Informative Title: Managing the Fishery Commons at Marseille: How a Medieval Institution Failed to Accommodate Change in an Age of Globalisation

Running Title: Fishery Commons and Globalisation

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ABSTRACT

This paper offers a socio-historical study of the Prud’homie de pêche (the “Prud’homie”), a common-pool institution (“CPI”) that has managed the fishery commons at Marseille since the Middle Ages. The evidence presented here sheds light on specific challenges faced by the Prud’homie during the early stages of globalisation: one challenge is the import of a new fishing technique (the madrague) in the early 17th century, and another challenge is the arrival of migrant fishermen from Catalonia throughout the 18th century. On this basis, this paper explores the ways in which globalisation has impacted the Prud’homie and identifies the mechanisms through which these challenges might threaten the functioning of CPIs.

KEYWORDS

Fishery Commons, Globalisation, History of Fisheries, Institutional Design, Migrations, Technologies

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INTRODUCTION

In November 1622, King Louis XIII visited the city of Marseille while touring his Kingdom of France. A fervent hunter and weapon master, Louis XIII allocated time in his busy schedule to fish Atlantic bluefin tuna (Thunnus thynnus, Scombridae) with local fishermen. The fishing party occurred on 8 November 1622 in the natural harbour of Morgiou in the South of Marseille. However, the harbour of Morgiou had not submitted to the King’s jurisdiction; since 1452, it had been the property of the local fishermen, who also elected their representatives, raised taxes and exercised their own jurisdiction over the fishing disputes that invariably arose along the coasts of Marseille. Morgiou was, in other words, a small island of private governance within the Kingdom of France.

For the fishermen of Marseille, the visit from the King was critical. The fishermen were hoping that Louis XIII would confirm the rights and privileges that they had slowly accreted since the Middle Ages. According to legend, the fishermen dug stairs in the stone of the cliffs surrounding Morgiou so that Louis XIII could safely descend to the beach. Curious visitors can still see, 400 years later, remnants of the “stairs of Louis XIII” in Morgiou.

The fishing occurred in a special tuna trap called “madrague,” a source of immense pride for the local fishermen: it was their latest fishing technique from Spain that could catch up to 800 bluefin tuna and had just been installed in Morgiou. Archival documents report that Louis XIII killed “more than 25 tuna” with a golden trident on that excursion, which lasted until the night and that he “had never seen anything that pleased him so much during his trip” (Lapierre, 1938:38).

It was not long before the King translated his satisfaction into concrete action: on 30 November 1622, approximately three weeks after the fishing party, the King confirmed all the rights and privileges that the fishermen of Marseille enjoyed over a large territory that spread
across more than 20 miles of coastlines (AM HH370). These rights included the possibility to
elect their own representatives to a special organization called the *Prud’homie de Pêche* (or
the *Prud’homie*), which exercised a broad range of competencies over the legislation of the
fishery, its police and the settlement of disputes.

Beyond this success story unfolded another process that neither the fishermen nor the King
could fully appreciate in 1622. It was the outcome of decades, perhaps centuries, of human
development, and it ignored the artificial frontiers that human beings had patiently built
between their communities. This process, which is now universally known as globalisation,
was in its early stages at the beginning of the 17th century. At that time, the entire
Mediterranean region experienced a “concentration and expansion of industry, a more
rational division of labour, and increased production” (Braudel, 1972:432). In addition, an
“itinerant labour force” swept across the Mediterranean during this period (Braudel,
1972:43). Marseille played a key role in this burgeoning globalisation as a major port from
which “barques and galleons [...] were sailing over the entire Mediterranean” (Braudel,
1972:220). The contemporary observer might find this process to be too restricted to be part
of globalisation, as it primarily concerns the Western Mediterranean basin and its
neighbouring countries. However, the reader should keep in mind that the “scale” of
globalisation has evolved over time (Sassen, 2006:10-11) and that what might seem “local” or
“regional” from our modern perspective was already part of the globalisation process several
centuries ago. In fact, historians have termed these early, regional, stages of globalisation
“proto-globalisation” (Hopkins, 2002). This “proto-globalisation,” which unfolded in the 17th
and 18th centuries, is a key stage of the globalisation process characterized by the progressive
growth of trade across nations, the migration of techniques and workers, and technological
changes.
In this paper, I will explore how “proto-globalisation” impacted the Prud’homie and use this case study to build upon an important stream of literature concerning the governance of the commons. This work has emerged from scholars operating at the intersection of several social science disciplines. Among them, Elinor Ostrom designed a rich analytical apparatus blending political and economic theory that concluded that “common-pool institutions” (“CPIs”) are sometimes better equipped to solve the “tragedy of the commons” (Hardin, 1968) than other entities such as the state and corporations (Ostrom, 1990). Ostrom’s ground-breaking theory of CPIs has broadly influenced academic scholars in various disciplines (Rose, 2011) as well as policy makers and social activists (Saunders, 2014), and it earned her the Nobel Prize in Economics in 2009. Specifically, Ostrom identified a list of “design principles” that characterise the successful operation of CPIs. In short, her theory rests on a rational choice analysis of how individuals voluntarily choose to cooperate and preserve the long-term benefits of resource exploitation when social games are repeated indefinitely, discount rates are low, and information concerning the past performance of social actors is freely available (Ostrom, 1990). Ostrom emphasized how “successful” CPIs could be (Ostrom, 1990:59-60) by “enabling individuals to sustain long-term, productive use of natural resource systems” (Ostrom, 1990:1).

Ostrom focused on communities that are limited in size or that operate within a relatively small territory, such as fishermen in Alanya (Turkey), farmers in Valencia (Spain), or villagers in Törbel (Switzerland) (Ostrom, 1990), and she emphasised the challenges posed by globalisation for CPIs (Ostrom et al., 1999). For instance, she pointed out how “having larger number of participants in a CPR increases the difficulty of organizing, agreeing on rules, and enforcing rules” (Ostrom et al., 1999:281).
This paper builds upon Ostrom’s scholarship to analyse the ways in which globalisation processes affect the functioning of CPIs. Because of its rich archival records that date back to the early 13th century, the Prud’homie offers a relevant case study to assess the socio-economic strains faced by a CPI confronted with the early stages of globalisation. The evidence presented here sheds light on specific challenges faced by the Prud’homie during “proto-globalisation”: one is the import of a new fishing technique (the madrague) in the early 17th century, and the other is the arrival of migrant fishermen from Catalonia throughout the 18th century. Both events illustrate the difficulties that CPIs can face when addressing socio-economic changes arising out of “proto-globalisation.”

1. WHAT IS THE PRUD’HOMIE?

The Prud’homie is a unique institution: it has been the legislator, judge and police force of the fishery of Marseille since the Middle Ages. Although it was imitated in 32 other fisheries along the French Mediterranean coast, the Prud’homie of Marseille is the oldest one that offers the most complete and best-preserved archives. In this section, I will describe the regulatory functions of the Prud’homie (A) before assessing its features against Ostrom’s design principles for CPIs (B).

A. The main features of the Prud’homie

The Prud’homie has developed three main regulatory functions since the Middle Ages: the creation of rules, their collection, and their application.

Creating rules

Each year after Christmas, the fishermen of Marseille elected four of their peers for a yearly mandate as members of the Prud’homie (also known as the Prud’hommes), and the Prud’hommes would quickly engage in the creation of norms in two main ways. They submitted resolutions including specific rules to be voted on by the other fishermen, and
adjudicated disputes in accordance with these rules on a weekly basis (each Sunday after mass). I will return to the second task later and focus on the first one here. This first task typically arose when the community faced internal conflicts such as when groups of fishermen used competing techniques or operated in overlapping geographical zones. Over the years, the Prud’homie generated rules leading to a very rich regulatory corpus addressing the wide variety of techniques used in the Marseille fishery. The Prud’homie also designed rules aimed at organizing the social life of the community. For instance, the Prud’homie prohibited fishing on Sundays and religious holidays. This prohibition had an obvious religious inspiration in a highly spiritual society, but it also guaranteed the availability of the fishermen on Sundays when the Prud’homie held its meetings.

Collecting rules

The Prud’homie not only generated rules, it also collected them. The Prud’homie carefully preserved the numerous documents that contained the rules of the fisher community. For instance, it compiled the decisions of the fishermen’s community from 1489 until 1759 in a manuscript called the “Red Book” (AD 250E4). The collection of these documents was a crucial stake in the life of the community. In fact, as a product of its long-term history, these documents evidenced and guaranteed the autonomy of the Prud’homie and served as a reference point for members who were called to solve disputes that sometimes required precise technical knowledge. To preserve secrecy (and its autonomy vis-à-vis the state), the Prud’homie was reluctant to codify its rules but did so in 1725 when it entrusted a doctor named Jean-André Peyssonel with this task (AD 250E2). Peyssonel’s manuscript can still be found in the archives of the Prud’homie, and it provides a unique window into its past regulations. It also provides useful information concerning the species targeted by the fishers and their fishing techniques. Their main activity was in-shore fishing of small species such as
sardine (*Sardina pilchardus*, Clupeidae) or anchovy (*Engraulis encrasicolus*, Engraulidae), but the fishers also targeted larger species such as gilt-head bream (*Sparus aurata*, Sparidae), red mullet (*Mullus surmuletus*, Mullidae), turbot (*Scophtalmus maximus*, Scophthalmidae), bass (*Dicentrarchus labrax*, Moronidae), and of course, Atlantic Bluefin tuna. The fishers of Marseille mobilised various techniques to capture these species but seemed to favour purse seine nets for smaller species that they used with row-boats at shallow (*bregin*) or deeper depths (*eyssaugue*). I describe *bregin*, one of the most popular techniques at the time, in further detail in Part B. For the larger species, the fishers of Marseille used small dragnets called *gangui* and larger ones called *tartanes* that were pulled by sailboats. In Section 3, I further present the techniques for tuna fishing, the use of lines called *palangres* in the 18th century, and the type of boats used in Marseille.

*Applying rules*

In addition to generating and collecting rules, the *Prud’homie* was also directly involved in their application by adjudicating disputes and enforcing its judgments. The *Prud’homie* performed the first task every Sunday after mass, and its jurisdiction extended to any fishing dispute that occurred over its territory. The procedure was as follows: The plaintiff would place two coins in a special box to summon the defendant to appear before the *Prud’homie* the following Sunday. Both parties would then present their respective arguments before the *Prud’hommes*, who would render their decisions immediately after the hearing. The process was entirely self-contained as decisions could not be appealed by the losing party before French state courts. The procedure was oral; the judgment was swift; and its enforcement was immediate: Most parties complied voluntarily with the judgments of the *Prud’homie* to avoid ostracism and the loss of social status (AD 250E1, 8 January 1512). However, losing parties did not always comply, and in such cases, a non-complying member could be excluded.
from the community, stripped of his voting rights and/or exposed to public criticism. The

*Prud’homie* also provided the possibility to fine non-complying fishermen starting in the 15th century (AD 250E6, 13 October 1431; AD 250E3, 7 April 1489) but did not implement that option until later in its history.

**B. The Prud’homie: a CPI à la Ostrom**

In light of the above, the *Prud’homie* appears to fulfil all the design principles for CPIs identified by Ostrom: its jurisdiction was limited to fishermen in a specific territory (design principle 1: clearly defined boundaries); the rules of the *Prud’homie* were tailored to the types of fishing techniques and species found in this territory (design principle 2: congruence between rules and local conditions); all members of the community were eligible to elect the members of the *Prud’homie* and to participate in the modification of the rules through discussions and votes (design principle 3: collective-choice arrangements); the *Prud’homie* monitored the behaviour of fishermen and their compliance with the collective rules (design principle 4: monitoring); it used a wide range of graduated sanctions, including fines, public criticism, deprivation of voting rights and group exclusion (design principle 5: graduated sanctions); the *Prud’homie* provided a full-fledged tribunal that met every Sunday after mass to solve conflicts arising among fishermen (design principle 6: conflict-resolution mechanisms); the French state recognized the autonomy of the court by forbidding state courts from hearing appeals of the judgments of the *Prud’homie* (design principle 7: minimal recognition of rights to organize); and some of the fishing techniques were categorised according to specific rules nested within the broader governance system (design principle 8: nested enterprises). Individuals in successful CPIs also display low discount rates; they value long-term gains more than short-term benefits (Ostrom, 1990:88). Although Ostrom did not add low discount rates to her list of “design principles,” she noted how design principle 1
(“clearly defined boundaries”) increases the long-term stability of the CPI, a key in maintaining discount rates at low levels (Ostrom, 1990:91).

In light of the above, the *Prud’homie* appears to be a CPI as defined by Ostrom. In fact, the rich archival record of the *Prud’homie* is replete with references to the long-term management of the fishery, thus confirming Ostrom’s finding that this type of institution actively engages in the preservation of natural resources. In addition, the fishermen of Marseille created collaborative mechanisms akin to those examined by Ostrom to exploit the fishing stocks. Consider, for instance, a traditional fishing technique used on the coasts of Provence since the Middle Ages called *bregin*. This technique involves 15 to 20 fishermen who split into two groups: one group stays on shore and secures one end of a net while the other group boards a boat and unfolds the same net while circling back to the shore, where the net is pulled by the entire crew (Baudrillart, 1827:75; AD250E2, 1725:47). *Bregin* can only be used close to shores (Doynel, 1886:6-7; AD250E2, 1725:47) at shallow depths and on sandy beds (so that rocks do not tear the nets), and it targets small fish such as anchovies or sardines (Baudrillart, 1827:76). A collective action problem arose from the fact that fishermen could only operate in a limited number of areas and would therefore compete over their occupation, leading to a race to the best areas. To solve this collective action problem, the *Prud’homie* designed rules to determine which fishing crew would have priority over these areas. The first group of fishermen who declared an interest in a specific area would have priority over the other groups, but once this group was done fishing, it would have to surrender its position to the second group who had previously declared an interest in the area (AD250E2, 1725:6). The ship’s boys gathered information concerning the “rank” of each group by circulating from house to house every evening prior to the fishing day (AD250E2, 1725:6). These collaborative mechanisms resemble those identified by Ostrom in Turkey, where fishermen took turns in
fishing zones by moving in a certain order, with the initial position of each fisherman

determined through an annual lottery (Ostrom, 1990:18-21).

2. HYPOTHESIS

As briefly mentioned above, Ostrom found that long-enduring CPIs are characterised by a set
of specific features which she called “design principles” (Ostrom, 1990:90). She also identified
some of the difficulties that arise when one or several of these “design principles” are
undermined, for instance in the context of globalisation (Ostrom et al., 1999). Building on
Ostrom’s scholarship, this paper sheds light on these difficulties, and illustrates the ways in
which CPIs might be affected when confronted with the early stages of globalisation.

Although the ultimate causes of globalisation are unclear, its symptoms and effects are
relatively well identified. In particular, the increasing degrees of interdependence and the
interactions prompted by economic globalization have intensified cross-border exchanges,
which have, in turn, accelerated the speed and intensity of globalisation processes (e.g.,
(Archibugi & Iammarino, 2002). These cross-border exchanges can be material or immaterial:
goods, services, technologies and individuals swarm across borders in an age of globalisation.

To test my hypothesis, I examine the ways in which the Prud’homie addressed two of these
exchanges: the circulation of techniques, and labour migrations. In my view, both events can
affect the cooperative basis of CPIs in ways that undermine their successful character (as
measured by their ability to preserve the commons from overexploitation).

A. Technological innovations and social breakdown

The impact of new technologies on the depletion of fish populations have been well-
documented in the literature (Pitcher, 2001; Kennelly & Broadhurst, 2002). Ostrom was also
well aware of the potential effects of technological changes on CPIs; she pointed out, for
instance, how “rapid changes in technology” could lead to a “threatened resource without
adequate institutional means to respond to the new incentives facing the fishers” (Ostrom, 1995:272-3). My first sub-hypothesis is that technological innovations can undermine the cooperative equilibrium established within CPIs by threatening their “clearly defined boundaries” (Ostrom’s first design principle).

New technologies that emerge outside of the fishers’ community (and do not necessarily relate to fishery techniques) can impact insiders’ behaviour by creating new economic opportunities outside of the CPI. Indeed, the “marginal opportunity cost of capital in alternative investments” tends to grow in a “technologically expanding economy” (Clark, 1971:632). Ostrom stated that “[a]ppropriators who are involved in activities that take them away from their [CPI] and into an economy in which other opportunities exist are most likely to adopt a high discount rate than are appropriators who presume that they and their children are dependent on the local CPR for major economic return” (Ostrom, 1990:206). In other words, fishers may find it beneficial to accelerate the extraction process in order to invest the resulting proceeds in other higher-yielding opportunities outside of the fishery (Clark et al., 2010:215).

The operation of new technologies within the CPI might also affect insiders’ behaviour in several ways. For instance, the use of new technologies can modify the perception by fishers of short-term risks. It has been emphasised that a “[n]ew technology is assumed to be riskier than that which has been well established, in that the usual market risks are compounded by uncertainties in installation, throughput, performance and the like” (Ashford et al., 1988:638). Higher risks typically result in higher discount rates (Lopez & Norris, 1997:132). In addition, capital-intensive technologies might encourage fishermen (who usually lack financial capital) to borrow funds on the outside market. Financiers might demand, in return, rates that are in
line with market rates, thus encouraging fishermen to increase the profitability of the fishery (notably by increasing catch levels).

Both types of technological innovations could accordingly affect the “clearly defined boundaries” of the CPI by encouraging (i) insiders to seek opportunities outside of the fishery and (ii) outsiders to take part in the CPI’s activities (particularly when the technology is capital-intensive). In other words, technological innovations, whether inside or outside of the CPI, would affect its “clearly defined boundaries” by exposing it to the wider economy.

B. Labour migrations and “roving bandits”

My second sub-hypothesis is that labour migrations generated by globalisation also undermine the cooperative equilibrium found in CPIs. More specifically, the arrival of foreign workers who seek to participate in a CPI potentially undermines the first design principle set out by Ostrom: it threatens the “clearly defined boundaries” of the CPI, understood as the ability to exclude others from its exploitation (Ostrom, 1990:91). Ostrom discussed how “[m]ajor migration (out of or into an area) is always a threat that may or may not be countered effectively” and that “[i]n-migration may bring new participants who do not trust others and do not rapidly learn social norms that have been established over a long period of time” (Ostrom, 2000:153). This threat undermines the cooperative basis of CPIs, which rests upon a perfect information hypothesis and allows the exclusion of defectors. CPIs cannot successfully integrate new individuals whose past records are unknown to the group because participants have to determine whether new entrants are defectors or cooperators before interacting with them. The literature on social cooperation anticipated this potential difficulty and emphasized how close-knit communities such as CPIs address the arrival of outsiders by discriminating against them. For instance, Axelrod demonstrated the optimal character of a cooperative strategy...
called “tit for tat” and emphasized its “maximally discriminating” character (Axelrod, 1990:66-67): tit-for-tat players do not cooperate with defectors but choose to exclude them from the outset. On this basis, Axelrod argued that social groups generating “nice” cooperative strategies (such as CPIs) can resist the invasion of individual defectors or clusters of defectors (because their strategy is “maximally discriminating” against them) (Axelrod, 1990:66-69). In the language of economists, private orders erect “sizable entry barriers” that prevent new entrants from participating in the trade (Richman, 2017:74). Prior studies of private orders provide support for this contention: for instance, Robert Ellickson showed that Shasta County ranchers ignore or exclude “outsiders” who refuse to comply with local norms (Ellickson, 1991:56-64).

This paper takes a more nuanced view of the capacity of CPIs to resist the invasion of outsiders who defect from community norms. This view finds support in recent research that highlighted the possibility of minority groups overturning community norms when they reach a critical mass (Centola et al., 2018). My sub-hypothesis is that CPIs cannot resist the invasion of defectors unless their organizational features evolve. The key reason for this institutional fragility is that “clearly defined boundaries” are never perfectly impervious to migrations as CPIs cannot systematically deny entry to outsiders. This is particularly the case when underlying globalisation forces drive migration processes. In fact, social history is replete with examples of “roving bandits” who successfully invade local groups and “overwhelm the ability of local institutions to respond” (Berkes et al., 2006:1557). Some institutions have been able to respond to these external pressures by evolving towards “rule-based governance” (Dixit, 2006). They typically centralise information concerning new actors to preserve positive-sum games based on cooperation (Milgrom et al., 1990) and/or actively generate new social norms (Stone Sweet, 1999). Another successful strategy of “rule-based governance” is to rely on a
more constraining governance entity such as the state, which has the means of imposing solutions on defectors (e.g. Donda, 2017:150) or empowering local stakeholders with the coercive authority to do so (e.g. Stoffle et al., 1994:375). It is noteworthy in this regard that Ostrom included in her list of design principles the possibility for CPIs to obtain “minimal recognition of rights to organise” from the state (Ostrom, 1990:101) (design principle 7) and to be organised in “multiple layers of nested enterprises” (Ostrom, 1990:101-102) (design principle 8).

In sum, CPIs may not operate successfully when facing societal changes incurred by globalisation processes as these changes are likely to affect the features guaranteeing their successful operation. For instance, technological innovations may increase the porosity of the CPI towards the wider economy. Labour migrations may also undermine the cooperative basis of CPIs by bringing in new members whose past record is unknown to existing members. As will be further explored below, the data provide strong support for both contentions.

3. DATA, RESULTS, AND DISCUSSION

The archival data presented in this paper highlight two social events that directly arose from proto-globalisation: one is the import of a new fishing technique called madrague in the early 17th century, and the other is the arrival of migrant fishermen from Catalonia throughout the 18th century. Both events are used to test the above hypothesis concerning the impact of globalisation processes on CPIs. As explained in this section, these events constrained the cooperative basis underlying the operations of the Prud’homie in ways that led to the overexploitation of fishing stocks.

A. Technological innovation and the introduction of madragues

The first example concerns the emergence of a new fishing technology called madrague. This technology was used to capture Atlantic bluefin tuna in various parts of the Mediterranean
Sea prior to the 17th century (Braudel, 1972:258), and it first appeared in Marseille in the early 17th century (AD 250E2, 1725:145). A madrague is a gigantic fish trap made of fixed nets that can spread over a length of 275 m (AD 250E2, 1725:143) and is placed relatively close to the coast (300 to 450 m away from the shore), to which a single net is connected (Baudrillart, 1827:275). Madragues are placed in the current, and they direct tuna towards a succession of net compartments. When the fish are trapped in the last compartment of the madrague (sometimes called the “chamber of death”), fishermen use an elaborate system of nets to bring them up to the surface and capture them. Figure 1 depicts one of the madragues used in Marseille in the 18th century.

Madragues emerged in Tunisia before spreading to Spain and the south of France (Faget 2017:127), and they circulated in the Mediterranean region as technologies spread during proto-globalisation (Braudel, 1973:763). The term madrague, which comes from a Spanish word (almadraba) that is itself derived from Arabic (and probably from the Greek μάνδρα, the “enclosed space” or “sheep barn” and the Latin aqua, “water”) bears traces of this cosmopolitanism (Faget, 2017:126; Gourret, 1894:245).

A single madrague could capture up to 800 tuna during their migration periods (over the summer). In addition, the tuna could be kept alive in the madragues for some time, allowing fishermen to sell the stock progressively (and control market prices) (Gourret, 1894:266-7). For these reasons, the madragues became extremely popular throughout the course of the 17th century.
In this context, the Prud’homie decided to set up a first madrague in a natural harbour called Morgiou (south of Marseille) in 1619 (AD 250E4, 28 July 1619:31) and a second one in another location called l’Estaque (north of Marseille) in 1623 (AD 250E4, 6 January 1623:64). However, the organization of the madragues quickly raised significant collective action problems. The main challenge raised by the madragues was financial: although the madragues could capture a high number of tuna, their construction and maintenance were extremely costly and required significant liquidity. For instance, the construction of madragues necessitated a significant number of nets and cork to set up the traps. The community also had to buy a house and a tract of land to store the materials necessary for the madragues (AD 250E4, 6 January 1623:64). These important costs combined with the prospect of big catches made freeriding more appealing. The Prud’homie explored two governance models to resolve these difficulties, but both were relatively unsuccessful and gravely undermined the cooperative basis of the fisher community, ultimately leading to the waste of tuna stock.

1. The equalitarian model

The first governance model was based on a shareholding system. When the Prud’homie decided to construct a madrague in Morgiou, it determined that each fisherman who owned a boat was entitled to a single share in the madrague. This system gave the fishermen equal shares in the profits but also required them to contribute equally to the costs. This model sought to preserve the cooperative basis of the community by implementing an equality rule among the fishermen: all social actors would be equally entitled to the profits. However, all the fishermen could not contribute equally to the madragues because they did not have the same financial means. As a result, the question quickly arose as to whether an equality rule was sustainable for the future of the madragues. For instance, in 1620, the community discussed whether fishermen should hold one share in the madragues or if they could obtain
additional shares on the basis of their personal wealth and ability to contribute financially (as measured by the number of boats they owned) (AD 250E4, 5 January 1620:33). The result of this debate shows the strength of the institutional path dependence in CPIs: although the second shareholding structure was more optimal for addressing the important costs generated by the *madragues*, the community maintained the equalitarian rule (one share per fisherman, whether he owned one or several boats) to preserve its cooperative basis. For instance, in 1625, 172 fishermen (arguably the entire community) held shares in the *madragues* (AD 250E4, 5 January 1620:33).

However, this policy was highly ineffective because the fishermen were unable to contribute equally to the *madragues*, and negative social outcomes arose very quickly: in 1625, the *Prud’homie* reported the “great losses” incurred by the *madragues* and a cumulative debt of 6,750 livres (AD 250E4, 19 January 1625:81). The community was in dire need of cash, as demonstrated by an attempt to force a rich fisherman (Jean-Antoine Bauduf) to financially contribute to the *madragues* in 1629 (AD 250E4, 14 June 1629:106). In 1635, the community allowed the *Prud’homie* to resort to borrowing to finance the increasing costs (AD 250E4, 22 April 1635:149), and in every subsequent year, the *Prud’homie* sought express authorization from the community to solicit financial loans.

Until 1640 (AD 250E4, 5 February 1640:170), the *Prud’homie* maintained this model based on an equal shareholding structure, notwithstanding the grave financial consequences. In 1636, the debt had grown to 24,900 livres (AD 250E4, 9 March 1636:157) and caused an acute political crisis. In 1636, King Louis XIII placed the *Prud’homie* under his direct control and stepped into the election process to install new members of the *Prud’homie* responsible for clearing the debts of the community (AD 250E4, 9 March 1636:157). It then became crucial to explore another governance model.
After 1640, the Prud’homie abandoned the shareholding system and explored a second governance model based on tenancy. At that time, the debts of the Prud’homie had reached unprecedented levels, up to 39,000 livres. It was vital to create a new governance model that could externally displace some of these costs. The tenancy model presented such an advantage: it allowed the Prud’homie to rent the madragues to an individual, thus generating rental income and decreasing its operational costs. However, this model also relocated the significant financial income generated by the madragues outside of the community: the tenant generated its own income by selling the tuna captured in the madragues. The whole CPI would therefore lose its monopoly on the exploitation of the resource, and would be increasingly exposed to the wider economic system. The emergence of the madragues forced the community to open to outsiders who were more likely to be able to pay significant rental costs than were fishermen who often faced liquidity problems. Alternatively, only the richest fishermen could afford to rent the madragues, resulting in increased inequality within the community. My argument finds support in financial data concerning the leasing of the madragues between 1640 and 1688, which are presented in Table 1 below.

<table>
<thead>
<tr>
<th>Period</th>
<th>1641-1654</th>
<th>1659-1663</th>
<th>1664-1670</th>
<th>1670-1676</th>
<th>1676-1682</th>
<th>1682-1688</th>
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<td>Jean Maïousse</td>
<td>Jean Bauduf</td>
<td>JB Jourdan</td>
<td>Pierre Giboin</td>
<td>Pierre Alleman</td>
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<td>Insider</td>
<td>Insider</td>
<td>Outsider</td>
<td>Outsider</td>
<td></td>
</tr>
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<td>Price (per year)</td>
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<td>4,200 livres</td>
<td>7,200 livres</td>
<td>12,000 livres</td>
<td>8,625 livres</td>
<td>6,035 livres</td>
</tr>
</tbody>
</table>

The Prud’homie first leased the madragues to an outsider named Jean Broulard in 1640 (for a period of 14 years) (AD 250E30, 9 November 1640:11). The tenancy consisted of a flat fee of 41,500 livres, which covered the debts of the community (39,000 livres), and a small additional payment of 2,500 livres (or a yearly fee of 2,964 livres). However, Broulard quickly
transferred his tenancy rights to three other community outsiders (Messrs. De Gastines, Martin and Durand). For reasons that do not appear in the records, the Prud’homie did not maintain this first tenancy for very long, and it recovered the rights to exploit the madragues in 1645 (AD 250E31, 9 May 1645:1). It is likely that the Prud’homie did so in order to re-assert the community’s rights over the exploitation of the resource. However, the community was then placed in the same situation as before 1640, as it again had to subsidize the financial costs of the madragues: In 1657, a document from the Prud’homie reports “important charges and expenses” incurred by the madragues (AD 50E4, 7 January 1657:205). In 1659, the Prud’homie again turned to the tenancy model and entered into a second five-year tenancy agreement (from 1659 until 1663) with a prominent community member named Jean Maiousse for a price of 4,200 livres per year (AD 250E31, 7 January 1659:74). During a first time period (from 1659 until 1676), community insiders (fishermen) leased the madragues at prices that consistently increased (from 4,200 livres/year to 12,000 livres/year). However, during a second time period (from 1676 until 1688), the Prud’homie leased the madragues to community outsiders (a master tailor and a boilermaker) at prices that decreased (from 8,625 livres/year to 6,035 livres/year). It is clear that the Prud’homie tried but did not succeed in maintaining a monopoly on the madragues.

3. Growing debt, conflict and social disintegration

One would expect to see a decrease in the community’s debt under the tenancy model due to the externalization of maintenance costs. However, this was not the case: the debts of the Prud’homie continued to grow at a rapid pace (see Figure 2), reaching 6,750 livres in 1625, 75,000 livres in 1666, 140,000 livres in 1710 and 327,789 livres in 1726. In other terms, the Prud’homie’s debt was multiplied by a factor of 49 in one century (1625-1726), and by more than two in 16 years (1710-1726) (I disregarded inflation rates as inflation was negligible over
the relevant time period in France (Poitrineau, 1990)). The financial situation of the
Prud’homie would only stabilise and improve around the mid-18th century, after the royal
administration placed it under its direct tutelage.

Figure 2 – The Debts of the Prud’homie de pêche (1625-1789)

To explore the structure of this debt, I have collected data concerning 136 financial loans taken
out by the Prud’homie between 1645 and 1788 (AD 250E94; AD 250E41; AD C2335). A review
of these loans shows that creditors of the Prud’homie comprised not only prominent
community members but also outsiders (such as various religious institutions and rich
individuals). In other words, the madragues forced the Prud’homie to borrow funds, which
increased the porosity of the community to the wider economy. In addition, the interest rates
offered by the Prud’homie to its lenders ranged between 4 and 5%, which was comparatively
lower than market rates (between 8 and 9%) and state loan rates (between 6.65 and 13.62%)
(Weir, 1989). In this context, local fishers might have considered that a rapid exploitation of
the stock (followed by reinvestment of the proceeds in the broader markets) was more
advantageous to them than the long-term exploitation of the fishery. Subsequent events that
are described below provide support for this argument.
The inexorable deterioration of debt levels can be explained by the fact that community insiders progressively ceased benefiting from the madragues after 1676. While the *Prud’homie* externalized its costs and received rental income, it no longer benefited from tuna fishing. Another reason bears additional relevance here. The debt appears to have increased rapidly because of a long string of cases before the royal courts that arose directly from the management of the madragues. These cases were extremely costly for the community. For instance, the *Prud’homie* took out a loan in 1635 to cover its litigation costs (AD 250E4, 22 April 1635:149). These cases show the disruptive effects of the madragues on the *Prud’homie*, which was no longer able to resolve conflicts internally but had to turn to (and defend itself before) an external authority. I have identified nine cases involving the *Prud’homie* in connection with the madragues between 1624 and 1678. These cases fall into two categories: the first category of cases arose out of the efforts of outsiders to participate in and reap the benefits of the madragues (and the corresponding efforts of the *Prud’homie* to maintain its monopoly thereon), and the second category concerned disputes related to the tenancy agreements.

Court cases falling under the first category resulted from the attractiveness of the madragues to rich outsiders and the corresponding efforts of the *Prud’homie* to maintain a monopoly on their exploitation. Some outsiders sought to benefit from the shareholding system established between 1623 and 1640, while others solicited the royal authority in order to set up their own madragues. In all the cases, the *Prud’homie* aggressively asserted its rights over the madragues by suing the outsiders, but it was unable to do so via its own court system and had to resort to the royal courts. For instance, the *Prud’homie* sued four individuals who pretended to be fishermen to obtain shares in the madragues (on the basis that each fisherman was entitled to an equal shareholding) in 1623 and 1624 (AD 250E191). The case
was brought before the administrative authority in Marseille (Lieutenant de l’Amirauté) and then before the royal courts in Aix (Parlement de Provence). Even more challenging for the Prud’homie were the efforts of members of the aristocracy to install additional madragues in Marseille (sometimes with the explicit approval of the King (AD 250E32, 29 June 1643:96)). The Prud’homie reacted internally by expelling any fishermen who would assist rich outsiders with the construction and maintenance of the new madragues (AD 250E4, 4 January 1632:125), but this was insufficient to discourage the outsiders. As a consequence, the Prud’homie initiated lengthy and costly proceedings before the royal courts (Parlements) in Aix and Grenoble to prohibit the construction of the madragues. Overall, the proceedings were unsuccessful for the Prud’homie: for instance, the royal court of Aix enjoined the Prud’homie from preventing the construction of a new madrague north of Marseille (AD 250E32, 30 April 1646:108). Even when the courts sided with the Prud’homie (as was the case in 1673 when they denied Dominique de la Crosse, a favourite of Queen Maria Theresa, the possibility of setting up a madrague at Sormiou (AD 250E227, 29 May 1673)), additional madragues would nonetheless appear on the Prud’homie’s territory; the social pressure was just too great for the Prud’homie to handle on its own.

The second category of cases highlights the concrete difficulties raised by the tenancy model. The Prud’homie brought court cases against almost all of its tenants, demonstrating the weaknesses of the tenancy model: the price of tenancy appeared to be too high (or the duration of the tenancy too limited) for the tenants to obtain financial benefits. Three tenants requested a price reduction on the basis that they could not generate sufficient profits to recoup their costs, and one (Jean-Pierre Giboin) produced data showing his revenues and expenses for 1676, 1677 and 1678 during his trial (AD 250E235:9). I reconstituted the financial statement of the madragues between 1676 and 1678 in Table 2 below.
Table 2 – Financial Statement of the Madragues (1676-1678)

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenues</th>
<th>Expenses</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Operational costs</td>
<td>Rent</td>
</tr>
<tr>
<td>1676</td>
<td>13,698</td>
<td>10,130</td>
<td>8,625</td>
</tr>
<tr>
<td>1677</td>
<td>12,945</td>
<td>8,828</td>
<td>8,625</td>
</tr>
<tr>
<td>1678</td>
<td>4,776</td>
<td>9,496</td>
<td>8,625</td>
</tr>
<tr>
<td>TOTAL</td>
<td>31,419</td>
<td>28,454</td>
<td>25,875</td>
</tr>
</tbody>
</table>

Table 2 shows that the tenant operated the madragues at a substantial loss between 1676 and 1678. Giboin accumulated a total loss of 22,910 livres during this time period. The income generated by the madragues (31,419 livres) was sufficient to cover the operating costs (and generate a profit) but insufficient when the rent was added. Another tenant (Jean Bauduf) sought to increase the profitability of the madragues by raising the price of tuna, but he faced another lawsuit initiated by the city of Marseille to maintain tuna prices at constant levels (AM HH372, 20 September 1664).

The attractiveness of the madragues declined as lessees appeared increasingly unable to maintain sufficient profitability to operate them. The situation came to a stalemate because fishermen were unable to operate the madragues themselves (although they could arguably have generated profits if they had sufficient liquidities to make the relevant investments), but tenants could not generate sufficient profits because of the high rents. In 1688, the Prud’homie reported that no one had made a bid to lease the madragues for the last year and a half (AD 250E4, 18 January 1688:369). The solution came from a decrease in rent levels to increase the profitability of the madragues. For instance, the rent for the madragues amounted to 1,674 livres in 1717 (AD 250E256, 17 July 1719), and in 1735, only one individual presented a bid at a steep discount (150 livres/year) (AD 250E4, 6 February 1735:392). As a
consequence, the tenancy model persisted until the 19th century, but it generated decreased rental income for the Prud’homie.

Another important lawsuit was brought by the Prud’homie against Jean Maïousse (one of its tenants between 1659 and 1663). In this lawsuit before the royal court of Aix, the Prud’homie accused Maïousse and former members of the Prud’homie of engaging in a conspiracy to divert the profits of the madragues. Maïousse signed his tenancy agreement in January 1659 (AD 250E31, 7 January 1659:74) but entered into a counter letter with 31 individuals (who were arguably the real beneficiaries of the madragues) shortly afterward. These individuals included all the members of the Prud’homie in 1659 and 13 members of the Prud’homie who were elected between 1659 and 1662 (out of 16 members elected during this time period) (AD 250E31, 18 May 1660:94-109). One of these individuals was the 4-year-old son of a Prud’homme (AD 250E31, 18 May 1660:94-109). New members of the Prud’homie sued the tenant in 1663, arguing that he conspired with these individuals to divert the profits of the madragues (40,000 livres according to the complaint) and channel them back to those who granted him the tenancy (AD 250E213, 1663). In 1663, the royal court of Aix ordered that the tenancy be auctioned (AD 250E213, 14 March 1663). This lawsuit demonstrates the difficulty of maintaining cooperation when the prospects of immediate gains associated with a new technology modify the temporal horizon of CPI members. In economic terms, the discount rate of these individuals increased: they started valuing the immediate gains potentially generated by the madragues more than the long-term benefits derived from their sustained cooperation within the CPI. The overrepresentation of community leaders among these defectors demonstrates the great appeal of the madragues to the community and the difficulty of preserving cooperation in this context.
In sum, the experimentation with the madragues was unsuccessful overall: it divided the community, threatened its independence vis à vis the royal authority, and posed a serious challenge to its finances. The inability of the Prud’homie to manage the arrival of a new technology also led to overexploitation of the commons, thus gravely undermining its core function as a CPI.

4. Resource waste: the collapse of the CPI

As explained above, the Prud’homie tried but failed to maintain a monopoly over the operation of the madragues. As a result, the number of madragues quickly increased throughout the 16th and 17th century. I have counted no less than ten madragues that were constructed within the territory of the Prud’homie during this time period (see also ACCI YC/2209, 1790:21). Only two of these madragues were controlled by the Prud’homie (although leased out to outsiders); seven others belonged to wealthy aristocrats; and one madrage belonged to the city of Marseille. In addition, the madragues were installed for increasingly longer durations throughout the year over time (from May until October in the 18th century to May until January in the 19th century) (MAR/C5/27-29). The proliferation of madragues seems to have had a negative impact on the tuna fishing stock. There are several reasons for this result. Atlantic bluefin tuna are a migrating species that are present throughout the Atlantic Ocean and the Mediterranean region. Fishing practices in a specific location should therefore have limited impact on a stock of fish that circulate throughout a large geographic area. In fact, this was one of the arguments raised by the Prud’homie to justify the installation of the madragues in the early 17th century (AD 250E2, 1725:146). However, Atlantic bluefin tuna reproduce in warm waters (22°C to 28°C, which typically corresponds to Mediterranean near-shore areas (Ellis, 2008:48)) during the spring and summer seasons (Ifremer, 2016). This period coincides with the tuna fishing season in
Marseille (Braudel, 1972:258), and madragues were typically established in areas close to the coast. The madragues would therefore capture tuna at a key stage and in key areas in their reproduction cycle, thus maximising the impact on the stock. In fact, there are several reports of a collapse in tuna stocks beginning in the 17th century (Faget, 2017:138). In 1769, a contemporary observer reported that the Prud’homie renounced the use of a madrage because tuna had deserted the coast of Marseille (BNF Gallica, 7 April 1769:9). A municipal report for the city of Marseille emphasized the “discontinuation and demise” of the madragues because of the collapse of the tuna stock in 1870 (AD 6S10/3, 22 June 1870). In the early 20th century, an official report stated that tuna had disappeared from the coasts of Marseille, and the madragues were subsequently discontinued (AD 6S52/1, 25 February 1905).

Although it is difficult to highlight causal relationships in the evolution of fishing stocks (which can be explained by a myriad of factors, including biological ones), it seems clear that the madragues negatively impacted the stock of tuna. The Prud’homie was unable to preserve its “clearly defined boundaries” and maintain a monopoly over the madragues, which resulted in their proliferation and the over-exploitation of the fishing stock. In addition, the intervention of outsiders and the division of the community appear to have modified the behaviour of insiders, who seemed to favour short term profits over long term benefits (as shown for instance by the attempts of the Prud’homie to divert the profits of the madragues).

In economic terms, individual discount rates within the fishery appear to have increased. The introduction of the madragues in the Marseille fishery confirms Ostrom’s argument that CPIs might be ill-equipped to handle changes incurred by globalisation, so they require support from more traditional governance entities, such as the state, when facing these changes. In the case of the madragues, however, the support of the state was wavering and insufficient.
to cope with these changes. The arrival of Catalan fisherman throughout the 18th century provides, I believe, even stronger support for this argument.

B. Labour migrations and the arrival of the Catalans

Beginning in the 1720s, the Prud'homie faced yet another challenge when groups of Catalan fisherman progressively settled in Marseille. The reasons why these fisherman left Spain for France are unclear (Faget, 2012:160-1), but their settlement in Marseille was part of successive streams of migration that unfolded beginning in the late 16th century in an overpopulated Mediterranean Europe (Braudel, 1972:415-8). In other words, the arrival of Catalan fisherman in Marseille is another manifestation of the proto-globalisation that occurred in the 17th and 18th centuries. The Catalans deeply affected the life of the Prud'homie in a context that was already challenging for the local fisherman: their finances had been gravely affected by the madragues; the Prud'homie even introduced a tax on the sale of fish (the so-called “half share”) in 1725 to bring its finances back into equilibrium; and finally, the fisherman suffered heavily from the Great Plague that struck the neighbourhoods surrounding the port of Marseille in the years 1720-1722. The Spanish fisherman quickly demonstrated their reluctance to abide by the norms of the Prud'homie. Therefore, the arrival of foreign fisherman in Marseille throughout the 18th century provides a useful case study of the invasion of a CPI by a group of defectors. After describing the scope of these migration processes, I will show that the Prud'homie had great difficulty addressing this arrival and offered unclear policy responses that oscillated between the exclusion and assimilation of these newcomers. My empirical observations contradict the dominant literature on the solidity of cooperative strategies when faced with an influx of defectors (Axelrod, 1990:66-7). I will then retrace the negative social outcomes of these ambiguous policy responses.
1. *The arrival of the Catalans*

As stated above, Catalanian fishermen arrived in Marseille in successive migration streams starting in the 1720s. These migrations did not raise opposition on the part of the French state (probably because they were limited in size) and were even allowed following an alliance treaty with Spain in 1761.

The Catalanians settled in the southern part of the port of Marseille (while the local fishermen traditionally occupied the northern part). The competitive pressure exerted by these migrants over the CPI can be assessed by their relative number, but this assessment is rendered difficult by the lack of precise data concerning the population of Catalans who settled in Marseille.

Faget reported the arrival of 39 Catalanian fishermen (presumably with their children and wives) between 1722 and 1792 on the basis of notary records (Faget, 2011:357). In contrast, the *Prud’homie de Pêche* reported the presence of 102 Catalanian boats with 812 crew members in 1787 (clearly an exaggeration based on political motivations) (AD 250E8, 1787:89).

However, the police department of Marseille provided a precise accounting of the population of Catalanian fishermen in 1826 (AM 18F6, 31 March 1826). It established a list of 117 individuals, the majority of whom (83 individuals) were born in Marseille. All the individuals listed by the police were fishermen (AM 18F6, April 1826). This estimate is consistent with my own accounting of the community based on an exhaustive review of the fishing boats based in the port of Marseille between 1816 and 1818 (ASHD 13/P10/3, 1819). My data set shows 22 Catalanian boats with 115 crew members (112 of whom were described as “Spanish”). This empirical evidence allows a comparison between the size of the Catalanian community and the overall community of local fishermen: the local fishermen operated 141 boats with 683 crew members. Therefore, the Catalanian fishermen represented 14% or 16% of the entire
community (depending on whether this proportion is measured by number of crew members or boats) approximately 100 years after their first arrival.

**Figure 3 – The fishermen’s community in Marseille (1816-1818)**

Although they do not allow one to track the demographic evolution throughout the 18th century, these figures provide a snapshot of the community and of its size immediately after the relevant time period (18th century). They show that the Catalonian fishermen represented a non-trivial proportion of the entire population of fishermen in Marseille and that their arrival represented an invasion by a cluster of newcomers for the community (Axelrod, 1990:66-7). I will now assess the response of the Prud’homie to this invasion of new entrants.

### 2. The response of the Prud’homie: exclusion or assimilation?

The response of the Prud’homie to the progressive arrival of foreign fishermen throughout the 18th century is comparable to its management of the madragues: it shows a lack of long-term vision and an inability to manage conflicts arising within and outside the community. When they progressively settled in the territory of the Prud’homie, the Catalans played a classic freeriding game: they started fishing in the territory without paying the costs associated with the maintenance of the commons. For instance, the Catalans refused to pay...
the tax imposed by the Prud’homie on the sale of fish (the “half-share”) and did not comply with its rules. In addition, the Catalans brought a fishing technique from Spain that was already practised in Marseille, although less intensively. This technique, called palangre, consisted of floating a long line to which several smaller lines and hooks were attached, but its practice by the Catalans differed from that by the fishermen in Marseille. For instance, the Catalans used smaller hooks than those allowed by the Prud’homie, resulting in the capture of smaller species and younger individuals (thus impacting the fishing stocks more aggressively). They also used their palangres further from the shore due to their use of boats (Faget, 2011:45-8) that were narrower and faster than the boats used by the local fishermen and could therefore cover more distance in the same day. Figures 4 and 5 allow the reader to compare the types of boats used by local and foreign fishermen based on old drawings (AN MAR/C/4/178, 1785), and it can be seen that the boats used by local fishermen were wider than the ones used by foreign fishermen, which made them more stable but slower than the Catalanian boats. As a result, the local boats were suitable for coastal, net-based fishing (the preferred technique of the local fishermen, as highlighted in Section 1.B) while the Catalanian boats were particularly fit for palangre fishing further from the coasts.

In other words, the Catalanian fishermen used more aggressive fishing techniques based on their equipment and boats which presented yet another challenge for the long-term preservation of the fishery resources. In this sense, the arrival of the Catalanian fishermen could be likened to a technological shock comparable to the emergence of the madragues in the 17th century.
In addition to using more aggressive fishing techniques, the Catalan fishermen also refused to abide by the fundamental rules of the *Prud’homie*, such as the prohibition on fishing on Sundays and the obligation to submit to the jurisdiction of its court on that day. Therefore, the arrival of the Catalan fishermen within the territory of the *Prud’homie* provides a concrete case study of a CPI faced with an invasion of defectors. The prior scholarship on the subject teaches us that CPIs typically exclude defectors to maintain control over their territory and preserve their long-term commitment to the preservation of resources. The case of the *Prud’homie* evidences a more complex response from a CPI that combined strategies of exclusion and assimilation without a clear vision for the way forward.

The *Prud’homie* first reacted to the arrival of Catalanians by seeking to exclude them from the fishery. Shortly after the arrival of the first such migrants in the 1720s, the *Prud’homie* noted the negative effects of *palangres* on the fish stock and began prohibiting the use of small hooks. For instance, a document from 1727 reflects the concerns of the *Prud’homie* over the fishing practices of the Catalans:

> It has been only since 1722 that they [the *Prud’hommes*] have been scandalized to see foreigners from Catalonia come in their seas with *palangres* furnished with small hooks. The *Prud’hommes*, seeing the harm done to the seas by taking away small fish through the use of small hooks, renewed their prohibitions and their regulation according to which only hooks that are numbered 13 or 14 and that cannot harm [the fish stocks] can be used for *palangre*. (AD 250E2, 1725:45)

The archival record also shows that the *Prud’homie* was unable to independently manage the activities of foreigners who did not comply with their regulations. They quickly turned to the French state to exclude the Catalanians from the fishery (without success). For instance, a letter from the Ministry of Naval Affairs (De Maurepas) to its delegate in Marseille dated 15 November 1735 mentions a request from the *Prud’homie* to regulate the *palangres* (with the ultimate goal of excluding the Catalans from the fishery):
... by forcing the Catalans to fish with boats and nets similar to those used by the fishermen in Marseille and to have the same number of crew members, it is believed that they will no longer fish with palangres on their coasts in order to avoid the expenses incurred by new boats and new nets [...] (AD 250E5, 15 November 1735:320bis)

Another example of the Prud’homie’s discriminating strategy concerned the attempts by the Catalans to dry their fishing nets in locations used by the local fishermen and the subsequent steps taken by the Prud’homie to exclude the Catalans from these locations (AD 250E276, 19 September 1777).

However, this exclusion strategy failed entirely as it became evident that the Catalanian fishermen would stay in Marseille. The Prud’homie became overwhelmed by the competition from a foreign group that rejected its rules and jurisdiction, so it attempted to assimilate the group instead of excluding it. In fact, these foreign fishermen progressively became indispensable to the supply of food for the city of Marseille. By supplying more (and arguably better) fish, the Catalans were able to attract the sympathy of local stakeholders such as the municipal administration of Marseille. On 7 November 1790, the city council issued a declaration defending the Catalanian fishermen on the basis that they could be credited with the “affluence of better fish” in the previous 50 years (AM 18F6, 7 November 1790). In this context, the Prud’homie combined its discriminating strategy with an assimilation strategy that consisted of attempting to encourage the Catalans to submit to its jurisdiction and rules.

For instance, the Prud’homie tried to force the Catalans to pay the “half-share,” its special tax on the sale of fish (see, e.g. AD 250E5). To bring the Catalans under its jurisdiction, the Prud’homie actively sought the support of the French state by building a de facto alliance with the royal authority. The Council of the King, which was the main advisory body, rendered no less than 5 decisions between 1738 and 1786 to clarify the powers of the Prud’homie over the Catalans. The King even sent a special envoy to Marseille, Mr. de Chardon, who was
responsible for regulating the fishing techniques (particularly the *palangre*) and resolving the
disputes between the French and Catalonian fishermen. The *Prud’homie* also initiated
expensive trials against the Catalans before the royal courts. For instance, the *Prud’homie*
sued the Catalan fishermen who used the *palangre* before the royal court of Aix in 1774
(AD 250E276). This trial is symptomatic of an institution that was no longer able to internally
manage its disputes. At the same time, the *Prud’homie* actively lobbied public officials to
advance its cause vis-à-vis the Catalans. These lobbying activities included gifts (usually tuna
(AD 250E4, 8 September 1740)), the organization of festivals for public officials (AD 250E39,
January 1743), and the preparation of written memorials in support of their position (AD
250E36, 1786). For the latter activity, the *Prud’homie* enjoined the services of numerous
lawyers including Portalis, one of the leaders of the bar and the main drafter of the future Civil
Code (AD 250E8, 1787:146). All these steps were intended to assert the jurisdiction of the
*Prud’homie* over the Catalans by seeking the support of the state. The Statute of 12 December
1790 eventually gave satisfaction to the *Prud’homie* by submitting the Catalans to its
jurisdiction and the payment of the “half-share” tax as well as granting them the same rights
as local fishermen (for instance, the right to be elected as a member of the *Prud’homie*) (ACCI
E/159, 12 December 1790). However, the support of the French state either came too late, or
was effectively undermined by the revolution that was raging in France at the time. In fact,
these measures that favoured the assimilation of the Catalans were ineffective as they
persisted in forming a separate community in the subsequent decades and continued
disobeying the rules of the *Prud’homie* (e.g., AM 18F6, 11 January 1817).
The overlap of various strategies vis-à-vis the Catalans caused widespread confusion within
and outside the community. The difficulties raised by the arrival of outsiders who refused to
comply with communal norms and brought more effective fishing techniques had a direct
impact on the community’s management of common resources. It generated increased
competition both within and outside the community and led to the deterioration of the fishery
resources.

3. Social outcomes: increased competition and deterioration of natural
resources

As shown above, the Prud’homie was overwhelmed by the arrival of outsiders, and it
demonstrated its inability to govern the fishery under these circumstances. Some
contemporaneous reports depict the utter desolation of the Prud’homie when faced with the
repeated breaches of its rules by the foreign fishermen:

All those breaches are frequent, as are the violations of rules. They [the Catalans]
practice pit-lamping during the night, despite its prohibition under the laws of the
fishery. They never pay the “half-share” [the tax imposed by the Prud’homie], although
they recognize to be subjected thereto. The prohibition to fish on Sundays and holidays
does not stop them. In particular, they avoid leaving [the port] with local fishermen on
Sunday night in order to take their fishing spot [...] and are always one step ahead of
them: they are where they choose to be, occupy the fishing spots as they wish against
the laws of cooperation and equality which they breach without hesitation. The
negative consequences are significant. The escape of fish and their near destruction
are the least of them. What is even more noteworthy are the injured equality, the
insubordination, and the disorder and disastrous consequences of this insubordination
(AD 250E36, 1786:6).

The Prud’homie subsequently faced a collapse of the cooperative basis that until then had
supported its operations and maintenance. This social collapse primarily concerned the
relationship between the Prud’homie and the Catalans. As shown above, the Catalanian
fishermen were perceived as a threat. An unintended consequence of this perception was the
decline of the Prud’homie’s legitimacy in governing the fishery: For instance, the city council
of Marseille stated in 1790 that the Prud’homie was no longer able to govern the fishery as
the Catalans were “necessarily their rivals” (AM 18F6, 7 November 1790).

In addition, the increased competition impacted the inner life of the community. The
emergence of a rival group of foreign fishermen who successfully competed with the
Prud’homie relegated the local fishermen to a secondary role and caused tension within the community. This social disorder arose out of the practice of palangre, the fishing technique at which the Catalans excelled. This technique targeted relatively large fish and made use of smaller fish (typically sardines) as bait. Because of the efficiency and success of the Catalans, the local fishermen progressively found themselves relegated to the role of suppliers of sardines for the palangre. When the Prud’homie sought to prohibit the sale of sardines to the Catalans, it quickly faced opposition within its own ranks because of the profits generated through these sales (Faget, 2011:61). The superiority of the fishing techniques used by the Catalans also encouraged the local fishermen to imitate the foreigners rather than pursue their traditional activities. In a decision of 20 March 1786, the Council of the King implemented a series of measures aimed at encouraging the local fishermen to practice palangre: those who expressed a wish to fish with palangres would be given a boat, an exemption from the “half-share” tax for three years, and an exemption from military service (ACCI E/159, 20 March 1786). The royal authority thus intervened directly to encourage the local fishermen to address the competitive pressure exerted by the Catalans, and the Prud’homie also supported this policy by allocating 8,000 livres for the purchase of lines for local fishermen who wished to practice palangre (AD 250E8, 1787:52). This policy, which was ultimately unsuccessful (Faget, 2011:78-9), demonstrates the weakness of a CPI faced with outside competition and the impact of this competition on the cooperative nature of social relations within the CPI. This increased competition, both within and outside the CPI, had a direct impact on the preservation of natural resources. As with the madragues, it is difficult to retrace the impact of a single set of historical events on the evolution of the fishing stock. It is clear, however, that the increased competition between social groups favored prisoner’s dilemma games in which each group prioritized short-term gains over long-term profits. The repetition of social
interactions that solve the prisoner’s dilemma (Milgrom et al., 1990) is premised on a level of cooperation that is deeply undermined by social conflicts. The arrival of foreigners, who arguably had a shorter temporal horizon than the locals (and therefore had additional incentives to extract resources more rapidly), compounded the problem. This situation translated to the use of more aggressive extraction techniques by the fishermen and an overall decline in the fishing stock. As a matter of fact, each group of fishermen accused the other of using aggressive fishing techniques, resulting in the decline of the fishery resource. As shown above, the Prud’homie accused the Catalans of using smaller hooks, operating at night and competing over the best fishing locations without abiding by the sequence rules implemented within the community. All these bad practices led, according to the Prud’homie, to the deterioration of the fishery resource (AD 250E36, 1786:11-12). Conversely, the Catalans accused the local fishermen of using dragnets that destroyed the seabed (including younger fish and fish eggs), thus leading to the deterioration of the fishery (ACCI YC/2209, 1790:29). Their argument found additional support in the reports of contemporary observers concerning the negative effects of dragnets in Marseille (BNF Gallica, 7 April 1769:23). The emergence of dragnets coincided with the arrival of the Catalans, and one could hypothesize that the use of aggressive techniques by the local fishermen was an attempt to keep up with the outsiders.

CONCLUSION

The present paper explores the ways in which globalisation processes can affect the functioning of CPIs. For that purpose, the data are focused on a CPI (the Prud’homie) at a time described by historians as “proto-globalisation,” when the early effects of globalisation were felt across the Mediterranean. On the basis of these data, the paper casts light on two events that arose out of proto-globalisation: the emergence of a new fishing technique called...
madrague in the 17th century and the arrival of foreign migrants who disobeyed the rules of the Prud’homie in the 18th century. Those events directly affected the Prud’homie’s ability to preserve its “well defined boundaries,” a distinguishing feature of successful CPIs according to Ostrom. The paper therefore illustrates the social breakdown that arose from the early globalisation and the inability of a CPI to address the primary task for which it was formed: the long-term governance of the commons and the successful allocation of the fishery resource.
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Archives:

ACCI: Archives of the Marseille Chamber of Commerce (Archives de la Chambre de commerce et d'industrie de Marseille)

AD: Archives of the Bouches-du-Rhône (Archives départementales des Bouches-du-Rhône)

AN: National Archives (Archives nationales)

AM: City Archives (Archives municipales de Marseille)

ASHD: Military Archives (Archives du Service historique de la défense de Toulon)


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