

COMMENTS WELCOME

# Competing for Protection: Land Fragmentation and the Rise of the Sicilian Mafia

Oriana Bandiera\*

London School of Economics

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## 1. Introduction.

The mafia is an institution that emerged in the rural areas of Western Sicily in the 19<sup>th</sup> century, during the transition between feudalism and capitalism. The mafia is a set of rules that constrain and dictate the actions of mafia-men or “*mafiosi*”<sup>1</sup>. *“Mafia is a philosophy of life, a moral code...(Sicilians) are taught..that they must help one another, stay by their friends and fight common enemies, even when friends are in the wrong and enemies are in the right. Every man must defend his dignity under all circumstances and must not let the slightest disrespect or affront go unavenged. They must not divulge secrets and always keep clear of official authority..”*. (Barzini (1965))

*Mafiosi* are generally organised in groups, which are known as “*cosche*” or mafia-groups, whose main activity originally was to sell “protection”. The mafia itself cannot be defined as an organisation since a formal and centralised co-ordination among mafia-groups never existed.

The aim of this paper is to model and test the conditions that fostered the initial development of mafia-groups and promoted the rise of the mafia. Understanding the origin of the mafia is useful to explain the economic development of Sicily and to identify the “potential” for mafia in societies that are facing institutional transitions nowadays. Indeed, the presence of this kind of institution is not unique to Sicily: similar phenomena have been observed in Japan and have recently emerged in Russia and Eastern Europe.

In order to gain an understanding of the conditions that favoured the formation of the first mafia-groups I investigate the evolution of Sicily’s society and economy during the nineteenth century. The analysis shows that mafia emerged at the time when formal authority was weak, banditry was strong and, due to the abrogation of feudalism, landholdings had been fragmented. The absence of publicly provided security and the

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<sup>1</sup> “*Mafioso*” is a single man who operates in the framework of a *mafia*-group. Plural: “*mafiosi*”.

presence of thieves and bandits generated a strong demand for protection. The rise of the mafia, however, cannot be explained on the basis of these conditions alone. Since both conditions had been present for a much longer time, the third, that is land fragmentation, must have played a role. I argue that, even if it did not increase the assets in need of protection, land fragmentation increased the demand for protection and hence fostered the rise of mafia.

In the context of a menu-auction model I will show that, for a given level of assets in need of protection, land fragmentation favours the development of mafia by increasing the profits of mafia-groups. Land fragmentation generates an increase in the number of landowners, which, in turn, increases the competition for protection. Interestingly, the model shows that landlords compete for protection even if the assets in need of protection are unchanged. The result follows from the fact that when a landlord buys protection he imposes a negative externality on the other landlords. Since for a protected landlord protection is more valuable if only a few landlords are protected, each landlord will pay a higher price if he is the only one or one of the few to receive protection<sup>2</sup>. Therefore, given the level of assets in need of protection, more landlords imply more competition and a higher surplus for the mafia-group. Moreover, given the number of landlords, more assets in need of protection imply a higher surplus for the mafia-group, as one would expect. Finally, mafia-groups choose to be “more active”, i.e. to offer more protection, in areas where land is more fragmented.

Although data on mafia-groups’ profits are, not surprisingly, unavailable, the model can be tested using data on the presence of mafia-groups. To the extent that higher potential profits increase the probability that a mafia-group is active in a region, the variables that in the model increase profits should positively affect the presence of mafia-groups in that region. Using a survey published in 1881-6 by the Italian Parliament, I was able to build a qualitative data set that contains information on the presence of mafia, the

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<sup>2</sup> Car alarms are a nice illustration of the idea that protection involves an externality: a car is less likely to get stolen if it is the only one that has an alarm installed. If all the cars in the neighbourhood have alarms the probability that a particular car gets stolen is higher.

“intensity” of mafia activity, and the distribution of landholdings for 70 Western Sicilian villages. The predictions of the model are consistent with the available empirical evidence: mafia-groups are more likely to be active in villages where land is more fragmented and where there are more assets in need for protection (as proxied by the frequency of thefts and by the presence of highly valued crops). Moreover mafia activity is more intense where land is more fragmented.

## **2. Some Facts about the Mafia**

Since the end of the last century the Sicilian mafia has received considerable attention from a broad range of scholars and has been depicted, more or less accurately, in countless movies and novels. Despite this, consensus has been reached on only a few points. Even the definition of the mafia is controversial. Much confusion has arisen from the fact that the same word is used to refer both to the institution and to the activities that characterise all mafia-groups. Mafia has been variously identified as an "industry of violence" (Franchetti 1925), a "protection agency" (Gambetta 1993) or as a "way of being" (Pitre' 1889) and as a "sentiment" (Lorenzoni 1910). There is agreement that the mafia entailed a private monopoly over physical violence, which was used to defend own interests and to sell protection to others. Mafia-groups were a "private police" that enforced property rights in exchange for compensation.

The debate over the identity of the first *mafiosi* is unsettled as well. Most likely, they were the armed guards formerly employed on feudal estates (see e.g. Blok 1968). Some authors (e.g. Sereni (1971)) identify as *mafiosi* all the tenants who managed large estates (*gabelloti*). Others (Dalla Chiesa 1976) identify as "mafia-class" both the protectors and those willing to buy protection, usually the upper classes. The latter should, however, be included in the "*number of people who, not being themselves mafiosi, co-operates with the mafia-groups (..) this co-operation cannot be explained as the result*

of coercion. Those who cooperate expect certain advantages." (confession of the mafia-boss T. Buscetta, quoted in Gambetta (1993)).

The mafia<sup>3</sup> most likely appeared in the second quarter of the 19th century, after the abrogation of feudalism (e.g. Franchetti (1925) and Gambetta (1993)). Some scholars trace its origins back to the 17th and 18th centuries, identifying as *mafiosi* the armed guards who were paid by the barons to patrol their estates<sup>4</sup>. Still, these guards were essentially employees of the barons and the practice of hiring criminals as private guards was not uncommon in other areas of Italy, where the mafia did not develop. Other scholars maintain that the mafia emerged only after Italian Unification (1860). This view is inconsistent with the fact that the first reports on mafia-groups by Italian prosecutors already describe well-established organisations that could not possibly have developed in a few years. Furthermore, in 1838 the chief prosecutor in Trapani, don Pietro Ulloa, notified the Minister of Justice of the existence of mafia-groups.

Finally, there is unanimous agreement that mafia developed almost exclusively in Western Sicily: Official documents dated as early as 1874 (see Russo (1962)) state that Eastern Sicily was not affected.

### **3. The Context: History and Economic Conditions in 19th Century Rural Sicily.**

At the beginning of the 19<sup>th</sup> century Sicilian society still had a feudal structure. Since the foreign governments that ruled Sicily during the previous centuries always relied on the local upper classes to manage public affairs in the island, power resided traditionally in the hands of a few noble families. Agriculture was the most important economic activity and the noble families owned most of the land, which they farmed on an

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<sup>3</sup>The word itself was first used in a drama written by Giuseppe Rizzotto (1863) "I mafiosi de la Vicaria" which describes the behaviour and the activities of a group of "*mafiosi*", momentarily imprisoned in Palermo's jail (the Vicaria). The word "*mafia*" made its first official appearance in a report by the chief prosecutor in Palermo, Filippo Gualtieri, in 1865.

<sup>4</sup> For example Frosini (1969) claims that the work of Brydone (1773) contains the first proof of *mafia* existence. Brydone was a Scotsman who travelled around Sicily in 1770. His book contains 29 letters in which

extensive basis. Since most barons lived in Palermo or Naples, they generally appointed wealthy tenants, called *gabelloti*, to manage their land.

Feudalism was officially abolished in 1812 but the land-owning aristocracy retained most of the old privileges, such as imposing taxes on the peasants, who were made even poorer by the abolition of common rights. The Bourbons, who ruled from 1816 to 1860, tried to ameliorate this situation by promulgating laws to effectively remove feudal institutions and by promoting land redistribution to create a new class of small landowners to replace the powerful aristocracy.<sup>5</sup> To the same purpose in 1862 the Italian State promulgated land reforms.

Although they were partially successful at reducing the size of landholdings, in Western Sicily the land reforms did not succeed in creating a class of "rural entrepreneurs". Huge fiefs were divided into smaller properties<sup>6</sup> but few farmers managed to purchase land. Those who did succeed generally bought small plots nearby the villages. In the inner part of the island, wealthy bourgeoisie and former *gabelloti* purchased most of the land. The new owners often lived far from the land and in most cases they successfully tried to enter the ranks of the aristocracy, imitating their dislike for productive activities<sup>7</sup>. Since the new owners did not improve the old production methods, land reform did not enhance efficiency<sup>8</sup>. The plots were still farmed on an extensive basis and rented to new *gabelloti*. The *gabelloti* usually subleased the land to small farmers and lived as far from the countryside as they could. Since they were appointed for a short

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he describes the natural and social characteristics of the island. In one of these letters he reports that his host, the governor of Messina, had him escorted by two members of his private army who were former bandits.

<sup>5</sup> The most relevant laws to eliminate feudalism were promulgated in 1820 (abolition of primogeniture and seizure of land in settlement of debts) and in 1841 (order of giving to the peasants at least one fifth of the land where common rights were enjoyed before 1812).

<sup>6</sup> It has been estimated that the number of large landowners increased from 2,000 to 20,000 in the period 1812-1860 (see Mack Smith 1968). Damiani (1881) reports that large properties (more than 200ha) were predominant only in 15 villages out of 71.

<sup>7</sup> The social disapproval attached to productive work and the deriving habit of living exclusively off rents among the Western Sicilian upper classes has been witnessed by many foreigners who visited the island and by the Sicilian economist Ferrara.

<sup>8</sup> There were exceptions. Some landlords planted more remunerative crops, introduced modern systems of cultivation and promoted fixed settlement on the land by building houses for the peasants. Others engaged in wine production. Still, these were isolated examples that the majority did not imitate.

period of time, *gabelloti* had no incentive for long-term investment in the land<sup>9</sup>; in general they invested their earnings in loans to the peasants (at rates as high as 100%) and in land purchases that allowed them to enter the class of the landowners and entrust the land to other *gabelloti*.

The situation of the landless peasants worsened rapidly after the abrogation of feudalism: they were deprived of common rights without receiving compensation and were still treated as serfs by the new land-owning class. Even those who owned a small plot of land often had to work on the large estates at the service of the *gabelloti*. Since the farming techniques did not require permanent workers, most workers were employed daily. Those who owned a mule and a plough were hired seasonally to cultivate some small plots often distant from each other. Since they had to travel between the different plots and had to be physically present at the market for daily workers the peasants lived in the closest village and travelled daily to the fields. The life standard of the peasants declined steadily during the 19<sup>th</sup> century; Mack Smith (1960) reports that between 1798 and 1861 population increased by 0.4 millions while, due to the unchanged production structure, agricultural output remained fairly constant.

Many of the peasants turned to banditry, especially during the periods of high unemployment. Banditry strongly increased during the 19th century with six major risings in 1820, 1837, 1848, 1860, 1866 and 1893. The most common crime was cattle rustling, favoured by the lack of a permanent presence on the land, especially during the night. Publicly provided security was quite insufficient: *"Twenty-five "Companies at Arms" policed the countryside, but altogether there were usually less than 350 policemen for the whole island. Two or three times a year a company of troops would arrive in each village and round up a token number of malefactors, but this would be followed by another few*

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<sup>9</sup> Improvements like irrigation and land manuring, would have notably increased the land value (according to Mack Smith (1968) up to twenty times), still the gabelloto would not invest since his investment would mainly benefit those who came after him. Similarly shifting from cereals to more profitable cultivation (like vines or oranges) was not an attractive option for the gabelloto since these cultivation would not bring any income for about four years.

*months of complete impunity*" (quoted from Mack Smith 1960). The situation did not improve when the Italian State took over.

In this framework *mafiosi* made their first appearance; they offered the policing services that the State did not offer, and that the landowners, or their gabelotti, would not provide. The first *mafiosi* were the armed guards formerly employed by the barons. Land fragmentation was a crucial factor for the development of the Mafia: after the abrogation of feudalism *mafiosi* gained autonomy and offered their services to a larger number of new clients (see Gambetta (1993)).

In conclusion, the conditions that promoted the rise of the mafia in Western Sicily can be summarised as follows:

- Land fragmentation, hence more landlords in need of protection.
- Inability of the State to guarantee effective protection of persons and property.
- Landlords absenteeism
- No fixed settlement on land
- Poor peasants who often resorted to banditry.

Note that none of the above conditions is sufficient, if taken alone. For example, land fragmentation is necessary for *mafiosi* to gain from landlords' competition but it is not sufficient by itself. Land was fragmented in Eastern Sicily but no mafia emerged there.

In Eastern Sicily the land reforms had different effects. The new class of landowners immediately promoted the transition to a capitalistic structure of production: capital was invested on the land, crops were diversified and tenancies were longer.<sup>10</sup> Landowners often lived on the land and managed it directly<sup>11</sup>, social tensions were almost

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<sup>10</sup> I am not aware of any theory that convincingly explains the difference in landlords' behaviour.

<sup>11</sup> A curiosity: the Eastern provinces, especially Syracuse (the most peaceful), were mockingly defined "provincia babba" (i.e. stupid province) by the Western people. The reason for this kind of ironic nick-name was, most probably, the absence of the parasitism (intended as making a living without being involved in any productive activity) characteristic of Western Sicily.

irrelevant, and banditry was rare. Because of low demand for protection there was no market for mafia-groups<sup>12</sup>.

#### **4. The model: land division and the rise of the Mafia.**

This section analyses the effect of land division on the development of the mafia in the context of two-stage game in which the landlords offer *mafiosi* a monetary reward in exchange for protection and the *mafiosi* decides who to protect in order to maximise their surplus. I show that even if the assets in need of protection do not increase, land division generates competition for protection, which promotes Mafia activity. In particular I show that: (i) for a given level of protection, the surplus of the Mafia-group generally increases as the number of landlords increases; (ii) the optimal level of protection offered by the Mafia-group increases as the number of landlords increases.

##### 4a. Set up.

There is a fixed amount of land that yields income  $Y$ . I assume that the land is divided equally between  $n$  landlords each of whom gets a share  $y = Y/n$  of total income. I assume that as the number of landlords rises total land income remains constant, which is consistent with the evidence presented in section 2. Below I show that if land income were to increase, land fragmentation would increase the demand for protection even further.

Each landlord faces a positive probability of getting his income stolen and he can buy protection from *mafiosi* to decrease this probability. I assume that:

- (i) if a landlord is not protected all his income is stolen<sup>13</sup>

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<sup>12</sup> Franchetti (1925) first noted that the different behaviour of the landlords in the East could account for the lack of Mafia activity there. Other so-called "naturalistic" explanations stress the different cultures in the two parts of the island (Greek-Normann in the East and Arab in the West) or even the difference in climate (warmer in the West).

(ii) the mafia-group can successfully protect an exogenously fixed share  $\pi^*$  of total land income.

As shown below, (i) and (ii) imply that if a landlord buys protection the probability of having his income stolen depends on how much of total income the mafia-group can successfully protect and on the number of landlords who are protected.

Denote by  $\mathbf{p}^{-k}$  the vector of protection<sup>14</sup> such that  $k$  landlords are not protected and  $(n-k)$  are. Denote by  $(1-\pi_{n-k}(\mathbf{p}^{-k}))$  the probability that one of the  $(n-k)$  protected landlords gets his income stolen. Since landlords who are not protected get all their income stolen and since the Mafia-group can at most protect a share  $\pi^*$  of total income, the income stolen from the unprotected landlords plus the income stolen from the protected landlords must be at least  $(1-\pi^*)Y$ . Thus when  $k$  landlords are not protected it must be true that:

$$ky + (n - k)(1 - \mathbf{p}_{n-k}(\mathbf{p}^{-k}))y \geq (1 - \mathbf{p}^*)Y \quad (1)$$

(1) implies that if a landlord buys protection his income is stolen with probability:

$$(1 - \mathbf{p}_{n-k}(\mathbf{p}^{-k})) = \max \left\{ 0, 1 - \frac{n}{n-k} \mathbf{p}^* \right\} \quad k = 0, \dots, n-1$$

That is, if a landlord is protected and there are many unprotected landlords (that is if  $k > (1 - \mathbf{p}^*)n$ ) then the probability of his income being stolen is zero. If many landlords are protected (that is if  $k < (1 - \mathbf{p}^*)n$ ) each protected landlord gets his income stolen with probability  $(1 - n/(n-k)\mathbf{p}^*)$  which is higher the lower the number of unprotected landlords. The constraint in (1) reflects the fact that each landlord values protection more if he is the only one or one of the few to be protected. This implies that landlords compete for

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<sup>13</sup> I assume that this is true for every choice of the other landlords. Assuming that when nobody buys protection, everybody is stolen with the same probability (different than one) yields similar results. For convenience here I normalise that probability to one.

<sup>14</sup> A protection vector is a vector  $(n \times 1)$  whose elements are 0s and 1s; 0 for the unprotected landlords, 1 for the protected ones.

protection because every protected landlord imposes a negative externality on the others, making their protection less valuable.

To buy protection, a landlord must pay a non-negative contribution  $f(p)$  to the mafia-group; the landlord's net payoff is equal to  $q = \mathbf{p}(p)y - f(p)$ , where  $p$  is the vector of protection chosen by the mafia-group.

Finally, I assume that the cost of providing protection does not depend on the number of landlords that actually get it. Since the protection offered by mafia-groups was more a matter of reputation rather than of effective patrolling the assumption is quite realistic. An interview with a former gabello about the situation in the early 1900 (reported in Blok 1968, p.146) provides an illuminating example: "*...cattle rustling were rampant at the time (..) when we employed a campiere-mafioso<sup>15</sup> the robberies stopped. We paid the man a regular yearly salary, but he only rarely inspected our farm. Now and again he would turn up. (..) he did not need to bother about much more than just these occasional visits, since he let it be known that he kept watch over that particular estate.*"

The model does not deal with the acquisition of reputation, it assumes that it is exogenously determined by the previous activity of the *mafiosi* as armed guards of the baron on the same land. Indeed: "*...frequently a field guard enjoys the reputation of having already committed one or two murders. Once he is surrounded by this aura his career is made and he has become a person who must be feared..a necessary and therefore better paid person*" (Cutrera 1900) and "*..once the mafioso has succeeded in successfully playing the part of protector he is soon regarded as competent in those things...The smooth progress of his enterprise is guaranteed less by actual physical force and increasingly by this competence attributed to him*" (Hess 1973).

#### 4.b Solution and Results.

The timing of the game is as follows: in the first stage landlords make offers conditional to the vector of protection chosen by the mafia-group in period two, in the

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<sup>15</sup> "Campiere" is the traditional name for the armed guard.

second stage the mafia-group decides how many landlords they will protect in order to maximise the sum of contributions. The equilibrium concept used here is that of coalition-proof Nash equilibrium. The analysis is based on Bernheim&Whinston (1986)'s work on menu auctions. Following Bernheim&Whinston (1986),  $(\{f_i\}_{i=1}^n, p^*)$  is a Nash Equilibrium if and only if<sup>16</sup>:

(i)  $f_i(p) \geq 0$  for every  $i$  and  $p$ ;

(ii)  $p^* = \arg \max \sum_{i=1}^n f_i(p)$

(iii)  $p^* = \arg \max \left( p_i(p)y_i + \sum_{j \neq i} f_j(p) \right), \quad \forall i, p$

(iv) there exists  $p_i$  that satisfy (ii) such that  $f_i(p_i) = 0$  for all  $i = 1, \dots, n$ .

Condition (ii) must hold since the mafia-group is assumed to maximise its payoff. Condition (iii) must hold otherwise landlord  $i$  could be better off by offering an infinitesimally bigger contribution for the  $p$  in which (iii) is violated. Finally condition (iv) is needed because if there was not such a value, landlord  $i$  could be strictly better off by lowering his offers for every choice without affecting the *mafiosi*'s decision.

Bernheim&Whinston (1986) show that every truthful Nash Equilibrium, defined as a Nash Equilibrium supported by truthful strategies<sup>17</sup>, is coalition-proof; that essentially truthful equilibria are the only coalition-proof equilibria; and that players can choose to play truthful strategies at no cost (i.e. every player's best response correspondence contains a truthful strategy). Formally,  $f_i(\cdot)$  is a truthful contribution schedule if and only if:

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<sup>16</sup> For the formal proofs of this and other general results see Bernheim&Whinston (1986)

<sup>17</sup> Formally,  $(\{f_i\}_{i=1}^n, p^*)$  is a Truthful Nash Equilibrium (TNE) if it is a Nash equilibrium and  $(\{f_i\}_{i=1}^n)$  are truthful strategies with respect to  $p^*$ .

$$f_i(p, W_i) = \max(0, \mathbf{p}_i(p)y - W_i)$$

Where  $W_i$  is some base level of welfare.

A truthful strategy is such that for every  $p$  the landlords offer their “net willingness to pay” that is, for every  $p$  they offer an amount that is equal to the difference between their gross payoff at  $p$  and some base level gross payoff.

Bernheim & Whinston (1986) provide a characterisation of the set  $F(p)$  of net payoffs ( $q$ ) that bidders receive in a truthful Nash equilibrium. Since landlords are identical in this model the set of payoffs is:

$$\Phi(p) \equiv \left\{ q \in R^n \mid \forall k = 1 \dots n, kq \leq n\mathbf{p}(p)y - (n-k)\mathbf{p}(p^{-k})y \right\} \quad (3)$$

and its Pareto efficient frontier:

$$E(p) \circ \{ q \in R^n \mid q \in \Phi(p) \text{ and there does not exist } q' \in \Phi(p), \text{ with } q' \succ q \} \quad (4)$$

The following lemmas characterise the solution.

**Lemma 1.** *The TNE vector of protection must satisfy:*

$$p^* = \arg \max \sum_{i=1}^n \mathbf{p}_i(p)y \quad (5)$$

**Lemma 2** *The protection vector  $p = [1, 1, \dots, 1]$  (every landlord buys protection) is always a TNE protection vector.*

**Lemma 3** *If  $p^* > (n-1)/n$ ,  $p = [1, 1, \dots, 1]$  is the unique TNE. If  $k < k'$  s.t. for all  $k < k'$   $p^* < (n-k)/n$ ; then all the vectors such that  $k (< k')$  landlords are protected are TNE protection vectors.*

**Lemma 4** *The sum of landlords' contributions is the same in any TNE.*

In what follows I will focus on the equilibrium where every landlord is protected. This is without loss of generality since the equilibria are equivalent with respect to the sum of the contributions the mafia-group receives.

**Lemma 5:** *The equilibrium contributions are uniquely determined. In the equilibrium where every landlord is protected, each landlord pays:*

$$f(p^*) = (n-1) \left( \min \left\{ 1, \frac{n}{n-1} p^* \right\} - p^* \right) y$$

Proof: see Appendix.

Intuitively, the last landlord has to pay enough to make the mafia-group indifferent between protecting everybody and protecting everybody but him. That is, he has to compensate for the fact that the (n-1) protected landlords are willing to pay more to leave him out. The term on the RHS represents the difference between what the (n-1) protected landlords would pay if the last landlord were left out and what the (n-1) protected landlords would pay if the last landlord were protected as well.

Lemma 1 to 5 yield the following:

**Proposition 1:** *The payoff of the mafia-group is always non-decreasing in the number of landlords. For given  $Y$  and  $p^*$ , mafiosi's payoff is increasing in  $n$  until  $n=1/(1-p^*)$ , and constant thereafter.*

Proof :

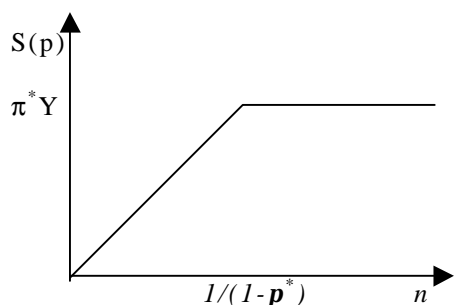
From lemma 3 mafiosi's payoff in the TNE is given by:

$$S(p^*) = \sum_{i=1}^n f_i(p^*) = (n-1)(1-p^*)Y \quad n < \frac{1}{1-p^*}$$

$$= p^* Y \quad n \geq \frac{1}{1-p^*} \tag{6}$$

Taking the derivative of (6) with respect to  $n$  proves the result.

**Figure 1. The mafia-group's payoff (when  $\pi^*$  is exogenous).**



Intuitively, *mafiosi's* payoff depends on  $n$  in two ways. First, as  $n$  increases the number of landlords willing to pay to keep just one without protection increases (this is captured by the  $(n-1)$  term in (6)). Second, the probability of getting one's income stolen when all but one landlord are protected is increasing in  $n$  for  $n$  large. That is, when the land is divided among a few, the share of each is such that if only  $(n-1)$  are protected their probability of being robbed is zero. In other words the income of the unprotected landlord is high enough to satisfy the constraint in (1). Then, the difference in gross payoff for each of the  $(n-1)$  protected landlords in the case when the  $n^{\text{th}}$  is not protected and when he is, is given by  $(1-p^*)y_i$ . For  $n$  sufficiently large the share of the last unprotected landlord is too small and something must get stolen from those who are protected. In this case the difference in

gross payoffs is equal to  $\left(\frac{n}{n-1}p^*-p^*\right)y$ , which is decreasing in  $n$ . Since when  $n$  is

small relative to  $p^*$  the first effect prevails, for  $n$  small *mafiosi's* payoff is increasing in  $n$ . When  $n$  is large the surplus received by the mafia-group is constant in  $n$  because the increase in the number of landlords who are willing to pay to keep just one out is exactly matched by the decrease in the difference of gross payoffs.

From (6) it is possible to infer the following:

**Fact 1.** *Given  $n$  and  $p^*$ , an increase in the assets in need of protection ( $Y$ ) increases the payoff of the mafia-group.*

Fact 1 implies that if as a consequence of land fragmentation the assets in need of protection increase, the effect of land fragmentation on the profits of the mafia-group is even stronger.

#### 4.c. The level of Mafia activity.

The model can be modified to take into account that, even if in the short run the Mafia's policing technology has an exogenous upper limit, in the long run the Mafia-group will choose  $\pi^*$  in order to maximise its profits. Formally  $\pi^*$  can be endogenised by transforming the game into a three stage game in which the mafia-group chooses  $\pi^*$  in the first stage. From equation (6) we have:

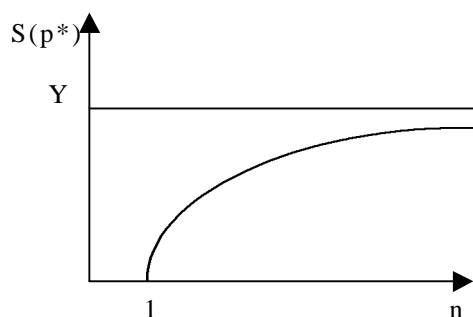
**Proposition 2.** *For any  $Y$ , the mafia-group's payoff is maximised when  $p^*=(n-1)/n$  . Hence the mafia-group will offer more protection (higher  $p^*$ ) when there are more landlords.*

Intuitively, mafiosi's surplus is increasing in the level of competition between landlords, which, in turn, is maximised when up to  $(n-1)$  landlords can receive their full income.

Proposition 2 leads to:

**Fact 2.** *The surplus of the mafia-group is equal to  $S=(n-1)Y/n$ , which is increasing in  $n$  and  $Y$ . Moreover, the effect of an increase in the number of landlords on the profits of the mafia-group is stronger if there are many assets in need of protection. Similarly, the effect of an increase in the assets in need of protection is stronger if there are many landlords.*

**Figure 2 The mafia-group's payoff (when  $\pi^*$  is endogenous)**



#### 4.d. Related Issues

The model is “demand” driven, in the sense that by offering contributions the landlords play an active role. Alternatively one could assume that the *mafiosi* behaved as a monopolist, setting the price and forcing payment. I believe that since at the time *mafiosi* were not as powerful as they were to become later, a model in which landlords play an “active” role is better suited to explain the rise of the *Mafia* than a model in which *mafiosi* impose their decisions on others.

In the model, the mafia-group is treated as a single agent. This assumption rules out the analysis of the internal structure of the mafia-groups and of the competition among different groups. The internal dynamics of the group bear no consequence for the analysis since the mafia-group interacted like a single entity with the outside world. Each mafia-group was characterised by a well defined hierarchical structure, norms for “career advancement” were very precise, as were punishment for betrayal or failure. Generally members of the same family covered the most important positions, while common criminals or desperate peasants were occasionally employed for casual, often “dirty”, jobs. The management of the Mafia-group was transferred from father to sons to maintain the “name” and hence the reputation. Ruling out competition among different groups is of no consequence either. Indeed, although groups often competed for the control of a certain territory, the landlords could not benefit from it. Competition ended quite rapidly and landlords in a given area would always face only one mafia-group, even if a different one from time to time.

#### **5. Predictions and empirical evidence.**

The model predicts that the profits of the mafia-group depend positively on the number of landlords ( $n$ ) and on the quantity of assets in need of protection ( $Y$ ). Since landlords compete for protection, an increase in the number of landlords increases the

mafia-group's profits for any level of  $Y$ . Moreover, the effect of land fragmentation on the mafia-group's profits is stronger the higher the need for protection; i.e. the higher  $Y$ .

Data on profits are unavailable but since higher profits increase the probability that a mafia-group is active in a region, the predictions of the model can be tested with data on the presence of mafia in different regions. Using a survey published in 1881-6 by the Italian Parliament (also known as "Inchiesta Jacini"), I was able to build a qualitative data set that contains information on mafia activity and on the other relevant variables for 70 Western Sicilian villages. The variables in the data set are:

- (i) **presence of mafia-groups (mfiad)**. Mfiad=1 if there is evidence of mafia activity in the village. This information was collected through interviews with the Chief Prosecutor of each village<sup>18</sup>.
- (ii) **intensity of mafia activity (mafia)**. Mafia=0,1,2,3 if there is no mafia activity, if there is some mafia activity, if there is mafia activity and if mafia activity is very strong. This information was collected through interviews with the Chief Prosecutor of each village as well.
- (iii) **proxy for number of landlords (frag)**. The survey does not report how many landlords there were in each village but the variable can be proxied with the available information on the degree of land fragmentation. The mayor of each village was asked to report whether most of the land was concentrated in small, medium or large landholdings. The data are well suited for the purpose of this paper because it is possible to separate villages in which land was divided, that is where "small" and "medium" holdings prevailed, from villages in which land still belonged to a few –sometimes just one- noble families ("large" landholdings). Unfortunately, since different mayors had different opinions about the size of "small" and "medium" landholdings, this distinction might not be very reliable.

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<sup>18</sup> Since they were not asked to name names, the Prosecutors had little incentive to lie about the existence of Mafia because of fear.

Therefore I set  $frag = 1$  if the mayor reported that most of the land was concentrated in small or medium holdings<sup>19</sup>.

- (iv) **proxies for the need of protection (thefts and vines).** Thefts=1 if thefts in the countryside are frequent. The information was collected through interviews with the village Chief Prosecutor and it is used as a proxy for Y, since the need for protection should be stronger in villages where thefts are frequent. *Vines* is a continuous variable that is equal to the ratio of vineyard to total cultivated land. The variable is used as a proxy for Y since the need of protection is stronger for vines than for grain crops.
- (v) **province dummies (prov<sub>i</sub>)** The villages are located in 4 different provinces. Province dummies are included to take into account possible spreading and “contagion” effects.

**TABLE 1 – MAFIA ACTIVITY BY PROVINCE**

Province	Number of villages with Mafia activity <sup>1</sup>	Number of villages with data	Villages with Mafia as % of total
Catania (East)	2	24	8%
Siracusa (East)	2	20	10%
Messina (East)	3	25	12%
Palermo (West)	8	23	35%
Caltanissetta (West)	6	15	40%
Trapani (West)	6	13	46%
Girgenti (West)	11	19	58%

1) Villages in which Mafia activity is reported to be medium or strong.

<sup>19</sup> The author of the survey reports that on average small landholdings were smaller than 20ha, medium were larger than 20ha and smaller than 200ha and large were larger than 200ha (often larger than 1000ha). Unfortunately many of the mayors who used a different criterion did not report it precisely enough.

Table 1 reports mafia activity by province and shows that, as expected, mafia activity was not common in Eastern Sicily. In this section I will therefore focus exclusively on the Western villages. Table 2 presents some descriptive statistics for the Western villages: it shows that mafia-groups were active in more than half of the villages and very active in eleven cases. It also shows that mafia-groups did not generally exist in those villages where large landholdings prevailed. Indeed there is evidence of significant *mafiosi*'s activity only in 3 villages out of 15. Conversely, *mafiosi* were quite active in about 50% of the villages with medium and small landholdings.

**TABLE 2 MAFIA ACTIVITY AND LANDSIZE**

<b>Land Distribution →</b>	<b>Small or Medium</b>	<b>Large</b>	<b>TOTAL</b>
<b>Mafia Activity ↓</b>			
<b>None</b>	22 (40%)	9 (60%)	31 (44.3%)
<b>Some</b>	5 (9%)	3(20%)	8 (11.4%)
<b>Medium</b>	17 (31%)	3(20%)	20 (28.6%)
<b>Strong</b>	11 (20%)	0 (0%)	11 (15.7%)
<b>TOTAL</b>	55 (78.6%)	15 (21.4%)	70 (100%)

The first column of Table 3 estimates the probability of a mafia-group being active as a function of the number of landlords and of the presence of thefts to proxy the need of protection. In the model both variables have a positive effect on the profits of the mafia-group and the effect is stronger if the variables increase jointly. The presence of mafia in a village is a signal that the profits of the mafia-groups are high enough to make the enterprise viable; hence the effect of land fragmentation and of the need of protection on profits is partially reflected on their effect on the probability of observing mafia activity in a village. The results show that mafia-groups are more likely to be active in villages where both the competition for protection (many landlords) and the need for protection

(proxied by thefts) are strong; that is the coefficient on the interaction term *frag\*thefts* is positive and significant. Since both the coefficients on the number of landlords and on thefts are not significant separately, the data suggest that if there is not much need for protection (*thefts=0*) the competition among landlords is not strong enough to generate mafia activity. In other words, if there is not much need for protection the competition among landlords might still increase the profits of the mafia-group but not enough to make the enterprise viable. At the same time, if there is no competition for protection (*frag=0*) the need for protection *per se* does not generate mafia activity either.

**TABLE 3 THE PRESENCE OF MAFIA ACTIVITY**

Probit Estimates. Dependent Variable Mafiad=1 if there is mafia activity in the village

	(1)	(2)	(3)	(4)
frag	-.22 (-.42)			
thefts	.24 (.32)			
frag*thefts	1.54 (1.72)	1.62 (3.52)	.81 (1.59)	.94 (2.02)
vines			1.98 (.99)	
frag*thefts*vines			5.29 (1.94)	3.61 (2.14)
prov <sub>1</sub>	.60 (.96)	.44 (.84)	.44 (.82)	.44 (.86)
prov <sub>2</sub>	-.99 (2.16)	-1.02 (-2.22)	-1.09 (-2.28)	-1.13 (-2.29)
prov <sub>3</sub>	-1.14 (-2.21)	-1.18 (-2.33)	-1.09 (-2.09)	-1.15 (-2.33)
Pseudo-R <sup>2</sup>	.31	.30	.33	.33
NOBS	70	70	70	70

T-stats (based on robust standard errors) in parenthesis.

In the third and fourth column of Table 3, I also include the other proxy for “assets in need of protection”, that is the variable *vines*. The results show that, as predicted by the model, an increase in the need for protection magnifies the effect of land fragmentation on the profits of the mafia-group; that is the coefficient of the interaction term is positive and significant. The coefficient on *vines* alone is not significant, which suggests that if there is no competition for protection an increase in the need of protection does not increase the mafia-group’s profits enough to generate mafia activity.

Table 4 estimates the intensity of mafia activity as function of the variables above. The results are similar but the estimates are less precise.

**TABLE 4 THE PRESENCE & INTENSITY OF MAFIA ACTIVITY**

Ordered Probit Estimates. Dependent Variable: Mafia=0,1,2,3 if mafia activity in the village is zero, weak, medium, or strong.

	(1)	(2)	(3)	(4)
frag	.09 (.18)			
thefts	.38 (.59)			
frag*thefts	1.07 (1.46)	1.42 (4.60)	1.08 (2.41)	1.07 (2.72)
vines			.03 (.02)	
frag*thefts*vines			2.10 (.94)	2.14 (1.45)
prov <sub>1</sub>	.66 (1.59)	.64 (1.65)	.72 (1.83)	.72 (1.83)
prov <sub>2</sub>	-.37 (-.93)	-.33 (-.86)	-.37 (-.94)	-.37 (-.94)
prov <sub>3</sub>	-.80 (-1.72)	-.78 (-1.72)	-.80 (-1.71)	-.80 (-1.73)
Pseudo-R <sup>2</sup>	.16	.16	.17	.17
NOBS	70	70	70	70

T-stats in parenthesis.

Finally, Table 5 estimates the intensity of mafia activity in the sub sample of villages where mafia-groups are active. The results show that, as predicted by the model, mafia-groups are more active where land is more fragmented; that is the coefficient of *frag* is positive and significant. Interestingly, thefts seem to matter for the existence but not for the intensity of mafia activity: the coefficient on the variable *thefts* is never significant in the sub-sample with positive mafia activity. The results suggest that, conditional on mafia-groups being active, their level of activity mostly depends on the competition among landlords. Column (2) uses *vines* instead of *thefts* as a proxy of the need of protection. The results show that, again, the coefficient of *frag* is positive and significant. The coefficient of *vines* is positive, as expected, but not significant.

**TABLE 5 THE INTENSITY OF MAFIA ACTIVITY**

Ordered Probit Estimates. Dependent Variable: Mafia=1,2,3 if mafia activity in the village is weak, medium, or strong.

	(1)	(2)	(3)
<i>frag</i>	1.62 (1.88)	1.53 (2.54)	1.39 (2.41)
<i>thefts</i>	.35 (.29)		
<i>frag*thefts</i>	-.30 (-.22)		
<i>vines</i> *			1.70 (1.11)
<i>prov</i> <sub>1</sub>	.15 (.27)	.16 (.31)	.34 (.65)
<i>prov</i> <sub>2</sub>	1.22 (1.79)	1.32 (2.51)	1.28 (2.17)
<i>prov</i> <sub>3</sub>	-.09 (-.14)	-.05 (-.08)	-.10 (-.17)
Pseudo-R <sup>2</sup>	.15	.15	.16
NOBS	39	39	39

T-stats in parenthesis. \* I could not use the interaction term *frag\*vines* because it is strongly (.95) correlated with *vines*.

## 6. Conclusions

In nineteenth century Western Sicily, where formal authority was weak and the need for protection strong, land fragmentation increased the demand for protection and fostered the rise of the mafia. This paper has investigated the link between land fragmentation and the demand for protection. It has presented a model in which, since by buying protection a landlord imposes a negative externality on the others, an increase in the number of landlords generates competition for protection and increases the profits of the mafia-group. The model shows that land fragmentation generates competition for protection even if the assets in need of protection do not increase and that the competitive effect of land fragmentation is larger where the need of protection is stronger. The model also shows that to maximise profits mafia-groups are more active in areas where land is more fragmented. The predictions of the model are consistent with the evidence from a sample of 70 Western Sicilian villages in 1881. Using qualitative data on mafia activity and proxies for the level of land fragmentation and for the need of protection, I show that mafia-groups were more likely to be active in villages where land was fragmented and the need of protection was strong. Land fragmentation also had a positive effect on the intensity of mafia activity.

This paper illustrates how monopoly over violence was voluntarily transferred from landlords to mafia-groups. This is in contrast with theories that maintain that the mafia emerged because landlords lost their power after the abolition of feudalism. I believe these theories are not consistent with observed facts. There is indeed no evidence that the abolition of feudalism curtailed the power of the landlords: the aristocracy did not lose their ancient privileges and the new landlords rapidly acquired them. A radical decline in landlords' power only started after World War II. Western landlords, consistent with their negligent attitude concerning management of land matters, continued the old tradition of paying a private army for protection. But, with land fragmentation, the same army could serve more than one party and gain from landlords' competition. Thus there

was a transfer of the monopoly power over violence with mutual advantage to both parties, rather than usurpation by mafia-groups. In this sense some authors include in the “mafia-class” also the landlords.

There are many other unsettled issues regarding the mafia that should be addressed in future research. Among these, I think two are most interesting, namely the analysis of the mafia as an institution and the effect of the mafia on economic development. The first entails the study of the rules and the reason of their success. Over the years the rules have proven easy to adapt to new situations so that the mafia has managed to survive the end of the conditions that promoted its development in the first place. The second is closely related to investment incentives. It is commonly accepted that the mafia deterred investment in Western Sicily since *mafiosi* would capture a considerable share of the potential returns. This has often been offered as an explanation for the lack of productive investments and the consequent economic under-development of Western Sicily. Still, if the increase in income was to be captured by mafia-groups, one should wonder why *mafiosi* did not promote investment on the land. It is known that, instead, *mafiosi* used the proceedings of their activity to rent land or to buy some of their own. Indeed “*..the mafia-bosses can always be found among the big tenants and landowners*” (Cutrera 1900), but *mafiosi* had always poor origins (see Hess 1973 for some good examples). I suspect that not to invest was a rational choice for the mafia-groups because investment would have undermined the conditions that were at the basis of their existence. More productive farming methods required workers to reside permanently on the land hence patrolling needs and the demand for protection would have been reduced if these methods were adopted. Also, investment would have improved the living standards of the peasants thus reducing their need to steal. Since as a consequence of economic development mafia-groups would have lost their power, promoting development was not in their best interest.

## APPENDIX

### 1. PROOFS

#### Proof of Lemma 1:

From condition (ii) we know that  $p^* = \arg \max \sum_{i=1}^n f_i(p)$  which implies:

$\sum_{i=1}^n f_i(p^*) \geq \sum_{i=1}^n f_i(p)$ . From the definition of truthful strategy we know that:  $\mathbf{p}_i(p^*)y_i - \mathbf{p}_i(p)y_i \geq f_i(p^*) - f_i(p)$  for all  $i, p$ . Therefore the condition above implies that  $\sum_i \mathbf{p}_i(p^*)y_i \geq \sum_i \mathbf{p}_i(p)y_i \Rightarrow p^* = \arg \max \sum_i \mathbf{p}_i(p)y_i$ .

#### Proof of Lemma 2:

It must be proved that  $p=[1,1,1..1]$  satisfies (5). That is, for every  $k=1\dots n$  it must be true that:

$$n\mathbf{p}^* y_i \geq (n-k) \min \left\{ 1, \frac{n}{n-k} \mathbf{p}^* \right\} y_i \quad (6)$$

Indeed, for  $\mathbf{p}^* \geq \frac{n-k}{n}$  (6) reduces to  $n\mathbf{p}^* \geq n-k$  which is verified.

For  $\mathbf{p}^* < \frac{n-k}{n}$ , (6) requires  $n\mathbf{p}^* \geq n\mathbf{p}^*$

#### Proof of Lemma 3.

If  $\pi^* > (n-1)/n$  then  $n\mathbf{p}^* y_i > (n-k) \min \left\{ 1, \frac{n}{n-k} \mathbf{p}^* \right\} y_i$  thus  $p=[1,1..1]$  is the unique TNE.

If  $\exists k'$  s.t. for all  $k < k'$   $\pi^* < (n-k)/n$ ; then for all  $k < k'$  (6) is verified with equality thus all the vectors such that  $k (< k')$  landlords are protected are TNE protection vectors.

#### Proof of Lemma 5

The constraints in (3) can be written as:

$$kf(p^*) \geq (n-k)(\mathbf{p}_{n-k}(p^{-k}) - \mathbf{p}^*)y_i \quad (7)$$

for  $k=1\dots n$

The intuition is that when  $k$  landlords are not receiving protection, to receive it they must pay enough to make *Mafia*-groups indifferent between receiving higher contributions by the  $(n-k)$  protected and receiving lower contributions from everybody. (7) derives from (1), (3) and the definition of truthful strategy.

I show that if (7) is satisfied for  $k=1$ , it is satisfied for all  $k$ .

Using (1) and  $k=1$ , (7) implies:

$$f_i(p^*) \geq (n-1) \left( \min \left\{ 1, \frac{n}{n-1} p^* \right\} - p^* \right) y_i \quad (8)$$

There are 3 cases depending on the magnitude of  $\pi^*$ :

Case I

$$p^* > \frac{n-1}{n} \Rightarrow p^* > \frac{n-k}{n}, \forall k$$

(8) implies:

$$f_i(p^*) \geq (n-1)(1-p^*)y_i \Rightarrow kf_i(p^*) \geq k(n-1)(1-p^*)y_i$$

Thus (7) is satisfied for every  $k>1$  since :

$$k(n-1)(1-p^*)y_i > (n-k)(1-p^*)y_i$$

Case II

$$p^* < \frac{n-k}{n}, \forall k$$

(8) implies:

$$f_i(p^*) \geq p^* y_i \Rightarrow kf_i(p^*) \geq k p^* y_i$$

(7) is satisfied since its RHS is equal to  $k\pi^*y$ .

Case III

$$p^* < \frac{n-1}{n}$$

$$\exists k' | \forall k > k', p^* > \frac{n-k}{n}$$

for all  $k < k'$  see case II.

For  $k > k'$ , (7) is satisfied since:

$$k p^* y_i > (n-k)(1-p^*) y_i$$

$$\text{for } p^* > \frac{n-k}{n}$$

Fact 3 follows from (4).

#### Proof of Lemma 4

I will show that for any TNE, the sum of total contributions is the same as in the TNE where every landlord is protected. Take the TNE protection vector  $p^*$  in which  $k^*$  landlords are not protected. Equilibrium offers are uniquely determined and are equal to:

$$f(p'') = \frac{n}{n-k''} p^* y$$

Therefore since only  $(n-k'')$  landlords pay, the mafia-group's surplus is equal to  $S(p'') = \pi^* Y$ , which is equal to  $S(p^*)$ , as required.

To prove that  $f(p'')$  are the equilibrium offers for  $p''$ , rewrite the constraints in (3) as:

$$(k - k'')f(p'') \geq (k - k'') \frac{n}{n-k''} p^* y - n p^* y + (n - k) \min \left\{ 1, \frac{n}{n-k} p^* y \right\}$$

then one can prove that if the expression above holds for  $k''+1$ , it holds for any  $k$ .

## 2. DATA SOURCES

I have coded the information contained in the "Inchiesta Iacini: Atti della Giunta per l'inchiesta agraria e sulle condizioni della classe agricola" -Vol XIII part I and II, books 1 to 5- relazione del delegato tecnico per la Sicilia Abele Damiani. Pages and volumes number as reported below.

### 1. Data on mafia activity, mafia activity intensity, and thefts

Vol XIII, part 2, book A: pp 373-85 (Caltanissetta), pp 421-443 (Girgenti), pp 473-93 (Palermo), pp 509-520 (Trapani), pp521-543 (summary tables).

### 2. Data on land fragmentation

Vol XIII, part 2, book A: pp 1-35 (Caltanissetta), pp 95-147 (Girgenti), pp 205-267 (Palermo), pp 313-351 (Trapani)  
Vol XII, part 1, book B: summary tables.

### 3. Data on vineyards

Vol XII, part 1, book B: summary tables.

## REFERENCES

1. Barzini, L. (1965) "The Italians", Bantam Editions, New York.
2. Bernheim B.D. and M.D. Whinston (1986) "Menu Auctions, Resource Allocation and Economic Influence" *Quarterly Journal of Economics*, 101 (1).
3. Blok, A. (1968) "The Mafia of a Sicilian Village, 1860-1960" Harper&Row, Publishers.
4. Correnti, S. (1972) "Storia di Sicilia come Storia del Popolo Siciliano" Longanesi & c. Milano.
5. Cutrera, A. (1900) "La Mafia e i Mafiosi" Reber ed. , Palermo.
6. Dalla Chiesa, N. (1976) "Il Potere Mafioso, Economia e Ideologia" Gabriele Mazzotta editore.
7. Falzone, G. (1975) "Storia della Mafia" Pan, Milano.
8. Franchetti, L. (1925) "La Sicilia nel 1876. Condizioni Politiche ed Amministrative." Vallecchi ed. Firenze
9. Frosini, V. (1970) "Mitologia e Sociologia della Mafia" in "La Mafia, Quattro Studi" Massimiliano Boni editore, Bologna.
10. Gambetta, D. (1993) "The Sicilian Mafia, The Business of Private Protection" , Harvard University Press
11. Giordano, N. (1971) "Delinquenza in Sicilia" Renzo Mazzone editore.
12. Hess, H. (1973) "Mafia & Mafiosi: the Structure of Power", Saxon House Reprint.
13. Giunta per l'inchiesta agraria e sulle condizioni della classe agricola (1881-6) "Atti della Giunta per l'inchiesta agraria e sulle condizioni della classe agricola" Vol XIII part I and II, books 1 to 5- relazione del delegato tecnico per la Sicilia Abele Damiani
14. Giunta d'inchiesta sulle condizioni dei contadini nelle provincie meridionali e nella Sicilia (1909-11) "Inchiesta Parlamentare sulle Condizioni dei Contadini nelle Provincie Meridionali e nella Sicilia". vol VI part 1 and 2, relazione del delegato tecnico per la Sicilia prof. Giovanni Lorenzoni.
15. Mack Smith, D. (1968) "Modern Sicily" volume III of "A History of Sicily" by Finley M.I. and D. Mack Smith, The Viking Press, New York
16. North, D. (1981) "Structure and Change in Economic History", Norton&Company.
17. Novacco, D. (1972) "Mafia Ieri, Mafia Oggi" Feltrinelli Editore Milano.
18. Pitre' G., (1889) "Usi e costumi, credenze e pregiudizi del popolo siciliano", Palermo.
19. Renda, F. (1970) "Funzioni e Basi Sociali della Mafia" in "La mafia, Quattro Studi" Massimiliano Boni editore, Bologna.
20. Russo, N. (ed.) (1964) "Antologia della mafia" Palermo: Il Punto Edizioni.

21. Sciascia L. (1970) "Appunti su Mafia e Letteratura" in "La mafia, Quattro Studi" Massimiliano Boni editore, Bologna.

22. Sereni, E. (1971) "Il capitalismo nelle campagne" Torino: Einaudi