

Evaluation of occupational safety and health incentives

Understanding the territorial bias

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Special session S43
Counterfactual methods for regional policy evaluation



Occupational safety and health policies: definition

In general terms an OSH policy may be defined as a set of rules, actions and interventions targeting **firms** with the aim of improving the health and safety conditions of their workers and consequently reducing accidents and work-related diseases.

Many options (that may be used jointly if desired):

- **sermons** (information, training, assistance and advice)
- **sticks** (regulation, enforced through supervision and sanctions)
- **carrots** (economic incentives for prevention)

Examples of the use of incentives are very scarce and they have never been evaluated.

Incentives: the uniqueness of the Italian case study

The general Italian law on safety and health at work (*Testo Unico sulla salute e sicurezza sul lavoro*) includes also the objective of experimental initiatives rooted in the social responsibility of firms. In particular this goal will be pursued by Inail, the National Institute for Insurance against Accidents at Work

*«**INAIL funds**, with its own budget, also in the context of bilateralism and protocols with the trade associations and associations for the protection of invalids, **investment projects and training on health and safety at work**, aimed in particular at **small, medium and micro enterprises** and projects aimed at experimenting innovative solutions and organizational and management tools inspired by the **principles of corporate social responsibility.**» D.lgs. 81/2008, art. 11, co. 5*

This was the basis for the launch of a wide programme of incentives for investments in safety and health, the ISI calls (Bandi ISI).

The ISI calls: features

- Yearly national calls, with a budget shared per region
- Incentives for (productive) investments that imply (also) an improvement in safety and health
- Not funding investments to comply with minimum requirements
- Grants covering up to 65% of the expenses and up to 130,000 €
- Targeting small and micro firms
- Based on applications by firms (click-day)

Eligibility is determined by a score based on priority criteria (on the firm and/or on the project) that vary every year and may also be differentiated at the regional level

- Applications are selected on the base of time of the click until regional budget is exhausted
- Only a small share of applications is funded

OSH policies: evaluation

Evaluation studies of OSH policies are very scarce. A recent survey conducted under the Regulatory Fitness and Performance Program (*REFIT – European commission 2017*) of ex post evaluation of the EU directives on health and safety at work concluded:

“given the current evidence and data sources, it is not possible to demonstrate links between regulatory activities and changes in the health and safety outcomes”

The European Agency EU-OSHA introduced firstly evaluation as a priority for 2013 – 2020 (*EU-OSHA 2013*)

«The lack of evaluation studies of interventions in the field of OSH is widely recognized. Studies are needed to assess feasibility and effectiveness»

What about Italy? Something is moving!

PARLIAMENTARY INVESTIGATION COMMISSION OF THE SENATE. INTERMEDIATE RELATION 14/3/2016 The commission «*has established to conduct an activity of evaluation of OSH policies*» (Accorinti *et al.* 2018)

CIV – PLANNING REPORT 2019 – 2021 «*Implementation of a structured monitoring system, for each phase of the calls, to provide the CIV with evaluation elements on the effectiveness and efficiency of the incentive system with the aim of developing strategies [...] functional to the protection of health and workplace safety*»

- Process evaluation that led to a significant reduction in critical issues (e.g. significant mortality among the firms passing the click day due to the complexity of the process, excessive presence of low-risk categories) (Ragazzi *ed.* 2020)
- Assessment of the evaluation challenges that showed the need of research and testing of an ex-post evaluation of the effects produced by the interventions (Colagiaco *et al.*, 2018)

12/2020 FUNDING OF THE VIP-MOVING PROJECT - EVALUATION OF PREVENTION INCENTIVES. EVALUATION MODELS ON THE IMPACT GENERATED BY ISI CALLS Collaboration project, that carries not only funding but also access to data and field competencies.

Impact evaluation: feasibility and criticalities

ISI calls appear to be particularly adequate for a counterfactual impact evaluation

The click-day mechanism allocates the grants randomly - and not based on merit - to a list of eligible candidates.












Thanks to this random assignment to treatment, the process generates a natural experiment :

- Treated firms are those that do the investment and are funded
- Control group is represented by applicants that didn't pass the click-day.

However, this counterfactual design highlights some methodological challenges, that will be addressed by the VIP-Moving project.

...and never underestimate the difficulty of working with administrative data!

Which kind of problems? (Otz *et al.*, 1998)

1. Get the access  
2. Univocally identify subjects (DBs along time, space, ...)  
3. Validation and assessment of data quality:
 - a. Understand their nature; 
 - b. Investigate eventual errors and missing data;  
 - c. Assess sources of distortion;  
 - d. Be informed and manage changes in DB building rules.  

We still do not have the data to perform the impact evaluation and we obtained the data on which the presentation is based in June.

NO COUNTERFACTUAL IMPACT EVALUATION POSSIBLE AT THE DATE OF THE CONFERENCE

Data-base structure and feasibility of the analysis

In Inail, information is organized in two separate data-bases:

1. Firms
2. Accidents

The second is organized on a territorial basis (regions and provinces), with an insurance code as key identifier. One code (PAT) refers to a working process in a location. Any insurance code is spatially identified, but local units may have more than one code (and, of course, firms may have more than one location).

It is very difficult to connect data at firm level (firm data-base) to spatial data linked to PATS. This is why Inail does not produce certified indicators based on firm size and we had a too late and limited access to build them.

 **We will present a detailed analysis by sector and place and leave size to future research**

A spatial evaluation of the context of the ISI calls

We chose to focus on the **analysis of the outcome variable, and of spatial context specificities**

This will not only represent a spatial picture of the context, but our results on the determinants of the territorial bias will help:

- Understanding different impacts at the local level (Determinants of the impact)
- Providing variables (and understanding) for the application of matching techniques
- Providing evidence for the assessment of external validity

Accident risk determinants: sector and size

Practitioners and literature acknowledge that there are two main determinants of occupational risk at the firm level: sector and size. Both of them are not direct explanations of the extent and type of risk, but they proxy other variables.

Sector explanatory for the following dimensions:

- specific **nature of the job** (Abdalla et al., 2017)
- specific **nature of job tasks** (ILO, 2001),
- **type of workers** involved (Abdalla et al., 2017),
- involvement with the **informal sector** (Buckley et al., 2016).

Size explanatory for the following dimensions:

- **limited resources** (ILO, 2020; Walters & Wadsworth, 2016),
- **informal management structure** (Hasle and Limborg, 2006),
- **poor awareness** of OSH,
- pressure due to their **position in the Global Supply chain** (ILO, 2005),
- involvement with the **informal sector** (ILO, 2020).

Dimensions of risk: frequency and severity

Literature on risk analysis identifies two dimensions of risk:

- **Probability**: how likely is the adverse event?
- **Impact**: what consequences will result from the adverse event?

This representation of risk allows prioritizing and targeting situations characterized by high values of both dimensions and choosing adequate countermeasures.

The two dimensions of risk, used in other contexts (natural, cyber,...), apply also to occupational safety.

For a given employer, or for any aggregate (industry, administrative territorial unit, big companies vs. SMEs):

- Probability may be studied through the observed relative **frequency** of accidents or professional diseases
- Impact may be analyzed observing the **severity** of consequences of the accident or professional disease: number of leave days, permanent health consequences, death

Describing occupational risk

Based on the two dimensions of risk (**frequency** and **severity**) we identified 3 possible metrics:

$$\text{Frequency index (F}_{-I_{ij}}) = \frac{\text{Indemnified accidents}_{ij}}{\text{Employees}_{ij}} \cdot 1000$$

$$\text{Severity Share (S}_{-S_{ij}}) = \frac{\text{Severe accidents}_{ij}}{\text{Indemnified accidents}_{ij}} \cdot 100$$

$$\text{Severity Index (S}_{-I_{ij}}) = \frac{\text{Severe accidents}_{ij}}{\text{Employees}_{ij}} \cdot 1000 = F_{-I_{ij}} \cdot S_{-S_{ij}} / 100$$

Where i = territorial unit (eg. Province) j = industry

Severe Accidents = Accidents >30 days prognosis + a. with permanent outcomes + fatal a.

For each index we identified thresholds to define low, medium and high risk, through 40 and 60 quantiles over industries. This methodology has been applied within Inail for internal governance.

	Low	Medium	High
FI	0-11,6	11,6-17,3	over 17,3
SS	0-33,6	33,6-35,5	over 35,5
SI	0-3,92	3,9-57	over 5,7

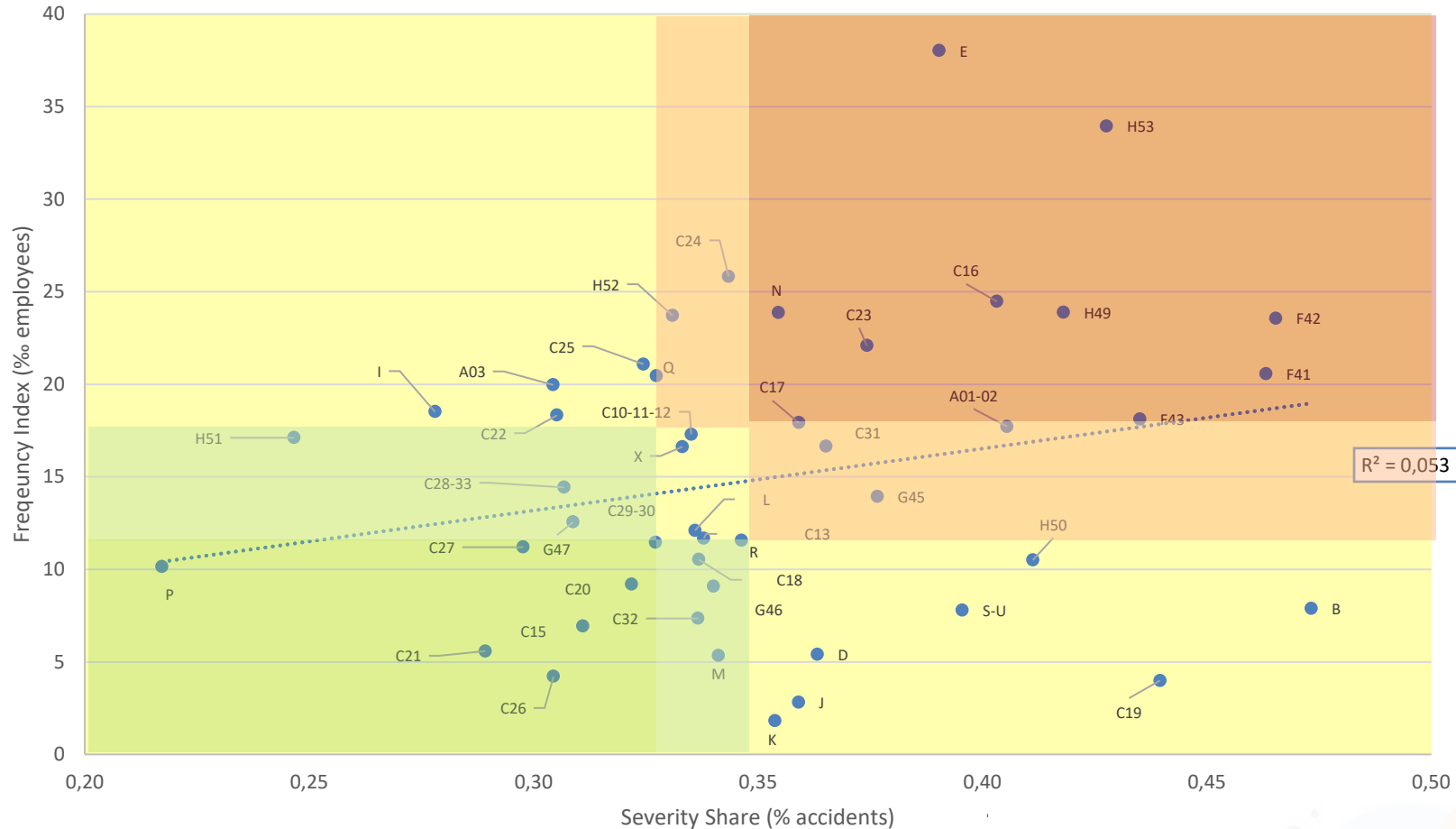
We will use these thresholds as reference values to define low/medium/high risk in our analysis

Sector specificities: levels of risk

We notice:

- a wide dispersion (very different situations)...
- ...over a slightly increasing regression line (in general high risk industries have problems on both probability and impact)

Sectoral map of occupational risk in Italy in 2018



NB: Industries are classified with different level of detail. Low detail is associated with low risk (or low variance).

We used the above defined thresholds to define low/medium/high risk

Sector specificities: Temporal dynamics

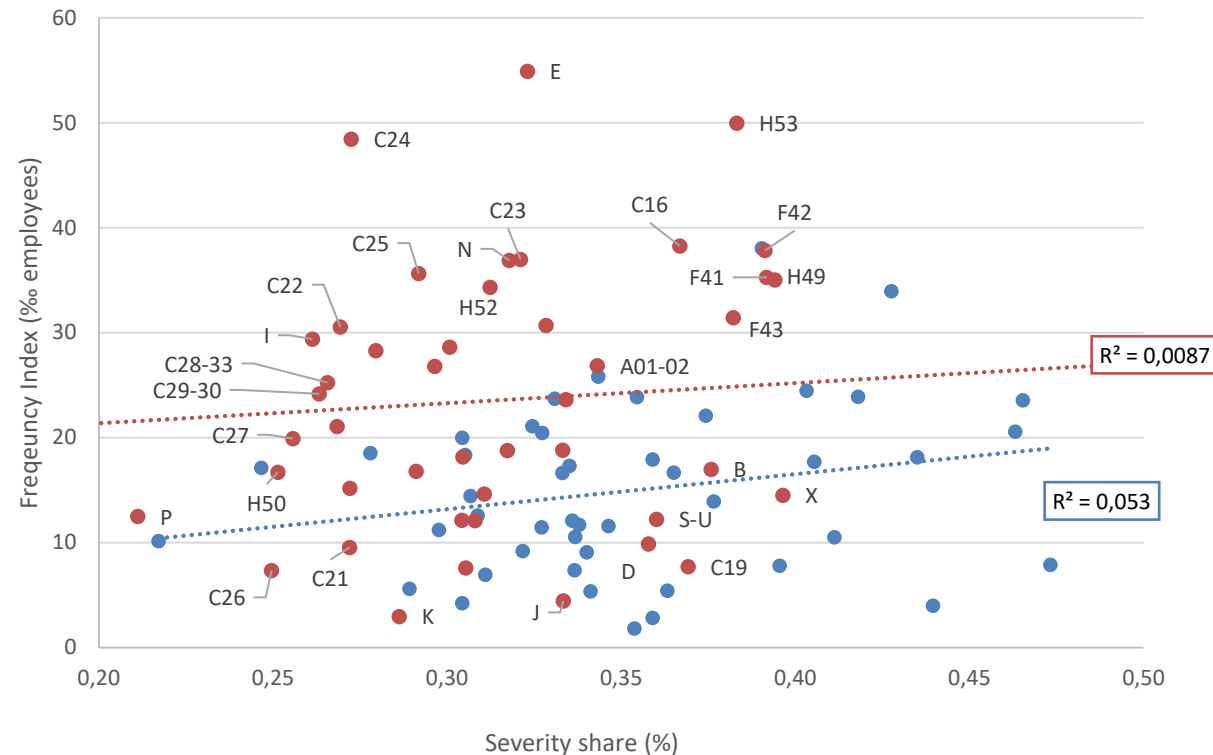
We notice:

- a well known trend to a reduction of risk over time;
- that reduction is stronger in frequency than in severity:
 - serious accidents decrease less quickly

Level of risk in different economic sectors in Italy in 2010 and 2018

Red points: economics sectors in 2010

Blue points: economics sectors in 2018



Reference codes for Sectors

A01-02 Agriculture and forestry	E Water supply; sewerage; waste management and remediation activities
A03 Fishing and aquaculture	F41 Construction of buildings
B Mining and quarrying	F42 Civil engineering
C10-11-12 Manufacture of food products, beverages, and tobacco products	F43 Specialised construction activities
C13 Textile industries	G45 Wholesale and retail trade and repair of motor vehicles and motorcycles
C15 Manufacture of leather and related products	G46 Wholesale trade, except of motor vehicles and motorcycles
C16 Manufacture of wood and of products of wood and cork, except furniture	G47 Retail trade, except of motor vehicles and motorcycles
C17 Manufacture of paper and paper products	H49 Land transport and transport via pipelines
C18 Printing and reproduction of recorded media	H50 Water transport
C19 Manufacture of coke and refined petroleum products	H51 Air transport
C20 Manufacture of chemicals and chemical products	H52 Warehousing and support activities for transportation
C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	H53 Postal and courier activities
C22 Manufacture of rubber and plastic products	I Accommodation and food service activities
C23 Manufacture of other non-metallic mineral products	J Information and communication services
C24 Metallurgy	K Financial and insurance services
C25 Manufacture of fabricated metal products, except machinery and equipment	L Real estate activities
C26 Manufacture of computer, electronic and optical products	M Professional scientific and technical services
C27 Manufacture of electrical appliances, non-electrical household appliances	N Renting, leasing, and support service activities
C28-33 Manufacture of machinery and equipment, and repair and installation equipment	P Education
C29-30 Manufacture of motor vehicles, trailers and other means of transport	Q Human health and social work activities
C31 Manufacture of furniture	R Arts, sports, entertainment and recreation activities
C32 Other manufacturing	S-U Activities of extraterritorial organisations and bodies
D Electricity, gas, steam and air conditioning supply	X Not defined

Territorial specificities Regions

We start our spatial analysis at the region level.

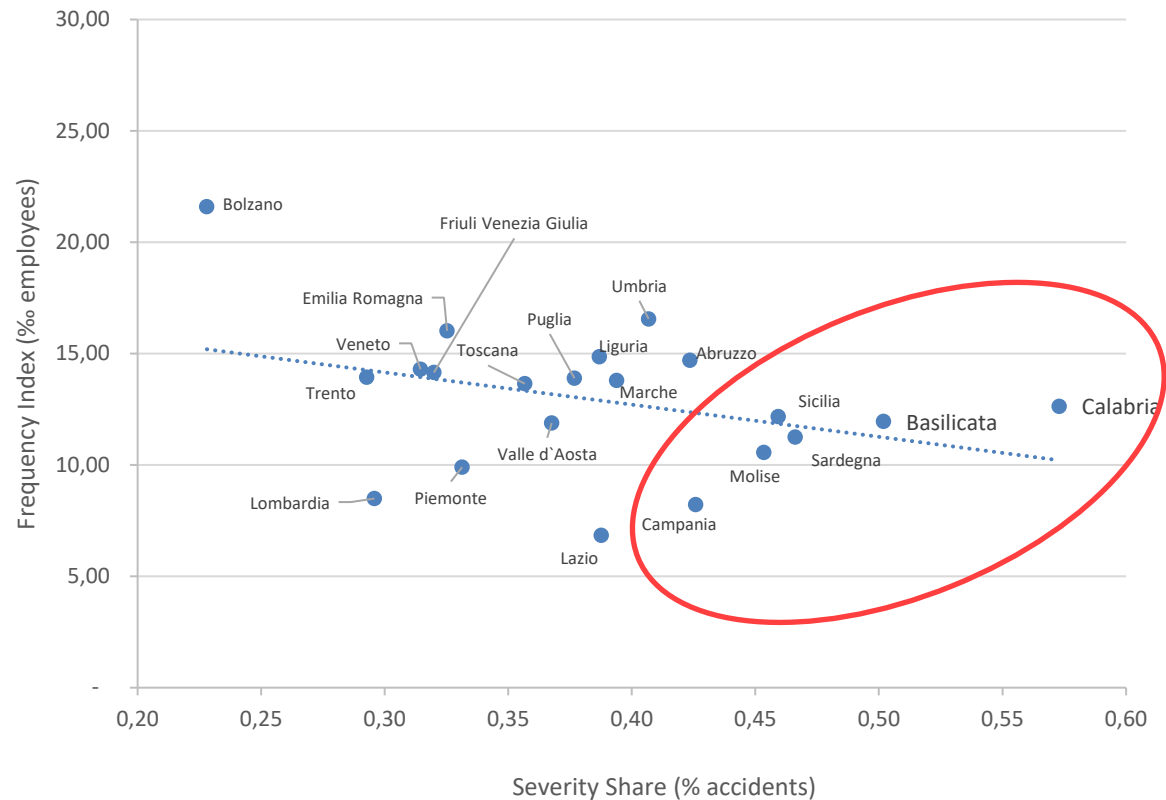
We observe

- a great heterogeneity
- a slightly negative regression line
- a spatial regularity: all southern regions show low FI and high SS

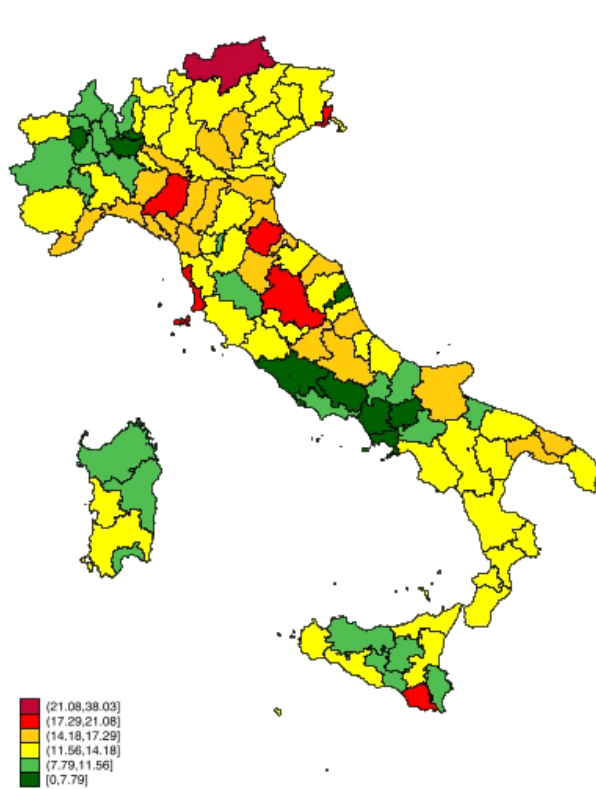
→ **STRONG SUSPECT OF SERIOUS UNDERREPORTING** in some regions. Since it is difficult to avoid declaring serious accidents, the bias is stronger for FI.

We found no estimation on the consistence of underreporting.

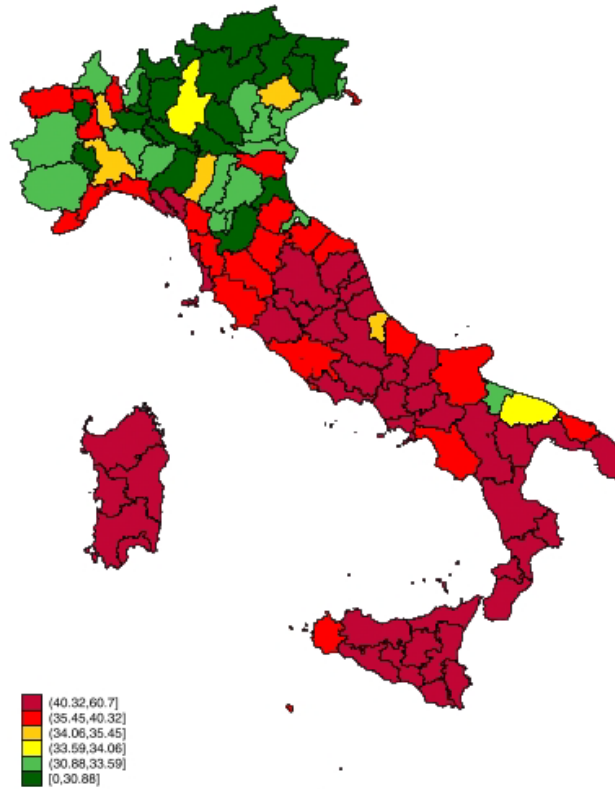
The less undermined indicator seems to be the Severity Index.



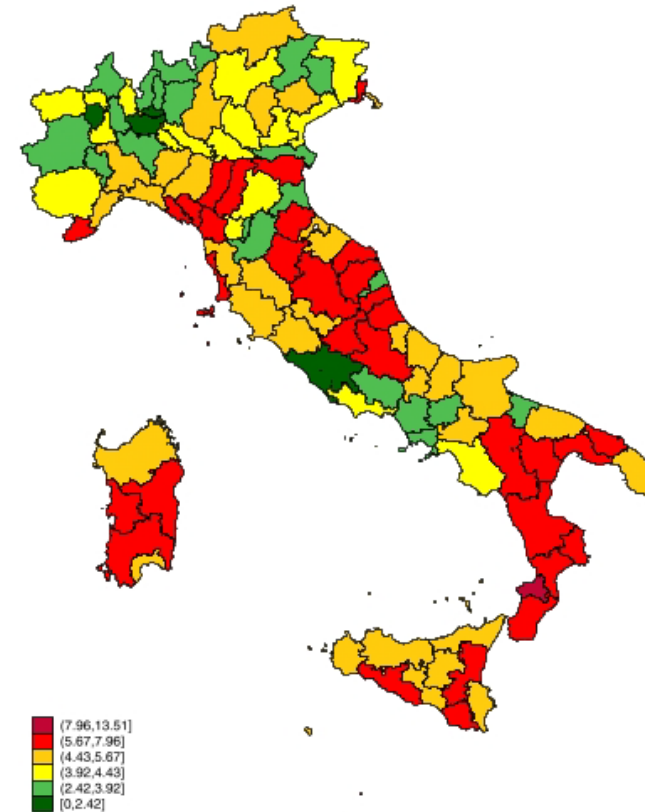
Territorial specificities Provinces



Frequency Index



Severity Share



Severity Index

The color range is based on the values calculated for Q_{20} , Q_{40} , Q_{50} , Q_{60} , Q_{80} of industry ranking of each indicator.

RED: HIGH RISK

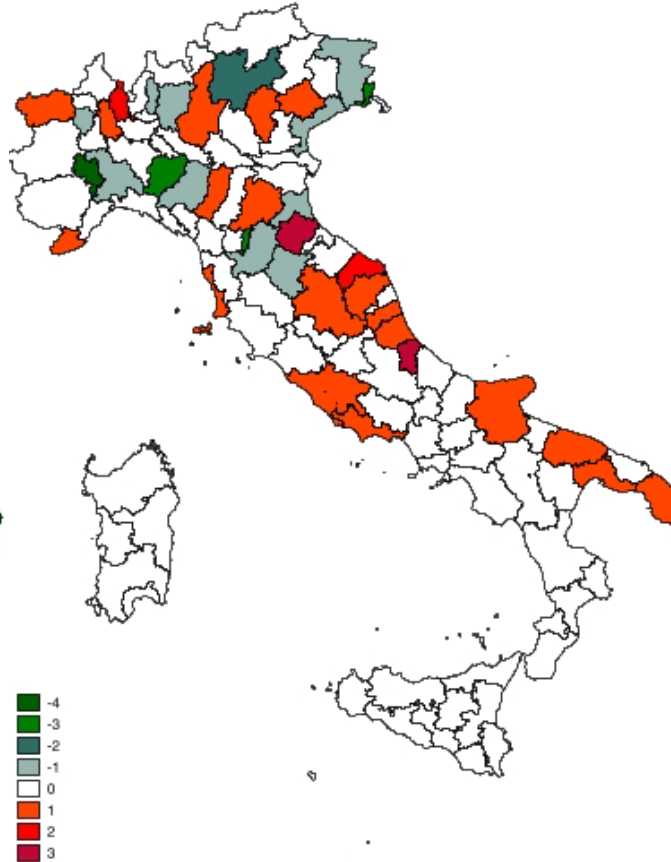
YELLOW: MEDIUM RISK

GREEN: LOW RISK

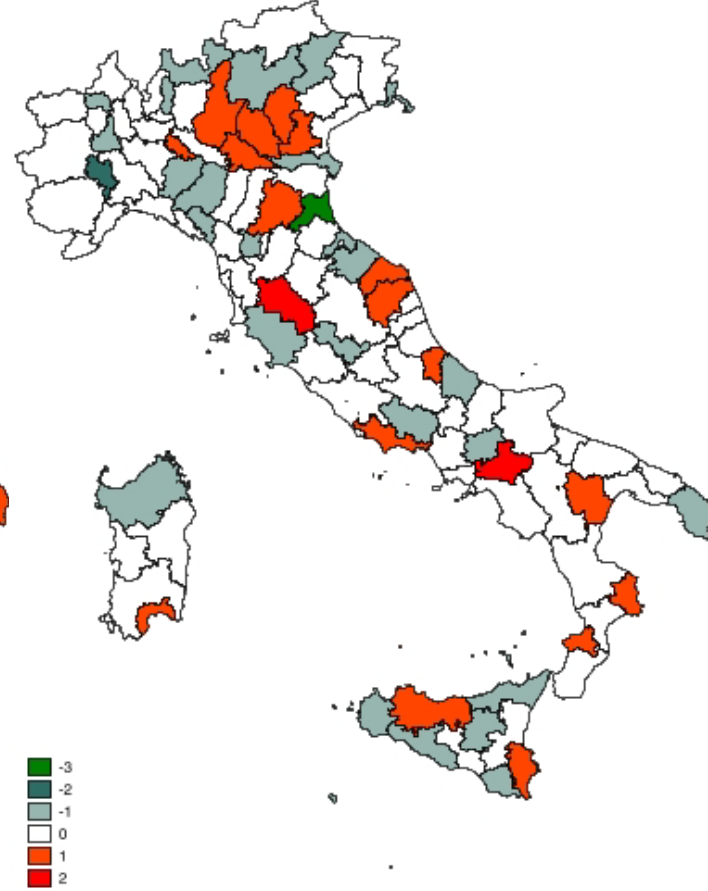
Territorial specificities Dynamics 2010-2018



Frequency Index



Severity Share



Severity Index

Green shades indicate that a Province has improved moving from higher risk towards lower risk quantiles. The opposite (increase in risk) for red shades. Many moves but no clear territorial pattern. Stronger changes for SS and SI, while position based on FI is rather stable (maximum 1 move over the 6 interval range)

Territorial bias: Concept

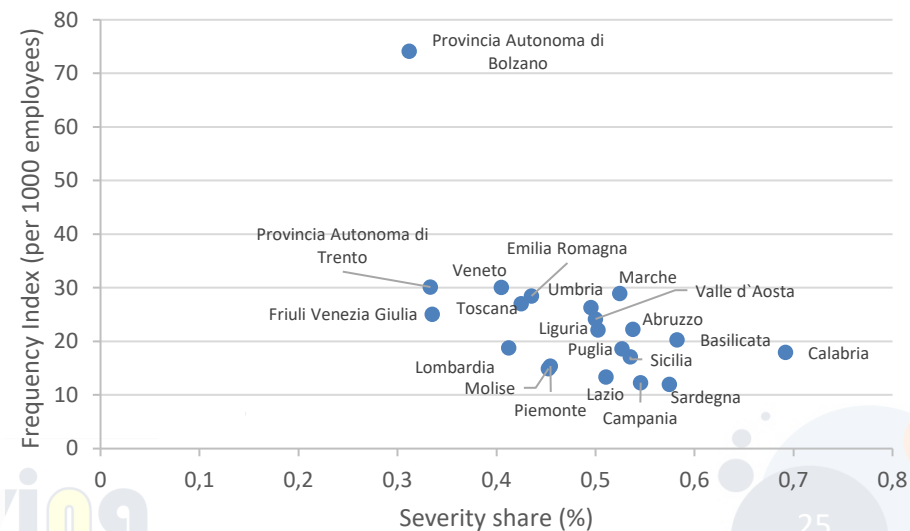
How can the great territorial heterogeneity shown in previous pictures be explained? Differences in reporting behavior? Industrial composition? Socio-cultural behavior?

To find an answer for this research question we developed the concept of **territorial bias**.

- If the local industrial composition (and size composition, in a future extension of the approach) were the only explanation of territorial heterogeneity
- then it would be possible to foresee rather precisely the number of (serious) accidents of a province, by
 - applying the sectoral FI (SI) calculated at the national level to the number of employees in each industry, so obtaining the expected **(serious) accidents for each sector**
 - Aggregating the expected (serious) accidents to obtain the **expected provincial (serious) accidents**
 - Calculate the **theoretical index at the province level**

On the other hand, there is great territorial heterogeneity also at industry level (see for example the graph for building sector).

Hence we will observe a difference between expected and real (serious) accidents, which can be explained by local social, cultural and economic features of the territory.



Territorial bias Definition

- $N_{acc_{ij}}$ = Real indemnified accidents in province i and industry j
- $N_{sev_{ij}}$ = Severe accidents in province i and industry j
- $F_{I*j} = \frac{Indemnified\ accidents_{*j}}{Employees_{*j}} \cdot 1000$ and $S_{I*j} = \frac{Severe\ accidents_{*j}}{Employees_{*j}} \cdot 1000$

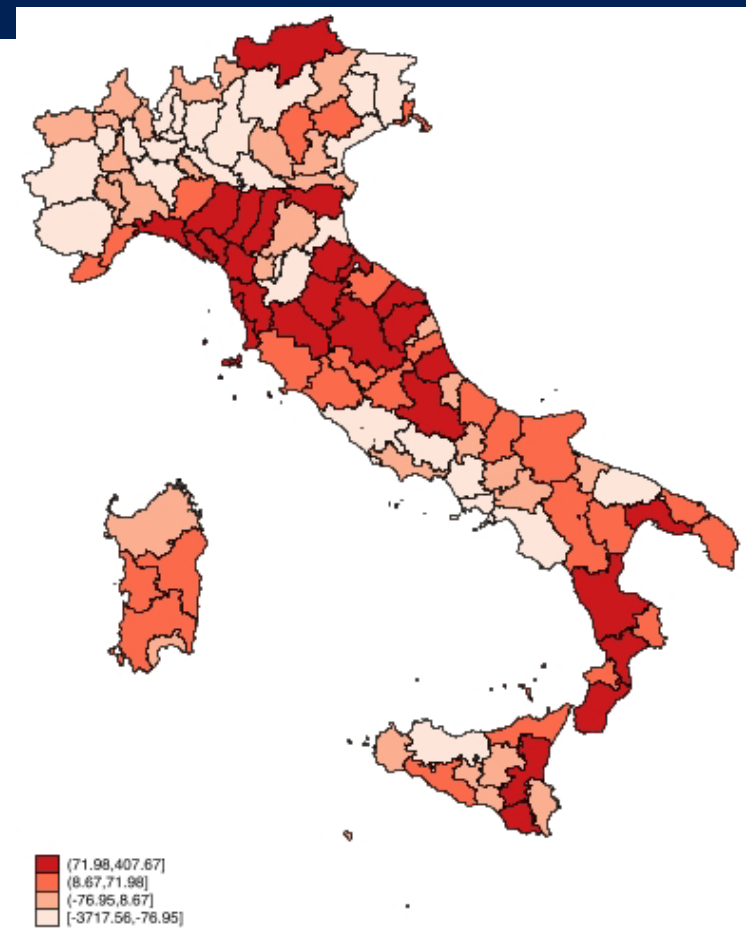
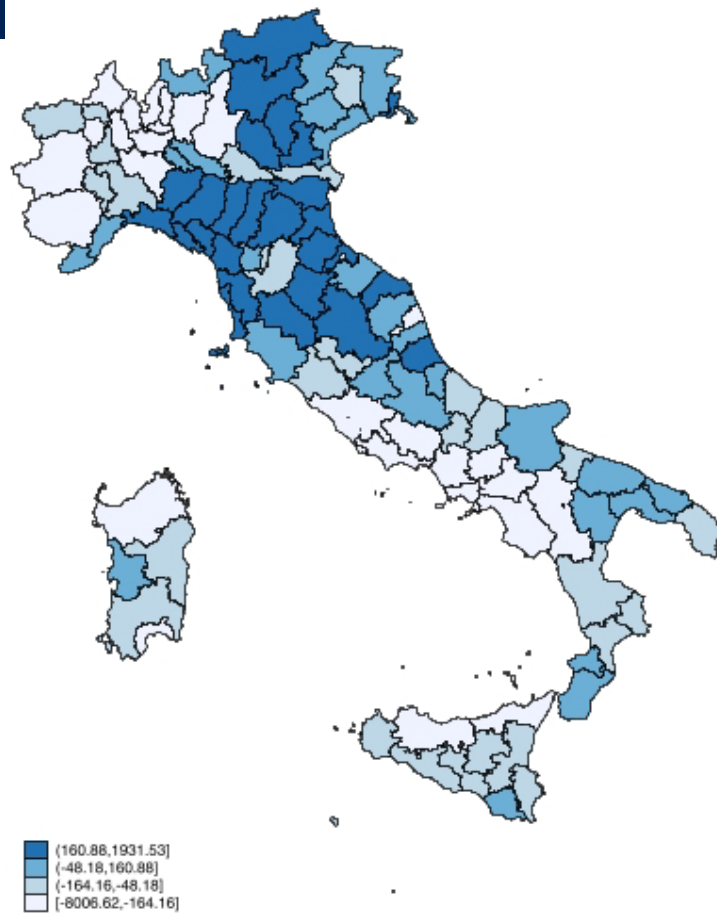
indexes calculated at the national level

- $EN_{acc_{ij}} = F_{I*j} \cdot Employees_{ij}$ and $EN_{sev_{ij}} = S_{I*j} \cdot Employees_{ij}$
Expected accidents (total and severe) per industry and province
- $EN_{acc_{i*}} = \sum_j EN_{acc_{ij}}$ and $EN_{sev_{i*}} = \sum_j EN_{sev_{ij}}$
Expected accidents (total and severe) per province for all industries
- $TB_{acc_{i*}} = N_{acc_{i*}} - EN_{acc_{i*}}$ **Territorial bias on accidents**
- $TB_{sev_{i*}} = N_{sev_{i*}} - EN_{sev_{i*}}$ **Territorial bias on severe accidents**

May be used to calculate expected values of FI, SS, and SI

TBs may be plotted on a map, or used as dependent variable of a model to assess the variables that determine heterogeneity

Territorial bias Maps



More intense shades imply higher TB, i.e. that the real accidents are much higher than the expected ones.

The 2 maps plotting TBs for accidents and serious accidents are more similar than in the comparison between FI and SI. In fact there is very high correlation.

Territorial bias Determinants

We want to test through an econometric model, variables able to explain the differences in territorial bias, to catch the unobservable socio-cultural attitude towards safety and workers' rights.

We will include variables:

- On the **size** of the province (since TB is an absolute value and it depends on the size of the local economy)
- On the local **economy**, including in particular:
 - Average firm size (to partially mitigate the lack of data on accidents by firm size)
 - Unemployment (direct link with OSH: hard conditions on the labor market may induce workers to accept jobs in unsafe conditions)
- On the **social capital**. These variables have, in general, no direct link with OSH, but the hypothesis is that they represent an endowment of the local population that may proxy individual attitude towards community interests and citizens' well-being.

We will show the results of a very preliminary version of the model



Territorial bias Model

Cross-sectional model (Obs.: 107 Provinces).

Dependent variable **TB_sev** in absolute value (difference in the number of severe accidents)

Independent variable choice limited by

- the necessity to have variables at the province level
- some variables with missing values

We decided to consider Bolzano as an outlier (probable differences in the ways variables are calculated)

We will assess the significance of single variables and of some variables as a group (F test)

Explored variables: Size and economy

Group	Variable	Description	Source
Size and economy	Population	Municipal resident population of December 31 of each year	ISTAT
	Average firm size	Total employees/N. of firms	Our computation on ISTAT data
	Activity rate	Activity rate of the population aged 15-64 years	ISTAT
	Disposable income	Annual per capita disposable income	Sole24Ore
	Unemployment	Persons seeking employment aged 15 and over in the labour force in the corresponding age group (%)	ISTAT

Social capital: Territory endowment & engagement of the population

Group	Variable	Description	Source
Territory Endowment	Waste recycling	(% of) Recycled municipal waste out of total municipal waste	ISTAT
	Child Care services	% of municipalities that have activated services for children (nursery schools, micro-nurseries or supplementary and innovative services) out of the total number of municipalities in the province	ISTAT
	Passengers on PT	Number of passengers carried by local public transport in provincial capitals (number per inhabitant)	ISTAT

Group	Variable	Description	Source
Engagement towards the community	Blood donation	Number of blood donations over total resident population	AVIS
	Social cooperatives	Number of social cooperatives and number of employees in social cooperatives (share on total firms and on total firms' employees)	Ircres DB: MISE/AIDA/ASIA
	European parliament voter turnout	% of people who voted in the last EP elections out of total eligible voters.	ISTAT

Explored variables: Gender

Group	Variable	Description	Source
Women in society	Women in municipal administrators	Percentage of women in total municipal elected officials	ISTAT
	Unemployment differential	Difference of male and female unemployment rate (of the population aged 15 and over)	ISTAT
	Activity differential	Difference of Male activity rate and female activity rate (of the population aged 15-64 years)	ISTAT

Explored variables: Education and Crime

Group	Variable	Description	Source
Education	NEET	% of 15-29 year-old neither employed nor in education or training out of total 15-29	ISTAT
	High School graduates	% of 25-64 year-old who have completed at least secondary school out of total 25-64	ISTAT
	Graduate population	% of 25-39 year-old with tertiary qualifications out of total 25-39	ISTAT

Group	Variable	Description	Source
Crime	Criminal association and Mafia association	Number of crimes reported to the judicial authorities by the police	Interior Ministry
	Homicides	Voluntary homicides per 100,000 inhabitants	ISTAT
	Small-scale criminality	Crimes related to petty crime in cities (number per 1,000 inhabitants)	ISTAT
	Reported robberies	Reported robberies per 1,000 inhabitants	ISTAT

Regression of TB_sev on variables at province level, year 2018

Variables	Model 1	Model 2	Model 4	Variables	Model 1	Model 2	Model 4
pop_2018	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	%microcrime	-5.0 (0.725)	-	-
firm_size	-142.9* (0.081)	-134.4* (0.088)	-132.4* (0.066)	associated_crimes	12.5** (0.021)	11.3** (0.030)	11.2** (0.024)
blood_don%	-2,145.9 (0.199)	-	-	%active_15_64	-0.445 (0.973)	-6.1 (0.605)	-10.1 (0.220)
%sort_waste	2.1 (0.439)	2.1 (0.423)	2.3 (0.370)	active_delta_M_F	6.6 (0.544)	4.6 (0.652)	-
%murders	-2,914.6 (0.558)	-2,530.1 (0.602)	-	%coopsoc_empl	3,517.8 (0.553)	3,619.6 (0.525)	-
%women_admin	9.2 (0.350)	8.5 (0.355)	9.4 (0.235)	%coopsoc	-53,286.4 (0.303)	-51,810.8 (0.294)	-47,758.4 (0.239)
%25-39_degree	-5.6 (0.483)	-2.0 (0.789)	-	%_mun_childcare_serv	0.719 (0.629)	0.631 (0.658)	-
%voters_EP	9.5* (0.088)	9.2* (0.079)	10.5** (0.030)	%pass_LPT_2017	0.431 (0.280)	0.380 (0.306)	0.348 (0.318)
%unemployed	9.2 (0.552)	9.4 (0.532)	8.6 (0.472)	Constant	-108.8 (0.911)	103.24 (0.911)	335.1 (0.601)
unempl_delta_M_F	4.9 (0.729)	3.3 (0.812)	-	R-squared	0.685	0.678	0.673
Observations	102	105	105				

Comments

Model 1: most available variables (excluded just the most cross-correlated, high risk of multicollinearity)

Model 2: excluded blood-donors, because of 3 missing data, excluded Bolzano (outlier), excluded microcrime (very low significance)

Model 3: tried excluding Milan and Rome; model dropped because no improvement and they are part of our problem

Model 4: parsimonious model, maintaining only the most significant variable in each group

COMMENTS

- All signs are the expected ones
- A fair share of variance explained (More than we expected)
- The share does not drop in the parsimonious model: importance of limiting the model to a **well chosen set of variables** to avoid losing freedom degrees
- Very few significant variables (province size, average firm size, share of population voting at the elections of the EU parliament, number of crimes committed by associated criminals). No significant group of variables
- but the significance of variables is robust across specifications
- We tested the same models by regressing the same variables on TB_acc instead of TB_sev, but results do not change in a sensible way

Conclusions: Outcome indicators

- Different indicators may give very different pictures of the situation
 - This is linked to the different role of the two dimensions of risk (probability and impact)...
 - ... but happens also because the indicators suffer differently of underreporting and overreporting
- ➡ Important to use the best indicator for each evaluation and always check the robustness of results with different indicators.
- The territorial bias appears to be an excellent indicator to observe territorial specificities, once you have controlled for the two main (proxies of) risk determinants : sector and size
 - The territorial bias is linked to an unobservable mix of social, cultural and labor market determinants that generate (in a firm, in a territory, in a firm located in a given territory...) the attitude to take in charge the employees' safety and health

Conclusions: seizing the determinants of TB

Our work tested a wide list of variables, mainly referring to the “social capital” concept as determinants of the Territorial Bias

- Only few variables over the wide tested list result (moderately) significant
- There is not significance for coherent group of variables
 - ➡ it is very difficult to seize the cultural attitude of a territory towards OSH
- This attitude seems to be best described by variables concerning individual behavior and by variables concerning criminal activity, which emerge as two dimensions to be further investigated
- Average firm size is moderately but robustly significant. This suggests the importance of recalculating TBs introducing the size structure of firms.
- The territorial dimension (proxied by population) is strongly significant.

Future research

Territorial bias:

- Introduce firm size structure in the calculation of the TB
- Enlarge the dataset of variables on social capital (e.g. share of female candidates and of elected representatives at the municipal elections) and on territorial characteristics (e.g.: the role of industrial districts)
- Test the model on the TB in % (differences in FI and EFI or SI and ESI) considering that it is a limited variable
- Panel models to include the dynamic dimension and increase sample size

Impact analysis:

- Adopt a counterfactual approach to evaluate the impact of incentives, focusing on a specific incentive line
- Test the 3 indicators (+ a “firm bias”) to assess the impact
- Use the territorial bias and its determinants to understand differences in impacts at the local level

Suggestions?

**Thanks for your attention and for your suggestions
for the work to come!**

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Partners of the project

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VIP moving

**Valutazione degli Incentivi
alla Prevenzione. MOdelli
Valutativi sull'Impatto
Generato dai bandi ISI**

APPENDIX

The groups of firms relevant for the evaluation design

SYNTHESIS OF THE FEATURES OF A COUNTERFACTUAL IMPACT EVALUATION
AND OF THE EVALUATIVE RESEARCH QUESTIONS CONNECTED TO IMPACT EVALUATION

The subsets of firms involved in the evaluation design

1. Not participant
2. Not passed at the click day
3. Passed the click day* but not liquidated
4. Approved and liquidated

Why an admitted project may not receive the funding?

- a. The project is rejected at the beginning after the ex-ante technical and administrative verification
- b. The project was approved ex-ante, but the payment is rejected for technical or administrative irregularities in the ex-post verification
- c. missing companies, that do not send the documents (at the beginning) or claim the liquidation (at the end) for reasons that are not known

Application

Click
day

Ex ante
verification

...

Ex post
verification

Payment

Group	Problem	Evaluation question
<p>1: Target firms not applying to the call.</p> <p>They are all the Italian firms eligible for the calls</p>	<p>Which variables explain the choice to apply?</p> <p>The answer to this question will help to assess the external validity of the impact.</p>	<p>Why these firms do not participate? On equal terms (size, sector, type of risk, Region) these firms do not apply because:</p> <ul style="list-style-type: none"> • they don't need to • they don't perceive their need • they are less motivated and sensitive to the issue of safety • the call is not attractive or there are more attractive alternatives



Group	Problem	Domanda valutativa
2: Firms that applied but didn't pass the click-day.	Since these companies represent our counterfactual, we must verify that they have not enjoyed alternative treatments.	Did the firm obtain other public aid to fund the project in the application? (regional aid for innovation, Industria 4.0 programme, later ISI calls, ecc.)

Group

3: Firms that passed the click day but didn't obtain the grant. These firms applied for the call and were in the list of funded firms but:

- a. **Didn't send the documents** for the subsequent refinement of the application (not admitted-missing);
- b. Have been admitted but **didn't send the final documents** (admitted-missing)
- c. **Didn't pass the ex-ante or ex-post verification** (not admitted).

Problem

These are firms admitted to the treatment but which do not remain there until the end.

Why does this happen? What are the causes of attrition? Can this bias the impact assessment?

Evaluation question

Why didn't the firm obtain the grant?

- It obtained a better alternative
- It went bankrupt or was closed
- The project didn't comply to the call requirements. Why?
- The firm was not able to manage the project?

Group	Problem	Evaluation question
<p>4: Firms passing the click-day and obtaining the aid for the project. They are the firms selected for treatment and that remained in treatment up to the end.</p>		<p>Check that observable variables for this group are not significantly different than in the counterfactual.</p>

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