Driving under the influence: Statistical analysis of risk factors and prevention measures

RESEARCH PROGRAM

Objectives

The activities for this project are functional to the project "Fermami Amico!" (Stop me, my friend!) funded by the Anti-Drugs Policy Department of the Italian Presidency of the Council of Ministers, which will start in June 2022 and will be completed in mid-2023. The successful candidate will contribute to the statistical analysis of secondary data substance-related road accidents, on data from police monitoring activities, and the design, data collection and analysis of a survey on attitudes towards driving under the influence (DUI) of alcohol and other substances in the Rimini area.

Project Background

The research program is related to the activity of the project "Fermami Amico!". The project will start in June 2022, and is coordinated by the Rimini town council. Beyond the Rimini Unit of the Department of Statistical Sciences of the University of Bologna, the project involves teams of experts from the local police, the addiction unit of local health authorities within the Rimini area, and other town councils within the same province.

The main objective of the project is to reduce mortality and injuries related to road accidents caused by driving under substances in the Rimini area. This objective is pursued through a set of specific actions, including

1. Measures for education and prevention against the risk from DUI across age groups

2. The application of new technologies e.g. augmented reality to enhance the attractiveness of training measures, or other quick-testing tools to detect drugs

3. A multi-media information campaign in the Rimini area

4. The production of a statistical report on data on substance-related traffic accidents, and the underlying risk factors, using secondary and primary data sources

5. Strengthening "on-the-road" monitoring activities through equipped mobile clinic with a qualified medical team.

Description of work

Within the project, the unit of the Department of Statistical Sciences of the University of Bologna, Rimini Unit (STATRN) has specific responsibilities, mostly in relation to objective (4), i.e. the production of a statistical report using secondary and primary data on DUI behaviours and related attitudes. More specifically, two key actions are under the responsibility of STATRN are: Action C1: coordination and harmonization of sources that are instrumental to the analysis of the problem. Advanced research on risk factors behind DUI, as well as quantitative monitoring and evaluation of actions within the project will be based on a systematic coordination and joint analysis of data collected from different sources (among them the Road Safety Observatory of the prefecture in Rimini) and for different scopes, including the analyis of anonymised individual data. This will allow the estimation of statistical models aimed at identifying the key risk factors and the evaluation of the effectiveness of the planned measures. The data will be integrated with information collected for other aims (e.g. results from police road monitoring, data from the training measures implemented by the local health authorities). This systematic coordination will allow a targeted analysis, and a faster identification of the correlations with risk factors. STATRN will provide the scientifical support to ensure the quality of the process for harmonization and matching of the statistical sources, and will produce advance statistical analyses to describe the problem, identify the risk factors and the key target sub-populations, and the evaluation of the prevention interventions. Action C2: survey from primary data collection in the Rimini area, focusing on public opinion and behaviours related to direct and indirect risks. This will be a survey based on a probabilistic design with mixed methods, considering different target groups (students from high schools, university students in the Rimini Campus, residents in the Rimini area). The objectives of the survey are to measure: (a) public perceptions and attitudes on the risks of DUI and on public interventions to tackle the problem; (b) lifestyles, habits and environmental factors acting on these risks; (c) public acceptance of the prevention and deterring measures currently implemented in the area. The survey will be based on appropriate statistical methods (e.g. choice experiments) to explore attitudes, perceptions and behavioural intentions in specific risk situations where the respondents could be passengers, also in order to plan interventions for indirect prevention on

DUI drivers together passenger awareness and the promotion of social norms.

The grant will be for 12 months. **The candidate will be required to work in the Rimini unit of the Department of Statistical Sciences.**

The successful candidate will be part of the research team of the University of Bologna team, which involves members of the Department of Statistical Sciences (Rimini Unit).

The successful candidate is expected to:

- Support the cleaning, preparation, harmonization and matching of secondary data-sets on road accidents, road safety, lifestyles and monitoring and prevention activities, including administrative tasks related to data protection;

- Review the literature on DUI behaviours and risk factors

- Support the design, implementation and data collection of the primary survey (action C2);

- Contribute to the analysis and modelling of primary and secondary data in relation to the project activities;

- Support the team in writing and finalizing project deliverables and research reports;

- Explore/write STATA routines;

- Participate to project meetings;

- Contribute to the project administration

GRANT OBJECTIVES, TRAINING AND RESEARCH PLAN

The grant is for 12 months, with a starting date between June and July 2022. No renewal under the funding of this project is envisaged.

Requisites for candidates

The successful candidate should:

a. Have a solid statistical training (specific experience on the application to risky and health behaviours is valued)

b. Have a good knowledge of statistical software and coding, preferably Stata

c. Knowledge of behavioral economics and skills in scientific writing in English are highly desirable but not strictly required

d. The candidate should also master oral and written Italian language

Grant objectives

The specific objective of the training programme is to acquire advanced skills on the statistical analysis of secondary data, and primary data collection.

Training

The successful candidate will be trained in the following activities:

1. Manage and pre-process data-sets for subsequent statistical analysis, including cleaning, harmonization and matching

2. Design and implement a primary data collection survey

3. Run statistical analyses using Stata, including writing ad-hoc commands

4. Write scientific reports and papers

Training will include:

1. Supervision and guidance by members of the UNIBO research team

2. Attendance of short courses on quantitative methods relevant to the project objective

Expected outputs

At the end of the year, the grant holder should have produced at least one working paper ready for submission, drawing from the analyses contained in the final report.

Timeline of the research plan

Months 1-2: Initial training; Review of existing studies; Census of existing data sources;

Months 3-4: Data matching and harmonization; Initial descriptive analyses;

Months 5-6: Survey design and data collection; Advanced statistical analysis on secondary data **Months 7-9**: Analaysis of the survey data + advanced modelling on secondary data;

Months 10-12: writing reports about the statistical analysis; preparation of working papers;

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