# MODELLING RESEARCH GROUP



DEPARTMENT OF ECONOMICS
UNIVERSITY OF SOUTHERN CALIFORNIA
UNIVERSITY PARK
LOS ANGELES, CALIFORNIA
90089-0152

USC

M8722

# MODELLING RESEARCH GROUP

**TAX FARMING: ANACHRONISM OR OPTIMAL CONTRACT?**
(An Illustration with Respect to Tunisia's Weekly Markets)

MONGI AZABOU*
JEFFREY B. NUGENT

MRG WORKING PAPER #M8722



DEPARTMENT OF ECONOMICS
UNIVERSITY OF SOUTHERN CALIFORNIA
UNIVERSITY PARK
LOS ANGELES, CALIFORNIA
90089-0152

# TAX FARMING: ANACHRONISM OR OPTIMAL CONTRACT?

(An Illustration with Respect to Tunisia's Weekly Markets)

MONGI AZABOU*
JEFFREY B. NUGENT

MRG WORKING PAPER #M8722

June 1987

ABSTRACT

This paper analyzes the choice of contractual forms in tax collection activities. It draws on historical data from the world as a whole to illustrate the factors involved in the choice among wage, share and fixed rent (tax farming) techniques. This is followed by a detailed analysis of tax farming as applied to Tunisia's periodic markets so as to explain the continued reliance on this otherwise generally abandoned form of tax collection in this particular sector. Finally, some implications for policy in both developed and developing countries are derived.

*Faculté des Sciences Economiques et de Gestion, University of Tunis.

Tax evasion is certainly a sufficiently pervasive phenomenon to merit serious investigation of alternative incentive devices and other mechanisms for collecting more of the taxes stipulated by law. In principle, taxes can be collected with three quite different forms of contract between the tax collecting authority and the tax collector: wage, share and fixed rent contracts. Wage contracts occur when the government hires on fixed wages tax collection agents who agree to turn over to the government all the taxes they collect; share contracts occur when in lieu of a wage payment the agent holds onto a prespecified share of the taxes collected; finally, fixed rent contracts are those in which the tax collector (farmer) agrees to pay a prespecified fixed sum to the government in return for the right to all the proceeds of the taxes he collects. At present, however, wage contracts are so dominant in tax collection activities around the world that their use is frequently taken for granted. In order to examine the experience with these alternative contractual forms in tax collection activities, therefore, one must turn to history.

The purpose of the present paper is to examine both some historical experience with, and one contemporary example of, the use of rent contracts in tax collection activities. The rent contract approach to tax collection has generally been referred to as "tax farming". While the historical experience with tax farming is rich, emphasis is placed on the experience in North Africa and the Middle East where tax farming was especially prominent.[1] The contemporary example featured in the paper is the taxation of transactions in the periodic (mostly weekly) markets of Tunisia where tax farming remains dominant.

The presentation of this paper is divided into the following sections. Section I selectively reviews the historical experience for clues as to factors responsible for the waxing and waning of tax farming in different settings. Section II describes the origin of tax farming in Tunisia and in particular also the model of tax farming in the context of the country's weekly markets. Section III attempts to explain the variations in the incidence of tax farming over time in Tunisia and in the world as a whole in terms of transaction costs. Finally, Section IV provides some conclusions and suggestions for policy and future research.

## I. Some Historical Experience

Latouche (1961) points out that tax farming was the dominant form of tax collection with respect to agriculture in the Roman Empire. He also provides some interesting clues as to the factors leading to its decline and replacement by wage contracts. In particular, he notes that tax farming seemed to disappear mainly as a result of default on the part of tax farmers. This was especially common in the later phases of the Roman Empire when as law and order declined, the agricultural workers, who were increasingly subject to the invasions of others, started to leave the land and/or to invest less in their land, leading to decreased output. With the rent payments of the tax farmers set by historical experience, the tax farmers found their tax farms increasingly unprofitable, inducing them to abandon them voluntarily.[2]

Another factor may have been that, as the tax farmers became more permanent, the desire to maximize their own revenues may have induced them to gradually exercise more and more control over farming operations, thereby increasing their own political power base relative to the Roman state and decreasing the ability of the state to extract revenues from them.

Hicks (1969) attributes the rebirth of tax farming in Europe in the late Middle Ages to the rising need for finance and credit on the part of states. Not only could the right to collect taxes be rented out in return for a fixed rent payable in advance but, if the need for revenue were sufficiently great, the right to collect taxes indefinitely into the future could even be sold. Even if the right to collect the taxes was only rented out, the tax farmer was usually in a good position to raise loans which could in turn be forwarded to the state. It should be considered that until relatively recently states were relatively weak and lacked the power to borrow on their own since it had generally proved difficult for creditors to make sovereigns pay. As Fryde (1958) points out, even for tax farmers, the provision of credit to the state could get tax farmers into trouble when the states were unwilling, unable or very slow in repaying its debts. Sometimes, all the merchants formed a tightly knit syndicate of tax farmers for the expressed purpose of redeeming through tax collecting the delinquent loans they had made to the state. Gradually, however, the power of the states increased vis a vis the tax farmers. Indeed, states found competitive public auctions of tax farms a convenient vehicle for extracting maximal revenues from the tax farmers and at the same time undermining the cartelization of merchant-tax farmers.

By the 16th century, tax farming seemed to be the dominant form of tax collection in Europe. As a result of the proliferation of various kinds of indirect taxes on transactions, one could well imagine that intimate knowledge of each industry, of product prices and of the way in which transactions take place would all be important ingredients of success in collecting taxes. The state might well find it difficult and/or expensive to hire people with such knowledge on a wage contract basis. Nevertheless, because of their considerable experience in and knowledge of all such matters and perhaps because of economies of scope in supervision, one might suppose that merchants would be willing and able to serve as tax farmers. This expectation is strongly supported by the assertions of Jeannin (1972) that the tax farmers were usually the leading merchants in the line of activity relevant to the item whose transactions were being taxed.

The competitive auction process and the need to pay in advance, of course, frequently caused the tax farmer to go into debt from which he was not always able to extricate himself. Indeed, many a tax farmer fell victim to his creditors. The threat of bankruptcy and his absolutely small size often put the individual tax farmer in a weak position to collect the taxes from his creditors who were frequently other merchants in the same line of activity. Such weakness made it even more difficult for the tax farmer to succeed in making profits on his tax farm and accentuated his vulnerability to financial failure. Bankrupt or financially weak tax farmers were of course also not in the interest of the states since they could hardly be of much use in raising credit for the state.

To avoid these problems and to take advantage of risk-pooling, by the 17th century "great" or "general" tax farms were much in evidence especially in England [Newton (1918)] and France [Mathews (1958)]. In these new types of tax farms the right to collect the taxes was often for a longer period of time than for a single year (which had been the common practice earlier). Also, the scope of activity of an individual tax farmer was often much broader than had previously been the case. Naturally, however, the magnitude of the fixed payments involved greatly reduced the number of potential bidders. As a result, the competitive auction gave way in such circumstances to bilateral bargaining with the incumbent tax farmer. The incumbent tax farmer could sometimes be pushed into paying some bills of the tax receiver to maintain favor. The greater the power of the tax farmer, the greater was the likelihood of abuses on the part of the tax farmers in collecting more than the legally specified taxes from the transacting agents. Overzealous large, monopolistic tax farmers, driven by the incentive to collect as much in the way of taxes as possible, in the course of time tended to give tax farming a bad reputation and gave rise to complaints on the part of the taxpayers. This led to demands for more monitoring on the part of the state of the tax farmers' practices.

Another problem was that, despite their greater size, even large tax farmers were not always able to satisfy the ever-increasing demand for revenues on the part of the state. Bankruptcies were still common among tax farmers, and even those tax farmers who were not strictly bankrupt were sometimes unwilling to renew their contracts with the state. Tax farming was, therefore, somewhat unreliable. As a result, governments were sometimes confronted with the need to collect their own taxes on very short notice.

Naturally, if the state was compelled to hire monitors of the activities of tax farmers or at least a small corps of employee tax collectors to be used in case of emergency, the extra cost to the state of simply doing its own tax collecting was considerably reduced. The rising power of the state may also have contributed to making it easier for the state itself to collect the taxes owed to it. Although tax evasion remained a serious problem under wage contracts, by the 19th century wage contracts became the dominant form of tax collection. As Hicks (1969) points out, the trend toward wage contracts in tax collection was also greatly facilitated by the spread of accounting and the publication of such accounts thereby lowering the transaction costs of tax collecting, making intimate knowledge of each specific type of transaction less necessary, and reducing the cost of monitoring the tax collectors.

Elvin (1973) and Ho (1959) trace the somewhat parallel checkered history of tax farming in China. Especially in China, where the state was relatively weak and tax codes relatively complicated, the vulnerability of the system to illegal tax gouging on the part of overzealous tax farmers was a recurring problem. Although tax farming continued to be practiced in China until relatively recently, the occupation of tax farmer was throughout much of Chinese history the occupation which was most despised by the general populace.[3]

Despite the importance of tax farming in Europe, China and elsewhere for substantial periods of time and in many activities, it was apparently the Ottoman Empire which made the greatest use of tax farming and for the longest period of time. Even in those lands at the fringes of the empire which were indirectly influenced by the Ottoman Empire, such as India under the Moghul kings in the 16th and 17th century, tax farming seem to have been the dominant form of tax collection [Habib (1963, 1967)]. Nevertheless, even within the Ottoman Empire, there were periods in which tax farming was much less dominant and took somewhat different form. Indeed, the form it took in the Ottoman Empire seemed to depend very much on the changing needs of the state [Inalcik (1973), Baer (1968), Lewis (1979) and Shaw (1968), Shaw and Shaw (1977)].[4]

Given the importance of the cavalry to the rise and early expansion of the Ottoman state in the 14th and 15th centuries, and the relative abundance of land accruing to the Ottoman state in the form of conquered territories, at first the right to collect taxes on the newly acquired lands were simply given in the form of "timar" land in lieu of wage payment to cavalrymen ("sipahi") in return for their loyal service in time of need [Inalcik (1973), Shaw (1968)]. Once the zenith of the Ottoman Empire's territorial expansion had been reached, and hence as land became scarcer, and also as the importance of permanent salaried infantrymen and janissaries and of purchasable firearms and gunpowder in warfare increased relative to the cavalry, however, the state found that its need for taxes in the form of cash to have increased and its ability to provide land to tax farmers to have decreased. It, therefore, switched from the timar-sipahi form of tax farming to direct collection of taxes by salaried agents, typically minorities and foreigners. One reason for the use of minority members as salaried state tax collectors may have been that they could be expected to be less able to establish a local political base and to be more loyal to the Ottoman government than military men, Moslem bureaucrats, or the members of the populations indigenous to the various provinces of the Ottoman Empire.[5] Nevertheless, despite the political weakness and the extreme dependence of such people on the state, the Ottoman state gradually came to realize the vulnerability of tax collection via wage contract to the undersupply of effort on the part of the tax collectors. Hence, by the 16th century when Tunisia had come under the control of the Ottoman Empire, the Ottoman government was forced to return to the more orthodox system of tax collection, namely tax farming.

The practice of tax farming throughout the territorial domain of the Ottoman Empire was facilitated by the fact that the tax laws were for the most part both familiar to all and widely accepted as fair. This was in large part because the taxes had been articulated in Islamic Law, known by all Moslems and by all those non-Moslems living in regions ruled by Moslems. Many of these taxes were relatively easy to measure, consisting of specified flat tax rates like one-tenth, one-fourth, etc. depending on the item taxed.

While the tax farmers did not own the land, their incentive to collect as much tax as possible, subject to the constraint of the tax rates established by law which could not easily be violated because of their religious origin, induced them to exercise a considerable amount of control over the activities of the farmers and agricultural workers. Indeed, in the course of time, the control exercised by the tax farmer over the agriculturalists became sufficiently strong that the agriculturalists were often unable to choose what crop to produce without in advance obtaining the approval of the tax farmer. As in Europe, the duration of tax farm contracts tended to get longer so as to be for several years at a time, and were in some cases even inherited.

Over time as the central power of the state gradually diminished, and the monopolistic powers of the tax farmer increased, the system became increasingly subject to abuses on the part of overzealous tax farmers. Competitive auctions became increasingly difficult to simulate and there were fewer and fewer Ottoman authorities who were willing and able to monitor the activities of the farmers. Since modern forms of enterprise have appeared prominently on the economic scene much later in North Africa and the Middle East than elsewhere, the introduction and spread of formal accounting systems has been much delayed, thereby raising the transaction costs to the state of tax collection through wage contracts. The economic viability of tax farming has also been facilitated by the fact that most urban activities were organized into craft-specific guilds, each with a leader, the "amin", who could be called upon to collect the taxes of guild members for the government. As a result, tax farming techniques have tended to remain competitive vis-avis wage contracts in tax collecting activities, at least until much more recently, than has been the case in Europe and North America.

Eventually, however, under the influence of colonial regimes, virtually all of which had already adopted wage contracts in their tax collection activities, wage contracts have come to dominate even in North Africa and the Middle East. Once wage contracts have become the established form of contract in tax collection activities, moreover, the existence of a rather aggressive and highly organized group of salaried civil servants in defense of their own interests has undermined any possible effort to return to share or fixed rent "tax farm" forms of contract in tax collection.

## II. Tax Farming in Tunisia

It is now time to turn our attention more specifically to Tunisia. Between the last half of the 16th century and the last half of the 19th century Tunisia was under the control (sometimes only nominal) of the Ottoman Empire. Not surprisingly, therefore, during this period tax farming was widely practiced in Tunisia.

Prior to that, however, during the latter part of the Middle Ages under the Hafsides, tax farming was practiced only rarely. These relatively rare instances of tax farming occured in collecting customs duties and taxes on wine and even in these cases the tax farming rights were assigned not to members of the moslem majority but to members of the Christian minority [Brunschvig (1947)]. Before that, it was probably not practiced at all subsequent to Tunisia]s conversion to Islam in the 7th century AD. This supposition is based on the fact that Islam implicitly condemned tax farming as a means of collecting taxes [Benaïssa (1982)]. Moreover, there is ample evidence that from the time of the first caliphs of Islam the tax collectors were invariably permanent employees paid out of the state budget. The tax collectors were to be chosen from among the "preachers of the faith" so that their honesty and integrity would be sure to be beyond reproach [Ibn Khaldun (1978)].

In the course of time and especially with the expansion of Islamic territory, provincial governors ("wali" or "āmil") became responsible for the collection of taxes which was carried out with the help of a specialized corps of salaried tax collectors. The governors became authorized to withhold from the tax revenues collected the amounts necessary to cover their own needs as well as those of the civilian and military personnel placed under their authority. But as Brunschvig (1947) emphasizes, as functionaries and representatives of the central authority of the state, the governors could not be considered tax farmers.

Despite considerable evidence of abuses in the system, wage contracts continued to dominate in tax collection activities until the eve of the coming of the Ottoman Empire. In particular, the governors (then called "caïds"), as one might have expected and as has been subsequently confirmed by the numerous recorded complaints to the central authority [Dachraoui (1981)], tended, on the one hand, to impose more than the legally determined taxes and, on the other hand, to underreport the amounts collected.

During the Ottoman period beginning in the latter half of the 16th century tax farming was introduced not only in the collection of taxes per se such as the customs and the tax on chechias (the felt hats Tunisia exported through Africa and the Middle East), but also on various markets of distributing vegetable oil, grains, wood and soap, and the wholesale market of Tunis and the operation of state monopolies, such as those of tobacco, salt, the dressing of hides and skins. The local rulers (beys), moreover, used tax farming as the means of utilizing their own agricultural lands.

In all these activities, the farms (lizma) were conceded to relatively trustworthy rich individuals and to non-Muslems (Christians and Jews). The concession to collect standard (income and wealth) taxes as well as other special taxes in the case of the sedentary population was assigned to the local governors (caïds). In the case of the tribal and nomadic population areas, however, these taxes were collected directly by the military commanders in these areas.[6]

Although in the 17th century the rights to tax farm in certain provinces were assigned to the caïds on the basis of relatively public auctions [Chérif (1986)], this practice was not very general until the reign of Hammuda Pasha at the end of the 18th century.[7] Even before that, by the end of the 17th century these caïds-lazzam (caïds-farmers) began to form a stable and immensely important group. They were organized in a hierarchial manner with a chief caïd ("caïd-el-quwwad") at the top. Many of these caïds amassed sizeable fortunes and together with other farmers, formed virtual dynasties of money and power and became the true pillars of the beylical regime. When needed, they could be counted upon to make large financial sacrifices to help satisfy the needs of public finance in difficult years and to help the beys arm their troops and resist attacks from abroad such as that from Algeria in 1807 [Chérif (1986)].

Given the fact that the caïds-lazzam were the provincial governors, i.e., the representatives in the provinces of the central administration, and hence had at their disposal the entire military and police personnel stationed in the region, it is not surprising that numerous and almost indescribable abuses by the caïd-lazzam of the local populace took place. Chérif (1986), for example, cites anecdotes in which the non-fulfilment of one]s tax obligation being penalized by having to spend a night in the hands of the caïd-lazzam was regarded "as a fate worse than death."

In the middle of the 19th century under the reformer Khereddine, the functions of the caïd and tax farmer were separated and tax collection again began to be administered through regular salaried agents who were to surrender all the taxes collected to the authorities. At the same time, the use of the army to collect taxes in the tribal areas was prohibited [Smida (1970)]. This marked the beginning of the decline of tax farming and of the switch back to wage contracts in tax collection activities. This trend continued and became further accentuated during the period of the French occupation, to the point that wage contracts came to dominate in all forms of tax collection activities in both rural and urban areas.

After independence, the desire on the part of government leaders to practice patronage through government employment and the government's adherence (albeit increasingly timidly and nominally) to socialist principles have helped to keep wage contracts the dominant form of tax collection throughout Tunisia.

The one area of tax collection activity in which tax farming remains the dominant, though by no means exclusive, form of contract is with respect to

Tunisia's periodic (i.e., non-permanent) markets.[8] Whereas daily markets are generally taxed directly by salaried agents who in many cases have to do nothing more than collect a rental for the use of a stall in the market of a certain size and location, periodic markets, most of which are rural, are generally taxed by a tax farmer who wins the right to collect as much tax revenue as he can (subject to the constraint of the tax rates set by law) by being the highest bidder in a public auction organized by the municipality in which the market is located. Indeed, according to a 1919 beylical decree the municipalities were given the right to collect the taxes in the periodic and daily markets within their confines. More recently (in 1963) the markets outside the municipal centers were decreed to come under the jurisdiction of the Council of the Governorate in which they appeared. No matter whether the relevant government is the municipality or the Council of the governorate, three different forms of management and taxation of the periodic markets are provided for: (a) "regie directe" wherein a government salaried employee is responsible for the management and taxation of such markets, (b) "regie interessée" or "indirecte" wherein an agent is given these tasks and responsibilities in return for the right to retain a specified share of the tax receipts, and (c) tax farming, wherein the right to collect taxes at the rates established by national law is auctioned off (generally to the highest bidder) in a public auction.

In practice, however, the use of "regie directe" is limited to the market for carpets and the "regie interesée" is not applied at the present time. Hence, tax farming remains the dominant contractual form for collecting taxes from periodic markets.

The conditions of contract and the rules for the award of such contracts to the tax farmer through public auction are codified by the Ministry of the Interior. As a result, they are the same for all municipalities in the country. Quite likely, the codifications introduced by the Ministry of Interior merely formalize what had been common practice. There is no indication of any deliberate attempt at institutional change. In view of the importance of the effectiveness of public auctions to the usefulness of tax farming to the state, and its relevance to our objective of trying to understand why Tunisian institutions are the way they are, we deem it important to briefly describe the rules of the auction and the procedure for selecting the winning bid.

First, the date and place of the public auction must be announced in advance in the _Journal Officiel_ of the Republic. Even more importantly, several of the municipalities also advertise the time and place of their auction in local newspapers, and public places in different parts of the country. These means of communication, plus the fact that there are no residential restrictions, such as to be from the same municipality or governorate in which the market is located, make it clear that the competition is intended to be a _national_ one with as few restrictions as possible. The only exclusions are for (a) those who had defaulted on any previous tax farm contracts in which they may have been involved, (b) those who had been taken to court and convicted for previous infractions of the laws relative to periodic markets (such as forcing the merchants to pay more than would be justified in the tax laws pertaining to these markets) and (c) those excluded for reasons of "morality" (a rather vague restriction which seems not to have played a measurable role).

Any bidder must make a deposit equal to 10 percent of the previous year's price of the tax farm. The winning (highest) bidder is also required to deposit within twenty-four hours of his selection a guarantee payment of one-quarter of his winning bid. The guarantee payment is refundable only at the end of the year and only when all the tax farmer's obligations to the city or governorate have been met. These requirements are obviously designed to screen candidates for minimum financial viability and in the case of the guarantee to protect the municipality against the risk of default. Should the winning bidder not be able to make the guarantee payment within twenty-four hours, the municipality has two options, namely, to accept another bidder or to call for a new auction. If in a new auction the price should be below that of the original one, the defaulting winning bidder of the first auction is required to make up the difference between the two winning bids. This rule would seem to have the effects of discouráging deliberate attempts to bring the price down by strategic behavior on the part of the bidders and of protecting the municipality against any demonstration effect of financial default on the part of a winning bidder on other subsequent bids. Once again, the option of calling a new public auction can be interpreted as encouraging the greatest possible competition in each year's auctions.

The tax farmer is required to pay the full price of the tax farm in equal monthly installments payable at the beginning of each month. The fact that the payments are as frequent as once a month greatly reduces the financial requirements of the tax farmer and hence once again has the effect of encouraging more entries into the auctions of tax farms.[9] While there are also requirements that the tax farmer provide a monthly accounting of taxes collected through a system of numbered receipts and seek the municipality's consent to his choice of personnel to be employed in carrying out the tax collection operations, in general, such requirements on the mode of operation of the tax farmers are not enforced. Most importantly, in taxing the market the tax farmer must impose taxes at the tax rates specified for the whole country by presidential decree.[10] The fact that the tax rates are set by presidential decree and have not been changed for many years reduces the possibility that by virtue of their ignorance of the legal rates, the merchants could be made to pay the tax farmer more than the law requires them to pay. This is not meant to imply that the tax farmer would not be able to extort excessive payments from the merchants in other ways and, indeed, there is in some municipalities evidence of relatively frequent complaints by the merchants of the imposition of excessive charges by the tax farmer.

Our description of the way that tax farming works in the case of Tunisia's periodic markets would not be complete without an account of the methods used by the tax farmers in carrying out their responsibilities. Usually the personnel they hire are engaged on the basis of wage contracts of relatively short duration but with the promise of contract renewal on the basis of satisfactory performance. The system of receipts helps protect the farmer against underreporting on the part of his workers. Frequently two different wage workers are able to check on the honesty of the other. To guard against undercharging of the merchants by friendly tax collectors, many of the employees are from outside the region and are chosen on the basis of their agressive behavior and their loyalty to the employer. Although subcontracting is prohibited by law, in practice it is fairly common for the tax farmer to (sub)contract out portions of the tax farm on a short term basis to his own employees.[11]

Despite the deliberate efforts of the local authorities and the national legislation to encourage competitive bidding for the right to collect the taxes on periodic markets and thereby to assure the municipalities of as much revenue as possible, because of the risk of financial loss that inevitably would accrue to an inexperienced tax farmer and new bidders, especially in view of the asymmetries of information which are biased in favor of existing holders of tax farming rights, the bidding process tends to be incompletely competitive, with infrequent turnover among the holders of tax farms. Even where turnover exists, moreover, the change is frequently from one member to another within a particular coalition or cartel of tax farmers who are allied with one another frequently on a national scale.[12] Not only are the conditions prevailing in such auctions precisely those in which market failure is likely to take place[13] but also the members of the cartel or coalition have every incentive to keep it that way and hence to deliberately misinform other competing bidders by erratic bidding. One of our interviewees mentioned a case in which the holder of the tax farm kept other bidders from entering the site of the auction by physical force. In the long run these factors have the effect of raising the effective risk to potential entrants, thereby reducing the average price of winning bids. The existence of such cartels or coalitions can no doubt also be explained in large part by the risk- and information-sharing benefits provided by participation in such coalitions or cartels.

## III. Explaining Variations in the Incidence of Tax Farming over Time and Space

Given the vulnerability of tax sharing and wage contracts to output-underreporting and the undersupply of effort in tax collection, and the inevitable incentive for evasion on the part of taxpayers, the supervision cost advantages of fixed rent or tax-farming techniques in tax collection are easy to see.

Naturally, the relative importance of these supervision cost advantages of tax farming could be expected to vary from one situation to another. For example, the collection of some taxes under wage contracts might be easier to supervise than others. For example, once virtually all imports began to arrive in large ships which can be unloaded only in those seaports with deep and protected harbors, it became much easier to monitor the efforts of wage contract tax collectors in collecting import duties. Since this occured relatively early in history, it undoubtedly explains why the taxation of the customs duties was one of the first in which tax farming was replaced by state tax collectors on wage contracts. Likewise, the importance of not easily observable qualitative factors and the relative importance of weather in the determination of agricultural output undoubtedly explains why tax farming has been rather common in the taxation of agricultural output throughout history.

The lack of familiarity with markets and with intricacies of the modes of industrial production and of the costs thereof and the lack of access to other relevant information would also be factors favoring the use of tax farming. With greater experience and information availability in the hands of government officials, it would be easier for them to collect taxes on markets and manufacturing industries by employing their own agents on wage contracts. This undoubtedly explains why tax farming was more common in industry and commerce in their early stages than at present. Note also that tax farming was practiced in the wholesale produce market of Tunis in the years immediately after its inception but was later replaced by salaried tax collectors once it was possible to get a better idea of the value of space occupied by each commissioner and the expected volume of market transactions.[14]

The aforementioned change in tax laws from payment in kind to payment in cash in the Ottoman Empire could be expected to reduce the transaction costs of tax collection considerably. Not surprisingly, therefore, soon after this change occured, land taxes began to be collected by salaried agents rather than exclusively by tax farmers [Shaw (1968)]. Additional evidence in support of this expectation is provided by Baer (1968) who showed that in Egypt the tax farming role of the market shayks or amins in allocating the tax quota among guild members was abolished in favor of fixed wage employees of the state who began to collect the taxes directly soon after the tax laws on guild-merchants were changed by Mohammed Ali so as to require payment in cash in the 1840s. The decreasing disadvantage of tax collection by salaried tax collectors vis-a-vis that by (fixed rent) tax farming attributable to the growing importance of economies of scale and of scope in supervision could be offset to some extent by expanding the scale and the scope of tax farms from specific local ones to general national ones as in the general tax farms of France [Matthews (1958)]. However, as noted above, no such change could be accomplished without deleteriously affecting the degree of competition for the right of being the tax farmer.

Another development no doubt contributing to the secular drift toward wage contracts in tax collection in most societies has been the accounting revolution and the expansion of formal double entry accounting procedures, especially in the formal or modern sectors. Once formal accounting procedures become widespread, and payroll deduction methods are in place, it becomes considerably easier for governments to collect their sales, wage and income taxes. This no doubt explains why tax farming is presently virtually unheard of in the modern sector of economies where modern accounting methods are in use.

In other circumstances, however, where taxes are likely to be difficult to collect (i.e., the transaction costs of their collection are relatively high), the advantages of tax farming or fixed rent methods of collecting the taxes may be rather substantial. Moreover, the advantages of tax farming need not be limited to those arising from a narrow definition of the transaction costs directly arising in the process of tax collection. For example, in agriculture when the tax farmer has to pay a fixed amount to government but is free to (and hence has the incentive to) collect as much in the way of taxes as he can, the tax farmer would have every incentive to assure that the most profitable crops were produced and in the most efficient way possible. Not surprisingly, therefore, in situations where markets are sufficiently imperfect to induce the agriculturalists themselves to be efficient, tax farmers have often come to exercise considerable control over the farmers, industrial producers, and merchants from whom they have the right to collect the legally set taxes. As markets become more complete and more competitive, and hence the opportunities for further increases in allocative or technical efficiency decline, this extra advantage of tax farming is likely to diminish in importance.

Still another factor favoring the replacement of tax farming by salaried tax collectors is the growing monopoly of police power in the hands of the state. Considering the importance of physical threat to the successful collection of taxes, in the early days of the guilds when the power of the state in Tunisia and elsewhere within the Ottoman Empire was relatively weak, and arms dispersed among the populace, it was efficient for the well-armed leaders of the guilds to collect the taxes. More recently, however, as the preponderance of arms has become more and more concentrated in the hands of the military, (as has been the case in many developing countries), it has become more efficient for government agents to collect the taxes directly rather than indirectly.[15]

Now we come to the main focus of the paper. Why does tax farming remain dominant in the periodic markets of Tunisia? Many of the aforementioned considerations would seem relevant. First, these markets are very informal; formal accounts are seldom kept. Second, because of the infrequency and irregularity of their operations, it is certainly difficult for any agent who would be engaged only part time in assessing taxes in such a market to be able to properly assess the value of items transacted. Third, the distance of such periodic markets, at least relative to other markets and most other taxable activities, from municipal centers makes it costly for salaried tax agents whose other work is in the municipal center to get to and monitor such markets. Such difficulties are compounded by the fact that the activities in such markets are relatively widely dispersed both with respect to physical space and with respect to time of day. Fourth, because each individual transaction is generally bargained separately and the information about realized prices and quantities is usually maintained as private information, even ever-present monitors have considerable difficulty in making assessments, thereby accentuating the importance of the transaction cost advantages of tax farming. Fifth, the fact that the tax rates are specific to each commodity and often are specified in specific as opposed to *ad valorem* terms also raises the transaction costs of collecting the taxes in such markets. This is not to say that certain economies of scale and of scope in monitoring and tax collection cannot be reaped but these can be captured through the use of "general" tax farms instead of necessarily by a common salaried tax collector. Notably, it is the right to tax all taxable activities in a given periodic market that is auctioned off, not the right to tax only chickens, to tax grain, to tax handicrafts, toys, medicines and so on.[16] This means that the advantages of tax farming can be reaped without giving up the economies of scope in supervision which generally accrue primarily to centralized tax collection by wage contracts. Moreover, since the auctions of different markets are held on different days and there are no restrictions on entry by those from outside the municipality or holding tax farms in other communities, it is relatively easy for a tax farmer to be in possession of the tax farms on several different periodic markets in a given region at the same time.

For another important part of the explanation for the use of the tax farming in Tunisia's periodic markets we have to consider the perspective of the municipality. While a detailed discussion of public finance in Tunisia's municipalities is beyond the scope of this paper,[17] several important characteristics should be pointed out. First, most of the expenditure requirements of the municipalities are fixed in the form of the fixed salaries of those employees who are needed to provide a basic minimum of public services. Second, the alternative forms of tax revenue available to the municipalities are extremely limited. While grants from the central government have been rising in importance, the use of such funds is tied to specific projects and programs which often also require additional expenditures by the municipalities themselves. While a loan program for municipalities in financial distress exists, administrative difficulties have thus far prevented the program from being of practical use. Third, one must appreciate that the levels of activity in the periodic markets of any one municipality are highly volatile, varying quite sharply from week to week, season to season, and year to year depending on weather, economic conditions and so on. In view of the fixity of their expenditures, the limited and often uncertain amounts of alternative revenue sources, and the volatility of the tax base of the periodic markets, one can easily understand the reluctance of municipal governments to bear the risks that would be involved in direct collection of these taxes through salaried tax collectors. Tax farming, therefore, is attractive because it passes these risks along to the tax farmers. The tax farmers, on the other hand, are in a relatively good position to bear these risks both because their employees are hired on very short-term contracts which can thereby be relatively easily adjusted in proportion to expected revenues and because they generally participate in coalitions with other tax farmers to help spread the risks. The same coalitions, moreover, by limiting the degree of competition in the auctions of tax farms and thereby keeping the profitability of the tax farms relatively high, have the effect of compensating the tax farmers for their ability to bear risk.[18]

Another factor tending to preserve the viability of tax farming in periodic markets — most of which are rural — is the lesser degree of monopoly of power and omnipresence on the part of the state in these environments.

By contrast, a relatively well-heeled tax farmer, especially one who is assisted by large sized and aggressive agents, can exert a lot more pressure on a recalcitrant merchant to pay the legal tax than would be the case with a timid civil servant without a police force or army to back him up. When such powers are in the hands of tax farmers, however, one could certainly imagine that substantial abuses of power in the form of imposing more than the legal tax rates on the merchants might take place.[19] In practice, however,in the case of Tunisia's periodic markets at least, such behavior seems to be sufficiently constrained as to limit these abuses to more or less tolerable levels, except perhaps in some situations. One such constraint on overtaxation by the tax farmers is that the tax rates are uniform throughout the entire nation and have been constant over time, thereby making it easy for all the relevant parties to be well informed as to the legal rates. Another such constraint in that the tax farmer has to consider that the abused merchants can have recourse to a judicial system for redress of such abuses presumably at his expense. While (as in most countries) the transaction costs to relatively poor individuals for using the judicial system for such purposes are relatively high, at least the opportunity is there. More importantly, a lower cost alternative is available, namely that the abused or anyone else can register a complaint with the municipal authorities. Since the municipal authorities want to be spared the unpleasantness and loss of time of having to hear and investigate such complaints, they are unlikely to re-award tax farms to tax farmers whose actions have given rise to numerous complaints. As noted above, this nonrenewal to holders of tax farms who have been charged with immoral or unethical behavior is even codified in law. Not surprisingly, several of the municipal authorities interviewed felt that the threat of potential loss of the tax farm arising from frequent complaints is a more significant constraint on the abuse of merchants by tax farmers than the availability of a judicial system.

The municipalities may recognize that a certain amount of coalition-formation among tax farmers may be necessary in order to allow the tax farmers to bear the risks of uncertain revenues which the municipalities themselves are unwilling to bear. Naturally, however, they have to be concerned that it could also lead to collusion in the bidding process which, in turn, could have the effect of lowering the price of winning bids to unacceptable levels (i.e., to levels which yield the tax farmers profits above and beyond those justified by the risk premium). As mentioned in Section II above, the municipalities are at least somewhat protected in this respect by (1) the insistence on widespread announcement of the auctions, (2) the fact that the competition is to be conducted on a national (as opposed to only a local) basis, (3) the fact that the tax farmer's payments are limited to a relatively modest advance payment and then relatively small installment payments thereby lowering the fixed costs of winning entries, (4) that, under certain conditions at least, the municipalities retain the right to call new auctions if they don't like the price of the winning bid, (5) that the municipalities always have the option to collect the taxes themselves if they think that such an action would be warranted, and (6) the information-enhancing and hence cost-reducing effect that public disclosure of all winning bids may have, especially for new entrants into the bidding process.

## IV. Conclusions and Implications for the Future of Tax Farming

The preceding analysis has identified the factors that explain the gradual replacement of fixed rent (tax farming) approaches to tax collection by wage contract methods. Among the most important of these influences have been (1) the change in the form of tax payment from kind to cash, (2) the development and expansion of accounting procedures and dissemination of such accounts to government and the public, (3) the growing concentration of power in the hands of the state, (4) the high and perhaps even rising importance of the central government vis a vis local government,[20] (5) the growing relative ability of the state and even of local governments to bear the risk of insufficient revenue generation and (6) the accumulation of knowledge and experience concerning the technology of and the economic forces affecting the item taxed and the diffusion of that knowledge.

Even in situations where the conditions remain favorable to tax farming, however, the historical experience has shown that the efficient practice of tax farming can be marred by either one or both of the following degeneracy problems. First, competitive auctions may degenerate into those in which the bidders collude with one another in order to keep the winning bid artificially low. Second, the rental or sale to the tax farmer of the right to collect the taxes and to keep any proceeds collected above and beyond the fixed amount owed to the government can induce the tax farmer to practice unscrupulous behavior in extracting excessive amounts of tax from the parties taxed. Experience has shown that the latter degeneracy problem is most likely to arise when (1) there are insufficient constraints on the behavior of the tax farmer, (2) knowledge of the tax laws is imperfect and incomplete, and (3) the tax laws are ambiguous.

Both of these degeneracy problems have arisen from time to time in the case of the tax farming of Tunisia's periodic markets. However, in general and by the mechanisms detailed above the Tunisian authorities have been relatively successful in encouraging a sufficient amount of competition in the auction process and in keeping the practice of "mafia"-type exploitative behavior down to tolerable limits in most parts of the country.

The Tunisian experience with tax farming of periodic markets underscores the importance of constant vigilance for the appearance of the degeneracy problems mentioned above. It also demonstrates, however, that tax farming can constitute a low transaction cost, relatively efficient means of collecting taxes in conditions which make for high transaction costs and hence for great difficulty in collecting the taxes via wage or share contracts. Indeed, the experience seems to have been sufficiently positive to suggest that serious consideration by governments should be given to the possible use of tax farming contracts in collecting their taxes in other high transaction cost situations. Since a little imagination can lead one to identify many such situations, it could be that tax farming techniques could have a relatively bright future.

For example, even in those highly developed countries where most conditions are such as to make tax collection by wage contract advantageous (i.e., accounting methods are well developed and their use widely diffused, the experience with the technology and economy of the items taxed has been accumulated and disseminated rather widely, and the power of the state is strong relative to that of its citizens) more and more potential revenues are being lost by the government by virtue of the eclipse and erosion of the formal sector and its tax base in favor of the "underground" economy. Estimates of the relative importance of the "underground" economy or "informal" sector in aggregate economic activity of such countries range from 5 percent to almost 50 percent depending on the country and method of estimation.[21] Moreover, it is generally agreed that the share is growing rapidly. The growing importance of the underground economy has to be viewed with concern from the perspective of public finance since the ability of governments to collect taxes from this sphere of economic activity is almost nonexistent. This is by no means surprising in view of the fact that this sector deliberately eschews the use of formal accounting principles, thereby making it extremely easy for its participants to underreport output, sales, wages and incomes for purposes of computing tax payments.

The transaction costs of trying to detect and prove tax evasion on the part of tax collectors paid by wage contract tax are undoubtedly prohibitively high. Too many layers of supervision would be necessary, thereby explaining why governments seldom invest much in the way of resources in trying to accomplish it. On the other hand, one might expect that, by providing the incentive for private firms knowledgeable about these activities and thus able to calculate the tax base and collect the taxes relatively easily, much more in the way of legitimate government revenue could be obtained from this growing sector of economic activity than is generally the case at present. Moreover, once private firms and individuals would come to recognize that, through the practice of tax farming techniques, the underground economy would be forced to pay its fair share of taxes, there would no longer be tax-evasion incentive to withdraw from the formal sector of the economy and hence to eschew the otherwise advantageous use of formal accounting procedures.[22]

## Footnotes

*We wish to thank Khalifa Ghali, Ph.D student at USC, Mahmoud Chtourou, Director, Ministry of the Interior and Khalifa Chaouch, Faculté de Lettres de Tunis for their help in obtaining the information used in this study. We also thank Timur Kuran, Mohamed Bechri and Bruce Herrick for suggestions and comments.

1. See especially Inalcik (1973).

2. This problem would not arise if the fixed payments were flexible downwards. In situations where the contracts were only renewed rather infrequently and governments were strapped with fixed expenditures, however, one could well imagine that tax farm rents would be insufficiently flexible in the downward direction.

3. See especially Elvin (1973).

4. See also Donohue (1984), Jwaideh (1984) and Rafeq (1984).

5. For such a suggestion see Issawi (1982).

6. In those areas less under central control these taxes were usually collected once a year by troops sent from Tunis specifically for this purpose and commanded by the heir to the throne (whose loyality could be trusted) [Hénia (1980), Chérif (1986)].

7. Hénia (1980) cites the well known 19th century writer Ahmed Ibn-Abi-Diyaf for evidence on this point.

8. Tax farming is also used in collecting taxes on municipal land — usually undeveloped — when the land is used for private purposes, e.g., by cafes, restaurants, fairs and other activities.

9. Moreover, in practice, regularity of payments is not strictly enforced.

10. While the presidential decree merely sets maximum tax rates, leaving it up to the municipalities to set their own rates, virtually without exception the municipal decrees set the rates at the nationally prescribed maximum levels.

11. See especially Chaouch (1975).

12. Such cartels are prohibited by law [Chaouch (1975)].

13. Unlike markets for second-hand cars and other forms of property, the holder of the tax farm does not have the right to sell his right, thereby implying that this potential vehicle for limiting market failure [Feinstein, Block and Nold (1985)] would not be present in this case.

14. See especially Azabou, Kuran and Nabli (1986).

15. The reliability and loyalty of the salaried tax collector to the ruler was maximized through the selection of foreignors and minority members as tax collectors [Shaw (1968)]. Shaw also points out, however, that as law and order declined and hence the transaction costs of tax collection increased once again in the 17th century, the role of tax farmers in collecting agricultural taxes in Egypt increased again.

16. In some cases, however, the periodic markets are specialized, thereby somewhat reducing the economies of scope in supervision which tend to make tax farming advantageous. Indeed, it is notable that the one exception to the practice of tax farming occurs in one specialized market, namely that for carpets.

17. For a relatively complete discussion of the sources of finance of municipalities as a whole see Derycke (1983) and Nellis (1985).

18. Another advantage to the municipalities of tax farming is that they can thereby avoid payment of the social security and other fringe benefits which they would be required to provide for their salaried government workers. Tax farmers do not pay such benefits.

19. Riordan and Sappington (1985) point out in a somewhat different context that toleration of at least a certain amount of abuse in this respect may be necessary incentives for obtaining satisfactorily high bids.

20. All governments have several goals, only one of which is to maximize their ability to collect the legally determined tax rates, and one of which is likely to include public popularity, the attainment of which is likely to be negatively affected by the strict enforcement of the tax laws. Since there is likely to be more at stake in the loss of power for a central government than for a local government, and the flexibility to adjust to revenue shortfalls is likely to be greater, central governments are less likely to attach as high a priority to efficiency in tax collection as local governments.

21. See, e.g., Feige (1979, 1982), Tanzi (1982) and Simon and Witte (1982).

22. Such a recommendation would complement those for self-assessment by Shoup (1983) and Strassman (1982).

## References

Azabou, Mongi, Timur Kuran and Mustapha K. Nabli. 1986. "The Wholesale Produce Market of Tunis and Its Porters: A Tale of Market Degeneration." Los Angeles: University of Southern California, MRG Working Paper #M8643.

Baer, Gabriel. 1968. "Social Change in Egypt: 1800-1914," in P.M. Holt, ed. Political and Social Change in Modern Eygpt. London: Oxford University Press: 135-161.

Benaïssa, Said 1982. Introduction aux Finances Publiques. Etude Comparative des Systèmes Financiers Islamique, Liberal et Socialiste. Algiers.

Brunschvig, Robert 1947. La Berberie Orientale sous les Hafsides. Des Origines à la Fin du XV$^{e}$ Siècle. Paris: Librairie d'Amérique et d'Orient, (2 Volumes).

Chaouch, Khalifa. 1975. Moknine et son Souk (Étude Geographique). Unpublished thesis, doctorat 3$^{me}$ cycle, Université de Paris VII; Tunis, CERES.

Chérif, Mohamed-Hédi 1986. Pouvoir et Societé dans la Tunisie de H´usayn Bin`Ali (1705-1740). Tunis: Publications de l'Université de Tunis, Faculté des Lettres, (2 Volumes).

Dachraoui, Farhat 1981. Le Califat Fatimide au Maghreb. Histoire Politique et Institutions. Tunis: Société Tunisienne de Diffusion.

Derycke, Pierre-Henri 1983. "Le Système Financier Local de Deux Villes Africaines: Tunis et Abidjan. Une Etude Exploratoire." C.E.R.E.V.E, Université de Paris X - Nanterre.

Donohue, John S.J. 1984. "Land Tenure in Hilal al-Sabi's al-Wuzarā" in Tarif Khalidi, ed. Land Tenure and Social Transformation in the Middle East, Beirut: American University of Beirut, 121-130.

Elvin, Mark. 1973. The Pattern of the Chinese Past. Stanford: Stanford University Press.

Feige, Edgar L. 1979. "How Big is the Irregular Economy?" Challenge (November-December): 5-13.

______________. 1982. "Macroeconomic Malaise and the 'Unobserved Economy'," Economic Impact 40: 53-59.

Feinstein, Jonathan S., Michael K. Block and Frederick C. Nold. 1985. "Asymmetric Information and Collusive Behavior in Auction Markets," American Economic Review 75 (June): 441-460.

Fryde, E.B. 1958. "The English Farmers of the Customs 1343-51," Transaction of the Royal Historical Society 9, Fifth Series: 1-17.

Habib, Irfan. 1963. Agrarian Systems of Moghul India. Bombay.

___________. 1967. "Aspects of Agrarian Relations and Economy in a Region of Uttar Pradesh during the 16th Century." Indian Economic and Social History Review 4: (No. 3).

Hénia, Abdelhamid. 1980. Le Grid. Ses Rapports avec le Beylik de Tunis (1676-1840). Tunis: Publications de l'Université de Tunis, Ecole Normale Supérieure.

Hicks, John. 1969. A Theory of Economic History. London, New York: Oxford University Press, Ch. 6.

Ho, Ping-ti. 1959. Studies on the Population of China, 1368-1953.

Ibn-Abi-Dhiaf, Ahmed. 1963-1966. Ithâf Ahl al-Zamân... (The Chronicles of the Tunisian Beys). (In Arabic, not translated from 19th century manuscript), Tunis. (8 Volumes).

Ibn Khaldoun, Abderrahmán. 1978. Discours sur l'Histoire Universelle - Al Muqaddima. (in 14th century in Arabic). Translated into French by Monteil, Vincent). Paris: Sindbad.

Inalcik, Halil. 1973. The Ottoman Empire: The Classical Age 1300-1600. New York: Praeger Publishers.

Issawi, Charles. 1982. An Economic History of the Middle East and North Africa. New York: Columbia Univesity Press.

Jeannin, Pierre. 1972. Merchants of the Sixteenth Century. (translated from French by Paul Fittingoff) New York: Harper and Row.

Jwaideh, Albertine. 1984. "Aspects of Land Tenure and Social Change in Lower Iraq" in Tarif Khalidi, ed., Land Tenure and Social Transformation in the Middle East. Beirut: American University of Beirut, 333-356.

Latouche, Robert. 1961. The Birth of Western Economy. London: Methuen (English Translation).

Lewis, Bernard. 1979. "Ottoman Land Tenure and Taxation in Syria," Studia Islamica 50: 109-124.

Mathews, George. 1958. The Royal General Farms in Eighteenth Century France. New York: Columbia University Press.

Michalak, Lawrence Otis. 1983. The Changing Weekly Markets of Tunisia. Ph.D. dissertation, Department of Anthropology, University of California, Berkeley.

Nellis, John R. 1985. "Decentralization and Local Public Finance in Tunisia," Public Administration and Development 5 (May): 187-204.

Newton, Arthur Percival. 1918. "The Establishment of the Great Farm of the English Customs," Transactions of the Royal Historical Society, Series 4, vol. 1: 129-155.

Pyle, Jane. 1978. "Tianguis: Periodic Markets of Mexico City," in Robert H.T. Smith, ed., Market-Place Trade — Periodic Markets, Hawkers and Traders in Africa, Asia and Latin America. Vancouver: University of British Columbia Centre for Transport Studies, 132-141.

Rafeq, Abdul-Karim. 1984. "Land Tenure Problems and their Social Impact in Syria around the Middle of the Nineteenth Century" in Tarif Khalidi, ed., Land Tenure and Social Transformation in the Middle East. Beirut: American University of Beirut, 371-396.

Riordan, Michael H. and David E.M. Sappington. 1985. "Awarding Monopoly Franchises," mimeo.

Shaw, Stanford. 1968. "Landholding and Land-tax Revenues in Ottoman Egypt," in P.M. Holt, ed., Political and Social Change in Modern Egypt. London: Oxford University Press.

Shaw, Stanford and Ezel Shaw. 1977. History of the Ottoman Empire and Modern Turkey. Cambridge: Cambridge University Press.

Shoup, Donald C. 1983. "Intervention through Property Taxation and Public Ownership," in Harold B. Dunkerley, Coordinating Editor, Urban Land Policy: Issues and Opportunities. New York: Oxford University Press for the World Bank: 132-152.

Simon, Carl P. and Ann D. Witte. 1982. Beating the System: The Underground Economy. Boston: Auburn Publishing Company.

Smida, Mongi. 1970. Khéreddine. Ministre Réformateur 1873-1877. Tunis: Maison Tunisienne de l'Edition.

Strassman, W. Paul. 1982. The Transformation of Urban Housing. Baltimore: Johns Hopkins University Press.

Tanzi, Vito, ed. 1982. The Underground Economy in the U.S. and Other Countries, Lexington, Mass: D.C. Heath.

## REPORTS IN THIS SERIES

M8702: MASSOUD M. SAGHAFI: Product Line Pricing Under Firm-Specific Objectives.

M8703: BRANKO HORVAT: The Choice of Techniques within the Framework of the Labour Theory of Prices.

M8704: DAVID BESANKO and DANIEL F. SPULBER: Antitrust Enforcement Under Asymmetric Information.

M8705: MASSOUD M. SAGHAFI: International Trade and Welfare in the Absence of Free Trade: Trade Impediments Can Benefit All.

M8706: DANIEL F. SPULBER: Optimal Environmental Regulation Under Asymmetric Information.

M8707: MARK PINGLE and LEIGH TESFATSION: Pareto-Efficiency of Stationary Competitive Equilibria in Overlapping Generation Economies.

M8708: S.Y. HUSSEINI, J.-M. LASRY and M.J.P. MAGILL: Existence of Equilibrium with Incomplete Markets.

M8709: JEFFREY B. NUGENT: Foreign Aid, Economic Development and Income Distribution: Some Inferences from a CGE Model for Egypt.

M8710: RICHARD A. EASTERLIN: The New Age Structure of Poverty: Permanent or Transient?

M8711: TIMUR KURAN: Preference Falsification, Policy Continuity and Collective Conservatism.

M8712: HARRISON H.C. CHENG: The Existence of Arbitrage-Free Equilibria in Banach Spaces.

M8713: DIANE J. MACUNOVICH and RICHARD A. EASTERLIN: Application of Granger-Sims Causality Tests to Monthly Fertility Data, 1958–1984.

M8714: VICTOR KIPNIS, I. SH. PINSKER and EUGENE GRECHANOVSKY: Comparing Some Estimators for MSPE in AR Time Series.

M8715: HARRISON H.C. CHENG: Equilibrium Theory Without Consumption Constraints.

M8716: JANET MITCHELL: Credit Rationing, Budget Softness, and Salaries in Yugoslav Firms.

M8717: TIMUR KURAN: The Tenacious Past: Theories of Personal and Collective Conservatism.

M8718: MONGI AZABOU, LOTFI BOUZAINE and JEFFREY B. NUGENT: Contractual Choice in Tunisian Fishing.

M8719: HARRISON H.C. CHENG: Arbitrage Theory and Equilibrium: The Case of Unconstrained Consumption.

M8720: HARRISON H.C. CHENG: The Principle of Equivalence.

M8721: MOHAMED SALAH MATOUSSI and JEFFREY B. NUGENT: The Switch to Sharecropping in Medjez-el-bab.

M8722: MONGI AZABOU and JEFFREY B. NUGENT: Tax Farming: Anachronism or Optimal Contract?