

# Economics of Migration

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# On the organization of smuggling (and trafficking) networks

- According to UNODC (2018, pp. 7-8), smugglers can operate on a small scale, i.e. being individuals who provide simple services (i.e. a river crossing), or on a larger scale, being organized with or without a hierarchical structure.
- They may offer in this case more complex “packages”, involving different legs of the journey, false passports, etc.
- In some cases they can be related to other criminal organizations operating on a territorial basis for, e.g., being authorized to cross a territory.
- They might be involved in corruption of public officers, e.g. border controllers.

# On the organization of smuggling (and trafficking) networks

- There is little systematic research on the organization of smuggling networks.
- In general, it seems that when it comes to smuggling, the smuggling groups operate in conjunction with other groups (for example for different legs of the journey) but they are not characterized by strong hierarchical structures.
- In addition, links to stable criminal organizations, such as the Italian Mafias, do not seem to exist on regular basis.

# On the organization of smuggling (and trafficking) networks

- Campana (2016) studies the case of a large network of traffickers from Nigeria to Europe, especially of women to exploit as prostitutes.
- The literature on the organization of trafficking seems to suggest that, with respect to smuggling, a strong organization, hierarchy, and links to traditional organized crime groups are more the rule than the exception (Campana, 2016, pp. 69-72)
- This may be due to the higher complexity of trafficking vis-a-vis with smuggling. In fact, trafficking can be characterized by three phases: “(1) recruitment, (2) transportation and (3) exploitation” (Campana, 2016, p. 72), while smuggling requires only phases (1) and (2).

# On the organization of smuggling (and trafficking) networks

- Phase (1), recruitment, typically takes place in the source country and implies: “acquisition of control over a victim over a victim by different means, including abduction, gross deception or payments to the victim’s relatives”. (Campana, 2016, p. 73)
- Transportation is from the source country to the destination country, while exploitation usually takes place in the destination country.
- In the case of a Nigerian trafficking organization exploiting prostitutes in Europe, four main roles can be identified, in particular by analyzing the content of the conversations and the other court documents: “management, resource acquisition, trolleys and madams”.

# On the organization of smuggling (and trafficking) networks

- Management refers to individuals who are in a position to make decisions and are called in when problems arise. In addition, they give orders ... Resource acquisition refers to individuals tasked with acquiring resources, such as plane tickets, forged documents and safe houses ... Trolley is the term usually used to refer to individuals tasked with escorting victims during the journey ... Madams [are] typically former prostitutes turned into traffickers.” (Campana, 2016, p. 76)
- There is specialization in the organization. In particular, “Madams” are specialized in monitoring the victims.

# On the organization of smuggling (and trafficking) networks

- The tool of network analysis can be utilized to investigate the internal organization of crime organization.
- In this conceptual framework, individuals are nodes and their connections are represented by links.
- For example, this approach can reveal for different actors their centrality, which can reflect their importance in the organization.



# On the organization of smuggling (and trafficking) networks

- Figure 1 shows an example.

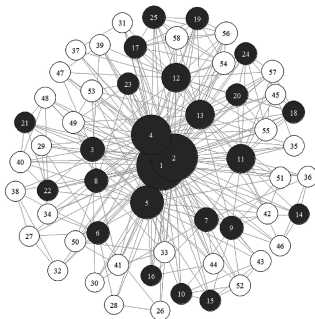


FIG. 1 The Nigerian trafficking ring (All actors: offenders and victims).  
Note: Node colour is as follows: offenders are grey and victims are white. Size of a node indicates its degree centrality. The layout is based on the Kamada-Kawai algorithm.

**Figure 1:** A social network representation of a Nigerian trafficking organization. Source: Campana (2016).

# On the organization of smuggling (and trafficking) networks

- In Figure 1, black nodes are members of the organization (25 individuals), while white nodes are victims (33 individuals).
- A tie (or link) exists between any two nodes if the individuals involved co-participated to one trafficking events (the article considers 16 of such events).
- “A typical trafficking event relates to activities from the start of the journey in West Africa to the delivery of the victim and her initial exploitation in the destination country” (Campana, 2016, p. 75)
- The size of the node reflects the degree centrality of an agent, i.e. its number of links with other agents.
- In the social network analysis there exist different measures of centrality.

# On the organization of smuggling (and trafficking) networks

- The size of the node reflects the degree centrality of an agent, i.e. its number of links with other agents.
- In the social network analysis there exist different measures of centrality.
- In Figure 1, the “big dots” refer to few offenders with many ties, i.e. that participated to many trafficking events. These agents belong are “central”, they belong to the category of “managers”.
- Other offenders are more “peripheral”, i.e. they participated to few trafficking events.
- It seems, therefore, that some offenders are present in most events, while some of them contribute to few events, and then disappear.

# On the organization of smuggling (and trafficking) networks

- If many individuals co-participate to many trafficking events, this can be considered evidence of a more structured organization, i.e. with more “internalization” of tasks. In this case the organization would look like a “firm”.
- On the other hand, if the opposite occurs, this can be considered evidence of a less structured organization, i.e. with more “externalization” of tasks. I.e. a few “core” agents, that purchase the services they need from time to time.
- The results of the article: “suggests that traffickers may have a tendency to externalize activities rather than internalize them ... this human trafficking network is organized around a market-based coordination mechanism more than a ‘firm’ ” (Campana, 2016, p. 79)

# On the organization of smuggling (and trafficking) networks

- A network analysis can be useful to design policies to dismantle an organization: for example, targeting central individuals can be an effective way of destroying the network.
- Criminal networks are often organized on the basis of the efficiency/security trade-off: for an organization to be efficient, a rich communication structure should exist.
- On the other hand, the more the individuals are connected, the less safe the organization is, as if one individual is apprehended, s/he may reveal a great deal of information on the organization is s/he has many links.

# Search and Rescue (SAR) Operations

- The irregular migration along the Central Mediterranean route, i.e. along the stretch of sea between Southern Italy and Northern Africa, has experienced ups and downs in recent years, although the numbers were always significant.
- The political instability that followed the Arab Spring in 2011 implied higher migration flows, especially from Tunisia and Libya, in particular after the fall of Ghaddafi in October 2011.
- The death toll along this route has been extraordinary high. Table 1 presents the most recent data

# Search and Rescue (SAR) Operations

Year	Sea Arrivals	Deaths
2020	27,834	-
2019	11,471	750
2018	23,370	1,311
2017	119,369	2,873
2016	181,436	4,578
2015	153,842	2,913
2014	170,100	3,093

**Table 1:** Sea arrivals to Italy and deaths along the Mediterranean Route. 2020: until November. Source: <https://data2.unhcr.org/en/situations/mediterranean/location/5205>.

# Search and Rescue (SAR) Operations

- Italy and the EU established extensive search and rescue (SAR) operations at sea in the form of operations *Hermes*, *Mare Nostrum* and *Triton* (Deiana et al., 2022, p. 3)
- Together with EU-sponsored SAR operations, a number of NGOs also took the sea for humanitarian reasons, to reduce the risk of death of sea-crossing migrants.



# Search and Rescue (SAR) Operations

- Main SAR operations were (see Deiana et al., 2022, pp. 9-11):
- i) *Hermes*: led by Frontex, it was already in place before the Arab Spring, it was extended afterwards (lasted approximately between 2009 and 2013, with on-off periods). Its main tasks were patrolling the sea, deterring migrants' smuggling, gather information on sea crossing. The stretch of sea controlled by operation *Hermes* was quite limited: 44 km from Italian shores.
- ii) *Mare Nostrum*: launched by the Italian Government with an explicit humanitarian aim (it responded to major shipwrecks with very high death tolls). Its scope was much wider than *Hermes*: 244 km from Italian shores (it basically reached Libyan territorial waters). It was launched in October 2013 and terminated in October 2014.

# Search and Rescue (SAR) Operations

- iii) *Triton*: launched in 2014 under the supervision of the EU agency Frontex. It superseded *Mare Nostrum*. Its aim went back to be mostly about patrolling the Sea, although, by international regulations, it could not escape the provision of help to immigrants in distress. Initially, its scope was limited, 56km from Italian coasts, but it was subsequently expanded to 256km. Under *Triton*, Frontex began to destroy the boats used by the smugglers. *Triton* ended in February 2018.
- iv) *Themis*: “In February 2018 operation Triton was replaced by Operation Themis, which focused on law enforcement and security including efforts to collect intelligence to stop terrorists and foreign fighters. Under Themis the patrol area shrank considerably to 24 miles from the Italian coast.” (Deiana et al., 2022, pp. 33-34) Themis ended in December 2020.

# Search and Rescue (SAR) Operations

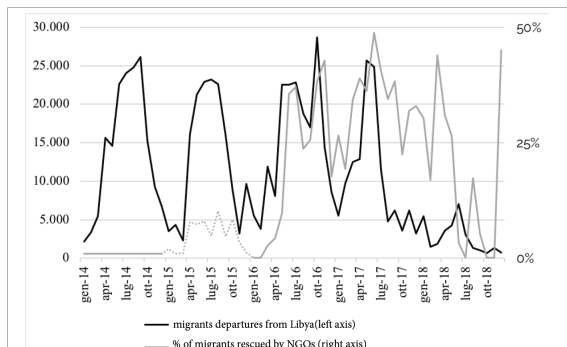
- The widespread reaction to these SAR operations, being organized by a State or by the EU, or conducted by NGOs is that they can act as “pull-factor”, in particular for irregular migration from Northern Africa.
- Cusumano and Villa (2019) analyze the activities of NGOs between 2014 and October 2019. They measure NGOs' involvement in SAR by using the following formula:

$$\text{NGO's involvement in SAR} = \frac{\text{migrants rescued by NGOs}}{\text{arrivals to Europe} + \text{intercepted} + \text{missing at sea}} \quad (1)$$

# Search and Rescue (SAR) Operations

- Cusumano and Villa (2019, Fig. 3) show that the departures from Libya and the share of migrants rescued by NGOs are not correlated, in particular in the period after July 2017, when departures significantly decreased because of the agreements between Italy and Libya. See Figure 2.

Figure 3 – Irregular Migrants Departures from Libya and NGOs' SAR Operations<sup>1</sup>



# Search and Rescue (SAR) Operations

- In addition, Cusumano and Villa (2019) check the relationship between the presence of NGOs and daily departures in the first nine months of 2019, in which no other SAR operations were in place in a regression analysis.
- They find no effects of the presence of NGOs on daily departures, but a positive effect of weather conditions (better weather → more departures) and a negative effect of political instability (April 2019: political turmoil in Libya because of the opposite factions at war)

# Search and Rescue (SAR) Operations

- In another study, Deiana et al. (2022, p. 3) point out that:  
“While [SAR] operations ostensibly reduced the risk of death ceteris paribus, they may have also induced greater numbers of migrants to attempt crossing, leading to an ambiguous effect on total migrant deaths.”
- Moreover, to the extent that these additional crossings were made on flimsier boats in a cost-saving measure, the operations may have unintentionally increased the risk of death itself.  
(Deiana et al., 2022, p. 3)

# Search and Rescue (SAR) Operations

- The research questions of Deiana et al. (2022) are: i) did SAR affect the numbers of crossing attempts, and ii) did it affect the risk incurred by migrants attempting to cross?
- They study irregular migration along the Central Route for the period 2009-2017.
- The identification of these effects is difficult.
- In particular because it is impossible to directly observe a counterfactual scenario: what would have been the number of crossing attempts (and deaths), had the SAR operations been absent?

# Search and Rescue (SAR) Operations

- Nonetheless, the authors utilize available data on crossing attempts, and a source of exogenous variation of conditions that may affect the crossing attempt: changes in weather conditions.
- Results: SAR induced more migrants to attempt the crossing in bad weather and this eventually led smugglers to shift their operations to unsafe, inexpensive boats (Deiana et al., 2022, p. 4).
- As a result, the safety benefits of SAR were likely offset and there was little or no reduction in the riskiness of passage during the most intense periods of operation.



# Search and Rescue (SAR) Operations

- Deiana et al. (2022) study the smuggling market, and propose a theoretical model of smuggling in which: i) migrants have different preferences for safe (e.g. made of wood) and unsafe (e.g. inflatable) boats, ii) smugglers can adjust their offerings depending on whether SAR is in place or not, and iii) departures can vary by weather and sea conditions at crossing.
- The main point of such a model is to consider behavioral responses when policies are put into place.
- A theoretical model, in addition, may help in situations in which some (or many) aspects are difficult to measure, as in illegal activities.
- This model should provide insights on the incentives of smugglers and migrants, treated as producers and consumers, in entering the market for crossing attempts.

# Search and Rescue (SAR) Operations

- Similar arguments have been put forward by Gathmann (2008) who: “finds that in addition to a moderate price effect, aggressive border enforcement induces migrants to shift to more remote crossing points where the chances of a successful crossing are presumably higher. Because search is costly, it can lead to greater risk of death.” (quoted in Deiana et al., 2022, p. 5).
- The model proposed by Deiana et al. (2022) features a utility function for the perspective migrants (i.e. the demand side) of the form:

$$u_i = \alpha_i \sigma^R(w) - p \quad (2)$$

# Search and Rescue (SAR) Operations

- $\alpha_i$  is an individual specific parameter that reflects the intensity of  $i$ 's desire to cross, and  $p$  is the price of passage.
- $\sigma^R(w)$  represents the probability of successful passage. This is a decreasing function of crossing conditions,  $w$  (weather deteriorates  $\rightarrow$  probability of successful passages goes down), and varies if SAR is in place ( $R = 1$ ) or not ( $R = 0$ ).
- Idea: if SAR is in place, the “sensitivity” of the probability of successful passage goes down, i.e. it is more likely that the passage is successful with bad weather conditions when SAR is in place.
- To sum up: the key variable is  $\sigma^R(w)$ . The assumption is that: the probability of successful passage is higher when a SAR is in place, and it is higher when (weather) crossing conditions are better.

# Search and Rescue (SAR) Operations

- The interpretation of Eq. (2) is very similar to the one on the individual decision to migrate: a migrant decides to try sea crossing if  $u_i > 0$ .

# Search and Rescue (SAR) Operations

- Introducing the quality of the boat as a determinant of  $\sigma$  one obtains:

$$u_i = \alpha_i \sigma_b^R(w) - p \quad (3)$$

where  $b$  is the quality of the boat that can be safe (S) or unsafe (U).

- On the supply side, a monopolist smuggler organization offers passages to migrants at prices  $p_b$  ( $p_U$  and  $p_S$  are prices for passages on unsafe and safe boats) and at costs  $c_b$  respectively. Seats on safe boats are more costly to provide than seats on unsafe boats ( $c_S > c_U$ ).
- Smugglers aim at maximizing the profits, i.e. they choose  $p_U$  and  $p_S$  to maximize their profits.

# Search and Rescue (SAR) Operations

- The point is that, now, the decision to cross on the part of the migrants becomes a function of the parameters of the model: for example, if  $p_U$ , the price of journey on unsafe boat goes down, more migrants will choose to cross the sea on unsafe boats; if  $p_S$ , the price of journey on safe boat goes down, more migrants will choose to cross the sea on safe boats.
- On the supply side, smugglers maximize their profits and decide accordingly which boat to provide.
- It is possible, that when SAR operations are in place, profit-maximizing smugglers will increase the use unsafe boats.

# Search and Rescue (SAR) Operations

- The intuition is that: if SAR reduces the risk of sea-crossing, this will push the smugglers to use unsafe boats, and then save on the costs of providing the means for sea crossing. This will lower the price of the passage and induce more migrants to “buy” the service.
- Therefore, if SAR have the goal of reducing the risks of sea-crossing, their effect can be nullified by the choice of profit-maximizing smugglers who choose riskier boats.
- The empirical analysis checks whether attempted sea-crossing increases with better weather conditions (which are *exogenous*), and whether this relationship changes when SAR operations are in place.

# Search and Rescue (SAR) Operations

- Results: “by reducing the risk of crossing, SAR likely induced more migrants to attempt to cross, which exposes more people to the risk of death along the passage.”
- Second, by reducing the costs to smugglers of using unsafe boats SAR induced a large substitution away from seaworthy wooden vessels and towards flimsy inflatable boats.
- Thus, the benefits of SAR have been, to some extent, captured by human smugglers.” (Deiana et al., 2022, p. 36).



# Search and Rescue (SAR) Operations

- Overall, the point of this analysis is that, on the theoretical side, when a policy is launched, rational agents react by strategically modifying their behavior.
- This should be taken into account by the policy maker.
- On the empirical side, to establish causation one needs to be careful! Sources of exogenous variations of the explanatory factors of interest are very important.

# Bibliography I

- Campana, P. (2016). The structure of human trafficking: Lifting the bonnet on a Nigerian transnational network. *British Journal of Criminology*, 56(1), 68-86.
- Cusumano, E., & Villa, M. (2019). Sea rescue NGOs: a pull factor of irregular migration? IEU
- Deiana, C. Maheshri, V and G. Mastrobuoni (2022), "Migrants at Sea: Unintended Consequences of Search and Rescue Operations", SSRN
- Gathmann, C. (2008). Effects of enforcement on illegal markets: Evidence from migrant smuggling along the southwestern border. *Journal of Public Economics*, 92(10-11), 1926-1941.
- UNODC, Global Study on Smuggling of Migrants 2018 (United Nations publication, Sales No. E.18.IV.9).