the ruler is seen as being more legitimate, which makes citizens less resistant to paying taxes.

If the citizens revolt against the new ruler, he receives no surplus. Let *p* be the probability that the revolt succeeds in deposing the ruler.

The resulting expected revenue to the ruler is given by

$$\beta(1-p)S.$$

To maximize his income, the ruler would thus have to set up a fiscal regime that (i) maximizes the available surplus and (ii) adjusts to local conditions in ways that can boost his legitimacy and reduce the probability of a successful revolt. Although the ruler may have no direct control over these variables, he can affect them indirectly through his choices of tax bases, rate structures, and collection schemes.

HOW TO MAXIMIZE THE SURPLUS: THE ECONOMICS OF CHOOSING TAX BASES AND RATES

To maximize the available surplus, the ruler would have to set up a system of taxation that would minimize the cost of collection and the loss due to distortion. For a simple analysis of whether a tax system achieved these goals, we need to identify the two basic components of the system, namely the tax base(s) and the rate structure(s). As noted, tax base is simply the item on which the tax is levied, and the rate structure refers to how the rates changed corresponding to variations in the type and magnitude of the base. By examining how the cost of collecting taxes changed among alternative types of bases and whether the rate structure caused distortion due to changing behavior, we can determine the efficiency of the bases and rates that were used to tax specific resources and productive activities.

Consider first the question of whether the tax bases were chosen efficiently. As described in detail above, Ottoman tax bases consisted of three major categories: personal taxes, trade taxes, and production taxes (Coşgel 2005). To examine the efficiency of this structure, we need to identify its purpose, the principles behind why the tax on some items or activities were levied on one type of base and others on another type. Why were 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?

To explain organizational forms observed in history, economic historians have found it useful to examine the transaction costs of available alternatives. In market exchange the transaction costs include the time, effort, and other resources used in locating parties to trade with, negotiating the terms of the trade, and drawing up and enforcing contracts. In the transaction cost approach to the analysis of organizations and institutions, their presence and form are treated as the results of choice, subject to the constraints of transaction costs. In a

hypothetical world without transaction costs, it would not matter how production or exchange is organized, because the organization of activities would not affect the use of resources. But if transaction costs are positive, for example if the information required for an activity or exchange is costly and imperfect, the organization of activities can make a big difference in solving the problem. The efficiency principle would require that the form that best economizes on these costs should be adopted. By focusing on transaction costs, economic historians have explained various organizational arrangements, including the firm, sharecropping, and manorial contracts, as outcomes of how the costs varied among alternatives.

Although the transaction cost approach has been used primarily in the analysis of private organizations and institutions, it can easily be extended to the analysis of the public sector and tax systems. If the transaction costs were zero, it would make no difference which base the government uses to tax an economic activity. In taxing production, for example, the government can 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 may 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 difference in transaction costs may explain why some activities are taxed by one type of a base rather than another.

The transaction cost that is most relevant in studying taxes is the cost of measuring the tax base.[7] This is simply the time and resources required to determine the value of the tax base, such as those that would be needed in classifying different types of items constituting the base (possibly varying in shape, size, ripeness, and so on), quantifying the total amount in each category, and estimating the monetary value. 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 because it was difficult to observe. Non-market exchange and productive activities that took place at home, such as cleaning and cooking, were similarly not taxed. Instead, easily observable activities like market exchange and agricultural and manufacturing production were taxed. Once the state decided to tax an activity, it was also important to choose a tax base that could be easily 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. Moreover, hiring a tax collector introduced a principal-agent problem to tax collection, accompanied by agency costs. For example, the tax collector could make side-agreements with the tax payer to collect reduced taxes in return for a transfer payment to himself (a bribe).

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 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.[8]

The cost to the tax collector was probably the lowest for products like cereal grains, whose 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.[9] 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 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. [10] 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.

HOW THE RATE STRUCTURE AFFECTED THE TAX BASE

Let us now turn to the question of how to choose the tax rate. The answer may not be as simple as choosing the rate to be as high as possible, subject to the subsistence constraints of the population, because taxpayers may respond to the rate change by cutting back production, thus reducing the tax base. As the ruler increases the tax rate, beyond a certain point he might actually see his total revenue start to fall, a phenomenon known in economics as the Laffer curve. As the tax rate increases, the total revenue may fall depending on the rate elasticity of the tax base.

To set the tax rate that maximizes the government's revenue, the ruler thus needs to know whether and how the taxpayers will respond to changes in the tax rate. The basic behavioral assumption of the Laffer curve is that rational taxpayers would produce less income in response to an increase in the tax rate because they would have reduced incentives to generate the same income. Whereas economists have variously studied this assumption as well as other testable implications of the Laffer curve for modern societies, little is known quantitatively about how taxpayers responded to rate changes in history, particularly in pre-modern societies. Although the behavior of taxpayers has been the subject of numerous historical debates, data limitations have prevented systematic quantitative studies of these issues.

The information contained in Ottoman tax registers makes it possible to examine how producers responded to tax incentives quantitatively. Although we do not have time-series data that would have allowed us to isolate instances of how behavior changed over time in response to changes in tax rates, the discriminatory rate structure that prevailed in the Fertile Crescent offers an indirect test of this behavioral response. The tax system of this region included output tax rates that could vary significantly from one village to the next, as can be seen from the distribution of tax rates in Ottoman Palestine, Southern Syria, and Transjordan in the late sixteenth Century (Table 2).[11] By studying how villagers chose productive activities in response to the variation in tax rates, we can determine their response to taxation.

*** Table 2 about here *****

Taxes were mandatory, but taxpayers were free to adjust their behavior in an effort to increase their net (after-tax) income. They could shelter some of their income from taxation by shifting resources toward non-taxed activities, such as domestic production. Another opportunity was created by the difference between the rate structures of output and input taxes in the Fertile Crescent. Whenever the rates differed among producers for output-taxed activities but were uniform for input-taxed ones, taxpayers could adjust to their own rates by changing the composition of output between these two types of activities. For example, a village could adjust to a high output tax rate by shifting resources from items subject to the output tax to those that are subject to the input tax, such as by converting a grain field to vegetable garden. Although regulations may have prevented producers from altering their product mix significantly in any one year, they could have nevertheless achieved desired changes in the long run as cumulative outcomes of small yearly adjustments. We would thus expect taxpayers with higher output tax rates than others to produce less of the output-taxed products, all else being the same. As a

corollary, the amounts of input-taxed products would be expected to be higher for high-rate producers than others.

To test these expectations about the distortionary effects of discriminatory taxation, I have performed a regression analysis of how tax rates affected output-taxed and input-taxed products (Coşgel 2006). The data come from the tax registers of the Ottoman districts of Quds (Jerusalem), Nāblūs, Gazza, Lajjūn, 'Ajlūn, Safad, and Hawran for the year 1595-96. I omitted fiscal units that made a single lump-sum payment for taxes (rather than itemized taxes) and those with missing information on inhabitants or taxes. Of the 1559 fiscal units (excluding uninhabited fields called *mazra'as*) reported by Hütteroth and Abdulfattah (1977), 211 observations were thus dropped, and the remaining 1348 villages constitute the observations in the data set.

Regression analysis includes two equations with the revenue from output-taxed products and input-taxed products as the dependent variables. To calculate the dependent variable of the first equation, we can simply multiply the taxes listed in the registers for output-taxed products by the taxation factor (inverse of the tax rate). Although the tax codes have no similarly direct information on the revenue from input-taxed products, we can nevertheless calculate the dependent variable of the second equation by estimating the relationship between inputs and outputs from more recent information about the productivities and production processes of some of the items listed in the registers (Coşgel 2006: 349-50).

I used the same set of independent variables in both equations because the same set of factors could have potentially, if differently, affected output-taxed and input-taxed products. The independent variable of primary interest is the tax rate. Among the other variables that could have also affected production, perhaps the most important were the inputs used in production.

Although the tax registers did not directly record the quantities of inputs, they did record the numbers of adult males in each village, which we can use to generate a general proxy for all inputs. Assuming the number of adult males to be proportional to the agricultural labor force and input proportions to be similar among villages, this measure would represent the units of the input bundle used in production.

I also included variables to control for physical characteristics of a village, namely the availability of irrigation water in a village, its distance to the nearest town, and the recipients of its tax revenue. I used the information from tax registers to create three dummy variables that represent other economic activities in a village. To consider the effects of commercial activities, I created a dummy variable based on whether the village hosted the periodic regional market or pursued any urban activities (1 if the village paid *bāj bāzār* or other urban taxes). The other dummy variables capture the effects of making investments in manufacturing activities. One is whether the village had a water mill (1 if village paid taxes for *tāhūn*), whose presence would indicate a lower cost of converting grain to final products and could thus have had a complementary, positive effect on grain production. The other dummy variable is whether the village had a press for grape syrup or olive oil (1 if village paid taxes on *ma'sara*), which would similarly indicate a lower cost in the processing of fruits and olives into final products.

To control for unobservable differences among regions in rainfall, climate, prices, soil quality, and other local factors, I generated dummy variables for the forty-two administrative subdistricts represented in the data set.

*** Table 3 about here *****

Table 3 reports the OLS estimates of influences on the revenues of output-taxed and input-taxed products separately.[12] The results show interesting relationships between the control variables and the revenues from output-taxed and input-taxed products. The number of adult males affected the quantities of the two types of products positively, as one would expect. Being close to irrigation water had an insignificant effect on these products, probably because it affected more the cost of production than its revenue. Villages with a water mill produced more of both types of products than other villages. Although the positive effect of mills on output-taxed products confirms expectations about their complementarity, it is difficult to explain why the same type of positive relationship existed between mills and input-taxed products. Consistent with grape syrup and olive oil being output-taxed products, having a press for grape syrup or olive oil affected the production of output-taxed products (but not input-taxed products) positively. The presence of urban and commercial activities in a village, on the other hand, affected the input-taxed products (but not output-taxed products) positively, indicating a complementary relationship between them. Although the distribution of tax revenue also affected production in interesting ways, it is beyond the scope of this paper to examine them in detail.[13]

The coefficients of the tax rate in the two equations show how taxes distorted output by changing the behavior of producers in response to differences in tax rates. The negative coefficient of the tax rate in the first equation confirms the expectation that, all else being the same, taxpayers adjusted to higher rates by producing less of the output-taxed products (and substituting by others). The positive coefficient of the tax rate in the second equation shows the other side of the substitution effect: taxpayers substituted output-taxed products with input-taxed ones as those with higher rates produced more of the latter. The magnitudes of these effects are also interesting. Because both variables are in logs, the coefficients of the tax rate reflect tax

elasticities of the two types of products. Tax elasticity of supply was low in both cases, possibly caused by the immobility of resources and restrictions on changing the composition of products. At any rate, these results show that Ottoman villagers in the Fertile Crescent behaved rationally in responding to the rate structure of the Ottoman tax system in the late sixteenth century.

Going back to the question of whether the ruler could simply raise the tax rates to raise revenue, the results indicate that he was constrained by the reactions of taxpayers. He had to consider these reactions carefully in setting the rate that could maximize his revenue from taxation.

REGIONAL VARIATION: POLITICAL ECONOMY CONSTRAINTS ON CHANGE

To maximize his overall expected net revenue, the ruler had to not only maximize the surplus he could extract from the population *(S*), but also adjusts to local conditions in ways that would reduce the probability of a successful revolt (*p*) and boost his legitimacy (*β*). Political economy constraints were thus also important in choosing the tax bases and rate structures and in appointing agents for tax collection. An empire expanding into new territories inevitably faced the question of whether to preserve the previous system of taxation or to change it in ways that enhanced efficiency.

The structure of the Ottoman system of taxation shared many elements with those of preceding and contemporary states, suggesting the presence of a selection process that caused these structures to converge toward an efficient ideal. 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.[14] 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, Turkish, and other rulers had established in the Middle East before the Ottomans. Ottoman personal taxes also resembled those of predecessor states, in particular the Byzantine Empire. The *çift* tax, for example, was similar in principle to the Byzantine tax called *zeugaratikion*.[15] These commonalities clearly support the view that the observed structure of Ottoman taxes had efficiency properties that made it more desirable than its alternatives.

But the vast Empire that the Ottomans had built by mid sixteenth century had inherited not only common elements but also various idiosyncrasies from the customs and administrative practices of preceding states. The tax system that the Ottomans developed in each region also reflected these idiosyncrasies, indicating that some things were harder to change than others and that political economy constraints also played an important role in shaping the final outcome. In what follows, I will describe some of the significant regional differences in tax bases, rate structures, and collection methods, and discuss how political economy constraints shaped these differences.

Tax bases and rate structures varied significantly among regions, as can be seen in personal taxes. Under the conventional system observed in Anatolia, personal taxes were based on adult males, and the tax rate varied by marital status and land ownership. The subjects in Hungary, on the other hand, paid personal taxes in terms of 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 or land ownership. Moreover, personal taxes were not even fully implemented in all areas (though non-Muslim subjects throughout the empire paid a poll tax called *cizye*). In

Jerusalem and surrounding districts, for example, the Ottomans did not introduce the ç*ift* tax or any other form of personal tax systematically levied on individuals or households.[16] Some of these differences during the fifteenth and sixteenth centuries can be seen in Table 1.

Trade taxes also varied a great detail among regions. In some places they 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 same vein, production taxes varied among regions. Although the usual output-tax rate was one-tenth, a higher rate of one-fifth was applied in some of the provinces annexed after the mid-sixteenth century. As I've discussed above, the rates varied even among villages in the Palestine, southern Syria, and Transjordan region. Activities taxed under one category in one region could be taxed in another category in another region. Whereas beehive taxes were levied 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, 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 (generally interpreted as referring to aged trees), taxed based on output, and *islāmī* trees (younger trees), taxed based on the number of trees.

Although one might be tempted to explain these differences as economically optimal outcomes of some sort, it is difficult to explain all components of the Ottoman tax system with

economic principles only. If efficiency was the sole driving force in tax design, then the truly efficient system would have replaced all others, and regional differences would have been mere adaptations of this system to local conditions. But there are numerous other regional differences that are difficult to explain with economic principles or with an efficiency view of institutions. Consider some of the differences in tax bases and rate structures observed in the Empire. Among personal taxes, for example, numerous differences existed between regions in not just the local names of personal taxes but also in their bases and rate structures, raising the question of why the more efficient ones did not replace others. If it was more efficient to vary the rates of personal taxes based on the characteristics of adult males (because of, for example, varying abilities to pay), as was the case under the *çift* tax system, then one would have expected personal taxes observed in the Balkans (where the payment was based on the household as a whole, rather than individuals) to be replaced by the *çift* tax system. Similarly, if a uniform rate for output taxes was more desirable, one would have expected it to replace the rate structure observed in parts of the Fertile Crescent with rates that varied between villages. But in both cases the Ottomans simply adopted the prevailing taxes and rate structures, making no systematic attempt to change things one way or another. They did not extend the *çift* tax system to the Balkans or the Fertile Crescent. Neither did they change the output tax rates that varied between villages in the Fertile Crescent to a uniform-rate system that prevailed in the rest of the Empire. It is difficult to explain such continuities of sharply different rate structures merely as efficient adaptations of the tax system to local conditions.

Political constraints were significant because of the way taxpayers react to change. Opposition to taxes has been one of the most common reasons for popular uprisings in history.[17] Taxpayers naturally resist higher taxes, and they prefer stable, secure incomes. This type of

resistance may also have been most evident during conquests. Unless changing taxes would have clearly eliminated excessively oppressive elements of the previous tax system (as may have been the case for labor services), the general population would have been likely to prefer status quo over change, for fear that change might mean higher taxes and worse conditions. And they could have even fled the land or revolted against the new regime if the changes were perceived to be too burdensome. Even if an existing tax system was known to be inefficient, therefore, the Ottomans had to carefully weigh their desire to change the system against the possibility of political instability and a rise in the probability of a successful revolt against their regime. An inefficient tax system could have thus survived if political rigidities prevented a ruler from changing it.

Given the political realities surrounding conquest, assimilation, and stability, the Ottomans were not free to change the tax codes as they wished. Even if they could have increased the tax revenues in Hungary by changing personal taxes from being based on the household as a whole to a differential rate structure based on the characteristics of its individual members, they would have met stiff resistance from those who would have paid higher taxes. Because of this resistance, they could not have implemented the change easily. They similarly could not have easily changed the rate structure of output taxes in the Fertile Crescent from discriminatory rates to a uniform rate, because this would have meant higher rates for some villages. Political obstacles existed not just in newly conquered lands but in well assimilated regions as well. Once the tax code of a region was adopted, changing it would have been difficult because the general population accustomed to paying taxes under a familiar system and powerful groups with vested interests in this system would have continued to resist the change and initiate a revolt against the Ottomans.

These examples indicate that certain institutions were more flexible than others and political constraints were more binding in some areas than in others. Although the Ottoman government's ultimate objective in designing the tax system may have been to maximize tax revenues, they could not seek efficiency and minimize transaction costs as they wished. They needed to work within the parameters of various institutional constraints.

Economic and political variables similarly worked together in determining how the Ottomans appointed agents to collect taxes and allocated tax revenues among these agents. Organized in a multi-tiered system, the Ottoman government consisted of multiple hierarchical levels that divided the Empire into provinces, the provinces into districts, and the districts into fiefs or other administrative units. To support offices at lower levels, the central government assigned some of the tax revenues directly to governors of provinces (variously denoted in the registers as *mīr mīrān*, *paşa*, *beylerbeyi*), district officials (*mīr liwā*, *sancakbeyi*), and holders of small and large fiefs *(tımār and za'āma*). [18] In the resulting system of tax collection and revenue allocation, you could have one village paying taxes to the central government, their neighbors in the next village paid to the provincial government, and those in other villages to the district government, or a local fiefholder (cavalrymen or military commander).

Besides this system of tax collection and revenue allocation that was commonly observed in all parts of the empire, there were numerous idiosyncrasies that seemed to complicate the assignment of agents in some regions. Most prominent among these were the tribal leaders who somehow possessed the right to collect the tax revenues of some villages and the landholders who similarly held the rights to collect taxes privately (*mülk*), or jointly with the government (under a system called *mālikāne dīvānī*). Typically, these were rights the Ottomans had

preserved from the system that they inherited upon conquest or assigned through negotiations with powerholders.

The system of allocation was determined in part by economic factors such as the variability of the tax base or the cost of measuring the tax base or the collector's effort (Coşgel and Miceli 2009). A quantitative analysis of tax assignment in the Ottoman Empire has indeed shown that the sources of revenue allocated to local government officials included a higher proportion of variable taxes than those allocated to the provincial and central treasury, indicating that the variance of the tax base affected the allocation (Coşgel and Miceli 2005). Economic factors have also influenced the government's decision of which contractual form (rent, wage, share) to adopt in employing agents for tax collection.

Purely economic factors do not explain, however, why the Ottomans granted tax revenues to private landholders, tribal leaders, or others who acquired rights through special arrangements. For a more complete explanation, we also need to consider political economy constraints on the allocation, more specifically how tax collectors could affect the ruler's legitimacy. In general, tax collectors not only acted as government officials in their districts but also as legitimizing agents that could enhance the ruler's ability to extract the surplus. This ability gained even greater significance in newly conquered lands. Acting as local representatives of the new ruler, carefully chosen tax collectors could solidify his legitimacy and raise the share of the gross surplus (β) that he could extract from the general population for his own consumption.

Tax collectors could affect the legitimacy of the Ottoman sultans through both force or loyalty during this period, two main sources of legitimacy (Coşgel, Miceli, and Rubin 2012). If a newly conquered population included powerful individuals who could be bribed into using their power for tax collection if necessary, in some cases this ability could be of better use to the

Ottomans than that of military officials appointed from the center. In the same vein, if the local population included individuals with leadership qualities that could generate loyalty by encouraging the citizens to accept the Ottoman ruler's right to rule and his ability to provide protection and other public goods and services, this ability too could provide legitimacy through loyalty more effectively than an Ottoman official appointed from the center but unknown in this region. If the local leaders in newly conquered areas thus had superior ability to provide legitimacy through force or loyalty, these qualities could supersede economic considerations in the assignment of tax revenues, and the Ottomans could be better off using them as agents to raise the share of the surplus the public would pay voluntarily as taxes.

By including political constraints into the analysis, we can thus offer a more complete explanation of why the Ottomans appointed tribal leaders and private individuals as tax collectors in some areas. They preserved the rights of some landholders to collect taxes after conquest under the *mālikāne dīvānī* system in eastern Anatolia because in those regions these leaders had a comparative advantage in force and loyalty that was essential to collect taxes on behalf of the Ottomans, a right that was granted in exchange for a share of the tax revenue. The Ottomans similarly appointed tribal leaders in some regions as tax collectors so that the Ottoman rule would be established within the institutional constraints of conquest politics. They assigned some of the tax revenues to Bedouin tribes in the Fertile Crescent, for example, so as to establish the Ottoman rule in the desert frontiers. As Etkes (2006) has recently studied, they allocated a share of the tax revenues to the leaders of the *Bani ʻAta* and *ʻArab Sawalma* tribes in the Gaza district in exchange for their collaboration in providing security in the region and their support in legitimizing the Ottoman rule. Although purely economic concerns of expanding into new territories might have suggested to the Ottomans that they should replace previous systems of

taxation and collection with more efficient schemes that could be adopted from other parts of the empire, political constraints sometimes required them to work within the parameters of existing orders and capitalize on the comparative advantages of local agents who could better legitimize their regime through force and loyalty.

TABLE 1

EXAMPLES OF TAXES AND TAX RATES IN OTTOMAN DISTRICTS

	Personal Taxes			Input Taxes		Trade Taxes	Output Taxes
Region (Year)	**Yoke Tax**	**Bachelor Tax**	**Gate Tax**	**Animal Products**	**Vineyards**	**Goods Brought to Market**	**Tax Rate**
Antep (1574)	40	6	--	0.5 per animal	0.02 per vine	1 per camel-load of miscellaneous goods	1 / 8
Budapest (1562)	--	--	50	0.5 per animal	4 per *dönüm*	4 per wagon-load of pots and cups	1 / 10
Bursa (1521)	33	9 or 12	--	0.5 per animal	3, 5, or 10 per *dönüm*	--	1 / 10
Erbil (1542)	50	6	--	0.5 per animal	--	10 per load of butter and honey	--
Jerusalem (1562)	--	--	--	0.5 per animal	0.1 per vine	20 per camel-load of linen	Variable between 1/7 and 2/5
Malatya (1560)	50	6	--	0.5 per animal	0.03 per vine	--	1 / 5

Notes: All monetary values are in the Ottoman currency of *Akçe*. *Dönüm* is a measure of land. Some cells are blank either because the tax code did not specify the rate for those items or because the description was too detailed and complex to be summarized in a single entry. Because of the customized nature of lumpsum enterprise taxes, their rates are not reported.

Sources: Ottoman provincial tax codes, published by Akgündüz, ed 1990 and Barkan 1943.

TABLE 2

DISCRIMINATORY TAX RATES IN OTTOMAN PALESTINE, SOUTHERN SYRIA, AND TRANSJORDAN

		Distribution by Tax Rate					
	All Villages	**1/7**	**1/6**	**1/5**	**1/4**	**1/3**	**2/5**
Number of Villages	1348	1	4	38	704	451	150
Households per Village	31.7	10	21.0	23.6	28.7	37.6	30.9
	(38.2)		(10.1)	(23.4)	(36.2)	(42.0)	(33.5)
Total Taxes per Village (in *akçes*)	6874.8	2000	3522.7	5112.9	6194.5	7240.6	9535.9
	(7190.1)		(730.2)	(4236.3)	(6891.5)	(6435.1)	(10138.1)

Note: Figures in parentheses are the standard deviations.

Source: Ottoman *Tahrir Defterleri* numbered 72, 100, 112, 181, 185, and 192 in the Cadastral Office in Ankara. Hütteroth and Abdulfattah 1977.

TABLE 3

DISTORTIONARY EFFECTS OF DISCRIMINATORY TAXATION

	Effect on Output-Taxed Products	Effect on Input-Taxed Products
Tax Rate	-0.52	0.38
	(< .0001)	(0.063)
Labor (Number of Adult Males)	0.57	0.65
	(< .0001)	(< .0001)
Village is Near Irrigation Water	-0.009	0.008
	(0.823)	(0.888)
Village Has a Mill	0.25	0.43
	(0.004)	(< .0001)
Village Has Press for Oil or Juice	0.17	0.03
	(0.005)	(0.732)
Distance to Nearest Market Town	-0.002	-0.014
	(0.854)	(0.444)
Village Pays Urban/Market Taxes	0.11	1.17
	(0.552)	(< .0001)
Multiple Recipients Share Tax Revenue	0.18	0.24
	(< .0001)	(< .0001)
Recipient of Tax Revenue is a Provincial	-0.11	-0.37
	(0.042)	(< .0001)
Recipient of Tax Revenue is a Pious Foundation	0.08	-0.13
	(0.256)	(0.167)
Constant	9.04	4.96
	(< .0001)	(< .0001)
N	1348	1348
F	22.9	22.1
R^2	0.48	0.47

Notes: Figures in parentheses are the p-values. The dependent variables are the natural logarithms of the revenue from output-taxed products (Equation 1) and input-taxed products (Equation 2). "Tax Rate" and "Labor" are also in natural logarithms. The omitted variable is "Recipient of Tax Revenue is the Central Government." Because of space constraints, the results of the dummy variables that account for unobservable differences among the 42 subdistricts are not reported.

Source: Ottoman *Tahrir Defterleri* numbered 72, 100, 112, 181, 185, and 192 in the Cadastral Office in Ankara. Hütteroth and Abdulfattah 1977.

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NOTES

[1] The Ottoman budgets included other sources of revenue, such as tributes from vassal states, profits from government owned enterprises, and revenues from various fees and fines like the marriage fees and criminal fines. Because of our focus on tax revenues, other sources of revenue are excluded from this classification. 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 and Quataert 1994, Vol. 1: 55-76. For revenues as fees and fines from marriages and misdemeanors, see Singer 1996: 113-52.

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

[3] Because the amount of land also affected these taxes, İnalcık insists that "[t]his was actually a system assessing peasants' labor and land in combination." See, İnalcık 1994: 149. 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.

[4] For the complete tax codes of these and other districts, see Akgündüz , ed. 1990 and Barkan 1943.

[5] For urban taxes and activities in Anatolia, see Faroqhi 1979.

[6] Legitimacy can come from various sources. For analyses of force and loyalty as sources of legitimacy, see Coşgel, Miceli, and Rubin 2010, 2012.

[7] For the importance of measurement costs in agricultural contracts and market organization, see Allen and Lueck 2005 and Barzel 1982.

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

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

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

[11] See Coşgel 2006 for a quantitative analysis of the reasons, distortionary effects, and distributional consequences of discriminatory rates in this region.

[12] See Coşgel 2006: 350-51 for a discussion of the consistency of these results with 2SLS estimates of the same equations.

[13] Because of space limitations, the results of the dummy variables that control for the differences among the forty-two subdistricts are not reported in the Table. A majority of these variables affected output significantly, confirming the importance of local factors in production decisions.

[14] For Mamluk and Ottoman taxation in Muslim lands, see Baber 1988, Bakhit 1981, Lapidus 1969, Petersen 2005, Poliak 1977, Ruth 1997.

[15]For the relationship between Byzantine and Ottoman taxation, see Bryer and Lowry 1986 and İnalcık 1960.

[16] The system of remunerating government employees from tax revenues was also different in this region's history. For example, as Kennedy 2002 has shown, soldiers were paid in cash, rather than tax revenues, in the early Islamic state (c. 650-900).

[17] Burg 2003, Goldstone 1991.

[18] For the organization and financing of the Ottoman government, see Coşgel and Miceli 2005, Darling 1996, İnalcık 1994, Kunt 1983.