

INDUZIONI

Demografia, probabilità, statistica a scuola

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- INDUZIONI è una rivista rivolta agli studenti ed ai docenti di matematica, storia, geografia, osservazioni scientifiche, economia, statistica... delle scuole preuniversitarie, ma anche ai docenti universitari. Il suo scopo è quello di diffondere idee statistiche nella scuola e di illustrare attraverso esempi come la statistica possa essere di ausilio in diverse occasioni della vita pratica.

Il taglio degli articoli dovrebbe essere operativo ed effettivamente utilizzabile nel lavoro scolastico.

- *INDUZIONI is a review for students and teachers of mathematics, history, geography, scientific observations, economics and statistics at preuniversity schools, but also for university teachers. It aims to spread out statistical ideas in school and to illustrate, through examples, as statistics can assist us in several occasions of practical activities.*

Articles should be operative and actual in classroom work.

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ABSTRACTS

IN THE HONOUR OF DANIELA PROIA

GIUSEPPE ANICHINI, GIANPAOLO BARUZZO, M. GABRIELLA OTTAVIANI, PAOLA RANZANI

Daniela Proia was an Italian school teacher who took a very active role in the Italian “Mathematics for citizens” project. In her honour, the colleagues who shared with her the engagement in the production of the didactical units concerning the “Data and previsions” present here “A game with three dice”, one of the units that Daniela authorized and was very proud of. The unit underlines some basic probabilistic concepts, like: random experiment, event, classical and frequentist probability, random variable. To give evidence of the way this activity was received by some Italian school teachers who took part into the m@t.abel Italian in-service on-line training programme, three reports are presented about the enthusiastic way students experienced the activity and the strategies that teachers, following Daniela’s proposals, were able to introduce in their classroom in order to attain the goal of the unit.

BACKWARDNESS IN ITALIAN OFFICIAL STATISTICS IN THE DECADES AFTER UNIFICATION

ALBERTO BAFFIGI

This paper focuses on the Italian official statistics in the last three decades of the Nineteenth century, that is on the long Luigi Bodio's tenure as the head of *Direzione generale della statistica* (1872-1898). In that period, the seeds of an important tradition were sown which would affect Italian official statistics in the decades ahead. The interpretation proposed in this paper is set against the background of 1) the historiographical debate surrounding Italian liberalism after unification; 2) the history of statistical methodology; 3) the most recent epistemological reflections about scientific progress.

Italian official statistics were shaped, in epistemological terms, by a pronounced inductive approach that prevented the adoption of two of the most important scientific innovations of the day: “representative method” and “economic semiology”. Two opposed epistemological visions confronted one another, strictly bound up with specific content (e.g., the notion of probability) and with political and ideological orientations. The French Catholic culture of the Restoration, anti-Enlightenment and anti-rationalist, was the main intellectual frame of reference for the Lombardy-Venetian group that shaped official statistics. They conceived scientific knowledge as nothing but the mirror of reality, which led them to engage in fierce polemics against the deductive method. The most advanced statistical methods of the day, by contrast, did not merely seek out “facts” but stressed the importance of putting forward hypotheses for the scientific method, the latter considered among other things a tool for sharing empirical data between researchers. The epistemological backwardness of Italian official statistics was an impediment to the construction of institutions capable of organizing the public debate on economic and social issues; it was set in the framework of the more general failure of early Italian liberalism to guide the democratic evolution of the institutions.

A STATISTICAL ANALYSIS OF THE UNIVERSITY ENROLLMENT PROPENSITY IN THE UNIVERSITY OF MESSINA (ITALY)

ANGELA ALIBRANDI · MASSIMO MUCCIARDI · MARIACATENA SILARO

In this paper we focus on some students completing their upper secondary level schools in Messina Municipality and on their choice between continuing their education through university enrollment or immediately entering the workplace. Data collected via a questionnaire concern 210 students attending the last year of five different types of upper secondary level schools. At first we perform a comparison among students of the five institutions, through the NPC procedure, in order to give evidence of statistically significant differences among university enrolment propensity and all related variables. A logistic regression model has also been estimated in order to formalize the relation of university enrollment propensity with variables related to students as well as familiar and contextual factors.

THE PLS: SCIENTIFIC GRADUATE PROJECT (EDITION 2008-09)

DONATA MARASINI

The aim of this short note is the description of the PLS, an Italian national project for the promotion of scientific university degrees. In the 2008-09 edition, Statistics became part of the project as an ancillary discipline and the six universities involved in the project have been: Bologna, Messina, Milano-Bicocca, Palermo, Torino, Trieste. Each of these universities has organized a local project with school students and teachers based on simple statistical methodologies such as: surveys, data analysis, mean values, proportions and variability. All the projects ended within September 2009 and the results were presented in public events.

THE ART OF LYING WITH GRAPHS, BUT NOT ONLY

ELVIRA DI NARDO · BRUNERO LISEO

"Lies, damned lies, and statistics" is part of a phrase attributed to the 19th Century British Prime Minister Benjamin Disraeli and later popularized by Mark Twain: "There are three kinds of lies: lies, damned lies, and statistics." The statement refers to the persuasive power of numbers, the use of statistics to bolster weak arguments, and the tendency of people to disparage statistics that do not support their positions. This ill fame sometimes associated with Statistics may have different causes. In this paper we describe some typical "communication errors" which may arise between those who speak, write and publish statistical summaries and those who try to interpret these messages. Sometimes these errors are not intentional, sometimes they are. In any case the imagine and the credibility of Statistics are seriously jeopardized. Statisticians, as human beings, may well be liars, Statistics should not!

STATISTICS AND LOWER SECONDARY SCHOOL TEXTBOOKS

ANTONIETTA LOMBARDI

School texts are very important tools for teachers of mathematics in Italy. Unfortunately, books look very poor for what concerns statistical contents. This paper presents some examples and exercises from a well known book showing that the authors have totally incorrect concepts of basic descriptive statistics such as: statistical case, qualitative or quantitative characteristic, statistical distribution, frequency, mean values. They also have big difficulties in presenting data in context and they are far away from adopting a vision of mathematics consistent with the ideas of “mathematical literacy” carried on by the PISA project.

READING TIME-USE DATA: METHODOLOGY AND RESULTS

CLELIA ROMANO

Time-use surveys offer a detailed portrait of how individuals spend their time and illustrate which activities people engage in, for how long, where and with whom. Therefore they represent a valuable source of information for investigating the gender share of paid work, household work and the organisation of all the other times (personal care, leisure activities, etc.). Drawing on Italian experience, the paper illustrates the main methodological aspects of this kind of survey (sampling design, survey forms, coding process, main indicators). Furthermore, thanks to the data gathered through the National Institute of Statistics survey carried out in 2002-03, the paper shows gender differences characterising the population when organising their daily life and the main trends in Italy.

Time-use patterns still reflect, in 2002-03, a strong gender connotation, just as back in 1988-89. In spite of such persistent gender asymmetry, the comparison between the two time-use surveys shows some signals of convergence between men’s and women’s time-use patterns. In addition to gender differences, some critical points can be observed, especially in relation to some phases of the life cycle, which social policies will hopefully take into consideration when planning support actions for families in the next years.

THE SIMPSON’S PARADOX

PIERO QUATTO

This note aims to highlight and explain the Simpson’s Paradox, which arises when something true in each subset of a population is no longer true in the population as a whole. Such a counterintuitive effect is well known to statisticians, because it is often encountered in social and medical applications.