Wars and the enforcement of revenue collection: theory and insights from Colonial Mexico*

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October 16, 2007

Abstract

Historical evidence supports the observation that governments need not rely on centralized coercive enforcement to obtain resources and provide goods and services. By studying the fiscal history of colonial Mexico, this paper sheds light on why, if not by the threat of force, resources are transferred to the ruler, and provides an endogenous explanation for the evolution to states with the ability to collect revenue by means of a state administration with coercive enforcement and the creation of standing armies. The success of such a transition hinges on the perception of a threat of conflict. A game theoretical analysis shows that state-administered revenue collection based on coercive enforcement allows contributors to commit to the financing of military forces, which otherwise would be under provided, if provided at all, due to the free rider problem in the financing of public goods. Thus, the analysis suggests that the mechanism used by the state to collect revenue is endogenous to the nature of the goods –public versus private– provided by the state.

*I am indebted to Avner Greif for his guidance and constant encouragement. I specially thank B. Douglas Bernheim, David Baron, Paul David, Steve Haber, Yadira Gonzalez de Lara, and Romans Pancs for their insights and patience. Helpful comments from participants at the Social Science and History Workshop and the Theory Lunch at Stanford University, and the Workshop on Institutions and Organizations at Osaka University, are also gratefully acknowledged. This work would have not been possible without the financial support from SIEPR and the John M. Olin Program in Law and Economics, Stanford Law School.
1 Introduction

Economists rely on the theory of public goods to justify the role of the government. By means of their ability to coercively enforce, governments can obtain the resources to finance the provision of public goods.¹ The alternative, private (i.e. market) provision, leads to under provision because of the free rider problem inherent in the financing of public goods. This paper instead seeks to explain how a government with such prerogatives can come about. Most developed countries today indeed give evidence of governments with such a role. However, history demonstrates that such state prerogatives cannot be taken for granted. For instance, rulers in early modern states need not rely on state-administered revenue collection based on centralized coercive enforcement to obtain resources, as was the case in colonial Mexico, and for the most part did not provide public goods. Tax farming, a market form of revenue collection, was used for some tax categories.² European states did not transition to state-administration relying on salaried tax officials until the late eighteenth century. Moreover, the provision of protection in the form of a standing army created and financed by the state is a modern phenomena. During feudal times, the kings depended on the military forces at the head of feudal lords to fight wars. The Church used to provide many of the public goods we assume today to be responsibility of state authorities, such as poverty relief and care of the homeless.

By studying the fiscal history of colonial Mexico, this paper sheds light on why, if not by the threat of force, resources are transferred to rulers, and provides an endogenous explanation for the evolution to state-administered revenue collection by means of coercive enforcement and the creation of standing armies. During the second half of the eighteenth century a series of reforms were implemented by the Spanish Bourbon kings in their American possessions: the creation of a standing army became a priority, and the fiscal administration was centralized and dramatically expanded. By means of a game theoretical analysis, I show that the simultaneous transition to a state-administered revenue collection and centralized coercive enforcement, and the creation of a standing army, is due to the free rider problem inherent in the financing of public goods. Importantly, the success of such a transition hinges on the perception of a threat of conflict. When the provision of a public good takes precedence —that is, the creation of military forces to surmount conflict—a non-coercive mechanism for the collection of taxes will lead to an underprovision of the good. If the crown seeks to raise money to

¹ Coercion defined as the ability to alter someone’s behavior using physical force, or the threat of it.
² For evidence on tax farming during the early Roman Empire see Badian (1972). The apostle Matthew was a Roman tax collector: Mk 3:18; Mt 10:3.
wage a war by means of excludable, private benefits, each contributor will not internalize the benefit to others of one more soldier and so will lower his contribution. That is, we face the well-known free rider problem in the financing of public goods. The problem is one of contracting tax payment, that is, committing to pay.

The theoretical findings show that centralized coercion at the hands of the state allows the elite groups to commit to contribute to the financing of an army, and thus the state to provide an increased level of protection. A coercion-based revenue collection mechanism assures each contributor that all other contributors are paying as well. In addition, a state of conflict aligns the payoffs of all actors regarding the provision of a standing army. All parties are benefited and thus willing to cooperate, otherwise conflict is not overcome. The transition then yields a Pareto-improving outcome. Besides, the state of conflict makes investment in coercive enforcement and the provision of protection as a public good credible on the part of the state authorities.

An additional, and innovative, contribution of this paper is to suggest that rule by coercion is not the only means through which rulers may rule. That is, contrary to the common conception, enforcement by the state does not necessarily entail the concentration of coercion. Despite the lack of a standing army throughout the first 250 years of Spanish colonial rule and of a centralized state administration collecting revenue, the Spanish crown was able to obtain large sums from its American possessions. Why were resources transferred to the crown if there was no state coercive structure directly collecting taxes?

An analysis of the fiscal history of colonial Mexico demonstrates that the key was the ability of the ruler to provide excludable benefits to contributors through the goods or services offered. The crown achieved this, I argue, by creating and protecting excludable benefits, and by being able to identify those receiving them. This was possible despite the lack of centrally controlled coercive power at the hands of the crown. Instead, the crown relied upon its regulatory authority to perform such a role, which was accepted throughout the period, and on its ability to identify those benefiting from the protection provided. Revenue collection was enforced by the threat of losing the right to what I call private protection, a private good. Consequently, the present analysis demonstrates that the mechanism to collect revenue—coercive or not—is endogenous to the nature of the services—public protection versus private benefits—provided by the state.

Historians and other social scientists have long drawn attention to warfare as a determinant of political transitions. In particular, in terms of the creation of centrally organized militias and regular armies, and the state’s
fiscal administrative capacity. Tilly (1990, 1993) argues that the expansion of Western European states was driven by their increasing ability to extract fiscal resources. Besley and Torsten (2007) argue that in the presence of common interest public goods, such as creating armies to fight wars, investments in legal and fiscal state capacity are complements. These papers, however, have not proposed a specific channel through which the threat of war opens the door to a system of rule based on centralized coercive enforcement and an increase in the state’s fiscal capacity. The present paper does precisely that.

Hoffman and Rosenthal (1997), Rosenthal (1998) and Kiser and Linton (2001) are the most closely related to this research in that they study analytically the link between warfare and the fiscal system. In particular, Hoffman and Rosenthal (1997) and Rosenthal (1998) study the effect of different fiscal regimes on the decision to go to war. To my knowledge, they are the first to model fiscal regimes as a function of the division of fiscal authority across groups, in terms of revenue collection rather than as tax levels. In this respect their paper is similar to this one. Their paper differs, however, in that it does not seek to explain transitions between fiscal regimes but only the impact of regimes on the number of wars fought.

The importance of threats of conflict has also been emphasized regarding the transition to democratic political institutions. Even if not directly addressing democratic transitions, this paper is related to the recent literature, mostly in economics, studying such transitions. Hintze (1975) was one of the first to suggest that domestic political institutions, in particular constitutions, are shaped by international conflicts. North and Weingast (1989) look at the emergence of institutions constraining rulers that came as a result of the Glorious Revolution of 1688 in England. Acemoglu and Robinson (2001, 2005) argue that giving up political power allows the elite to commit with the poor to future income redistributions, and thus avoid revolutions. For Ticchy and Vindigni (2006), in a democracy the masses are empowered by the rich to induce them to fight wars.\textsuperscript{3} Political rights are thus obtained in exchange for military duties; again, a democratic political transition comes about as a way to commit to future redistribution. In both these papers what defines democracy in their theoretical setup is who chooses the tax rate: the elite or the poor. In that sense, their paper is about fiscal institutions. The present paper, if not about democracy, studies fiscal institutions as well and in particular the equilibrium tax rate. But, in contrast to them, it further allows for the choice of revenue collection mechanism: coercive or non-coercive.

That leads us to a more conceptual difference of the present paper with

\textsuperscript{3}In contrast to them, we emphasize the state’s need of resources (and support) to fight a war, which come from the elite rather than the poor.
respect to the literature: the state here is an actor in itself, and not only a machinery controlled by either the rich or the poor. Moreover, in our approach the state is not only an actor (a government) that makes decisions but is also defined in terms of its interaction with other groups in society that hold stakes. In so doing, we seek to account for the constraints that rulers face when trying to implement regime changes. This paper is thus closely related to the literature that studies the state as a self-enforcing institution. Greif (1998, 2006), for example, highlights the importance of military strength and external military threats in determining the self-enforceability of Genoa’s political system, and its interdependence with the economic system, during the late medieval period.

We proceed as follows. In section 2 we give an historical overview that justifies the specific theoretical framework analyzed in section 3. In section 4 we provide further historical evidence and evaluate the implications of the model using colonial Mexican history. Section 5 presents a comparative statics (across countries) analysis, followed by our conclusions.

2 Context-specific nature of the model

We (succinctly) describe here the role played by the Spanish crown in New Spain before the reforms and its mechanism of revenue collection. The goal is to use this evidence to justify the set of strategies of the players in the game that follows. Greater historical detail is provided in section 4.

In the economist’s traditional framework, governments provide public goods and use their supposed capacity to coercively enforce to collect payment for their services. However, until the Bourbon reforms, the Spanish Crown depended upon very few salaried officials to govern the empire in the Americas. Both the judicial and the fiscal bureaucracy were small (Brading, 1973, p. 399). Apart from frontier patrols and port guards, there were no armed forces in the New Spanish territory. In particular, there was no standing army. Why were resources transferred to the crown if there was no state administration coercively collecting taxes? If the crown was not directly providing the classical public good—protection by means of a standing army—in exchange for what were resources being transferred to the Spanish crown?

A glance at colonial history reveals that the crown was providing protection but as a private good. By privately provided protection we mean that the crown had the ability to exclude some from the benefits of protection. We argue in what follows that the crown obtain resources by creating, protecting, distributing, and extracting rents.
Creation and protection of rents

In spite of the lack of centrally controlled coercive power during this period, the regulatory authority of the crown was accepted.\textsuperscript{4} The Crown, via de viceroy and the Ministry of the Indies (\textit{Consejo de Indias}), recognized landholders, settled disputes, and organized economic life in the New World.\textsuperscript{5} The Crown was able to “take gradual advantage of its regulatory position within the system and of its near monopoly of high patronage because the colonists, in addition to having an engrained loyalty reinforced by culture and status aspirations, needed the crown for prestige, titles, legitimacy, offices, and other emoluments” (Macleod 1987, p. 318).

The crown used its regulatory authority to create rents. Through regulation, the crown granted rights and privileges to certain economic groups. Mining and maritime trade were the most vibrant economic activities during the colonial era. Both these activities depended on the protection the Spanish crown offered against trade competition from foreign countries, in particular France and Great Britain. Accordingly, both were the largest sources of revenue for the viceroyalty of New Spain (Mexico today) and the Spanish crown during the period. (See section on colonial fiscal history.)

The income of Spanish merchants depended upon the authority exercised by the crown in terms of foreign policy: trade was restricted to certain ports and undertaken only by members of the merchant guild. Since the first years of settlement, the Crown granted the Consulado of Cádiz a monopoly on American commerce. In 1594 the first American merchant guild, the Consulado of Mexico City, was created resembling its counterpart in Spain, the Consulado of Cádiz. The crown also literally provided protection but in a private fashion. Fleets departed once a year from the ports in convoys protected by royal naval forces. The entry of non-Spanish fleets to colonial ports was prohibited and enforced by the crown through royal officials and forces at sea and in the ports. To facilitate enforcement, ships could only come in and out of one port on each side of the Atlantic and the Pacific. Seville, later substituted by Cádiz, functioned as the unique port in Spain through which trade with the American empire transpired; the corresponding port in the viceroyalty of New Spain was Veracruz. Acapulco and Manila

\textsuperscript{4}By authority I mean the ability to coordinate as defined and modeled in Arias (2007). In that paper, we seek to disentangle the power of (legitimate) rulers derived from their ability to coordinate social actors, from the power acquired through coercion.

\textsuperscript{5}The viceroy represented the royal person, and hence was the king’s alter ego. He enjoyed the attributes of governor, captain-general, and functioned as president of the audiencia. The Ministry theoretically exercised complete administrative authority over the colonies. The viceroy, who resided in the American territory, had some degree of autonomous authority but was subjected to the Ministry and in charge of executing their resolutions.
were the respective ports on the Pacific side. Through trade policy, and by protecting the fleets at sea from piracy and the ports from foreign merchants, the Crown could impact the income of specific groups.

The royal authorities also allocated the right to extract silver. Income of miners depended upon the crown because through minting the crown gave silver value as a means of exchange. Additionally, the crown controlled the provision of an essential input for mining: mercury. Mercury was imported from Europe and supplied uniquely by the Crown. Furthermore, because of the latter, and of the important role silver played in Atlantic commerce, trade policies also had an impact on the income of miners.

In short, the crown’s recognized authority allowed her to offer private protection. That is, the crown assigned rents by means of regulation and policy and, by doing so, distributed income to the benefited elite. Furthermore, the crown made sure those rents were protected.6

Distribution and extraction of rents

Centrally controlled coercive enforcement was not necessary to ensure the division of rents among the privileged groups, and extraction by the crown. What is essential is the private nature of the exchange, that is, the excludability of the protection provided. We argue that this was achieved in colonial Mexico through the creation of identifiable groups.

Merchants were organized in the Consulado, a merchant guild. To be part of the system of privileges, a merchant had to join the guild. Furthermore, it was only the Spanish born, in the peninsula or immigrants from the peninsula, who could obtain the right to trade, and were thus in charge of the movement of goods across the Atlantic and within the colonies. In addition to that, the Consulado in Mexico City, since early in the seventeenth century, was granted the control over the collection of the alcabala, a tax “on the first and successive sales”7 of goods in the colonies.

The following analysis shows how the provision of private protection gave the crown an alternative means to collect revenue. We show that it is precisely the excludable nature of protection what allowed the crown to distribute rents and levy taxes through farm contracts. The crown, thus, functioned effectively as a monopolist in the provision of protection.

This reliance on private protection was eventually not sustainable. In the mid-seventeenth century, Charles III started implementing a series of reforms in the colonies. A standing army was created and a centralized state administration supported by coercive enforcement was created to collect

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6Two questions remain. Why did the crown not face competitors in the provision of protection? Furthermore, what gave the crown the ability to dictate policies? (Legitimacy)

7R.S. Smith 1948, p. 3.
revenue. The theoretical analysis undertaken here gives a rationale for the success of the transition. That is, the successful transition from the above described system based on private protection, to the crown’s provision of a standing army and state control over revenue collection.

3 The model

In this section, we set up a model to study the transition in Colonial Mexico to a centralized state administration with coercive enforcement. In particular, we analyze the determinants of the transition from market-based fiscal institutions (tax farming) to a (hierarchic) state-administered revenue collection system supported by coercive enforcement, and the creation of mass armies. The specific modeling approach is based on the historical facts related in the previous section. In section 4 we look at Colonial history more thoroughly by evaluating the implications of the model with evidence from Colonial Mexico.

3.1 The Game

Consider a complete information game in which one player, the ruler \((R)\), provides protection to a set of \(N\) elite groups denoted by \(i = 1, ..., N\). (Even if a slight abuse of notation, \(N\) will refer to both the set and the number of elite groups.) Protection, \(x = (x^1, ..., x^i, ..., x^N)\), can be provided as a private or a public good, and hence can be excludable or non-excludable.\(^8\) That is, if protection is provided as a private good, different levels of protection can be offered to different elite groups, who will exclusively benefit from such protection.

If, on the other hand, protection is provided as a public good, all elite groups receive the same level of protection and no group can be excluded from the benefits of the protection offered. Therefore, if protection is public, \(x^i = x_m\) for all \(i \in N\), where \(m\) stands for military force: the provision of a standing army by the state is the public protection subject matter of this paper. In what follows, we use the terms private protection and public protection to refer to the two kinds of protection. Let \(c(x)\) be the ruler’s cost of providing profile \(x\) of protection, a continuous and increasing function.

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\(^8\)By definition, public goods in addition to being non-excludable, exhibit non-rivalry. That is, given the good or service is provided, the cost of provision does not increase with more people benefitting from it, and the benefit to contributors does not decrease from more people enjoying the good. Protection in the form of a standing army, which is the public good to which our historical narrative makes reference to, has both characteristics but non-excludability is sufficient for the argument we make here. Non-rivalry would only make the effect stronger.
Besides providing protection, the ruler proposes how to finance the protection offered: both how much taxes, \( \tau^i \), each elite group pays and how payments will be collected. We will refer to the revenue collection mechanism as the fiscal regime. The ruler chooses from two alternative fiscal regimes: a tax farm or state-administered revenue collection. Under the former, the ruler grants the elite groups control over tax collection by means of a contract to farm taxes. State-administered revenue collection, on the other hand, gives the ruler control over collection but requires investment in a costly administrative and coercive apparatus to centralize fiscal control and directly collect taxes. Let \( E \) be the fixed investment cost of coercive enforcement.\(^9\)

After observing the ruler’s proposed fiscal regime and combination of protection and taxes, the elite groups decide whether to accept or reject the fiscal regime and combination of taxes and protection offered by the ruler. We will call a rejection of a change in fiscal regime a revolt.\(^{10}\) We assume a revolt is not costly, always successful and entails going back to the status quo.\(^{11}\) We assume that a tax farm is the initial fiscal regime, that is, the ruler starts off with no coercive enforcement.

At the beginning of the game the state of international relations, \( s \), is revealed. The country is either at war, \( s = W \), or peace, \( s = P \). If there is a war, the income of all elite groups is threatened in an equal fashion. Otherwise, the groups face only threats specific to their individual incomes. The time line for the one-period interaction between the players is as follows:

1. The state of international relations is observed by all players.
2. The ruler chooses whether to propose a fiscal regime change and makes (publicly observable) offers \( (x^i, \tau^i) \) to each \( i \).
3. The elite choose whether to accept or reject the ruler’s proposal.
4. The ruler invests in enforcement and provides the protection offered. Income is realized.
5. The elite groups pay taxes: income is distributed according to the fiscal policies in place.

\(^{9}\)Evidently in both regimes enforcement costs are borne by whoever collects taxes. I am assuming that central collection is overall more costly than decentralized collection because it entails investments in a coercive apparatus. Historically, systems that rely on tax farms do not entail the creation of coercive structures. Generally, in such cases, collection relies on reputation-based enforcement mechanisms. (References.)

\(^{10}\)Even if there is no regime change, the groups need to agree to the combination of taxes and protection proposed.

\(^{11}\)Assuming the revolt is costly only makes the qualitative results stronger.
All income accrues to the economic elite. Elite group $i$’s income, $y^i(x, s)$, depends on the provision of protection by the ruler and the state of international relations. Correspondingly, the ruler profits from selling protection: the elite groups transfer part of their income in the form of taxes. The ruler’s income is thus tax revenue net of protection costs: $\sum \tau^i - c(x)$; the elites’ payoff is: $y^i(x, s) - \tau^i \text{ for all } i \in N$.

During peace times, the provision of protection affects each elite group’s income through the continuous and concave function $p^i(x)$. The super index $i$ highlights the fact that protection can potentially affect the groups’ income differently during peace times. Key to this analysis is the fact that the ruler can choose to provide protection as either a private or a public good. When protection is provided as a private good, $i$ can be excluded from the protection provided to $j \neq i$, and thus $p^i(x^1, \ldots, 0, \ldots, x^N) = p^i_0$ is independent of all $x^j$. This is not the case when protection is public. In that case, $x_i = x$ for all $i$. If player $i$ chooses not to accept the ruler’s offer $(x, \tau^i)$ and contributes nothing to the public good, he still benefits from the protection provided: $p^i(x) = p^i(x^{-i})$, where $x^{-i}$ is the level of protection provided by the ruler given that $i$ is not contributing and everybody else is.

If at war, however, the income of all groups is affected in a symmetric fashion and depends on the provision of public protection, i.e., on the size of the army created. Thus, in the case of a war, if the ruler chooses public protection level $x^i = x_m$ for all $i$, the probability of winning a war is $p(x_m)$, where $p$ is an increasing and concave function, with $p(0) = 0$. If the ruler does not provide a standing army (public protection) during war times the war is lost with probability one. In short,

$$y^i(x, s) = \begin{cases} \quad p^i(x)y^i & \text{if } s = P \\ \quad p(x)y^i & \text{if } s = W \end{cases}$$

Assuming that the players get zero income if the war is lost implicitly assumes that the outside option is sufficiently low. In particular, for the case of Mexico, the analysis that follows rests on the elite’s belief that if the British took over the country the existing elite groups would not keep their privileges. For example, for the merchants a negative war outcome implied losing, or in the best case sharing, their monopoly on trade.

As mentioned, our ruler is not endowed with the ability to coercively enforce her dictates but rather can choose to invest in such an apparatus. This raises an obvious question. How is the payment of taxes enforced through a

\[12\] If a war is lost all players get zero income (public protection). If, however, a fleet at sea is raided, say, income falls for the merchants (private protection).

\[13\] I am abstracting from the potential complementarity between coercive enforcement and the creation of a central army. My intuition is that endogenizing this could lead to irreversibility in the transition to state-administered revenue collection. That is, given
tax farm? At the last stage, there is no incentive for the elite to pay taxes ex-post under a tax farm. In the game, the ruler first provides protection; taxes are not paid until after the outcome of the conflict is known. The following analysis assumes the elite can commit to make this payment once they have accepted the offer. This is for the sake of the argument and exposition. The commitment problem can be solved through a dynamic game by means of reputation arguments. If the ruler is providing private protection, rents can be allocated to an identifiable group, the merchant guild (see section 2). This allows the ruler to punish the groups in case of deviations. Thus, taxes can be enforced through an infinitely repeated game. When the ruler invests in coercive enforcement, however, the payment of taxes can be enforced.

A final comment before undertaking the equilibrium analysis. We assume that offers are publicly observable under both fiscal regimes. This implicitly assumes that the ruler can commit to the offers made. That is, the ruler cannot privately renegotiate the protection offered with an elite group after the others have accepted the offer. Allowing for private offers turns out to not affect the qualitative results of our analysis. What matters here is not observability but the ruler’s ability to enforce tax collection. Assuming public offers makes the exposition more clear.\textsuperscript{14}

### 3.2 Equilibria

We solve for the pure strategies subgame perfect Nash equilibria (SPNE) of the game. The ruler makes the offer and thus we are solving for the ruler’s preferred equilibrium. There may be however multiple equilibria depending on the weight given to the utility of each player. In particular, we could allow the elite groups to move first and make the offer. The qualitative results of the analysis are preserved when the groups choose their preferred equilibrium (\textsuperscript{?}).\textsuperscript{15}
The ruler can always offer no protection and demand no tax payments. In such a case, the elite would obtain their outside option. Thus, without loss of generality we restrict attention to equilibria in which the ruler provides protection. We analyze the game first under peace times.\footnote{Note that the continuity and concavity assumptions on $p(x)$ guarantee the existence of equilibria.}

**Peace: Protection provision and fiscal regime**

During peace times the ruler can choose whether to offer public or private protection. The creation of a central army (or a police force) can potentially also serve to protect the individual income of elite groups. This section shows that if the ruler is providing private protection, a tax farm is optimal, whereas investment in coercive enforcement is preferred if providing public protection. We further show the conditions under which, if no war is faced, the ruler maximizes tax revenue by providing private protection rather than public protection. The next section addresses the transition to direct control over tax collection.

Play constitutes a Nash equilibrium in which the elite groups accept the ruler’s offer under a tax farm if and only if the following participation constraints are satisfied:

$$p^i(x)y^i - \tau^i \geq p^i_0y^i \text{ for all } i \in N. \quad (1)$$

The right hand side of the constraint above represents the income elite group $i$ would obtain if rejecting his offer while all other groups accept their offers. A rejection entails obtaining no private protection: income falls to $p^i_0y^i$. Note that player $i$’s reservation income does not depend on the offers made to other elite groups or on the actions taken by these groups since protection is private.

The ruler’s problem when choosing the combination of taxes and level of private protection under a tax farm is to maximize net revenue $\sum \tau^i - c(x)$ subject to the above constraints. In the ruler’s preferred SPNE all the constraints bind, otherwise the ruler has an incentive to increase taxes. Therefore, the set of revenue-maximizing private protection profiles solves:

$$\hat{x} = \arg \max_{x \in \mathbb{R}^N} \sum p^i(x)y^i - c(x) \quad (2)$$

Since the elites’ reservation income does not depend on the actions taken by other elite groups, the ruler maximizes total surplus when maximizing her own revenue and an efficient outcome is implemented.
If instead the ruler chose to provide private protection by collecting taxes directly, the ruler’s problem would be to:

$$\max_{x \in \mathbb{R}^N} \sum_{i} \tau^i - c(x) - E$$

subject to $p^i(x)y^i - \tau^i \geq p^i_0y^i$ for all $i \in N$

It is clear by comparing the programs under each fiscal regimes that the equilibrium choice of private protection and taxes is the same in both regimes. The result below shows that if investing in coercive enforcement is costly, when providing protection as a private good the ruler prefers to farm taxes, which is also the socially efficient fiscal regime during peace times.

**Lemma 1.** If the ruler is providing private protection, and $E > 0$, outsourcing the collection of taxes is optimal.

*Proof.* Follows trivially from the ruler’s objective. \(\square\)

Suppose that the ruler decided to instead provide protection as a public good when no war is faced. Public protection does not allow the ruler to exclude non-contributors from the benefits of protection. This implies a problem in the financing of public protection without coercive enforcement: if an elite group rejects the offer and does not pay taxes he would still benefit from the protection provided. Taking this into account, the ruler would then have an incentive to not provide the optimal amount of public protection.

The result in Lemma 2 shows that if the ruler is providing public protection and there is no threat of war, the ruler will invest in coercive enforcement and provide the public good optimally as long as the increase in net revenue from the higher level of protection compensates the cost of coercive enforcement.

**Lemma 2.** The creation of a coercive enforcement structure is optimal when the ruler is providing protection as a public good during peace times, if the following condition holds:

$$\sum_{i} (p^i(\bar{x}^d) - p^i(\bar{x}^f))y^i \geq c(\bar{x}^d) - c(\bar{x}^f) - E,$$

where $\bar{x}^d$ is the equilibrium level of public protection provided under direct control and $\bar{x}^f$ the corresponding level under a farm, $\bar{x}^d \geq \bar{x}^f$.

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17If the elite groups faced a positive cost from rejecting the offer, taxes would be higher under direct collection. An alternative way to obtain such tax difference is by allowing the elites to move first under a tax farm. If, for example, the elite groups make the proposal to the ruler under a farm, whereas the ruler moves first under direct control, investing in coercive enforcement would give the ruler all the surplus and taxes would be higher. Here we assume the ruler makes the proposal under both fiscal systems, which without a cost to revolting yields the same level of taxes under both regimes.
Proof. The argument is almost identical to that used in the transition to direct fiscal control under threats of war. See section 3.2.

This result suggests an explanation for why we observe governments providing public goods of poor quality: we should expect low public good provision (or bad quality) when tax collection is outsourced. Alternatively, if the cost of investment in coercive enforcement are prohibitive for a ruler yet the public good is provided, we should expect to see an underprovision of the good. (Perhaps this relates to a lack of ability to invest in effective coercive enforcement on the part of the ruler: corrupt reputation, beliefs about others, credibility of enforcement?)

It remains to be analyzed whether the ruler will prefer to invest in enforcement and provide public protection or provide protection as a private good by means of a tax farm when no war threats are faced. Suppose that all groups are identical. Offering the same level of protection to all is then optimal for the ruler under private provision, and that level will coincide with the optimal one under public provision: \( x_i = \hat{x} \) for all \( i \). However, from the argument above, without coercive enforcement the ruler will underprovide protection and \( x_i < \hat{x} \) in a tax farm equilibrium. Therefore, the ruler can only commit to providing \( \hat{x} \) publicly if undergoing the investment cost \( E \) (since the elite groups cannot commit to pay). It trivially follows that by providing protection as a private good the ruler can save on enforcement costs when the groups are identical.

But let us ignore for a moment the problem of financing the public good. Suppose the elite groups were able to commit to pay for their corresponding share of the public good if one was provided. We argue that the ruler may be better off by not providing the same level of protection to all groups during peace times. The ruler in our model functions effectively as a monopolist in the provision of protection, and has perfect information. Thus, by providing protection privately the ruler can perfectly (price) discriminate and extract all of the surplus. If there is heterogeneity across elite groups, providing protection as a private good will be preferred over public provision, even if \( E = 0 \), when such a choice can be made (i.e. at peace states).

We now proceed to formalize the above arguments and state the fundamental result of this section: if the provision of private protection is profitable, and the surplus from price discrimination net of enforcement costs is positive, a tax farm and the provision of private protection will be observed as an equilibrium outcome during peace times.

**Proposition 1.** Let \( \bar{x}^{-i} \) denote the level of public protection under a farm if \( i \) does not contribute given all other groups are contributing, and \( \hat{x} \) be as
defined in (2). If the following conditions hold:

\[
\sum_i (p^i(x^*) - p^i_0) y^i - c(x^*) \geq 0 \quad (3)
\]

\[
\sum_i (p^i(x^*) - p^i(\bar{x}_d)) y^i - \sum_i (p^i_0 - p^i(\bar{x}^{-i})) y^i \geq c(x^*) - c(\bar{x}_d) - E, \quad (4)
\]

the (unique) equilibrium in peace states is as follows:

- The ruler proposes tax farm contracts to the economic elite, and offers private protection profile \(x^* = \hat{x}\) and taxes \(\tau^*_i = (p^i(x^*) - p^i_0) y^i\).

- Economic elite group \(i\) accepts the offer if \(\tau^*_i \leq (p^i(x^*) - p^i_0) y^i\).

Proof. The first inequality is the participation constraint for the ruler: otherwise, no protection is provided. The second inequality determines the choice of fiscal regime and comes from comparing the objective functions at the optimal level of private protection under a tax farm versus the optimal level of public protection under direct control. The tax rate profile is obtained from the (binding) participation constraint of each elite group \(i\).

The result above demonstrates that under no threats of war the provision of private protection allows the ruler to rely on the elite groups for the collection of taxes rather than investing on coercive enforcement. When protection is excludable the ruler can distribute rents and levi taxes precisely because of the excludable nature of protection. Interestingly, this analysis shows that the ruler is not always better off by choosing coercive enforcement institutions. The mechanism chosen to enforce taxation is endogenous to the nature of the protection provided by the ruler.

Transition to direct control: threat of war

If the ruler chooses not to provide a standing army when a threat of war is faced, the war is lost with probability one and the expected income is zero. Thus, in what follows we look for the equilibria in which public protection is provided by the ruler.\(^{18}\)

The expected total income to be distributed in case of war depends on the size of the standing army created. The ruler creates the army using the tax revenue obtained from the elite groups.\(^{19}\) Recall that \(p(x_m)\) is the

\[^{18}\text{If the probability of winning at a zero provision of soldiers were positive, there could be instances at which the ruler would not provide a regular army during war times.}\]

\[^{19}\text{Alternatively, this can be thought of as private provision of public protection.}\]
probability of winning the war for an army of size $x_m$. Let $M^*$ denote the surplus maximizing army size:

$$M^* = \arg \max_{x_m \in \mathbb{R}} p(x_m) \sum y^i - c(x_m).$$

We now show that the ruler will not be able to commit to provide an army of size $M^*$ under a farm. Furthermore, we show the conditions under which both the ruler and the elite groups agree to a reform of the fiscal system and a transition to centrally controlled tax collection is observed in equilibrium.

If the ruler chooses to collect taxes by means of a tax farm, play constitutes a SPNE in which the elite groups accept the offer if and only if the following participation constraints hold:

$$p(x_m)y^i - \tau^i \geq p(x_m^{-i})y^i \quad \text{for all } i \in N$$

The right hand side of the inequality above represents the expected income for elite group $i$ if he does not contribute with the financing of the army given that all other groups accept their offers and contribute. This is the case because, as mentioned, public protection does not allow the ruler to exclude non-contributors from the benefits of protection. The difference $x_m - x_m^{-i} > 0$ represents the reduction in army size if player $i$ rejects his offer and does not contribute, given that all other elite groups are contributing to the provision of the army.

All participation constraints must bind at the SPNE preferred by the ruler. Otherwise, the ruler could increase revenues by increasing taxes and the constraints would still hold. Thus, the ruler’s profile of revenue-maximizing public protection can be written as follows:

$$\hat{M} = \arg \max_{x_m \in \mathbb{R}} p(x_m) \sum y^i - c(m) - p(x_m^{-i}) \sum y^i$$

The problem in (6) differs from the surplus maximizing program (5) by its last term. This is due to the fact that the expected reservation income of the elite depends on the decisions made by others. Even if the offer is rejected by elite group $i$, they will benefit from the provision of the army because of its non-excludable nature. Using the terminology in Segal (1999), externalities on non-contributors are present. The following result follows from applying Proposition 2 in Segal (1999).

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20 This is due to the fact that offers are publicly observable. When that is the case, the reservation utility for $i$ is given by the expected income given that everyone else accepts the offer, and inefficiencies arise when there are externalities on non-contributors. If, on the other hand, offers were private, reservation utility would depend on the agents’ beliefs about offers extended to other agents; the ruler’s choice would need to be a best response to those beliefs. Inefficiencies would arise then because of externalities at the efficient
Lemma 3. Given that externalities are positive on non-contributors, the choice of army size under a tax farm will be less than optimal: $M \leq M^\ast$.

The externality here is due to a free rider problem. If an elite group rejects the offer and does not pay taxes he would still benefit from the protection provided. Each elite group will not internalize the benefit others receive from his contribution to the army. Taking this into account, the ruler would then have an incentive to provide a smaller army than optimal. Therefore, under a tax farm the elite groups cannot commit to pay for public protection, and thus the ruler cannot commit to provide it optimally. The socially efficient level of protection would not be achieved if providing protection as a public good by means of a tax farm.

The size of this free rider problem is captured in the difference between the probability of winning at the optimal army size and at the army financed with farm contracts: $p(M^\ast) - p(M)$. Thus, if elite groups can commit to pay, $M = M^\ast$ and there would be no free riding problem. If, at the other extreme, each agent is infinitesimally small relative to others, group $i$’s contribution will not change the probability of winning, $M^\ast = 0$ in equilibrium and the free rider problem will be as large as possible: $p(M^\ast)$.

We proceed to show that if this free rider problem is large the elite groups will acquiesce to a fiscal reform: state-administered revenue collection by the ruler. Let us look at the conditions under which the ruler will attempt a regime change and announce direct tax collection. The combination of tax and protection offered must yield a higher income to the elite than that obtained under the tax farm for them to accept. Let $\hat{\tau}$ denote the equilibrium tax profile under a farm. The ruler’s problem if attempting state-administered revenue collection is:

$$\max_{x_m \in \mathbb{R}, \tau \in \mathbb{R}^N} \sum \tau^i - c(x_m) - E$$

subject to $p(x_m)y - \tau^i \geq p(M)y - \hat{\tau}^i$, for all $i \in N$

In this case, the reservation income in each $i$’s participation constraint does not depend on the decisions taken by other agents, and is in fact constant. Thus, the ruler will choose the surplus-maximizing size for the standing army, $M^\ast$. The ruler can only commit to providing the optimal level of public protection if undergoing the investment cost $E$.

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21 Acquiescence: the act of implying consent by remaining silent.
The result below shows that if the increase in the probability of winning due to the creation of an optimally sized standing army compensates for the increase in tax collection costs for the ruler, we observe in equilibrium a fiscal reform and the creation of an optimally sized army. The increase in taxes is due to the internalization of the externality, and thus avoidance of the free rider problem, under state-administered revenue collection.

**Proposition 2.** Let $M^{-i}$ represent the army size if player $i$ rejects his offer and does not contribute, given that all other elite groups are contributing to the provision of the army. If the following inequality holds:

$$p(M^*) - p(\hat{M}) \geq \frac{c(M^*) - c(\hat{M}) + E}{\sum y^i};$$

the equilibrium in war states in which the ruler provides a standing army is:

- The ruler proposes a transition to direct tax collection, provides an army $M^* = M^o$, and taxes $\tau_i^{**} = [p(M^*) - p(M^{-i})]y^i$ to each group $i$.

- The economic elite do not revolt and accept the protection and taxes offered if $\tau_i^{**} \leq [p(M^*) - p(M^{-i})]y^i$.

Otherwise, tax collection stays with the elite, a (smaller) army is created, $\hat{M} < M^o$, and $\hat{\tau}^i = [p(\hat{M}) - p(M^{-i})]y^i$.

**Proof.** The inequality gives the condition under which direct rule is preferred over tax collection when providing public protection. It is derived by comparing the objective of the ruler at each regime. Note that by Lemma 3 and since both $p$ and $c$ are increasing functions, $p(M^*) > p(\hat{M})$ and $c(M^*) > c(\hat{M})$. The tax rate profiles are obtained from the binding participation constraints of the elite groups.

According to proposition 2, direct tax collection at the hands of the crown allows the elite groups to commit to contribute enough for an army of the socially optimal size. If the free rider problem is sufficiently large, the ruler invests in a technology that commits the agents to pay taxes when they would not do so voluntarily. Both the elites and the ruler benefit from a higher expected income: the probability of winning the war increases. Such a reform yields a Pareto improvement: both the ruler and the elite groups are better off by the investment on coercive enforcement. The reform is not imposed by the ruler on the groups.

The analysis shows that a successful transition to a centralized fiscal system hinges on a changed perception about the state of international relations. In particular, on the existence of a threat of war. A state of war aligns everybody’s payoff with the provision of a standing army. All parties are benefited
and thus willing to cooperate. Besides, it makes the offer to both invest in coercive enforcement and provide protection as a public good credible on the part of the ruler. Even if we agree that we want public goods provided, it is not until the ruler has stakes on the provision of these goods as well that the ruler’s (optimal) provision of a standing army and investment in coercive enforcement are credible. The question becomes how to finance public protection, rather than whether to invest on it.

3.3 Beyond the model

The analysis above abstracts from an additional factor that can affect the free riding problem: the size of the army that needs to be provided for a given size of the external (or internal) threat of conflict. Arguably, the probability of overcoming conflict depends not only on the size of the domestic army but also on that of the opposing forces. For a given army size, if the size of the opposing army increases, $p(x_m)$ falls. To keep the same probability of winning, a bigger army would need to be provided. However, if the probability function exhibits decreasing returns, for a larger number of soldiers, the less one more soldier contributes, and the higher the incentive to free ride on others will be. That is, the free riding problem can increase because of the size of the threat independently of the degree of cooperation among the elite groups.

Historically, rulers could have alternative sources of income that need not be negotiated with the elite, even under tax farming, which could be used to counter war. In colonial Mexico, for example, the crown had a public monopoly on tobacco sales. I abstract from this here but it could be easily added into the model. (What about monopoly on natural resources? The extraction of silver was outsourced, however, and not controlled by the crown.) Incorporating this would create an additional free riding problem between the elite and the ruler.\footnote{For an analysis of the latter problem in the context of the decision to fight wars, see Hoffman and Rosenthal (1997), and Rosenthal (1998).}

Finally, a comment on the irreversibility of centralized taxation systems. We rarely observe governments to switch back from non-coercive enforcement means once they have moved to a centralized, coercive fiscal mechanism. The theoretical analysis can incorporate that by modeling the investment in coercive enforcement as a fixed cost. If more periods were included, once the ruler has borne the investment cost, even if the threat of conflict disappears, we would observe irreversibility once a transition to a centralized, coercive fiscal regime is observed, all else constant.
4 History through the model’s eye

The theoretical exercise undertaken in the previous section sheds light on the forces driving the simultaneous creation of a standing army and successful implementation of administrative reforms during the Bourbon era. First, the analysis shows that a successful fiscal transition hinges on the perception of the existence of a threat of conflict. The historical account in section 4.1 below gives evidence of the change in international relations among the major European powers with territories in the Americas during the mid eighteenth century. Great Britain emerged as the dominant power; France lost all of its mainland territory in the Americas to the British; the Spanish feared a similar attempt on the part of the British on their Colonial territory. In addition, higher insecurity in the roads and towns, and threats of internal (Indian) uprisings are documented in that section.

Second, the theoretical analysis demonstrates that under no threats of conflict the provision of private protection allows the ruler to rely on the elite groups for the collection of taxes rather than investing on coercive enforcement. When protection is excludable the ruler can distribute rents and levi taxes precisely because of the excludable nature of protection. Section 4.2 provides a more thorough discussion of the factors that allowed for the possibility of the provision of protection as a private good in colonial Mexico and the mechanisms of revenue collection in colonial Mexico for the different tax categories.

Finally, according to proposition 2, coercive revenue collection at the hands of the crown allows the elite groups to commit to contribute enough for an army of the socially optimal size. Without a fiscal reform, the positive externalities present in the provision of military forces give rise to a free rider problem in the financing of defense and the public good would be underprovided. The necessary increase in tax revenues to finance the creation of military forces was thus not possible under the existing revenue collection mechanism. We describe in section 4.3 the reforms undertaken and their impact on the collection of taxes. We also discuss the new role played by donativos (donativos) and loans, a tax category that increased in importance during the period. This discussion on donativos provides support to the claim that such fiscal and military measures opened the door to the evolution to states with central administrations and a monopoly on coercion, and to the eventual birth of universal taxation.

4.1 Threat of conflict

Foreign methods might not have appeared so attractive had not foreign power become so threatening (Brading (1971), 26).
Once the period of initial settlement was past, the Spanish empire in the Americas faced “remarkably few external or internal challenges” (Brading 1973, p. 406). For the maintenance of order within the territory, the crown relied upon the audiencias and mostly the Church.\(^{23}\) The threats faced at sea, primarily from the French and English, originated mostly from merchants seeking to better their trading positions. Accordingly, the only forces that the crown depended upon in New Spain for its defense were *guarniciones* (troops protecting a specific place) and *presidios* (frontier military fortresses). These were mostly located in the northern border, Veracruz, and other strategic locations. These troops, in particular those at the ports, can be considered private protection—using the terminology of the above theoretical analysis—since one of their primary goals was to implement Spanish trade policy and thus benefit the merchants. Furthermore, and in contrast to Europe, there was no attempt to mobilize the landowning class for military or administrative service.\(^{24}\)

As was mentioned in section ??, there was a weakening of the colonial administration at the end of the seventeenth century. It was the period when many public posts were sold to the highest bidder, which not surprisingly led to disorder in public affairs and increased autonomy from the viceregal center, Mexico City, and Spain. All this was coupled with an increase in the Indian population and higher insecurity in the roads and towns: ”...caminos y pueblos se plagaron de ladrones.”\(^{25}\) Additionally, since early in the eighteenth century Indian groups revolted in the northern parts of the country, particularly in Nuevo Leon.\(^{26}\) At the same time, the southern regions faced continuous attacks from English pirates.\(^{27}\)

It was not until August 1762 that the American colonies faced a serious state of alarm: Havana, Cuba, was taken by British troops during the Seven Years’ War (1756-1763). The creation of a regular army and the organization of militias was never a priority for the king until after the Seven Years’ War when a standing army was created.\(^{28}\) In 1762 Juan de Villalba arrived in New Spain at the head of two regiments sent from Europe with the task of raising a reserve army of militia. (Brading, *Bourbon Spain*, p. 123.) The army created was composed of the permanent troops and the civic and state militias. Lorenzo de Zavala (1918, i:XLII) estimates that in 1810 there were 7,083 men in the permanent troops, 3,604 in the presidial (frontier) troops

\(^{23}\)See Brading and Knight.

\(^{24}\)See Brading (1973) for more on the role played by landowners in the Spanish colonies: quite different from the European conception.

\(^{25}\)Riva Palacio 1888, p. 758. Roads and towns were crowded with robbers.

\(^{26}\)Riva Palacio 1888, p. 760.

\(^{27}\)Riva Palacio 1888, pp. 637-641.

\(^{28}\)Gutiérrez Santos (1961) gives a detailed account of colonial military history.
and 18,804 in the provincial militias. The permanent forces were directly linked to the central government, were more professional and had a majority of *peninsulares*.\(^{29}\) Local militias were mostly composed of creoles.

An important additional turning point was the expulsion of the Jesuits in 1767. Within the church, it was the Jesuit missions that mostly negotiated peace when Indian conflicts erupted. The expulsion thus led to many revolts, which threatened the life and property of European Spaniards (Brading 1971, p. 27). The suppression of these revolts was supported by Villalbas troops and apprehensive creole miners and landowners. As Archer (1977, p.120) notes, colonial elites, both creole as well as peninsular, shared the crown’s concern for social control. This is in accordance with our analysis: the elites acquiesce to coercion-based rule under a threat of conflict.

**Seven Years’ War (1756-1763)**

The Seven Years’ War changed the perception of both the colonial elites and the Spanish crown regarding Great Britain’s warring intentions. The Spanish empire faced threats at sea from the English in the Americas since practically the launching of their colonial empire. These threats, however, sought to surmount the blockage on foreign trade imposed by the Spanish crown, never to challenge mainland possession. The events that transpired during the Seven Years’ War, I argue, changed this perception.

In 1756, France declared war on Great Britain. This was the beginning of the French-Indian War, which later escalated into the Seven Years’ War. For the first time in European history, battles occurred in colonial territory. There was fighting in India, North America, Europe, the Caribbean isles, the Philippines and coastal Africa. By the autumn of 1760, all French territory in mainland America had become British. An agreement made in August 1761 between the Bourbon kings of Spain and France, the Family Compact, brought Spain into the war. Britain attempts to attack the Spanish empire from the sea. In August of 1762, the British Royal Navy captures Havana, Cuba. The war ends following the truce signed at the Treaty of Paris on February 10, 1763. Spain rescued Havana (and Manila) from the British by offering Florida in exchange, which became British territory.

These events not only changed the crown’s perception of the British menace, but also that of the colonial elite. France lost all of its mainland territory in America to the British. If this was not enough for the Spanish to second guess the intentions of the British, a direct attack was mounted by the British fleet in Havana, Cuba, an important port for transatlantic trade. Even if a treaty had been signed, the Spanish realized the vulnerable position

\(^{29}\)The Spaniards residing in New Spain were called *peninsulares*.
of their colonial empire. Spain’s distant and ill-protected American colonies were vulnerable to their imperial rival, Britain, not only by sea, but also by land: the great expanses of the northern New Spain lay vulnerable to foreign advance.\textsuperscript{30}

That the colonial elite was also conscious of their own vulnerability can be best exemplified with the events and reforms that transpired in Cuba following the war. As our model would have predicted, Cuba was the first location where Spain attempted both the organization of local armed forces and a fiscal reform.\textsuperscript{31} In the negotiations that took place between the Spanish authorities and the local creole elite it is clear that “The central issue that confronted the Havana patricians... was not whether, but how they should arrive at an acceptable means to fund the cost of defense.”\textsuperscript{32}

Failed attempt

The Bourbon reforms were not the first attempt of the Spanish crown to increase revenue and change colonial fiscal organization. In 1626 the Spanish crown attempted to increase revenue through the creation of the Union of Arms with the goal of sharing the burdens of defense in mainland Europe with the colony. A fixed annual contribution was demanded from each and every part of the monarchy. As our theoretical analysis would have predicted, the Colonial elite resisted the fiscal reforms and the Union of Arms had little success in raising the expected amounts. There was no imminent threat to the presence of the Spanish crown in mainland America to align the interest of all parties, which, according to our analysis, could have potentially triggered a fiscal reform.\textsuperscript{33}

Two increments in the sales tax, however, were achieved a few years later: a 2-percent increment in 1632, and a further increase to 6 percent in 1639. The objective of these two increases was to finance a special fleet to protect the Caribbean; the fleet came indeed in operation in 1640. Notably, the fleet was financed through increases in the sales tax, the collection of most of which was at the hands of the merchant guild of Mexico City. The fleet’s main function was to escort transatlantic convoys (Brading, 1987). Hence the success in obtaining the increase in taxes: through the fleet the crown was providing the merchants with private protection, and the optimal amount of such protection had increased. (Arguably because of the increase in foreign piracy threats and/or naval technology.)

\textsuperscript{31}See Kuethe and Inglis (1985).
\textsuperscript{32}Ibid, p. 125.
\textsuperscript{33}Colonial Spanish America: Spain and America before 1700. Bethell (1973).
4.2 Private protection and tax collection: 1575-1756

The theoretical exercise shows that if there are no threats of war the ruler maximizes revenue by delegating the authority to collect tax revenue, if investing in state administration is costly. Such a means of revenue collection relies on the ability of the crown to provide protection privately to some groups. In order to be able to provide benefits to some while excluding others, it is necessary that such groups be identified not only by the ruler but also by others in society. This identification will in fact also serve as a means to enforce the payment of the tax: there will be a reputation to upkeep in order to ensure the benefits of private protection in the future. How the provision of private protection was achieved by the crown has been described above in section 2. Here we give a detailed account of the revenue collection mechanisms before the reforms and their interrelation with the provision of private protection.

During the beginnings of the Spanish settlement, the Spanish crown sought to establish a centralized and homogeneous fiscal administration (Royal Treasury). In contrast to the system in Spain, that relied mostly on arrendamientos (tax farming), the king sought to base colonial fiscal organization predominantly on direct control and administration by royal officials.\textsuperscript{34} The seventeenth century however saw a decline of the royal administrative stronghold in New Spain. Coupled with fiscal pressures in the peninsula resulting from the expiration of the truce with the Netherlands in 1621, the mining industry in New Spain experienced a fall in production in the 1630s. The dramatic weakening of Spain during those decades loosened the administrative ties between metropolitan Spain and the Indies.\textsuperscript{35} Consequently, during the period 1640-1753 private individuals were able to purchase from the crown many posts previously reserved to appointed royal officials. Also, this was the period in which control by the merchants over the economy was most pronounced.\textsuperscript{36}

In what follows I analyze how each tax was collected, which group was targeted, and what excludable benefit the ruler offered in exchange for payments. I will focus on the four major sources of tax revenue at the time: mining, trade (almajarifazgo and alcabala), Indian tribute, and church tithe.

Mining

The silver production process was organized in three distinct stages: extraction of the ore from the earth, refining or separation of the silver from the

\textsuperscript{34}Sanchez Bella 1990, p.71-72
\textsuperscript{35}Elliot, J. H., Spain and America before 1700, p 105-107, in Bethel eds., 1987.
\textsuperscript{36}Brading 1971, p. 25.
base metal (by smelting or amalgamation), and minting or the conversion of silver into coin.\textsuperscript{37} At each stage of the process the crown was involved and made sure to obtain a benefit. The crown monopolized the sale of mercury (and gunpowder later in the eighteenth century), levied a 10 per cent tax on all silver (mining tithe), and demanded all silver be sent to the Casa de Moneda (Royal Mint) in Mexico City for coinage.

Mercury was obtained from three mines in the world: the Carintia mines in Germany, the Almadón mines in Spain, and the Huancavélica mine in Peru. The crown entrusted the distribution of mercury in New Spain to treasury officials (after 1663 how was it done before? local authorities?) and provincial cajas were set up in all the chief mining camps. Mercury was provided in bulk and on credit, every six months, to refiners, miners and their merchant backers. The recipient had to pay into the treasury “a quantity of silver exactly proportional to his allocation of mercury.”\textsuperscript{38}

After refining, all silver cast into bar had to be presented at the nearest Casa de Fundición (Assay Office). Here silver was melted, weighted and assayed, and labeled accordingly. Afterwards, the fiscal rights, a 1 per cent for assay, and the cost of mercury supplied on credit were all deducted, and a royal seal was put on each silver bar (or piece of gold) as evidence that the tax was paid.\textsuperscript{39} Not surprisingly, the assay office was closely linked to the treasury authorities. The presence of treasury officials was required at the time of assay,\textsuperscript{40} and the plateros in charge of the assaying received the office as a grace from the king, or purchased it (later).

To be coined, silver had to be taken to the royal mint in Mexico City. There, 69 rls. were cut from every mark of silver, of which 65 rls. were returned to the owner.\textsuperscript{41} The royal mint would not receive unmarked silver bars, indicating that the fiscal rights were not paid, and the bars would be subject to confiscation and the owner liable to the death penalty.\textsuperscript{42}

Silver taxes were collected thus at the Casa de Fundición and at the royal mint in Mexico City. Royal treasury officials were in charge of collection until the mid seventeenth century, when the crown decided to rent the mint out to private individuals.\textsuperscript{43} From then on, until the mid eighteenth century, a group of merchants took over the management of the mint and arranged for the silver’s final assay and smelting into bar. They also frequently rented the

\textsuperscript{37} By law practically all silver had to be minted. Brading 1971, pp. 130-131.
\textsuperscript{38} Brading 1971, p. 141.
\textsuperscript{39} Sanchez Bella 1990, pp. 231-235.
\textsuperscript{40} There existed fixed times a year when the Casas de Fundición were opened, generally twice a year. See Sanchez Bella 1990, p. 229.
\textsuperscript{41} Brading 1971, p. 143.
\textsuperscript{42} Sanchez Bella 1990, p. 231.
\textsuperscript{43} Bakewell 1971, pp. 212-215. Check Blackwell for exact date.
machinery and plant of the mint itself.\footnote{Brading 1971, pp. 170-172.}

Therefore, in all three stages of the silver production process, the crown was able to obtain resources through the functioning of the mining industry. To be able to mine one needed mercury, which was uniquely provided by the crown. Also, silver could not be traded in powder but had to be melted and 'labeled', which were done by the crown at specific locations. Finally, to mint silver a tax had to be paid. In all this cases a private transaction between the tax payer and the collector of taxes (either royal treasury officials or private contractors) took place.

**Commerce and Church tithe**

"Nada preocupó tan alta y fijamente la atención del gobierno español como el arreglo y seguridad del comercio de la metrópoli con sus colonias en la América, y quizá ni el ramo de guerra fue objeto de tan prolija legislación..." (Riva Palacio 1888, 495).\footnote{No other matter obtained such high and fixed attention from the Spanish government as the arrangement and security of trade between metropolitan Spain and its American colonies did, and perhaps not even the subject of war underwent such prolific legislation...}

Taxes were imposed on a variety of commercial transactions. There were two broad categories: customs and excise duties, the latter resembling a sales tax. There were both internal and external custom duties. In the year 1530, the crown ordered renting out the collection of custom duties (\textit{almojarifazgo}) to private individuals.\footnote{Riva Palacio 1888, p. 697.} However, according to Sanchez Bella (1990, pp. 238-239) before the end of the century royal officials took charge of the evaluation of merchandise and the collection of duties at the ports. There were only two ports through which merchandise could enter or exit New Spain: Veracruz for Atlantic commerce, and Acapulco for Pacific trade. Also, the crown tried to impose fees on internal trade by placing customs houses on the royal highways and ordering trade to transit along specific routes.\footnote{Macleod 1987, p. 340.} Clearly, the use of natural and mercantilist trade bottlenecks helped surmount the weaknesses of a lack of administrative and technological means to tax systematically.

As with the mining taxes above, I argue that the enforcement of custom duties did not rely on coercion but on a private transaction between the ruler and the contributors because of the nature of the tax: natural or policy-created bottlenecks surmounted the lack of a centralized administration. The customs duties (\textit{almojarifazgo}) tax was collected at the ports. All commerce with New Spain came in through two ports: Veracruz (from Seville) and Acapulco (from Manila).


*Alcabalas* and the church tithe, however, were more difficult to collect. The tithe was paid by practically all the New Spanish population and the excise tax was a tax on sales. Collection of these taxes clearly requires a larger administration and more information: there were no natural bottlenecks to facilitate their collection. Not surprisingly the collection of these two taxes was contracted to two of the largest private organizations of the period until the mid eighteenth century. The crown offered the best bidder (usually regional clerics) to take charge of the collection of the tithe;\(^48\) the merchant guild (*consulado*) of Mexico City was in charge of the collection of the excise tax at the major trade areas in New Spain: Mexico City and Veracruz. Both the church and the *consulado* were granted explicit privileges by the crown. The Church enjoyed a monopoly on souls; the merchants guild protection at sea by means of fleets and the monopoly right over trade between Spain and its colonial territories.

I now discuss in detail the evolution of the collection of the sales tax in Mexico City, and of the merchant guild, given the importance of the city as a source of revenue.\(^49\) In 1575 the *alcabala* of 2 per cent went into effect in New Spain. The *alcabala* was a tax “on the first and successive sales”\(^50\) of goods in the colonies. Early on the collection of this tax was *encabezado*, that is, contracted with the towns. Because of its nature, taxing the sale of goods required a more comprehensive knowledge of the local economies and thus surveys and listing of merchants were undertaken in the major towns.\(^51\) Many towns colluded with the merchants for the collection of the *alcabala*. In fact, by 1644 the merchant guild (*consulado*) in Mexico directly contracted with the crown to collect the sales tax.

Importers and wholesale merchants organized in 1594 the first American merchant guild, the *Consulado* of Mexico City, resembling its counterpart in Spain, the *Consulado* of Cádiz. In response to a proposal by the *Consulado* and the *Cabildo* of Mexico (municipal council), the Crown agreed to grant tax farms to the municipal corporations for the collection of the royal *alcabala*. A contract would be negotiated at a certain price detailing the duration of the contract and the area of the tax district. The crown argued that the farm of the sales tax would eliminate “the perjuries and frauds and other wiles,” and reduce the costs of collection, “which are frequently more burdensome and detrimental than the tax itself.”\(^52\) The contract was initially negotiated with

\(^{48}\)Riva Palacio 1888, pp. 695-696.

\(^{49}\)The *alcabala* collected in Mexico City and its vicinity comprised in 1761-1766 half of the total receipts from this tax in the entire kingdom, and made up one-fifth of all crown revenues in New Spain. See R.S. Smith 1948, p. 3.

\(^{50}\)R.S. Smith 1948, p. 3.

\(^{51}\)Macleod 1987, p. 341.

\(^{52}\)Cited in R.S. Smith 1948, p. 4.
the City of Mexico, but since the early years the municipality subcontracted with the guild for the collection of part of the tax. In 1644 the City was forced to subrogate its contract to the Consulado; in 1647, the Consulado obtained the fourth contract on its own name.

From then on, and until 1753, the Consulado was granted all farm contracts.\textsuperscript{53} Contracts were granted through an informal first auction mechanism. In all cases there were contenders to the Consulado for the farm contract. It seems, however, that the Consulado had more bargaining power as time went on. The contract price was negotiated between the two parties. According to Smith (1948) the price was mainly determined by the area of the tax district, the tax rate, the competition for the contract, and the conditions of trade and monetary value of taxable transactions.

On January 1, 1754, the viceroy handed over to treasury officials the administration of the sales tax of Mexico City.\textsuperscript{54}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
Years & Contractor & Rate & Contract price (pesos per year) \\
\hline
1602-1616 & City & 2 & 77,000 \\
1617-1631 & City & 2 & 91,000 \\
1632-1633 & City & 4 & 180,000 \\
1634-1638 & City & 4 & 194,800 \\
1639-1643 & City & 6 & 254,800 \\
1644-1646 & Guild & 6 & 254,800 \\
1647-1661 & Guild & 6 & 270,275 \\
1662-1672 & City & 6 & 273,000 \\
1673-1676 & Guild & 6 & 273,000 \\
1694-1708 & Guild & 6 & 260,000 \\
1709-1723 & Guild & 6 & 280,000 \\
1724-1738 & Guild & 6 & 280,000 \\
1739-1744 & Guild & 6 & 280,000 \\
1744-1753 & Guild & 8 & 373,333 \\
\hline
\end{tabular}
\caption{Farms of the Sales Tax of Mexico City}
\end{table}

Source: Smith 1948, Table I.

\textbf{Tributo and other sources of revenue}

The tributo was a head tax obtained from Indian communities. This, however, existed since pre-Colombian times and what the crown did was maintain

\textsuperscript{53}There was one exception: from 1677-1693 the crown took control of the treasury. I am not sure why this is the case, but it seems they still depended a lot on the Consulado for the collection of the tax. It is possibly related to the confrontations that were taking place in South America.

\textsuperscript{54}Smith 1948, p. 23.
the pre-Colombian administrative system through which tax payments were contracted. Before 1560, tribute was collected through the existing administrative structure: by means of the caciques and Indian governors. Later, the collection of the tax was contracted with the local justice authorities (corregidores and alcaldes mayores), or with ‘executors’ sent by the royal officials (direct collection).\textsuperscript{55}

State monopolies (estancos) Sale of office

4.3 Transition to coercive taxation in New Spain

During the decade of the 1760s, with the Gálvez visitation (1765-71), a transformation of the entire structure of colonial government went underway. The primary emphasis of the reforms was upon increasing revenue collection.\textsuperscript{56} To attain this, an attack was mounted on two fronts. On the one hand, policies that sought to increase colonial income were implemented.\textsuperscript{57} On the other, a reorganization of the methods of government took place: colonial administration was expanded and militarized. This section documents how the administrative changes impacted the enforcement mechanism of the tax categories analyzed above.

The first major fiscal change occurred in 1754: the contract with the Consulado was terminated and the collection of the sales tax of Mexico City entrusted to salaried officials. In 1765, the tobacco monopoly at the hands of the state was established. Old institutions like the treasury and the court of audit took on the new role of directly collecting taxes and not merely receiving tax collected under farm contracts. By 1776, salaried excise directors in charge of collecting all taxes on sales were appointed in 24 leading towns:\textsuperscript{58} “all the leading towns were blessed with a local director and accountant of excise, assisted by a band of guards.”\textsuperscript{59} According to Brading (1973, p. 403), the number of well-paid permanent places in the colonial bureaucracy quadrupled.

After 1776 the practice of farming out revenue collection to private individuals or institutions in the major colonial towns was terminated.\textsuperscript{60} The treasury, in the fifteen years after the termination of the contract with the

\textsuperscript{55}Sanchez Bella 1990, pp. 207-208.
\textsuperscript{56}Brading 1973, p. 403.
\textsuperscript{57}This reform programme was based on a manuscript in circulation since 1743 elaborated by Campillo and Cossío: \textit{Nuevo sistema de gobierno económico para la América}. Brading (1987) p. 122.
\textsuperscript{58}Brading 1971, pp. 51-52.
\textsuperscript{60}In some outlying districts private individuals continued to be in charge of the collection of taxes. Administrative costs were too high relative to what was collected. See Fonseca and Urrutia (1845-53, p. 101-18), cited in Brading 1971, p. 52.
merchant guild in Mexico city, managed to obtain at a rate of 6 percent more than the contract price the guild would have paid at an 8 percent rate. From 1761-1770 the sales tax yielded 175,000 pesos yearly in additional revenue.\textsuperscript{61} In the period from 1765-1782 the New Spanish gross budget increased from 6 to 19.5 million pesos.

At the same time a fairly rapid and efficient royal postal service was organized throughout the empire. This brought an end to the former freedom of action that distance and bad communications allowed.\textsuperscript{62} It should be noted that the geographic characteristics of New Spain provide additional evidence in favor of the choice tax collection mechanism. Large distances and hilly terrain promised expensive the installment of a centrally controlled fiscal bureaucracy. The distance between the ports and Mexico City is large, not to mention the difficult access due to the mountains. Mexico city is located in a valley at 2400 meters above sea level. In addition, the most important mining centers were situated in the northern part of the territory, some even further away than the ports.

The mediating role of the church declined as the army, both regulars and militias, grew in size and influence. Before the reforms, the local clergy played a vital role in the maintenance of order in the colonies. Now, military power was deployed on the streets not only against rebels but also bandits and common criminals. Furthermore, military men became viceroy and top officials: five of the twelve intendants were military officers.\textsuperscript{63} The church was also formerly a key player regarding the collection of taxes. Attempts were made as well to regulate the collection of tithes. The Jesuits were expelled in 1767, and thereafter church wealth was expropriated and royal authority was emphasized as being above that of the church.\textsuperscript{64}

The new trade policies, I argue, give further evidence of the reduced reliance on private protection to collect taxes. The commercial monopoly exercised by the import houses in Mexico city was abolished in 1778 (Decree of Comercio Libre). Free flow of trade was now allowed between the chief ports of the Spanish peninsula and the American possessions. Through the creation of a finance bank the regime attempted to free the productive sectors from the former reliance upon merchant credit, specially mining. Benefits from the increase in trade that resulted from these policies could now be obtained by the crown through its reformed fiscal system.

\textsuperscript{61}Smith 1948, p. 35.
\textsuperscript{62}Brading 1971, p. 34.
\textsuperscript{63}Knight 2002, p. 261.
\textsuperscript{64}Brading 1987, p. 125.
Donativos and Loans

Royal extraction of resources from the population in the form of donativos (donations) started under Philip II but were more frequent under the rule of Philip IV. These requests were required of specific corporations: the merchant guilds in Mexico and Lima, and the Church. In some cases they even fell on the Indian communities. The first cry for help from the Spanish king directed specifically to the Mexican Consulado occurred in 1622. The crown was going through a period of scarcity mostly because of the conflicts in mainland Europe. The royal authorities asked for voluntary contributions and loans to help strengthen the fortifications in Havana, Puerto Rico and the mainland ports, and create the Armada de Barvolento. Resources came mostly from the merchant guild. Again, in the period 1700-1715 a large number of donativos were requested to finance the War of Succession. In 1703 the king demands donations from the clergy in New Spain and imposes an extraordinary tax on ministers. A further request was made during Fuenclara's term as viceroy (1742-1745). Support came again mostly from the merchant guild and ecclesiastical contributions.65

Noticeably, this demands for money so far were addressed to specific and identifiable groups: the church, the merchant guild, public officials. After the administrative and military reforms of the 1760s decade, however, the nature of the donativos changed. To increase tax revenues to finance the war between Great Britain and Spain (1779-1783), a donativo gracioso was now requested by Charles III from all his subjects in August 1780. The universal and obligatory nature of these taxes must be emphasized: there were no exceptions. The authorities were able to collect the contributions (in three years time) given the new coercive nature of its centralized fiscal administration.66 An analysis of the contributions shows in fact that in large measure they came from the popular classes.67 This shows how the change in tax enforcement opened the door for new forms of extraction by the state; in this case, the birth of universal taxation.

The administrative changes also increased the king’s ability to borrow. Forced and voluntary loans played an important role in the financing of the Spanish conflicts in the late eighteenth century.68 Arguably, the perceived ability to pay of the state was strengthen once it demonstrated its capacity to tax by means of a centralized, coercive fiscal administration.

65Marichal 1999, pp.104-105; Riva Palacio 1888, p. 790.
67Marichal 1999, p. 108.
5 Comparative history

A historical comparative statics analysis is undertaken in this section. We show the importance of the threat of war and of the free rider problem by providing other historical examples in which these were not observed and the historical trajectory was different.

War threat

As mentioned, following the British emergence as a dominant power, both the Spanish and the British crowns undertook fiscal, political, and economic reforms in their Colonial territories. As shown above, the Spanish Crown managed to preserve political stability while increasing colonial revenues remarkably for almost forty years. British failure, on the other hand, was notorious: in 1776 the thirteen British colonies in America declared their independence. According to the analysis here, a threat of conflict is a necessary condition for elite groups to comply with fiscal and military reforms. British success in the Seven Years’ War in fact eliminated the previous threat from France, and Spain was not strong enough militarily to be considered an eminent threat. Thus, the introduction of a centralized fiscal system at the hands of the British crown would not solve an externality problem which solution would benefit the elite, and the reforms failed.

Free riding

The British invasion of Rio de la Plata, present day Argentina, exemplifies the importance of territorial characteristics in exacerbating the free rider problem. In 1806 British troops attempted to take possession of Buenos Aires. The locals, however, forced the British to withdraw without the need of a Spanish military intervention. Rio de la Plata did not face the geographical hindrance of New Spain and was a much smaller viceroyalty. That, arguably, facilitated the cooperation of the local elite.

6 Conclusion

The main implications from this paper do not only concern colonial Mexico but can tell us something about the evolution of the state at other times and places. States relying on granting and protecting excludable benefits to obtain resources can transition to state administered revenue collection under perceived threats of conflict. What is important is that all the groups that are benefited face a common threat that aligns their preferences regarding
the provision of a public good. The new fiscal regime allows them to commit to pay for the financing of the good.

Evidently there are risks associated with the creation of states with a monopoly on the use of coercion. Whereas a revenue collection mechanism not relying on state-administered coercion provides the benefited groups with means to constrain the state, coercive enforcement requires alternative political responses to guard against state expropriation. This suggests an inquiry on the link between the fiscal transition analyzed here and the creation of democratic institutions and other mechanisms to put checks on the state an interesting venue for future research.

References


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