Measuring the Military Decline of the Western Islamic World: Evidence from Barbary Ransoms

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Abstract

This paper uses data on more than 4000 captives ransomed from the Barbary corsairs to track the military power of the Ottoman Empire’s most powerful North African regency over time. Results suggest that as the seventeenth century advanced, Algerian-based corsairs found it increasingly difficult to capture “hard” targets. These results do not appear to be driven by changes in ransoming preferences or by other unobserved factors and provide insights into both the timing and reasons behind the military decline of the Western Islamic World.

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For generations, scholars have argued that between the sixteenth and eighteenth centuries the Western Islamic World fell decisively behind Western Europe (e.g. Hess, 1972; Lewis, 1982; Inalcik, 1994). These “decline” narratives often highlight the defeats of the armies and navies of the Western Islamic World, implying that the relative military decline also reflected an increasing gap in the levels of economic and technological development between Western Europe and the Islamic West. In many ways, recent research has supported this assumption by suggesting that military technology was less likely to be blocked by elites than other technological advances (e.g. Pamuk, 2004). Consequently, the relative military position of the Western Islamic World may actually be a conservative proxy for its relative level of technological and socioeconomic development.

Existing scholarship has generally focused on the military standing of the Ottoman Empire, which is generally thought to have ruled -either directly or indirectly- much of the Western Islamic World during the putative period of relative decline. For example, Bernard Lewis notes that during this period the Ottomans found it “more and more difficult to keep up with the rapidly advancing Western technological innovations” and in the eighteenth century “fell decisively behind Europe in virtually all the arts of war.” Interestingly, he suggests that this decline can be seen “most clearly in the contrast between the Muslim and European fleets” and claims that “Ottoman and North African naval construction failed to keep pace with the major developments that took place in Europe in the seventeenth and eighteenth centuries” (Lewis, 1982, p. 226).

Other authors have suggested different dates for the start of this decline. Traditionally many historians have viewed the Ottoman defeat at the battle of Lepanto in 1571 CE (e.g. Hess, 1972, p. 53) as the start of the Empire’s decline, but more recent research has tended to suggest a significantly later date. For example, Murphey (1999, p. 105) critically notes that there is a “persistent view that Ottoman deficiencies in the development and use of weaponry influenced their ability, especially in the second half of the seventeenth century, to confront the West successfully” and argues that any technological divergence did not actually occur until the mid-eighteenth century (Murphey, 1999, p. 108). Grant (1999) argues that the exact timing of the Ottoman decline depends on which state one compares the Ottomans to. He argues that the Ottomans were able to maintain military parity with the Russians and Venetians, successfully adopting military innovations coming from Europe from the fifteenth

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1 For the remainder of the paper the term Western Islamic World will refer to both the Ottoman Empire and its North African Regencies. See below for a discussion of the increasing autonomy of Ottoman North Africa over time.

2 Henceforth, I will use decline as shorthand for relative decline. It is worth noting, however, that there is a consensus that both the military power of the Ottomans and the Western Europeans were increasing over time and that the relative decline was driven by a greater rate of increase in this power among European states.
to the eighteenth centuries. Agoston (2005, p. 54) suggests that throughout the seventeenth century the Ottomans remained a “capable and formidable naval power” when compared to the Venetians and Spanish.

This paper provides new evidence regarding the timing of the naval decline of the Western Islamic World by tracking the fortunes of Algerian-based corsairs in what has been called the “little war of piracy” during the sixteenth and seventeenth centuries (Friedman, 1983, p. xviii). Using a data set on over 4000 captives ransomed by Spanish clerics from the Ottoman Regency of Algiers between 1575 and 1692, I develop three metrics to proxy for the relative military power of the Regency, which emerged as a major center of corsairing activity in the sixteenth century. These include the proportion of ransomed captives caught fishing, those caught on land and those captured in the Atlantic. The evolution of these metrics supports the hypothesis of a decline in the relative power of the Algerian-based corsairs during the seventeenth century. For example, the proportion of ransomed captives captured while fishing jumps toward the end of the seventeenth century. Since fisherman presented easier, but less valuable targets than other categories, this trend implies a shift towards less militarily ambitious raids. I also show that both the proportion of captives captured on land and the proportion captured in the Atlantic decline as the seventeenth century advances. Although there is some variation across metrics, all three metrics suggest that the regency was less militarily powerful after 1675 than at the start of the seventeenth century.

Do these changes in the characteristics of the ransomed population denote a decline in the military power of the corsairs? Perhaps the most worrying alternative explanation is that the results reflect a change in ransoming preferences or procedures as the seventeenth century wore on. I show, however, that the available data are not consistent with this possibility.

When taken in unison, the results provide the first systematic quantitative evidence that the Barbary corsairs had begun to lose naval power by the end of the seventeenth century. Given evidence that the corsairs were more technologically advanced in the naval arena than other areas of the Ottoman Empire during this period (e.g., Soucek, 2004, p. 256), this may provide a conservative estimate of the start of the decline in the Empire’s naval fortunes.

Interestingly, this timing coincides with what one military historian has called the Ottoman Empire’s first “significant military failures” (Agoston, 2005, p. 201) suggesting that the start of the decline of the corsairs coincided with that of the rest of the Empire. In this sense, the results complement the large literature dating the start of the Ottoman decline between the sixteenth and eighteenth centuries and contribute to the naval and military history of the Ottoman Empire more generally.³

What drove the military decline of the Barbary corsairs? One line of the literature at-

³For prominent contributions to this literature see Murphey (1999) and Agoston (2005).
tributes the ultimate decline of the corsairs to differences in technological dynamism between Europe and North Africa. This literature notes that while European and Algerian fleets were evenly matched through the first half of the seventeenth century (Panzac, 2005, pp. 27, 28), European technological advances such as the improvement of artillery in the second-half of the seventeenth century (Greene, 2002) left the Algerians increasingly behind (Panzac, 2005, p. 32).

Another line of research attributes the decline of the corsairs to institutional differences between Europe and North Africa (e.g. Hess, 1978, pp. 208-209). This alternative view notes that from the start the Barbary corsairs were heavily dependent on technological transfers from European “renegades”, suggests that the supply of technology from such individuals remained roughly constant over the seventeenth century and concludes that technological advances are insufficient to explain the decline of the corsairs.4

One strand of this literature on institutional divergence stresses the importance of increases in European state capacity that occurred during the period covered by the data.5 Thus, when speaking of the Ottoman Empire in general, Agoston (2005, p. 202) notes that it “was not better guns that ultimately gave the advantage to the Europeans, but better drill, command and control, and bureaucratic administration.”

Another strand of the institutional divergence literature stresses the importance of institutions that hampered commercial development in the Islamic world (e.g. Kuran, 2011). This view suggests that the region’s stagnant commercial sector can help explain why the Algerians increasingly struggled to compete with Europe.

Although I am unable to distinguish empirically between these channels—and it is possible that they all were at play simultaneously— the data do support the claim that the corsairs successfully imported naval technology in the early seventeenth century. For example, the data show a surge in Atlantic piracy during this period which is consistent with historical accounts that Dutch and English renegades brought important naval advances to the Barbary states during this period. In addition, while data limitations make it impossible to precisely measure knowledge flows from Europe to North Africa over the period covered by the data, qualitative evidence suggests that renegades continued to transfer technology to Algiers through the end of the period covered by the data (e.g. Hunter, 1999, p. 10).

My reading of the available evidence stresses the ultimate importance of institutional factors in explaining the military divergence after 1675. In other words, what seems to have changed over the course of the seventeenth century was the Algerian’s ability to successfully

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4Renegades were “men who had left their native lands to escape punishment of poverty, or simply to seek greater opportunity, and who had converted to Islam” (Hunter, 1999, p. 9).
5For a recent study documenting the divergence in state capacity between Europe and the Ottoman Empire see Karaman and Pamuk (2013).
adopt European changes in military technology and organization, not the supply of technical knowledge coming from Europe. Thus, I hypothesize that as European technology and organizational forms became more complex, the institutional framework of the Western Islamic world made it increasingly difficult to replicate these advances.

Finally, the paper adds to the large historical literature on the economic, social and military history of the Barbary corsairs and their captives (e.g. Wolf, 1979; Friedman, 1983; Bono, 1998; Davis, 2003; Martínez Torres, 2004; Panzac, 2005; Maziane, 2007; Weiss, 2011).

The remainder of the paper proceeds as follows: the first section provides a brief historical background; the second section explains the data construction and provides summary statistics and correlations; the third section documents the trends in the data; the fourth section provides a discussion and a final section concludes.

1 The Rise and Fall of the Corsairs: Historical Overview

The rise of the Ottoman Regency of Algiers is directly linked to the maritime expansion of the Ottoman Empire.\(^6\) As the Empire sought to increase its naval capabilities at the end of the fifteenth century, it recruited corsairs who “quickly raised the technical competence of the Ottoman navy” (Hess, 1970, p. 1905). Just as the Ottomans had turned to corsairs to address the earlier Venetian threat, they turned to Levantine corsairs for aid in their conflict with the Habsburg Empire in the first decades of the sixteenth century. Khair al-Din or “Redbeard” is perhaps the most famous of these corsairs. He established himself as ruler of Algiers in 1516 and eventually received Ottoman military aid in his struggle against the Spanish. These corsairs soon became “the main agents with which the Ottomans attacked the Habsburgs in the western Mediterranean” (Gürkan, 2010, p. 127) and included European Christian renegades as well as Muslims from the Levant.

Although the Regency of Algiers always maintained a significant degree of autonomy from Istanbul, the corsairs routinely fought as auxiliaries alongside the Ottoman Navy through the start of the nineteenth century (Panzac, 2009, p. 88). In addition, during the period covered by the data used in this paper, there are many examples of the Ottoman Grand Admiral (kapudan pasha) being drawn from the ranks of the Algerian corsairs. This is a reflection of the “crucial” role the corsairs played in the Ottoman navy during this period (Panzac, 2009, p. 88). This central role is thought to have derived from the superior technological capabilities of the Algerian fleet, which enhanced the quality of the Ottoman navy up until it abandoned its Mediterranean policy in the early 1580s (Gürkan, 2010, pp. 139, 163).

Prior to this disengagement, the Ottomans achieved mastery of the Eastern Mediterranean and under the command of Khair al-Din, the Ottoman threat spread to the Western Mediterranean. Following the battle of Prevesa—in which the Ottoman Navy defeated the combined forces of Spain, Venice, Genoa, the Papal States and the Knights of Malta in 1538—the Ottomans dominated the Mediterranean until the battle of Lepanto in 1571 (Parry, 1976a, p. 89). After repelling a Spanish invasion of Algiers in 1541, Khair al-Din captured Nice in 1543 and the Ottoman fleet destroyed a Christian fleet at Djerba in 1560 (Parry, 1976a, p. 101). Following failures at Malta and Lepanto, the 1574 Ottoman conquest of Tunis marked the effective end of major hostilities in the Mediterranean between the Ottomans and the Spanish (Parry, 1976b, p. 110).

The Ottoman naval disengagement in the following years is thought to have given way to a surge in the activities of the Algerian corsairs. Thus, Braudel (1995, p. 865) attributed the surge in piracy in the Mediterranean after 1574 to this event, noting that “the end of conflict between the great states brought to the forefront of the sea’s history that secondary form of war, piracy.” During the first half of the seventeenth century, the Algerian corsairs pulled further ahead of the core Ottoman regions in the realm of naval technology. This divergence is thought to have been crucially aided by the influx of Dutch and English pirates into the Regency following Spain’s peace agreements with England and the Netherlands in the first decade of the seventeenth century (Lewis, 1982, p. 226). Given that during this period many Algerian corsairs had previously served “in professional armies for France, England, or the United Netherlands before renouncing their religion” (Baepler, 2004, p. 225) it is perhaps not surprising that the corsairs were able to compete on roughly equal terms with the English and Dutch (Panzac, 2005, pp. 27, 28).

These decades witnessed the height of the corsairs’ power (Clark, 1944, p. 28) and the Algerians are believed to have possessed the Islamic world’s most advanced fleet through the end of the seventeenth century. Indeed, the Algerians provided “the Ottomans with an invaluable reservoir of naval experts” during this period (Agoston, 2005, pp. 55).

Despite this success, after around 1650, many scholars believe that the military power of the corsairs began to wane when compared to that of Western European powers. Historians often illustrate this process by listing European attacks on the Algerian fleet. For example, in 1671 the British sank the best ships of the Algerian navy, in 1673 the Dutch sank 18 corsair vessels (Friedman, 1983, p. 29) and in the 1680s the French bombarded Algiers three times (Greene, 2002, p. 64). These military actions forced Algiers to sign treaties for the first time which protected the commerce of these states against corsair attacks.7 By the end of the seventeenth century, the Algerian corsairs are thought to have depended increasingly

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7 No such treaties were signed with the Spanish during the period covered by the data.
on the capture of “soft” targets such as small fishing vessels (Wolf, 1979, p. 294) and reports from Algiers “told of many fewer slaves in the city” (Davis, 2001, p. 106). This decline in the military position of the corsairs may have also been reflected in the political structure of the Regency (Clark, 1944, p. 29).

1.1 Capture, Slavery and Ransom in the Ottoman Regency of Algiers

The surviving ransoming records (described in detail below) demonstrate both the wide geographic reach of the corsairs as well as the variety of circumstances in which the corsairs captured individuals. In their heyday, the corsairs took captives both on land and at sea, covering a vast geographic area stretching from the coasts of the Mediterranean into the Atlantic.

Many were captured on land. For example, Hernando Navarro was taken on land while “tending to livestock” five leagues from the city of Lorca on the 22nd of March of 1583 (l119, f. 88r) whereas María de Saagun was captured on the 15th of July of 1578 while washing clothes (l119, f. 105).

Others were captured going from mainland Spain to its colonial possessions and African presidios. Such was the case of Francisco de Tenza from Cartagena who was captured on the carrera de indias or the route uniting mainland Spain to its American colonial possessions (mss3593, f. 109) as well as Francisco Blanco who was captured heading to the African presidio of Oran in 1665 (mss3593, f. 125r).

The surviving records suggest that the corsairs often struck when least expected. They caught Catalina Mejía of Ibiza while she slept (mss4394, f. 61). Similarly, Joan Nuñez of Motril was captured while sleeping in a cart (mss3597, f. 29r) and Gaspar Toscano of Huelva was caught asleep in his boat (mss3597, f. 49r).

After capture, individuals were usually brought to Algiers, which had one of the busiest slave markets in the Islamic world. In general, slaves were divided at the time of sale into two groups. The first group were those whom the Algerians believed would be ransomed. These captives were usually spared the most onerous tasks as their owners were anxious to preserve their ransom value (Friedman, 1983, pp. 55, 71). Those who were not believed ransomable were often assigned brutal work such as transporting rocks or rowing in corsair galleys. When not working, government-owned captives were housed in government prisons, while
privately-owned slaves were kept in government prisons (for a price paid by the slave-owner), in smaller in-house prisons or in larger prisons funded by various slave owners (Friedman, 1983, pp. 59, 60).

Once the news of an individual’s capture had reached home, the local community had various means to raise ransom funds. For the most part, the burden of raising funds for an individual’s ransom lay with family members in Spain. To raise the necessary funds, family members could sell property, take out loans or use the dowries of unwed daughters. Those unable to raise the necessary funds in this manner could beg or petition the government for aid. In the Spanish Empire, after funds had been raised, they were generally given to one of the religious orders of the Catholic church who negotiated the ransom price in Algiers on behalf of the family.

In addition to these “earmarked funds,” sent by family members, the Catholic ransoming missions gathered funds from alms and donations by the crown and wealthy individuals. Although the ransoming mission had more discretion with these general funds (all earmarked funds had to be returned if the earmarked captive could not be ransomed), they were often restricted to ransom a specific type of captive such as women, children or soldiers.

When the religious order had raised sufficient funds in Spain, it had to obtain a safe conduct from the Regency and hire a boat to transport both the ransoming team and the funds to Algiers. After arriving in Algiers, port officials greeted the Spanish and subsequently demanded an import tax on the ransoming funds (Friedman, 1983, pp. 129-132). This tax varied over time, but in 1675 it was 5% of all funds (ms 2974, ff. 36r) whereas it was 10.5% in 1642 (l133, f. 21). The ransoming funds were kept in a room that was guarded by a soldier provided by the Algerians throughout the negotiations (Friedman, 1983, p. 132).

After meeting the relevant officials and presenting them with gifts (ms 2974, ff. 3-4) the redemption team retired to the quarters that were provided for the duration of their stay. In the following days, the redemption team attempted to visit all the captives without disclosing the identities of those they most wanted to ransom (ms 2974, f. 4). When meeting with captives, the redemptors asked captives for “their home towns, names and the names of their parents” in addition to the conditions of their capture. This information had been gathered in Spain to provide the redemption team information they could use to identify captives who were to be ransomed from others who tried to pose as more valuable individuals (ms 2974, f. 4r).

After taking a few days to survey the population of all ransomable Spanish captives, the redemption team identified all the captives to be ransomed. In general, ransoming missions to Algiers concentrated on freeing two groups of individuals. The first group included captives

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10For an overview of such safe conducts in Islamic law see Khadduri (1955, pp. 162-169).
of a certain type such as women, children, soldiers, clerics, nobles and others in danger of converting to Islam. The exact identity of the captives did not matter inasmuch as s/he belonged to one of these groups. The second group contained the group of captives for whom family and friends had donated money. Here, the exact identity of the captives was extremely important since the ransoming missions were required to use these funds to ransom the individual for whom they had been earmarked.

In the ensuing negotiations, the redemption team seems to have carefully guarded the identity of the captives they most wanted to ransom. Thus, the redemption team was instructed to be careful that the translator (provided by the Algerians) not hear their private conversations (mss 2974, f. 6). In addition, they seem to have delayed ransoming captives to obtain lower prices as surviving instructions admonish the redemption team to delay as the Algerians will “hurry to lower the prices” (mss 2974, f. 5) and reminded the negotiators that “there is much difference between begging and being begged” (mss 2974, f. 6). Once a ransom agreement was reached, the redemption team gave a receipt signed by the entire team. When the redemption ended, the slave owner gave the redemption team the receipt and the captive was exchanged for the amount of money on the receipt (mss 2974, ff. 6, 6r). After an exit tax had been paid for each captive, those ransomed boarded the ship and returned to Spain. In a companion paper, Ambrus et al. (2015) provide a detailed empirical analysis of the determinants of ransom payments.

2 Data Construction and Summary Statistics

2.1 Data Construction

The measures of the corsairs’ military power are derived from the surviving records of 22 ransoming expeditions performed by Catholic religious orders to Algiers that occurred in the sixteenth and seventeenth centuries. I have found records of 4680 ransomed individuals. A royally appointed scribe kept these records which could be used to audit the expedition. Historians have generally stressed both their quality and meticulous detail (e.g. Friedman, 1983, p. 107).

Table 1 provides the number of captives ransomed in each of the 22 ransoming expeditions used in this paper. The first column provides the year(s) spanned by the ransoming trip and the second column gives the archival reference for the notarial record. The third column provides the number of captives for whom a full ransom was paid, whereas the fourth column provides the number of those for whom only the exit tax was paid or the ransom price was
zero or missing. For the remainder of the paper the baseline sample will contain only captives for whom full ransoms were paid (i.e. I will omit those with zero or missing prices and those for whom only the exit tax was paid).

The ransom record of Antonio Martínez provides one example that helps illustrate how I constructed the data set. The entry reads “Antonio Martínez was rescued, he was from Ayamonte, son of Juan Martínez and Isabel Fernández. He is thirty years old and has been in captivity for 10 years. He was captured fishing and is the slave of Achi Truchiman a French renegade. His ransom cost 258 pesos with the exit tax included” (l147, f. 57r).

Using this record, I construct a data entry for this captive as follows. His home is set to Ayamonte, his profession to fisherman, his age to 30 years, his time in captivity is set to 10 years, his year of capture to 1682, his age at capture to 20, he is classified as male, with no earmarked funds, not a child and as being captured at sea. The latitude and longitude of his capture are imputed to be at his home of Ayamonte (37.214124, -7.404341; all latitudes and longitudes are drawn from http://www.latlong.net) and his ransom price to 2064 reales.

The ransom record of Juan Domínguez provides another example. This entry reads “Juan Domínguez, from Asnarcacar in the Archbishopric of Seville, tall with a nice face, son of Juan Monte and Leonor Alonso. He was captured in October of 1616 coming from America in the company of Captain Sancho de Ordanivia next to the cape of Saint Vincent. He was the...

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11The exit tax was a fixed sum that had to be paid before a captive was allowed to leave Algiers. Thus, captives who had paid their own ransoms or who had been set free had to pay this tax before they could leave Algiers.

12Results are qualitatively similar, however, if these captives are included.

13Although the majority of ransom prices were given in silver reales or pesos, more rarely ducados, Algerian doblas, escudos, maravedies and billon prices appear. I have converted all ransom prices to reales and to do this have used the implied conversion in the ransom records when these were available. For example, the ransom record of Fernando Corzo (l122, f. 132r) notes: “his ransom cost 100 escudos which make 420 doblas of Algiers at the rate of 4.2 doblas per escudo [...] the 420 doblas] are worth 40000 maravedies” this implies that 420 doblas are worth approximately 1176 reales or each dobla is worth 2.8 reales. When these conversions were not available, I have used the following conventions: 1 peso=8 reales, 1 ducado=375 maravedies, 1 real=34 maravedies, 1 gold coin=8 silver coins, 1 billon real=0.5 silver reales (see Cayón et al. (2005, pp. 401-402) and Lea (1906, pp. 560-561)). It should be stressed that for the vast majority of captives no conversions were necessary and even when these were necessary most conversions were drawn from the ransom books. Thus, measurement error due to these conversions is probably not a major concern.

14To generate the year of capture, I subtract the time in captivity from the year in which an individual was ransomed.

15In general, I assign individuals who are caught fishing or on land to their home unless there is other information in the ransom records or the imputed land location seems implausible.

16Note that I do not remove the exit tax from the ransom price. Although there is variation across archival records in the extent to which this tax is included in the individual ransom records, I prefer to take the ransom price as given (particularly given that at times the extent to which the tax is included is ambiguous). Fortunately, within each trip’s record the scribe seems to have consistently either omitted or included the exit tax.
slave of Cide Maymon moor of Algiers. His ransom cost 1816 reales” (1125, f. 34).

Using this record, I construct a data entry for this captive as follows. His home is set to Aznalcázar, his profession to carrera, his age is missing, his time in captivity is set to 2 years, his year of capture to 1616, his age at capture is missing, he is classified as male, with no earmarked funds, not a child and as being captured at sea. The latitude and longitude of his capture are set to those of the cape of Saint Vincent (37.023035, -8.996478) and his ransom price to 1816 reales.

The online appendix of Ambrus et al. (2015) provides summary statistics and a discussion of the data construction. Here, I reproduce some of this information and discussion in addition to adding some information that is relevant for this paper and is not provided in Ambrus et al. (2015).

In table 2, I provide summary statistics. Panel A provides general summary statistics. The mean price (or more precisely the exponential of the mean of the log price) is just under 1636 silver reales and the mean of earmarked funds (conditional on being earmarked) is just over 992 silver reales. Throughout, I do not attempt to deflate ransom prices or the amount of earmarked money as any such exercise is likely to be imprecise given that the price level is thought to have been sharply increasing for much of the sample (Hamilton, 1934, 1969).

The general summary statistics show that the average age at capture was just over 29 years and the average time in captivity was roughly six years. Women and children were approximately 10% of those ransomed.\textsuperscript{17} Panel B provides summary statistics regarding the “profession” of each captive.

Although the professions are drawn from the ransom entries and are likely generally accurate when the relevant information is provided, these professional categories are surely measured with error. In addition to the fact that I could not identify a profession for roughly half of the sample, in some cases a captive could be classified as belonging to two separate categories (such would be the case, for example, of clerics heading to or coming from the Americas). Although such conflicts do not arise frequently, in such cases I have picked one category and when doing this I have sought to choose the category which best corresponds to the captive.\textsuperscript{18} All classifications have been documented and are available (along with the

\textsuperscript{17}Children are defined as all individuals who are less than twelve. Females are those who have the first names: Ageda, Agueda, Agustina, Alberta, Aldonza, Ana, Angela, Antonia, Antonia, Beatriz, Bernarda, Catalina, Caterina, Catalina, Catalina, Clara, Constanza, Cornelia, Cristina, Damiana, Dominga, Elena, Elvira, Esperanza, Feliciaña, Felipa, Francisca, Gerónima, Ginesa, Gregoria, Guida, Inés, Isabel, Jacinta, Joanna, Josepha, Juana, Josepa, Leonarda, Lucia, Lucrecia, Luisa, Madalena, Magdalena, Manuela, Margarita, Maria, Mariana, Marina, Marta, Nicolasa, Paula, Pereta, Petronila, Teresa, Theodora, Thomasa, Thomasina, Vitoria, Yasimina or is otherwise specified as female.

\textsuperscript{18}To be precise, fisherman are those who were caught while fishing and for whom no other information was available. Clerics are those whose first name begin with “Fray” or who are otherwise defined as clerics irrespective of other information. For the remaining entries, I proceeded sequentially. For the remaining
archival reference for each ransom entry) in the replication files for the paper.

The data show that 13% of all captives were caught while fishing, 5% while on their way to or from the Americas, 26% as soldiers or otherwise in the “service of the King”, 3% were clerics, 3% were classified as other and a small fraction were from the nobility.

Panel C provides information on how ransomed individuals were captured. These statistics show that just under 80% of all captives were captured at sea, 11% were captured on land and 7% were captured in military confrontations between the Spanish and North African/Ottoman forces.\textsuperscript{19} The remaining captives were either born in captivity or there is no information regarding the conditions of their capture.

Using the ransom entries, I have identified the exact latitude and longitude of capture for 2109 captives for whom these quantities could be determined or inferred with a reasonable degree of certainty. These locations are provided in figure 1 in addition to the route on which a captive was captured when the exact place of capture is not available but information regarding both the start and finish point of the route on which he was captured is. Larger circles and thicker lines denote more captives in a place/route. Routes are mapped “as the bird flies” for expositional clarity. The concentration of captures on Spain’s Mediterranean coast is obvious, as is the concentration on Mediterranean and Atlantic shipping routes.

For captives for whom I have been able to identify an exact place of capture, I constructed the variable Atlantic which is equal to one if the exact place of capture was to the west of Gibraltar. I also set this variable equal to one if the exact place of capture is missing, but there is information the captive was captured going to or coming from the Americas (i.e. on the \textit{carrera de indias}). Of the 2300 individuals with non-missing values, roughly 41 percent were captured in the Atlantic.

In table 3, I present summary statistics by year of capture in 25 year bins. I combine the pre-1575 captives into one bin given that there are only a few captives who were captured prior to 1550. In panel A, I provide the relevant means, whereas panel B presents the number of captives with non-missing values in each bin. In the first column, I show that the nominal ransom price increases over time. In the second column, I show that the average value of individuals, I assign an individual to the carrera if there was information that he was taken on the \textit{carrera de indias}. From those remaining, I identify soldiers or those in the service of the King. From those remaining I assign an individual to the nobility if there is evidence he was a member of the nobility. From those remaining, I assign an individual to the other category if he is identified as a barbero, carpintero, cirujano, comerciante, comerciante de esclavos, contra maestre, criado, grumete, guardia, herrero, labrador, labadora, mercader or pastor. For the remainder of the individuals I could not identify a profession.

\textsuperscript{19}Military confrontations only include staged battles. In other words, if an individual was captured on a naval ship being transported to another location I count this individual as being captured at sea. An example of such staged battles is the attempt of Muslim forces to retake Spanish enclaves on the North African coast. To be consistent, I classify individuals captured while soldiers at these posts (even if they are captured while out foraging for food) as being captured in military confrontations.
earmarked money seems to follow a similar pattern until roughly 1650. After this date, average earmarked funds decline. Column 3 shows that the age at capture remains roughly constant over the sample period. Column 4 suggests that there is a downward trend in time in captivity that seems to be more pronounced by the end of the sample.

In column 5 I show that the proportion of ransomed captives who were caught fishing increases over time whereas column 6 shows that the proportion captured on land decreases after 1625. In columns 7 and 8, I provide evidence consistent with the historical overview provided in the previous section. First, in column 7, I show that the proportion of ransomed individuals caught in formal “pitched battles” with the Ottomans or other North African forces drops sharply after 1575 which was the year after the last major direct military confrontation between the Ottomans and the Spanish. In column 8, I provide evidence supporting the claim that the corsairs greatly intensified their Atlantic activities at the start of the seventeenth century. Figure 2 supplements this evidence by presenting the location of capture of those ransomed over time in these same 25 year bins for areas in proximity to the Spanish mainland. Again, larger circles and thicker lines denote more captives in a place/route. The shift from the Mediterranean to the Atlantic after roughly 1600 is striking. This timing provides evidence in support of the claim that English and Dutch pirates brought naval technological advances that allowed the corsairs to expand into the Atlantic around this date.

Finally, in table 4, I provide the correlates of ransom prices. In these regressions the natural logarithm of the ransom price is the dependent variable. I report standard errors clustered by the integer of the year of capture.20

It is important to stress that all of these estimates are conditional on being ransomed. Since I always include trip dummies, they are identified off within-trip variation. In column 1, I examine how professions are correlated with ransom prices, where the omitted category is captives for whom I have not been able to identify a profession. The results show that fishermen are 12 log points cheaper, those captured on their way to or from the Americas are 21 log points more expensive, clerics are 68 log points more expensive, soldiers are 6 log points more expensive, a member of the nobility is 178 log points more expensive than the omitted group. Other identified captives cost roughly the same as the omitted group.

In the second column of table 4, I investigate how the circumstances in which a captive was captured correlate with his ransom price. Here, the omitted category includes both captives

20Given that I always include trip fixed effects I am most worried about within-year correlations as many individuals caught in the exact same circumstances were ransomed in different trips. However, I have also experimented with double-clustering by both this dimension and at the trip level (Cameron et al., 2011). A drawback of this approach is that I only have 22 trip clusters and I am not aware of work addressing situations in which there is multi-way clustering and few clusters.
born in captivity and those for whom I was unable to identify how they were captured.
The point estimates suggest that the omitted group was ransomed for significantly less than captives caught at war or at sea.

In the third and fourth columns of table 4, I explore the sign and magnitude of four additional variables without and with the dummy variables used in the previous two columns. These results show that both a captive’s age when captured and time in captivity are negatively correlated with ransom prices, whereas being a female or child are generally positively correlated with the size of the ransom. To a large extent the results are consistent with the historical literature stressing that captives such as those coming to and from the Americas and soldiers were preferred to other captives (e.g. Friedman, 1983, p. 146).

3 Measuring the Military Decline of the Corsairs

3.1 Measuring the Timing of the Decline

While the balance of the existing historiography suggests that the corsairs began a relative military decline at some point in the seventeenth century, there are no systematic empirical investigations of the exact timing of this decline. In this section, I provide the first empirical investigation of the timing of the relative decline of the corsairs using the ransom records explained above.

Figure 3 previews the results graphically. Throughout figure 3, the non-parametric fits were generated using a lowess smoother and a bandwidth of 0.4. The top left-hand graph presents the proportion of ransomed captives who were captured fishing by year of capture whereas the top right-hand graph presents those who were captured in the Atlantic. The bottom left-hand graph presents the proportion caught on land and the bottom right-hand graph presents the sample size by year of capture. As time goes on, the proportion of fishermen increases, the proportion of those captured in the Atlantic first increases and then decreases and the proportion of those captured on land decreases over time.

As these data are conceptually best viewed as a time series, in the regressions in this section I use the year of capture as the unit of observation and take the mean of the relevant variables by year. However, I always present results weighted by the number of individuals captured in each year. The point estimates of these weighted regressions are identical to those obtained running the regression at the captive level (e.g. Angrist and Pischke, 2009, p. 92). Throughout, I provide Newey-West standard errors allowing for autocorrelation up to four lags.

I use the integer of the year of capture for these regressions.
To analyze the evolution of my proxies for the relative military power of the corsairs more formally, I use the six 25-year bins explained above and run a regression of the form:

$$b_{tf} = \gamma + \sum_{f \neq 1600} \beta_f + \epsilon_{tf}$$ (1)

where $b$ denotes the dependent variable of interest for captives captured in year $t$ and in 25-year bin $f$. I omit the interval $[1600, 1625)$ because this is the period that many historians believe marks the peak of the corsair’s military power.

In the ideal world, I would be able to work with a random sample of all individuals captured by the Barbary corsairs. Then the $\hat{\beta}_f$ -which are simply the mean of outcome $b$ in 25 year bin $f$ minus the mean of $b$ in the interval $[1600, 1625)$- would provide a consistent estimate of the population value of $\beta_f$. Unfortunately, the sample of ransomed captives is likely not a random sample of all the captive population. Soldiers, women and children are surely over-represented as are members of the clergy, the nobility and other types of captives that were preferred by the redemption.

Despite this limitation, variation in the circumstance of capture in the ransomed sample is likely to provide insights into the evolution of the relative military power of the corsairs. This is because since the preferences of the ransoming expeditions did not change over time, the ransomed subsample likely represents a snapshot of the most desirable captives that were available in each period.\textsuperscript{22} Thus, a sustained decrease in the average social status of ransomed captives almost surely indicates a similar decrease in the entire captive population since these high status individuals were always given preference.

In column 1 of table 5, I present the $\hat{\beta}_f$ when the dependent variable is the proportion of those ransomed who were captured while fishing.\textsuperscript{23} This is perhaps the best proxy for the relative military position of the corsairs, as captives caught in this manner were the least valuable “profession” group (see above) and were also probably the easiest to capture.\textsuperscript{24} Thus, an increase in the proportion of these captives in the ransomed subsample is likely to be indicative of a decrease in the availability of “hard” targets which could have earned a

\textsuperscript{22}There is some evidence of a change in ransoming procedures after 1700 (e.g. Martínez Torres, 2004, p. 34). For this reason, I omit all ransoming missions after this date.

\textsuperscript{23}Throughout table 5, I only present the coefficients for bins after and including 1625 for ease of exposition.

\textsuperscript{24}One might think that captives’ ransom prices and/or earmarked funds would be a good proxy for their values. I do not use these metrics for two reasons. First, given the large fluctuations in the price level over this period any analysis of the evolution of prices over time is dependent on the exact series used to deflate the prices. Second, I have experimented with using the earmarked funds to measure captive values and find that this metric largely mirrors the others used in this section. However, there are relatively few earmarked captives on the $[1600,1650)$ interval which raises concerns that the survival/recording of the amount of earmarked funds changed over time. For these reasons, I have omitted any discussion of the evolution of prices and earmarked funds.
higher ransom than those caught while fishing. Here the data show that by the end of the
seventeenth century the proportion of ransomed individuals who were captured while fishing
rose to over 20 percent from roughly 13 percent in the omitted interval [1600, 1625).

In column 2, I investigate how the proportion of ransomed individuals captured on land
varies over time. After 1650, there is a statistically significant drop in the proportion of
individuals captured on land. This decline may have been in response to the construction
of coastal towers along the Spanish coast in the century prior to this date. These towers
were not designed to resist an attack, but were built to provide early information regarding
a corsair landing that would allow the population to mount both armed resistance and take
cover (Panzac, 2009, p. 131). In any case, given that land raids were militarily more involved
than sea raids, this result provides additional evidence of a decline in the military prowess
of the corsairs although this metric suggests that the decline began earlier. In column 3, I
show that after 1675 the proportion of captives taken in the Atlantic drops by 19 percentage
points when compared to the proportion of Atlantic captives on the interval [1600,1625).

In column 4, I show that there is no trend in the proportion of captives caught in military
confrontations in the seventeenth century. This result is important, given that one possible
worry is that the results are reflective of variation in the extent to which the Spanish were
conducting military operations in North Africa.\textsuperscript{25}

4 Discussion

While the empirical evidence provided in the previous section provides reasonable evidence
that the corsairs were capturing less valuable and “easier” Spanish targets as time went on,
there are a variety of interpretations of this result. In this section, I discuss the extent to
which some of the most plausible explanations and interpretations are consistent with both
the data and the historical record.

4.1 Algerian Autonomy and External Validity

It is well known that since its founding, the Ottoman Regency of Algiers enjoyed a significant
degree of autonomy. This autonomous relationship between Algiers and Istanbul raises two
potential concerns for the analysis. The first concern regards the external validity of the
exercise holding the level of autonomy constant. Even if the Algerian corsairs lost military
power towards the end of the seventeenth century, it may have been the case that the core
\textsuperscript{25}Indeed, this variation in this metric prior to 1600 may help explain the rise in the proportion of fisherman
from the start of the sample until 1600.
Ottomans did not. The main worry here would be if the Algerians were a weaker naval power than the core Ottoman regions and depended on technological and/or monetary transfers from Istanbul.

There is evidence suggesting, however, that during the sixteenth and seventeenth centuries the Algerians were actually more powerful than the core Ottoman regions in the naval realm or at the very least more technologically advanced. For example, there is evidence that the corsairs were the most able sailors in the Islamic world. Thus, Agoston (2005, p. 55) notes that “the corsairs provided the Ottomans with an invaluable reservoir of naval experts” and Soucek (2004, p. 256) suggests that Ottoman naval weakness in the seventeenth century could “sometimes be alleviated by the participation of the corsairs from the three North African regencies, who had begun to switch to galleons in the very first years of the seventeenth century.” This author has gone as far to claim that it was the corsairs “that protected Muslim North Africa and frightened Christian Europe, and the service they rendered when summoned to join in the imperial navy or to lead it, that created the impression of Turkey as the great sea power of the sixteenth century” (Soucek, 2004, p. 233).

The difficulties faced by the Ottomans in their conquest of Crete (1645-1669) are generally taken as evidence of the growing weakness of the Ottoman navy (e.g. Panzac, 2009, p. 162). Following this war, the Ottomans attempted to modernize their fleet by adopting the galleon but it was not until 1690 that the Ottomans were able to produce high-quality galleons with the help of European advisors (Panzac, 2009, p. 173). Interestingly, it is the Ottoman Grand Admiral Mezzomorto Huseyin -a renegade drawn from the Regency of Algiers- who is credited with the modernization of the Ottoman navy after 1695 (Panzac, 2009, pp. 179-180). Despite these reforms, the Ottomans never regained the naval position they enjoyed prior to Lepanto. When taken in unison, these arguments suggest that the results may actually provide a conservative estimate of the start of the relative naval decline of the core Ottoman Empire.

The second concern notes that although Algiers always enjoyed a significant degree of autonomy, this autonomy appears to have increased in the seventeenth century. This increased autonomy may have decreased the resources flowing from Istanbul to Algiers possibly as a product of decreasing Ottoman interest in the Western Mediterranean.

The political history of Algiers does suggest an increase in Algerian autonomy in the seventeenth century although it is unlikely that the results are the product of decreasing

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26 This may seem a bit paradoxical, given that the Ottomans successfully conquered the island. However, during this war many authors have claimed that the Venetians enjoyed “naval superiority” (e.g. Panzac, 2009, p. 160) and that this naval superiority contributed to the difficulties the Ottomans faced in taking the island (Soucek, 2004, pp. 252-253) relative to their earlier and easier conquest of Cyprus.
Ottoman interest in the Western Mediterranean. Following the Habsburg-Ottoman truce of 1580, Istanbul began to send pashas who were to rule for a three-year term. Hoexter (1998, p. 20) notes that this arrangement “never worked properly” and that these pashas “soon clashed with the local population, particularly the local Ottoman janissary unit.” After 1659, the Ottoman-appointed pasha’s power was gradually usurped by a local ruler (either a janissary or corsair) who from 1671 onward bore the title of dey. By 1711, Istanbul ceased to dispatch pashas and instead conferred this rank on whomever the janissaries nominated (Shuval, 2000, p. 333).

Algerian autonomy, however, seems to have been a matter of degree in an empire that was characterized by “loosely bound regional units.” Indeed, Algerians are thought to have maintained Ottoman institutions even as their autonomy increased (Hess, 1978, p. 112) and remained an “an integral part of the Ottoman Empire” with real government resting in the hands of the janissaries who were “mainly from areas in today’s Turkey” (Shuval, 2000, p. 324). Indeed, the Algerian fleet consistently fought alongside core Ottoman naval forces and during the seventeenth century the Algerian fleet played a “fundamental role” in Ottoman naval expeditions (e.g. Panzac, 2009, pp. 170, 180).

In any case, for these increases in political autonomy to explain the results on their own, they would have to be reflective of significant decreases in resource/technological transfers from the Ottomans to the Algerians towards the end of the seventeenth century. Yet, as noted above, naval technological transfers during this period seem to have flowed from Algiers to Istanbul and not the other way around. In addition, I am not aware of significant changes in resource transfers from Istanbul to Algiers during the seventeenth century.

4.2 Institutions, Technology and State Capacity

The move towards greater autonomy in seventeenth century Algeria coincided with institutional changes across the Ottoman Empire. Throughout the Empire, this period witnessed the “increasing power of local notables” and this increased decentralization has been blamed for ushering in the military decline of the Empire (Lapidus, 2014, pp. 371-372).

This observation raises difficult questions regarding the fundamental causes of the results documented in the paper. Traditionally, many historians viewed the Ottoman military successes of the fifteenth and sixteenth centuries as a temporary hiatus in a long process of relative decline of the Islamic world vis-à-vis Western Europe that reaches back to the

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27 The available evidence suggests that any major drop in Ottoman interest in the Western Mediterranean occurred in the late sixteenth century following the Ottoman-Habsburg disengagement (e.g. Gürkan, 2010, p. 162).

28 This janisarry corps was composed of volunteers who came mainly from Anatolia.
medieval period. In many ways, the experience of Ottoman Algiers suggests the validity of this claim - at least in the technological arena. For example, the Regency’s advances in naval technology seem to have been driven by European renegades (Wolf, 1979, p. 102). Indeed, during the seventeenth century renegades commanded two-thirds of the corsair fleet and many of these renegades had served “in professional armies for France, England, or the United Netherlands before renouncing their religion” (Baepler, 2004, p. 225).

Such renegade-driven technological change does not seem to be unique to the Algerian Regency. For example, Agoston (2005, p. 193) notes that in the Ottoman Empire in general, “European-Ottoman military acculturation involved European military experts who sold their expertise to the Ottomans and not vice versa.” While this paper cannot address the possible origins of these differences in technological ingenuity, the fact that the Ottomans successfully adopted European technology from renegades and other European sources for centuries provides some evidence that technological disadvantages were not the fundamental cause of the corsairs’ relative decline. This is particularly true in light of evidence that such technological transfers continued through the end of the period covered by the data (e.g. Hunter, 1999, p. 10).

Agoston (2005, p. 202) suggests that it, “was not better guns that ultimately gave the advantage to the Europeans, but better drill, command and control, and bureaucratic administration.” This observation is consistent with recent research investigating increases in European state capacity in the modern-era (Karaman and Pamuk, 2013; Gennaioli and Voth, forthcoming). Interestingly, Karaman and Pamuk (2013) provide evidence that state capacity increased significantly in Western Europe during the seventeenth century. The authors do not find similar increases in the Ottoman Empire. This is consistent with claims that the Ottoman Empire did not participate in the “bureaucratic revolution” that swept across much of Europe during the seventeenth century (Glete, 1993, pp. 8-9).

This evidence raises the possibility that institutional differences -the origins of which may date back to the medieval period- are the fundamental cause of the decline of the Barbary corsairs documented in this paper. For example, it may have been the case that the increases in state capacity in many European states in the seventeenth century were necessary to fully exploit the technological advances coming out of Europe during this period. There is some evidence in support of this claim. For example, Wolf (1979, p. 287) notes that the new warships that emerged at the end of the seventeenth century in Europe were “far beyond anything that the Algerians could muster” and stresses that it was the scale of these new ships that “marked the beginning of a new era of naval power that was to have decisive impact upon the North African regencies.”

\[29\] For an alternative view see Owen (1976).
Of course, to the extent to which this is true, it suggests that increases in European state capacity cannot be taken in a vacuum. European advantages in technological ingenuity seem to have preceded the bureaucratic revolution of the seventeenth century and may have been related to underlying institutional/societal differences between Western Europe and the Western Islamic world (Blaydes and Chaney, 2013). Kuran (2011) provides evidence consistent with this view, stressing that there were important differences between European and Islamic societies that predated the bureaucratic revolution. Indeed, one prominent historian of the Islamic Mediterranean suggests that the military divergence in the naval realm flowed -at least in part- from the fact that the “vigorous state capitalism, extensive technological innovation, and extraordinary social mobility of early modern Europe exceeded the limits of the Islamic social order” (Hess, 1978, pp. 208-209). Consequently, it is important to be cautious when attributing the observed decline to any single factor.

4.3 Changing Ransoming Budgets/Opportunities

Until now, I have interpreted the results as representing a decline in the corsair’s naval power. However, there are alternative interpretations of the results. Perhaps the most worrying is that the results are driven by a change in ransoming preferences/procedures as the seventeenth century wore on. Although I am not aware of evidence that this is the case, there are increasing numbers of ransomed captives in my sample after roughly 1650. While this increase does not necessarily mean that the Spanish were ransoming more captives after this date (it simply shows that more ransom records have survived), it could be indicative of such a change which may be related, in turn, to the military decline of the corsairs (e.g. Martínez Torres, 2004, p. 151). If there was an increase in the total number of captives ransomed after roughly 1650, it could affect the results by including larger numbers of lower value captives that were previously not ransomed.

I investigate the extent to which this hypothesis is consistent with the data in column 5 of table 5. To do this, I calculate the standard deviation of log ransom prices in each year. The idea behind this metric is that if the underlying ransomable population remains constant over time but the sampling scheme changes only in that it includes a higher proportion of lower-valued captives that were previously not ransomed, this should be reflected in an increase in the standard deviation of the ransom price. The results in column 5 are not consistent with this prediction. This result is shown graphically in figure 4, where the distribution of deviations of log ransoms from their average by year of capture is plotted for the 25 year

\[ \text{Standard Deviation} \]

For example, Kuran (2011) highlights institutions that hampered commercial development in the Islamic world.
Another alternative explanation for the results is that the payoffs from capturing non-Spaniards increased at the end of the seventeenth century. If true, this could have resulted in a shift of naval resources to capture such alternative targets. The available historical evidence, however, suggests this is probably not a major concern. The truces of the Algerians with many European powers at the end of the seventeenth century would have likely led to an increase in concentration of the corsairs’ efforts on Spanish targets, given that Spain did not sign a treaty with Algiers during the period covered by the data. In addition, after the Ottoman conquest of Crete in 1669 there were fewer opportunities for piracy in the Eastern Mediterranean. This again suggests that towards the end of the seventeenth century the Algerians should have concentrated more, not less, military efforts towards capturing the Spanish.

In sum, while the proportion of ransomed captives caught while fishing, on land and in the Atlantic are imperfect metrics on their own, when taken in unison, they suggest the Regency began to decline towards the end of the seventeenth century. Indeed, after 1675 all three metrics suggest a decline relative to their position at the start of the seventeenth century.

5 Conclusion

Information detailing the conditions under which over 4000 ransomed captives were captured by corsairs from the Ottoman Regency of Algiers suggests that the corsairs found it increasingly difficult to take “hard targets” as the seventeenth century progressed. By the end of this century, ransomed captives were more likely to have been captured while fishing and less likely to have been taken on land or in the Atlantic. These results are consistent with claims that the corsairs lost military power during this century after approximately 1675.

These results add to our knowledge of the military and institutional history of the Western Islamic World in a few ways. First, they provide the first systematic empirical examination of the military prowess of the Barbary corsairs over time and provide evidence that the decline of the corsairs roughly corresponds to the first major military setbacks suffered by the Ottoman core, the most prominent of which was the failure of the 1683 siege of Vienna. Second, they provide additional evidence in the ongoing debate regarding the timing of Ottoman decline. Given that the corsairs are thought to have possessed the Empire’s most advanced fleet throughout the seventeenth century, the results suggest that the Empire had

31Here I use an Epanechnikov kernel and the “optimal” bandwidth (see the Stata command kdensity for more details on this bandwidth). In addition, I use the integer of the year an individual was captured.
fallen behind Western Europe in the naval realm by the end of this century.

Finally, the results provide insights into the reasons behind the military decline of the Western Islamic World. For example, the evidence suggests that the corsairs successfully imported naval technology and were able to compete on roughly even terms with Europe in the early seventeenth century. By the end of this century, however, the Algerians appear to have struggled to match the scale of new ships being constructed in many European nations. I have noted that the decline documented in this paper approximately corresponds with both the “rise of powerful [European] navies” (Hunter, 1999, p. 22) and increases in state capacity in many European states during the seventeenth century.

Can increases in European state capacity explain the seventeenth-century decline of the corsairs? Recent research suggests that the European process of state formation was unique and may have roots reaching back to the medieval period (Blaydes and Chaney, 2013). Thus, it is perhaps not surprising that by the late seventeenth century there were many institutional and cultural differences between Islamic societies and those in Europe that help explain why the Algerians increasingly struggled to adopt the technological and organizational advances coming out of Europe. Although this suggests caution in attributing the empirical results to any single cause, it also suggests the importance of better understanding the developments that both accompanied and led to the seventeenth century surge in European state capacity.
References


Grant, J., “Rethinking the Ottoman “Decline”: Military Technology Diffusion in the Ottoman Empire, Fifteenth to Eighteenth Centuries,” *Journal of World History*, 1999, 10 (1), 179–201.


Figure 1: **Place of Capture**
Circles denote exact or approximate point of capture. Lines denote routes on which captives were captured if no exact point is available. Larger circles denote more captives captured in that place.
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Notes: Archive entries prefaced with l are from the *Archivo Histórico Nacional, códices*. The number after l details the legajo. Archive entries prefaced with mss are from the *Biblioteca Nacional de Madrid*. The number after mss gives the manuscript number. The column FullRansom provides the number of captives for whom a full ransom was paid, the column ExitTax or Missing provides the number of captives for whom only the exit tax was paid (or similar) as well as the number of captives who were missing information on their price or this price was zero. See text for details.
Table 2: **Summary Statistics I**

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**Panel A: General**

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<td>Female</td>
<td>4378</td>
<td>0.07</td>
<td>0.26</td>
<td>0</td>
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<tr>
<td>Child</td>
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<td>0.17</td>
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<td>Atlantic</td>
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<td>0.49</td>
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**Panel B: Profession**

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<td>Fisherman</td>
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<td>0.34</td>
<td>0</td>
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<td>Carrera</td>
<td>4378</td>
<td>0.05</td>
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<td>Soldier</td>
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<td>Cleric</td>
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<td>Noble</td>
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<td>0.50</td>
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**Panel C: Capture**

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</thead>
<tbody>
<tr>
<td>At Sea</td>
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<td>0.41</td>
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<td>On Land</td>
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<td>0.31</td>
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<td>In War</td>
<td>4378</td>
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<tr>
<td>Born</td>
<td>4378</td>
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<tr>
<td>Missing</td>
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<td>0.17</td>
<td>0</td>
<td>1</td>
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</tbody>
</table>

Notes: Earmarked funds are those sent from Spain for the ransom of a specific captive. Atlantic denotes the proportion of captives caught in the Atlantic. Carrera denotes captives caught on their way to or returning from the Americas. Born denotes captives born in captivity. See text for details.
Table 3: **Summary Statistics II: Selected Variables In 25 Year Bins by Year of Capture**

<table>
<thead>
<tr>
<th></th>
<th>ln(Ransom)</th>
<th>ln(Earmarked)</th>
<th>AgeAtCap</th>
<th>TimeCaptive</th>
<th>Fisherman</th>
<th>Land</th>
<th>War</th>
<th>Atlantic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Mean</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[1536, 1575)</td>
<td>7.12</td>
<td>6.38</td>
<td>29.04</td>
<td>10.12</td>
<td>0.01</td>
<td>0.16</td>
<td>0.52</td>
<td>0.03</td>
</tr>
<tr>
<td>[1575, 1600)</td>
<td>7.20</td>
<td>6.64</td>
<td>32.43</td>
<td>5.39</td>
<td>0.08</td>
<td>0.23</td>
<td>0.21</td>
<td>0.04</td>
</tr>
<tr>
<td>[1600, 1625)</td>
<td>7.40</td>
<td>7.54</td>
<td>33.71</td>
<td>6.18</td>
<td>0.13</td>
<td>0.21</td>
<td>0.04</td>
<td>0.59</td>
</tr>
<tr>
<td>[1625, 1650)</td>
<td>7.39</td>
<td>7.36</td>
<td>27.19</td>
<td>8.72</td>
<td>0.14</td>
<td>0.12</td>
<td>0.06</td>
<td>0.48</td>
</tr>
<tr>
<td>[1650, 1675)</td>
<td>7.47</td>
<td>6.96</td>
<td>28.23</td>
<td>5.22</td>
<td>0.12</td>
<td>0.08</td>
<td>0.01</td>
<td>0.50</td>
</tr>
<tr>
<td>[1675, 1692)</td>
<td>7.40</td>
<td>6.64</td>
<td>29.82</td>
<td>3.36</td>
<td>0.23</td>
<td>0.06</td>
<td>0.07</td>
<td>0.41</td>
</tr>
<tr>
<td><strong>Panel B: N</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[1536, 1575)</td>
<td>240</td>
<td>66</td>
<td>237</td>
<td>240</td>
<td>240</td>
<td>240</td>
<td>240</td>
<td>187</td>
</tr>
<tr>
<td>[1575, 1600)</td>
<td>363</td>
<td>122</td>
<td>361</td>
<td>363</td>
<td>363</td>
<td>363</td>
<td>363</td>
<td>206</td>
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<tr>
<td>[1600, 1625)</td>
<td>247</td>
<td>29</td>
<td>238</td>
<td>247</td>
<td>247</td>
<td>247</td>
<td>247</td>
<td>147</td>
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<tr>
<td>[1625, 1650)</td>
<td>472</td>
<td>55</td>
<td>467</td>
<td>472</td>
<td>472</td>
<td>472</td>
<td>472</td>
<td>221</td>
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<tr>
<td>[1650, 1675)</td>
<td>2212</td>
<td>528</td>
<td>2201</td>
<td>2212</td>
<td>2212</td>
<td>2212</td>
<td>2212</td>
<td>1080</td>
</tr>
<tr>
<td>[1675, 1692)</td>
<td>762</td>
<td>92</td>
<td>761</td>
<td>762</td>
<td>762</td>
<td>762</td>
<td>762</td>
<td>434</td>
</tr>
</tbody>
</table>

Notes: Earmarked funds are those sent from Spain for the ransom of a specific captive. Atlantic denotes the proportion of captives caught in the Atlantic. See text for details.
<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fisherman</strong></td>
<td>-0.12\textsuperscript{***}</td>
<td>-0.10\textsuperscript{***}</td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td><strong>Carrera</strong></td>
<td>0.21\textsuperscript{***}</td>
<td>0.19\textsuperscript{***}</td>
<td>(0.06)</td>
<td>(0.05)</td>
</tr>
<tr>
<td><strong>Cleric</strong></td>
<td>0.68\textsuperscript{***}</td>
<td>0.68\textsuperscript{***}</td>
<td>(0.08)</td>
<td>(0.08)</td>
</tr>
<tr>
<td><strong>Soldier</strong></td>
<td>0.06\textsuperscript{**}</td>
<td>0.09\textsuperscript{***}</td>
<td>(0.03)</td>
<td>(0.03)</td>
</tr>
<tr>
<td><strong>Noble</strong></td>
<td>1.78\textsuperscript{***}</td>
<td>1.60\textsuperscript{***}</td>
<td>(0.37)</td>
<td>(0.37)</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>-0.06</td>
<td>0.02</td>
<td>(0.05)</td>
<td>(0.05)</td>
</tr>
<tr>
<td><strong>Land</strong></td>
<td>0.06</td>
<td>0.11</td>
<td>(0.08)</td>
<td>(0.07)</td>
</tr>
<tr>
<td><strong>War</strong></td>
<td>0.16\textsuperscript{**}</td>
<td>0.18\textsuperscript{***}</td>
<td>(0.08)</td>
<td>(0.07)</td>
</tr>
<tr>
<td><strong>Sea</strong></td>
<td>0.16\textsuperscript{**}</td>
<td>0.23\textsuperscript{***}</td>
<td>(0.07)</td>
<td>(0.07)</td>
</tr>
<tr>
<td><strong>Age(capture)</strong></td>
<td>-0.006\textsuperscript{***}</td>
<td>-0.005\textsuperscript{***}</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td><strong>TimeCaptive</strong></td>
<td>-0.01\textsuperscript{***}</td>
<td>-0.01\textsuperscript{***}</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>0.06</td>
<td>0.14\textsuperscript{**}</td>
<td>(0.06)</td>
<td>(0.06)</td>
</tr>
<tr>
<td><strong>Child</strong></td>
<td>-0.002</td>
<td>0.11\textsuperscript{***}</td>
<td>(0.05)</td>
<td>(0.05)</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>4296</td>
<td>4296</td>
<td>4265</td>
<td>4265</td>
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<tr>
<td><strong>Clusters</strong></td>
<td>127</td>
<td>127</td>
<td>127</td>
<td>127</td>
</tr>
</tbody>
</table>

Notes: The dependent variable is the natural logarithm of a captive’s ransom price. All regressions include trip dummies. Carrera denotes captives caught on their way to or returning from the Americas. Standard errors clustered by year of capture are provided in parentheses. \textsuperscript{***}, \textsuperscript{**}and \textsuperscript{*}indicate significance at the 1%, 5% and 10% levels. See text for details.
Figure 2: Location of Capture in 25 year bins
Figure 3: The Rise and Decline of the Corsairs

Figure 4: Distribution of Ransoms over Time
Table 5: **The Decline of the Corsairs**

<table>
<thead>
<tr>
<th></th>
<th>Fishing (1)</th>
<th>Land (2)</th>
<th>Atlantic (3)</th>
<th>War (4)</th>
<th>Std.(Ransom) (5)</th>
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</thead>
<tbody>
<tr>
<td>[1625, 1650)</td>
<td>0.01</td>
<td>-0.09</td>
<td>-0.11*</td>
<td>0.01</td>
<td>-0.10</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.08)</td>
<td>(0.06)</td>
<td>(0.03)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>[1650, 1675)</td>
<td>-0.01</td>
<td>-0.13*</td>
<td>-0.09</td>
<td>-0.04**</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.07)</td>
<td>(0.06)</td>
<td>(0.02)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>[1675, 1692)</td>
<td>0.10**</td>
<td>-0.16**</td>
<td>-0.19***</td>
<td>0.02</td>
<td>-0.06</td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td>(0.07)</td>
<td>(0.06)</td>
<td>(0.02)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.13***</td>
<td>0.21***</td>
<td>0.59***</td>
<td>0.04***</td>
<td>0.53***</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.07)</td>
<td>(0.04)</td>
<td>(0.02)</td>
<td>(0.04)</td>
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<tr>
<td>N</td>
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<td>127</td>
<td>121</td>
<td>127</td>
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</table>

Notes: HAC standard errors allowing for autocorrelation up to 4 lags are provided in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels. See text for details.