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# Empire-building and Price Competition

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## Abstract

This paper examines the relevance of price competition in the protection market in order to explain the different modes of empire-building. Our approach unravels the economic rationale of merchant empires which is not explicable with existing theoretical frameworks systematically eluding price competition. Our main contribution is to introduce a distinction between two different types of rent, namely an ‘absolute’ and a ‘differential’ one. Absolute protection rent (AR) corresponds to rents extracted by sellers of protection (empires) using threats and coercion. In contrast, differential protection rent (DR) stands for economic advantages conferred on subjects of an empire. The choice of the territorial expansion rule (AR-maximizing or DR-maximizing) depends on the nature of the protection market which is influenced by the assets structure detaining by the buyers of protection. In this paper, we build a general framework consistent with historical evidence in which coercive rivalry appears to be one case of empire-building among others (including price competition).

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**Keywords:** absolute and differential protection rents; sellers’ and buyers’ protection market; contest success function; coercive rivalry and price competition; merchant empire

## 1. Introduction

In the second half of the fifteenth century, most spices were carried by Arab merchants from India to Jeddah in the Red Sea. These merchants were under the protection of the Egyptian Sultan, who exacted a large protection fee. At Alexandria, the spices were sold to the Venetians and other Europeans. When the Portuguese reached India by circumnavigating Africa, the famous Venetian merchant banker, Gerolamo Priuli, predicted that the Portuguese would be able to undersell the Venetians because they would avoid the high taxes in Egypt by bringing the spices around Africa. However, “This is *not* what happened. The Portuguese did *not* set their prices below those common at Venice in the fifteenth century...The Portuguese king attempted to prevent by armed force the passage of any spices from India to the Red Sea or Persian Gulf. He staked his hopes of profit on securing a monopoly.” (Lane [1940] 1979, pp. 15–16). This historic event illustrates the two different uses of violence in empire-building. In the case of the Republic of Venice it was used as a means of accumulating mercantile profit: “Through all the conquest, Venetian commercial interests reigned supreme. The city’s leading families were merchants and bankers, the city’s governing council represented the leading families, the doge came from that same patriciate, the city’s military forces drew on its own population, and its military and diplomatic policies promoted the establishment of commercial monopolies, protection for its merchants, and channeling of trade through Venice rather than the creation of a territorial empire” (Tilly 1990, p. 145). Therefore, usage of violence was based on the quest of economic advantages for Venetian

merchants. In stark contrast, the Portuguese strategy of empire-building focuses on the increase in wealth of the Crown. Decisions are made by ‘predatory governments’ (Alesina and Spolaore 2003) who care more about their own welfare, and that of their close associates, rather than the welfare of their citizens. Consequently, in the Portuguese empire, violence was used to treat and extort people with the objective of increasing the prestige and privileges of the king, partly because private merchants were not influential and the pepper trade was managed by a royal company.

This example points out the existence of different motivations explaining empire-building. From an economic perspective, these behaviors are analyzed on the protection market in which different empires compete in order to expand their territory according to their objectives. A major difficulty encountered in this very specific market is about the nature of the competition. Although economic historians like Lane (1973, 1979), North and Thomas (1973), and North (1981) have stressed the importance of *price competition* in the protection market<sup>1</sup> as a source of Western ascendancy and empire-building, theorists of conflictual activity have argued against this form of competition. Indeed, from a theoretical perspective, Skaperdas (2003, p. 150) argued that price competition in the protection market can work only if subjects are mobile. But conflict models are often inspired of a particular form of the European serfdom in the Middle Ages according to which “peasants have limited options. They are tied to their land and at the mercy of the lord who compete over how to divide them up” (Konrad and Skaperdas 2012 p. 418).

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<sup>1</sup> See also all the papers in the volume edited by Tracy (1991) regarding the political economy of merchant empires.

Hence, theoretical settings exclude price competition, favoring competition over the amount of effort, and postulating the uniformity of protection price. According to these models, “providers of protection, instead of competing on the price of their service, typically compete with their means of violence over turf” (ibid. 2012, p. 418). Most of the papers dealing with empire-building consider a theoretical framework in which subjects are *immobile*. To the best of our knowledge, Findlay (1996) proposes the first model studying the expansion of empires. The size of an empire is defined as a ‘sphere of influence’ depending on the largeness of its army. In the same vein, Alesina and Spolaore (1997) pictured a nation deciding its size by a trade-off between the benefits and the costs of a large population. These approaches suffer from one strong limit: the size of the population is assumed to be constant as if empires (or nations) fight to conquer a sort of empty territories with no aboriginal settlers. Similarly, the decision of the demanders of protection, *i.e.* peasants or merchants with regard to their protection is totally disregarded. Interestingly, Grossman and Mendoza (2001a) introduce different ways to expand imperial territory. They distinguish two coercive ways (*i.e.* ‘Coerced Annexation’ and ‘Attempted Conquest’) and a voluntary adhesion (‘Uncoerced Annexation’). However their framework deals with a situation in which there exists only one empire confronting a poorly organized barbarian tribe; and is not germane in understanding the existence of a protection market that constitutes the cornerstone of empire-building. Therefore, the extensive empirical evidence presented by economic historians has not yet yielded an adequate formal theoretical construction. One of the main objectives of this paper is to theoretically highlight the relevance of price competition in the protection market by focusing on the competition between empires and fill the gap between economic history and theoretical framework dealing with conflicts.

In this paper, we focus on the behavior of empires providing protection. It should be noticed that we consider an empire as an ‘imperial rule’ enacted by a central authority on a bounded geographical area. Indeed, “Analytically, the term ‘empire’ denotes a specific form of rule” (Spruyt 2008, p. 291). This imperial rule, is deeply asymmetrical (Nexon and Wright 2007) and consists of system of ‘contracts’<sup>2</sup> within a context of coercive power depending on its ‘military integration zone’ (Vahabi 2004). But territorial expansion induces government costs (Lake 1996), which are positively linked with the size of the Empire. Thence, imperial rules are effective on a limited population and area. Our original contribution is to introduce a distinction between two different types of rent, namely an ‘absolute’ and a ‘differential’ one while retaining the traditional rent-maximizing assumption. What we call ‘absolute protection rent’ was broadly defined as *tribute* by Lane (1979, p. 27) as “payments received for protection, but payments in excess of the cost of producing the protection.” It corresponds to a sellers’ protection rent extracted from a coerced population. In contrast, the concept of ‘differential protection rent’ stands for economic advantages enjoyed by merchants, bankers and producers. The latter case pertains to a buyers’ protection rent. The distinction between these two types of rents provides an economic explanation for the different usages of violence previously highlighted in the cases of Portuguese and Venetian empires. Focusing on the nature of the protection market, we propose a theoretical framework reflecting the existing diversity of empire-building. In particular, our main line of inquiry is to explore how price

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<sup>2</sup> “All relationships, whether entered into voluntarily or as a result of coercion, can be considered as based upon some ‘contract’ between two parties specifying explicitly or implicitly the terms under which they will pool their defense efforts and the residual rights of control retained by each” (Lake 1996, p. 7)

competition is derived from the economic rationale of empire-building. This will also afford a theoretical modeling consistent with the work of economic historians on the relevance of price competition in the protection market.

The paper proceeds as follows. The second section highlights the historical relevance of subjects' mobility among different providers of protection. In particular we establish a theoretical linkage between the assets structure and the degree of mobility. Then we explore the economic significance of two different methods of using violence: extracting absolute or differential protection rents and we identify two types of empires based on their respective objectives. In section three, we present a framework demarcating three types of competition among empires. First, competition between two empires both trying to maximize absolute protection rents; second, competition between two empires both striving to maximize differential protection rents; and third, a mixed competition. Finally, section four highlights our conclusions and few extensions allowed by our theoretical framework.

## **2. Exploring the various forms of empire-building**

This section focuses on the assumption of mobile population on the protection market which is the necessary condition for exploring price competition. We first discuss the role of assets redeployability as an explanatory factor for the mobility of subjects (2.1). Then, we distinguish two ideal-types of empire based on the type of rent (i.e. absolute or differential) that they maximize (2.2).

## 2.1. The population mobility and the nature of protection market

Conflict models based on the assumption of immobile subjects are not inclusive of all historical situations at least for two reasons. First, there were historical periods in which subjects of an empire had the ability to escape, and therefore could choose their provider of protection. According to Bloch (1966, pp. 85-87), legal definitions of serfdom do not describe serfs as “attached to the soil” before the fourteenth century, and they were in practice usually free to move, although maintaining at least in theory a legal bond to their masters<sup>3</sup>. Second, ‘theoretical’ mobility of subjects should not be reduced to a geographical concept. Indeed the mobility is not systematically associated with a physical move. People can decide to disown a provider of protection in order to be protected by another one without changing their location. Concretely this behavior is a betrayal that was not rare throughout history. A salient example is discussed by Douglass North (1981) regarding lower taxes imposed upon border areas in medieval Burgundy due to competition between feudal lords. In this case, peasants on border areas had the possibility to change their allegiance to take advantage of price competition<sup>4</sup> between predator landlords. Germany during the Thirty Years’ War and throughout the nineteenth century is another good example of how several violence-using enterprises can compete in demanding payments for protection in almost the same territory (Lane [1958] 1979, p. 51). Hence, even geographically attached people might be ‘mobile’ in the sense that

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<sup>3</sup> Interestingly enough, Evsey Domar (1970) also underlined that before 1550 Russian peasants were free men; a hundred years later they were serfs.

<sup>4</sup> Historically, protection ‘price’ was not monetary price; it was principally comprised of taxes in kind. For example, a certain amount of grain and number of livestock were decreed as the appropriate tax (Levi 1981, p. 458). Corvée, conscription, and other forms of servitude were also included in the protection price. In this context, price competition means paying less grain, livestock or serving fewer hours of corvée for landlords.



they have an ‘exit power’: they can choose their provider of protection. Therefore a person is mobile as soon as she/he detains an exit power that is the ability to substitute a provider of protection for another. In this context, changing his/her allegiance may be possible. However economic literature, focusing on immobile population, disregards these situations. In this paper we are interested in building a framework taking into account diverse degrees of ‘exit power’.

Undeniably, there is a link between the degree of ‘exit power’ and the assets structure detained by people. Borrowing Williamson’s asset specificity criteria (1985), asset redeployability corresponds to the cost induced by employing an asset in an alternative use. Adapted to our specific framework, perfectly redeployable assets stand for the fact that the revenue of a person is the same whoever protects him/her: changing allegiance<sup>5</sup> is almost costless and mobility is ensured. Notably, capital is less specific than land in the sense that it can be redeployed elsewhere without losing its value. For example, merchants intensively use capital which is a highly redeployable asset. Contrary to *non-movable* assets such as land and buildings, capital is “the most mobile factor of production” (Bates and Lien, 1985, p. 54). It is harder to confiscate or tax capital because of its exit power. As the English fiscal experience proved, the new taxes on trade and movables possessed two significant shortcomings: “They could be easily avoided. And partially as a consequence, they had to be bargained for.” (Bates and Lien 1985, p. 55). Consequently, the bargaining power of proprietors of movable and redeployable assets compelled the predator states to offer competitive price of protection with

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<sup>5</sup> The cost associated to the change of a subject’s allegiance is close to the concept of ‘switching cost’ (Klemperer 1987), which defines the cost associated to a change of provider.

regard to their service as violent protectors of their movable assets. As we can see in Table 1, this situation gives rise to a “buyers’ protection market”, a situation in which subjects have full ability to ‘exit’ and thus can influence empire-building. Montesquieu had already predicted that the rise of commerce could generate political consequences. Discussing the invention of the letter of credit, Montesquieu (1748) wrote<sup>6</sup>: “The Jews invented letters of exchange; commerce, by this method, became capable of eluding violence, and of maintaining everywhere its ground; the richest merchant having none but invisible effects, which he could convey imperceptibly wherever he pleased...From this time it became necessary that princes should govern with more prudence than they themselves could even have imagined” (Book 21, chapter XXI-20). High exit power gives rise to the use of price strategies (offering lower price for protection) to attract mobile subjects. Borrowing De Long and Shleifer’s (1993) terminology, we contend that the European ‘feudal anarchy’ or the presence of competing landlords and the peasant’s power to ‘exit’ from one territory to another was the source of price competition in the protection market before the fourteenth century<sup>7</sup>.

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<sup>6</sup> This passage of Montesquieu (1748) has already been cited by Hirschman (1978, p. 98) as well as by Bates and Lien (1985, p. 60) in the following terms: “through this means commerce could elude violence..., for the richest traders had only invisible wealth which could be sent everywhere without leaving any trace...Since that time, the rulers have been compelled to govern with greater wisdom than they themselves have intended”.

<sup>7</sup> In fact, De Long and Shleifer (1993, p. 681) acknowledge this type of competition: «In other cases jurisdictions were so small that merchants could flee to feudal domains that provided protection, and competition between petty despots to attract merchants and their commerce constrained arbitrary exactions. In still other cases the most powerful political units in feudal anarchy turned out to be mercantile republics, which owed their self-government to the inability of feudal authorities to enforce commands.”

### **Insert Table 1 here**

In dire contrast, subjects detaining non-redeployable assets are trapped and have no exit option. In this case, empires use coercive ways to attach and enchain subjects to their territory. “From Mesopotamia to China, Egypt, Mesoamerica, or feudal Europe [after the fourteenth century according to Bloch, 1966], serfs were tied to the land and free peasants typically had no outside options, with rulers coming and going without any change in their incentives for production” (Konrad and Skaperdas 2012, p. 429; brackets added). In such cases, the supply side is able to dominate the protection market: this is a ‘sellers’ protection market’. This case is the most commonly studied in the empire-building’s literature.

Last, but not least, there is an intermediate situation between these two polar cases. Indeed, people can detain partially redeployable assets. In this case, exit power exists but is limited by the switching costs induced by the change from one provider to another. Medium exit power involves a protection market in which both merchants (detaining highly redeployable assets) and peasants attached to the soil coexist. As a consequence both strategies are possible: using force to coerce and entrap people, or offering low price of protection to attract demand. We call this specific setting the ‘hybrid protection market’.

The nature of protection market is fundamental to understand the behavior of empires throughout history. Obviously, there exists a continuum of behaviors depending on the historical, political or ecological context. The empirical diversity of historical evidence

notwithstanding, in the next subsection we distinguish two ideal-type behaviors and empires according to the strategies used on the protection market.

## 2.2. Rent-seeking behaviors and empire-building

We distinguish two strategies to expand the imperial territory: use coercive means to fetter people and loot them, or attract them by offering lower protection price. The first strategy describes the behavior of ‘*absolute-rent-maximizing empires*’ (hereafter AR-maximizing empires) and the second depicts that of ‘*differential-rent-maximizing empires*’ (hereafter DR-maximizing empires)

**AR-maximizing empires.** The most studied path of empire-building is defined by the use of threat and violence by the central authority. In this case, assets are mostly non-redeployable and protection is seen as ‘racket’ (Tilly 1985). The territory expansion is based on a coercive subscription of subjects whose non-redeployable assets make them easy target of looting. Protected subjects thus pay an *absolute protection rent* to the ‘king’<sup>8</sup>, which is the difference between protection revenues and costs of governance (Lake 1996). The ‘absolute protection rent’, or ‘tribute’<sup>9</sup>, is a rent for *sellers* of protection directly derived from the use of coercive means. Following Alesina and Spolaore (2003 p. 69), decisions in this kind of empire “are taken by rent maximizing governments who care about their own welfare, and that of their

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<sup>8</sup> The ‘king’ is here used in a figurative sense. It can also stand for ‘tsar’, ‘Caesar’, ‘monarch’ or the monopoly of power by a communist party. Ironically, Gramsci (1957) depicted the role of communist party as a ‘modern price’ without any intention to advocate an authoritarian regime.

<sup>9</sup> Ames and Rapp (1977, p. 167) preferred the term ‘extortion’ for the following reason: “A payment for defense or justice contains elements of extortion to the extent that there is a monopoly profit to government.”

close associates, rather than the welfare of their citizen”. This first kind of behavior constitutes one ideal type that we call ‘*absolute-rent-maximizing empire*’. Consequently, the objective function of an empire is:

$$AR_i = N_i t_i - G(S(N_i), C_i) \quad (1)$$

Where  $N_i$  corresponds to the population protected by the empire  $i$  (its size),  $t_i$  is the price of protection and  $G(.)$  is a function representing the cost borne by the provider of protection. We distinguish two main components of protection costs<sup>10</sup>. First, the safeguard costs,  $S(N_i)$ , represents the resources devoted to the maintenance of the governance structure and the organization of the empire.  $S(.)$  satisfies the two following properties: (i)  $S' > 0$  and (ii)  $S'' > 0$ . Second, the level of coercion,  $C_i$ , that represents the cost of violence carried out by empire  $i$ . Adopting the contest theory terminology,  $C_i$  corresponds to the amount of effort devoted to appropriative activities (Hirshleifer 2000) and represents both efforts to loot subjects and to threat potential competing empires. Finally, we assume that  $G(.)$  is an additively separable function such as:  $G(S(N_i), C_i) = S(N_i) + C_i$ .

The Russian empire is a good example of AR-maximizing Empire: “From top to bottom, the emerging structure of social relations depended on coercion” (Tilly 1990, p. 141). Other historical examples include the Polish, Hungarian, Serbian, and Brandenburg states. This system involves forced labor, landlord relationships, and the development of the

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<sup>10</sup> “These costs take three distinct forms: distorted incentives in the subordinate partner, safeguards on the dominant state and coercion” (Lake 1996, p. 15). In this paper, we only retain the last two components because ‘distorted incentives in the subordinate partner’ is not relevant to the relation between an empire providing protection and its subjects.

government's armed force. Conversely, trade routes tend to be thin and to lack capital. This type of hierarchy is tailored to maximize (*AR*). The 'forced subscription' of subjects or their allegiance to the king (or tsar) is the cornerstone because *AR*-maximizing empires must constantly increase the price of protection to keep up with the increasing costs of protection. Here, violence is used for plunder and has a *welfare-degrading* effect.

**DR-maximizing empires.** In some situations, subjects are not tied to the soil because of their exit power. Then, an empire has to attract mobile subjects by offering a low price of protection in order to extend its territory. Instead of using coercive means, this kind of empire seeks to provide an economic advantage for its subjects. Economic advantage stands for the fact that a buyer of protection supports a lower price being protected by an empire than another. Competition among empires gives rise to a protection rent for *buyers* of protection, hereafter 'differential protection rent' (*DR*). This second type of protection rent is almost completely ignored in the literature. It is not related to 'allegiance' and the empire provides protection for a low price in order to confer an economic advantage to local merchants. Domestic merchants enjoy a *differential protection rent* compared to other merchants paying a higher protection price. A differential protection rent is the difference between protection prices. For example, given two empires, namely *i* and *j*, and two different protection prices  $t_i$  and  $t_j$ , the differential protection rent for the whole population protected by empire *i* is given by:

$$DR_i = N_i(t_j - t_i) \tag{2}$$

A merchant who incurs less protection costs takes advantage of a higher differential protection rent. The Venetian merchant empire is a classic example: it extended to Cyprus until 1573 and to Crete until 1669. The city's forces launched wars to maintain access to commercial opportunities, and to challenge rivals such as Genoa. However, "more than anything else, its rulers gained reputations from the ability to wage canny and successful sea wars *at relatively low cost to the city's merchants, bankers, and manufacturers*" (Tilly 1990, p. 147, emphasis added). Venetian empire-building is clearly related to the interests of protected people. We establish here a second ideal-type, namely the '*differential-rent-maximizing empire*'. In this kind of empire, there is a ruling group composed of merchants (like Venice) or merchants have an influential position within the parliament (like Dutch and British empires). Therefore, the use of violence here is more *welfare-enhancing*, because it aims at maximizing economic advantage of domestic merchants.

### **3. A framework of competitions on the protection market**

It should be reminded that conflict models have only favored *coercive* rivalry corresponding to a specific protection market, namely sellers protection market. In this section we present a theoretical framework composed of three models dealing with different types of competition among empires distinguished according to their specific type of protection market, as highlighted in the previous section. Even if each model is structurally different, we identify three common characteristics. First, our models assume dyadic

competitive relationships between contending empires<sup>11</sup> bearing symmetric costs functions. These empires are hierarchical structures and despite their potential differences in terms of governance, they all have the capacity to guarantee physical and legal protection of their territories. Second, the protection market is characterized by the confrontation of a demand and a supply that determines the territorial size of an empire – which corresponds to its population. In other words, there is a strict equivalence between the population and the size of an empire. Finally, we assume that protection is a homogenous good<sup>12</sup> and is indivisible in the sense that one cannot be partially protected: one is either protected or not.

### 3.1. The sellers' protection market

It corresponds to a protection market dominated by two AR-maximizing empires competing by threats.

**'Demand' for protection.** Due to the absence or low exit power and non-redeployable assets, subjects are considered to be immobile. When the protection market is a sellers' one, a subject who 'buys' protection is not just a consumer, because she cannot easily change her supplier of

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<sup>11</sup> Following Bueno de Mesquita and Lalman (1988, p. 14), we believe that “the international system is itself the aggregate manifestation of individual actions based on individual incentives.” However, in this paper, dyadic relationships cannot be distinguished from systemic ones, since the emerging international system is analyzed within a bipolar context.

<sup>12</sup> Lane (1973, 1975) and North and Thomas (1973) assumed that there is a *homogenous* public good called 'protection,' the suppliers of which are called 'governments.' Ames and Rapp (1977, pp. 166-167) rejected this assumption and argued that protection has a *heterogeneous* nature: although protection is always against a threat, two types of threat and protection must be differentiated: “a threat by foreigners creates a demand for *defense*; a threat by one group of the population against another creates a demand *for justice*” (ibid., p. 167). Our model builds on the work done by Lane, North, and Thomas, because we are not focusing on the distinction between internal and external threats. During the process of empire-building, the distinction between internal/external is still blurred that is why we understand protection as a homogenous good.



protection. She owes ‘allegiance’ to the empire protecting her. Following Skaperdas (2003), *price competition* is not conceivable on this kind of market. Size of empires is a result of competition through threats and violence between the two contestants that we call *coercive rivalry*. This competition mode could be seen as a rational conflict<sup>13</sup> (Boulding 1962; Schelling 1963). As they cannot escape from their providers of protection, each subject is extorted at a maximum level noted  $\bar{t}$ . A sellers’ protection market is characterized by the absence of a real demand function: protection appears here as an involuntary transaction.

**Supply for protection.** This is the classical case explored by the literature: a competition over turf by use of violence in which people are tied to their land by law or/and by force. Switching costs are infinite and subjects are at the mercy of AR-maximizing empires. In a *coercive rivalry*, each AR-maximizing empire chooses the level of coercion maximizing (1) taking into account the existence of its contestant. The whole territory is divided between the two contestants according to their fighting efforts. We use here a Contest Success Function<sup>14</sup> (hereafter CSF),  $p_i(C_1, C_2)$ , determining the share of the population protected by Empire  $i$ . Moreover, we use a general form of CSF respecting the theoretical properties defined by Skaperdas (1996); in particular  $0 < p_i < 1$ ,  $p_i' = \frac{\partial p_i}{\partial C_i} > 0$  and  $\frac{\partial p_i}{\partial C_j} < 0$  with  $\forall i, j = 1, 2, i \neq j$ ; last but not least, when  $C_1 = C_2$  we have  $p_1 = p_2 = \frac{1}{2}$ . Finally, in our framework we

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<sup>13</sup> “Rational conflict refers to *threat power* and can be defined as a bargaining procedure without any real clash or conflict between the parties, which are both partners and adversaries” (Vahabi 2010, p. 690)

<sup>14</sup> For an exhaustive survey of CSFs, see Corchón (2007) and Konrad (2009, chapter two).

consider that a CSF could be interpreted as a sharing rule (Corchón and Dahm 2010). Consequently, on a sellers' protection market, the size of empire  $i$  is:

$$N_i^{cr} = p_i(C_1, C_2)N \quad (3)$$

Where  $N_1^{cr}$  stands for the size of empire 1 in coercive rivalry, and  $p_i$  the CSF determining the share of the population protected by empire 1.

**Equilibrium.** For clarity of our exposition, we use a symmetrical Cournot-Nash competition in which the equilibrium is characterized by the same level of coercion used by the two contestants. Consequently, the two empires equally divide the protection market  $N_1^{cr} = N_2^{cr} = \frac{N}{2}$ , and the level of coercion established by each empire is  $C_i = \frac{\bar{t}}{4}, \forall i = 1, 2$ .

### 3.2. The buyers' protection market

The protection market is here dominated by the demand-side that can freely choose its provider of protection. Indeed, subjects detain a high degree of exit power due to the existence of assets easily redeployable and influence the expansion policy of empires.

**Demand for protection.** The demand for protection expresses the population's need to be protected from any aggression, and to establish a higher authority capable of enforcing property rights. The hypothesis of mobile subjects brings us to explore empire-building through the prism of voluntary transactions: there is a *price competition* on the protection market. This is quite close to the "Economic Competition for Subjects" defined by Grossman

and Mendoza (2001b, p. 27): “Each person wants to be a subject of the ruler who offers the highest income to his subjects” (in our framework, highest income stands for the lowest price of protection).

**Supply for protection.** In this form of protection market, competition is carried out through prices: DR-maximizing Empire offering the lowest price attracts the larger part of the market leading to a price war. Concerning the costs of protection, one point should be raised here: DR-maximizing empires do not coerce their subjects resulting in the absence of resources devoted to coercion ( $C_1 = C_2 = 0$ ). Consequently, costs of governance are equal to the safeguard costs:  $G(S(N_i), C_i) = S(N_i), \forall i = 1, 2$ .

**Equilibrium.** According to the expression of the equation (2), we deduce that the best response is to systematically undercut the price proposed by the competing empire. However there is a lower bound price that cannot be reduced unless the empire becomes economically impoverished: the one annulling the absolute protection rent. The Nash equilibrium entails  $p_i^{pc} = \{p_i | AR_i(N_i^{pc}) = 0\}, \forall i = 1, 2$ ; where  $N_i^{pc}$  represents the size of Empire  $i$  if there is a price competition on the protection market. In other words, under price competition, equilibrium price equals average cost of protection for each empire. In this framework, we assume that territorial expansion cannot be infinite due to organizational difficulties (partly when the empire is composed of heterogeneous cultural groups) as well as protection problems (because borders are strategic elements that should also be defended against external aggressions). Consequently, there exists a threshold  $\tilde{N} \in [0, N]$  at which the average

safeguard costs become an increasing function. Due to the assumption of symmetrical costs functions,  $\forall i = 1, 2$  equilibrium sizes are given by:

$$N_i^{pc} = \begin{cases} \tilde{N}, & \text{if } \tilde{N} \leq \frac{N}{2} \\ \frac{N}{2}, & \text{else} \end{cases} \quad (4)$$

### 3.3. The hybrid protection market

The situation in a hybrid protection market is more complex. Indeed, the demand is segmented giving rise to a dual protection market in which it exists a *mixed competition*: both price competition and coercive rivalry could coexist.

**Demand for protection.** In this setting the demand for protection is heterogeneous and composed of portion  $\lambda$  of mobile subjects,  $(1 - \lambda)$  being the share of immobile subjects,  $0 \leq \lambda \leq 1$ . Throughout the rest of this section, we consider  $\lambda N$  as the number of merchants detaining perfectly redeployable assets, and  $(1 - \lambda)N$  the number of peasants completely attached to their land.<sup>15</sup>

**Supply for protection.** We consider the coexistence of one AR-maximizing empire ('Empire 1') and one DR-maximizing empire ('Empire 2'). Empire 1 never competes over price (i.e. it does not attempt to attract mobile subjects) because this would lead to a price war and the disappearance of the AR as in a buyers' protection market. Consequently, the demand for

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<sup>15</sup> We can also interpret  $\lambda$  as a kind of indicator of asset redeployability detained by each buyer of protection.

protection addressed to Empire 1 is  $N_1 = p_1(C_1, C_2)(1 - \lambda)N$  and its price of protection is still  $\bar{t}$ . Empire 2 has a monopoly on the mobile subjects, but is also able to use coercive way to protect immobile people. The DR-maximizing Empire faces the following demand:  $N_2 = p_2(C_1, C_2)(1 - \lambda)N + \lambda N$ .

**Equilibrium.** As discussed in 3.1., Empire 1 chooses the level of resources devoted to coercion such that its AR is maximized, considering the level of coercion of Empire 2. Computing the first derivative and rearranging the equation, we deduce that the best response corresponds to the amount of  $C_1$  ensuring

$$\frac{d AR_1}{d N_1} = \frac{1}{(1 - \lambda)N p_1'} \quad (5)$$

The left hand side (LHS) of equation (5) stands for the marginal absolute rent extracted from the territorial expansion. The right hand side (RHS) illustrates the fact that the technology of conflict plays a key role in determining the amount of resources devoted to coercion. The more the CSF is sensitive to the fighting effort the more Empire 1 is induced to ‘fight hard’. Regarding Empire 2, it offers a price of protection in order to maximize its DR (the one minimizing its average cost of protection). However, on a hybrid protection market, it can also devote resources to coercion ( $C_2 > 0$ ). For a given level of  $C_1$ , the best response of Empire 2 is to devote an amount  $C_2$  of resources to coercion such as:

$$\frac{d t_2}{d C_2} = \frac{1 - \lambda}{(1 - \lambda)p_2(C_1, C_2) + \lambda} (\bar{t} - t_2)p_2'$$

Levels of coercion established by each empire ( $C_1^{mc}$  and  $C_2^{mc}$ ) are determined by the reaction functions intersection<sup>16</sup>. For the purpose of simplicity, we consider here that there are no expansion constraints ( $\forall N_1, \bar{t}N_1 > G(S(N_1), C_1)$  and  $\tilde{N} \geq N$ ). The size of empires on a hybrid protection market with mixed competition are:  $N_1^{mc} = p_1(C_1^{mc}, C_2^{mc})(1 - \lambda)N$  and  $N_2^{mc} = p_2(C_1^{mc}, C_2^{mc})(1 - \lambda)N + \lambda N$ .

Obviously, we notice that when  $\lambda = 0$ , the AR-maximizing Empire dominates the DR-maximizing Empire. Symmetrically, an AR-maximizing empire cannot exist on the hybrid protection market if it is only composed of subjects detaining perfectly redeployable assets ( $\lambda = 1$ ). Therefore, in the two polar cases of the hybrid protection market, we find respectively the sellers' protection market (3.1.) and the buyers' protection market (3.2).

## 4. Conclusion and extensions

In this paper we propose to analyze empire-building through the economic concept of protection market. In particular, we shed light on the key role played by the assets structure on the protection market. Indeed, the level of asset redeployability determines the degree of exit power detained by subjects protected by the empire which allows them to influence territorial expansion. An individual having the ability to escape from its provider of protection tries to maximize her economic advantage. Consequently, we identify two different paths in empire-building. First, an empire can be built on the basis of the allegiance of entrapped subjects

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<sup>16</sup> In particular, the Empire 2 does not use coercive ways to extend its territory as long as  $\frac{dDR_2}{dC_2} < 0$  when  $C_2 = 0$ , that is if

$\frac{dt_2}{dC_2} > \frac{1-\lambda}{\lambda}(\bar{t} - t_2)\frac{dp_2}{dC_2}$ . This implies that if the increase in price of protection related to the cost of coercion is superior to the threshold defined by the RHS, then  $C_2 = 0$ , leaving to the Empire 1 the monopoly of violence.

attached to their land. Such an empire can expand its territory as long as the tribute extracted from fettered subjects is positive. This is the ‘AR-maximization’ strategy. Second, in the presence of mobile subjects, an empire might attract subjects by maximizing the DR. In compliance with historical evidence, we analyze two principal modes of competition: price competition and coercive rivalry. Our framework fills a gap because traditional conflict models systematically focus on situations in which different powerful magnates are involved in warfare against each other. Consequently, they dismiss the distinction between absolute and differential protection rents and elude the existence of the price competition on the protection market. Therefore, there is a glaring gap that does not incorporate the logic of territorial expansion by merchant empires. For example, conflict models do not provide a theoretical explanation for the frontiers of Venetian empire ruled by the Council of Doges. Considering three kinds of protection market, we offer in this paper a more complete explanation of the expansion rationale of empires (including merchant empires).

In addition, we believe that the framework presented in this paper is consistent with historical evolution. The transition from feudalism to capitalism is marked by the demise of landed property and the ascendancy of merchant, financial and industrial capital (the domination of what we call ‘DR-maximizing empires’). This implies a decline in the importance of immobile wealth and a growing share for the most mobile factor of production, namely the capital. In this sense, there is a link between assets redeployability (asset mobility) and the development of capitalism. Accordingly, the revenue of the ‘fiscal’ states will positively depend on the tax exacted over mobile assets with the ever-increasing role of capitalism in production and distribution. Since capitalism involves more redeployable assets

(high  $\lambda$ ), the modern empires should behave more and more as DR-maximizing empires to attract mobile assets ( $N_2^{mc}$  become larger). Consequently, the hybrid protection market depicted in this paper seems particularly relevant regarding historical evidence. Historically speaking, the economic significance of violence changes in accordance with the transition from a sellers' to a buyers' protection market due to the development of capitalism. While 'violence' is the source of tribute under an authoritarian regime, in democracy it is only a means to protect the property rights of buyers of protection. This is principally due to the fact that on this kind of protection market, *profit-making* (capturing larger share of markets by offering lower prices for local merchants) is more advantageous than rent-seeking, i.e. conquering territory by using coercive means.

Last but not least, one could find an analogy with the democratic peace theory exposing that empirically, "democracies rarely go to war or engage in militarized disputes with one another" (Rosato, 2003). Without pretending that our model exactly fits with this theory, we notice some similarities. Indeed, *democratic-type regime* could be seen as a political system in which violence is used with respect to the freedom of people as 'citizens' instead of 'subjects' of the rulers<sup>17</sup>. In our framework, democracy is close to the DR-maximizing empire. Symmetrically, concerning the way of using coercion, an *authoritarian-type regime* is closer to the AR-maximizing empire depicted in subsection (2.2). Our framework, and more precisely our buyers' protection market clearly confirm "the near-absence of war between democratic states" (Levy and Thompson 2010, p. 55). In fact, when

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<sup>17</sup> This view is consistent with the Dahl's "procedural minimum" definition of democracy (Dahl 1971) that stresses upon the presence of a certain number of *conditions* in terms of "liberties", "freedom", human rights, or the Freedom House scales.



the two contending empires follow a strategy of maximizing differential rents, no resource is devoted to coercion. Consequently no war<sup>18</sup> breaks out between ‘democracies’: it would be too expensive and would go against the best interests of citizens.

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<sup>18</sup>We adopt here a definition of peace close to the Skaperdas’ “full cooperation” (1992) or to the “communal equilibrium” depicted by Neary (1997): peace is insured by the fact that the fighting effort of each contestant is null ( $C_i = 0, \forall i = 1,2$ ).

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**Table 1: The nature of the protection market**

<b>Assets structure</b>	<b>Degree of exit power</b>	<b>Nature of the protection market</b>
Perfectly redeployable assets	High	Buyers' protection market
Partly redeployable assets	Medium	Hybrid protection market
Non-redeployable assets	Low or nil	Sellers' protection market