

Assessing the Impact of Rescue Operations in the Mediterranean Sea

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Is it possible to apply business economics analysis to criminal organizations?

- ✓ YES, as an investigative tool (OSCE, 2010)
- ✓ YES, to define approaches to counter organised crime (OSCE, 2010)
- ✓ BUT: not a single business model that can explain how smugglers operate (Parliament of Australia, 2013)
- ✓ We used Business Model Canvas (Osterwalder A., Pigneur Y., 2010) to describe criminal organization investigated in Glauco 1 and Glauco 2

The business model of human smuggling

- ✓ Criminal organizations acts as service providers
- ✓ Criminal organizations care about their reputation, “service quality”, competitors
- ✓ Criminal organizations benefit from unwarranted and unexpected insurance policies on their trades

Estimating people smugglers' turnover

- ✓ We estimate an average price paid of 1.430 US dollars and the yearly turnover (for that organization object of the investigation) is more than 60 millions USD
- ✓ Costs for workforce, security, boats and other minor expenses do not exceed 35% of the total turnover and the annual profit is more than 40 millions

Some references on enforcement and illegal migration

- ✓ What's Driving Mexico-U.S. Migration? A Theoretical, Empirical, and Policy Analysis (Massey D.S. and Espinosa K.E., 1997);
- ✓ Illegal immigration, border enforcement, and relative wages: Evidence from apprehensions at the U.S.-Mexico border (Hanson H. and Spilimbergo A., 1999);
- ✓ The short-term and long-term deterrence effects of INS border and interior enforcement on undocumented immigration (Davila A. et al, 2002);
- ✓ Self-selection among undocumented immigrants from Mexico (Orrenius P. and Zavodny M., 2005);

Some references on enforcement and illegal migration

- ✓ The effect of border enforcement on migrants' border crossing choices: Diversion or Deterrence? (Carrion-Flores C., Sorensen T., 2007)
- ✓ Effects of enforcement on illegal markets: Evidence from migrant smuggling along the southwestern border (Gathmann C., 2008);
- ✓ An Analysis of Migrant Smuggling Costs along the Southwest Border (Roberts B. et al., 2010);
- ✓ U.S. border enforcement and the net flow of Mexican Illegal migration (Angelucci M., 2012);

The Econometric model

$$\begin{aligned} arrivals_{it} = & u_i + C_{it} + \beta_1 marenostrom_{it} + \beta_2 enforcement_{it} + \beta_3 dead_{it} + \\ & + \beta_4 deadlag1_{it} + \beta_5 deadlag2_{it} + \beta_6 currentconflict_{it} + \\ & + \beta_7 oldconflict_{it} + \beta_8 gdpppc_{it} + \beta_9 dgaddafi_{it} + \varepsilon_{it} \end{aligned}$$

Panel Data

i = country of origin as declared by the migrant to Italian Police, 44 countries

t = month of the arrivals from January 2011 to March 2016, 63 months

marenostrom endogenous variable, instrumented using *winddays* and *seadays* using TSLS estimation

Variable	Source	Description	Relationship
<i>arrivals_{it}</i>	Italian Police	Dependant variable. Monthly arrivals from each country as declared by the migrant	
<i>marenostrum_{it}</i>	Different online sources (newspapers, Marina Militare Italiana)	Dummy variable assuming value 0 until October 2013 and for the period after October 2014 and 1 for the year in which it was active.	(+)
<i>enforcement_{it}</i>	Different online sources (Frontex, Marina Militare Italiana, newspapers)	Dummy variable assuming value 1 after October 2014 until march 2016 and considering the enforcement of Triton Plus, EUNAV FOR MED – Operation SOPHIA. Maresicuro	(+)
<i>dead_{it}</i>	La Repubblica – italian newspaper	A count variable considering the number of victim from the wreckage of the boat occurred in a specific month	(-)
<i>deadlag1_{it}</i>		The <i>dead</i> variable considered for the month after the wreckage occurred	(-)
<i>deadlag2_{it}</i>		The <i>dead</i> variable considered two months after the wreckage occurred	(-)
<i>oldconflict_{it}</i>	Uppsala Universitet conflict database	Number of years in which the country experienced an armed conflict on its territory	
<i>currentconflict_{it}</i>	Uppsala Universitet conflict database	Number of months of uninterrupted conflicts calculated from the beginning until the month of the arrivals	(+)
<i>gdpppc_{it}</i>	CIA World Factbook	The yearly GDP at purchase power parity	(-)
<i>dgaddafi_{it}</i>	wikipedia	Dummy variable assuming value 1 since Gaddafi lost power and Lybia is in chaos	(+)
<i>winddays_{it}</i>	Meteomar	Days for each month in which wind force is very strong (at least 7 on Beaufort scale)	
<i>seadays_{it}</i>	Meteomar	Days for each month in which the sea is very rough (at least 5 on Douglas scale)	

The results

Variable	Coefficient
$marenostrium_{it}$	312,6186 ^{***}
$enforcement_{it}$	279.3747 ^{***}
$dead_{it}$	-.2352342
$deadlag1_{it}$.1512457
$deadlag2_{it}$	-.5177426 ^{**}
$oldconflict_{it}$	omitted
$currentconflict_{it}$	8.284379 ^{***}
$gdpppc_{it}$	-.0314219 ^{***}
$dgaddafi_{it}$	-317.9946 ^{***}

* statistically significant at 10%

** statistically significant at 5%

*** statistically significant at 1%

Conclusions

- ✓ Enforcement had a positive impact on migrant arrivals and helped the criminal organization's business as if an insurance policy: The amount gained for each migrant can be considered as an insurance premium paid by European Union for the journey
- ✓ When we restrict our dataset to countries in the Central Route (those controlled by the smugglers object of the investigation) the coefficients for the two variables increase
- ✓ Back-of-the-envelope: average price * arrivals = 1.3 million USD per month
- ✓ Enforcement increased smugglers' monthly turnover
- ✓ Contrary to conventional wisdom: Gaddafi