TITLE
Income, ageing, living standards and well-being: impact on consumption and leisure choices

BRIEF INTRODUCTION
In the last decades, the interest of policy coordinators and territorial governance on citizens’ economic and living conditions has rapidly increased. The main purpose of the project is to investigate the impact that economic constraints, ageing and subjective well-being have on the consumption and leisure choices. The statistical modelling of these relationships and their evolution requires individual and spatial data collected over time, which are available from Official Bureaus of Statistics but only within different statistical surveys. Then, the main steps of this project are: i) construction of a large and comprehensive data-base on Income, Consumption & Leisure; ii) statistical analysis of the determinants of the consumption and leisure choices, with a specific focus on the role of ageing, wage, budget constraints, prices and subjective well-being; iii) policy implications and recommendations.

BACKGROUND AND STATEMENT OF THE PROBLEM
In the last decades, the interest of policy makers on citizens’ economic and subjective well-being and how it differs over socio-economic groups and across territories has rapidly increased. Moreover, the recent recession and its related debt crisis have exerted a profound impact on the daily life of many people, and especially those in more vulnerable groups, such as low-income households and the elderly. The common and long-lasting decline of disposable income has negatively affected the self-assessment of consumers about their ability to acquire an acceptable future income. This perception has consequently prompted cutbacks in the expenditure and/or a change in consumption patterns (Crossley et al. 2013; De Nardi et al. 2012), with negative consequences on the living standard. However, individuals do not only respond by changing or cutting their consumption in different ways depending on their personal characteristics, but make also choices based on the economic context on which the consumer is embedded. Furthermore, these choices are not only driven by the objective level of living conditions, but also by subjective perceptions, hence leading to a large amount of unexplained heterogeneity. Thus, a better understanding how the consumption decision-making process varies over time and responds to the crisis as well as how it differs across individuals and different economic contexts is a core issue for policy coordinators and territorial governance.

In this framework, a distinction must be made between an individual’s standard of living and her/his level of resources as measures of well-being. Assessing the level of resources implies deciding whether this should be based on income, consumption or some other measure of well-being. Traditionally, income has been widely used as a measure of individual/household well-being because it is a suitable indicator of the financial ability of individuals to purchase goods and services. Despite its widespread use, income has been criticised as a measure of well-being and trends in living standards as far back as the 1990s when scholars stated that consumption is a better measure of living standards, while income is a better measure of the level of resources (Blundell and Preston, 1996). Moreover, according to the economic theory of life cycle, households will seek to smooth out their spending by saving or borrowing even when their income fluctuates. Therefore, consumption rather than current income may better reflect the long-term living standards of a household. Tourism and leisure activities play an important role in the lives of people in developed countries and positively affects their feeling of well-being. It is becoming part of the lifestyle of an increasing number of
people (Hill and Martin, 2012). Hill and Martin (2012) explored the relationship between absolute and relative restrictions and consumer behaviour and well-being, and found that individuals could improve their well-being significantly if they were able to spend on higher-order goods and services like housing, leisure and recreation. Through participation in tourism and leisure activities, people build social relationships, experience positive emotions, acquire additional skills and knowledge, and consequently improve their subjective well-being (Dolnicar et al, 2011). Given the relevance of tourism and leisure activities to the well-being of individuals, it is of great importance to study consumption behaviour in the leisure market to discover the main determinants of participation and whether there is heterogeneity in consumer behaviour.

These analyses require individual or household data on consumption, income, leisure and well-being. These data are provided by different sources of official statistics; however, to date there have been few attempts to provide a comprehensive data base with such a set of information, obtained through linking different sources at the household level.

**RESEARCH QUESTION OR HYPOTHESIS, AIM, OBJECTIVES AND DELIVERIES**

We aim to address three main research lines, which are interconnected from a methodological and socio-economic perspective. Their most relevant aspects are detailed below:

1. The first aim of this research consists in the construction of a comprehensive data-set on Consumption & Leisure. To this purpose, data on the Italian citizens’ economic conditions (income, wealth, consumption, etc.) as well as living conditions are required. There is consensus in literature about a broad definition of living standard, which includes not only information on the personal quality of life, but also on the leisure time activities and subjective well-being. Data are available from different sources, such as the HBS (Household Budget Survey, ISTAT and Bank of Italy; to note that since 2014 the Survey of the Italian Holidays and Trips has been included within the ISTAT HBS), EU-SILC (Statistics on Income and Living Conditions, ISTAT), ADL (Aspects of daily life, the multipurpose survey by ISTAT) and ITS (International Tourism Survey, Bank of Italy). All this information will be integrated in the data-base by means of statistical matching and model-based imputation procedures (see among others: Conti et al., 2015; Harron et al., 2016).

2. The second aim of this research is devoted to investigating the relationships between individuals’ consumption and leisure choices. In particular, the study will focus on the role that demographic characteristics (i.e., population ageing), economic conditions (i.e., income, wealth, etc.), and well-being (i.e., overall happiness and satisfaction towards the different life domains), have on the decision-making processes of Italian citizens. The availability of a data-base on Income, Consumption & Leisure also allows for the analysis of consumption and living condition under a spatial perspective, enabling us to assess the potential existence of territorial disparities across regions. Moreover, the availability of joint information on income, consumption and well-being over a long period of time would enable the evaluation of the impact of income shocks (such as those generated by the recent financial crisis) on individual decision-making process and whether resilience effects are emerging across areas and over different segments of households.

3. The third goal of this research is related to the policy implications of the modelling output. There is growing concern about the rising income disparities across households with a different demographic and geographical background (e.g. low-income elderly groups, households in Southern regions) and various income-support instruments have been envisaged in the political debate. The comprehensive data-base
produced within this project and the analysis of the determinants will provide a valuable source of evidence to simulate the impact of different policy actions, as the implementation of income-support mechanisms or adjustments in the tax mechanisms.

The post-doc researcher is expected to learn in detail the relevant aspects related to the creation and management of large data-bases and the statistical methods needed for matching and probabilistic record-linkage procedures, as well as to propose original solutions to the research questions previously described. The results will be presented at conferences and submitted for publication in relevant economics and statistics journals. The creation of the comprehensive data-set on Income, Consumption & Leisure offers the possibility to expand the research aims in different directions, with the potential to renew the grant for continuing research over a second year.

PARTICIPANTS IN THE STUDY AND THE ROLE THEY PLAY
The present project involves the whole research group of the UOS of the Department of Statistical Science (DSS-UOS) of the University of Bologna – Campus of Rimini, which includes statisticians, mathematicians, demographers, economic statisticians, and applied economists. The goal of this study well reflect the multidisciplinary essence of the DSS-UOS, because it combines various approaches and research methodologies, which are essential for understanding the consumption and leisure phenomenon. Moreover, the project is expected to foster collaboration and synergies within the DSS-UOS, allowing to better characterize the scientific profile of the DSS-UOS and to improve its international positioning. Besides, this study well reflects the strategic planning of the DSS regarding the Big Data Analytics as well as the main research interests of the Center of Advanced Studies in Tourism (CAST, University of Bologna – Campus of Rimini). Therefore, a collaboration with other members of the Department and CAST is also encouraged.

While all members of the DSS-UOS are potential contributors to the overall project, for the specific duties of the research grant the reference person will be prof. Cristina Bernini, who is an expert of consumption, tourism and subjective well-being modelling.

Core supervising team
The post-doctoral researcher will primarily refer to Prof. Bernini, who remains the main co-ordinator and supervisor. Other members of the DSS-UOS stated a direct and explicit interest for the first year of this project, provided financial support for co-funding the grant and will constitute a “supervising board” who will monitor the progress of the research and contribute actively. They are: Luca Ballestra, with a research record in quantitative models involving income, consumption, and other macroeconomic variables; Mariagiulia Matteucci whose research interests are in latent variable models for social data; Mario Mazzocchi, with expertise in empirical modelling of demand and policy evaluation methods; Stefania Mignani who is expert of multidimensional latent variable models.

The extended research group of the DSS-UOS
The progress in this research will be shared with all other members of the DSS-UOS, the data-base will be made available to all researchers, and depending on the research needs the post-doctoral researcher will be encouraged to collaborate with any member of the UOS. The goal is that the project for this post-doctoral research grant will constitute the basis for a common research ground (also beyond the scope and duration of
this grant) involving all members of the DSS-UOS depending on the required expertise and specific research goals.

The extended team of the DSS-UOS includes economic statisticians (Andrea Guizzardi, with expertise in the modelling of tourism choices and a focus on the role of prices, and Sergio Brasini on consumer research and business statistics), statisticians with expertise on Bayesian methods for record linkage, spatial analysis and small area estimation methods (Carlo Trivisano and Fedele Greco), applied mathematicians (Maria Letizia Guerra, who is an expert of mathematical modelling under uncertainty and fuzzy analysis), applied economists with expertise on the economics of tourism, and leisure and cultural choices (Laura Vici, Massimiliano Castellani, and Pierpaolo Pattitoni) and the analysis of income-support policies for the elderly and retirement schemes (Carlo Mazzaferro), demographers (Rosella Rettaroli), and the broader team of theoretical and applied statisticians (Maurizio Brizzi, Paolo Foschi, Simone Giannerini, Alessandro Lubisco, Massimo Ventrucci).

International collaborations

There are existing links - through Prof. Mazzocchi - to leading international scholars, and the post-doctoral research will have the opportunity to interact with them and visit their institution, with a plan to be developed depending on the research stage and needs.

They are Prof. Timothy Beatty of the Center for Poverty Research at the University of California, Davis, and Laura Cornelsen of the London School of Hygiene and Tropical Medicine. Prof. Beatty is an expert in the empirical analysis of consumption behavior, in particular as it relates to health outcomes, and has a publication record on top journals like the American Economic Review, Journal of the Royal Statistical Society A, Journal of Public Economics, Journal of Health Economics). Dr. Laura Cornelsen is a health economist with expertise in the analysis of large home-scan expenditure surveys.

REFERENCES


Harron K., Goldstein H., Dibben C. eds. (2016), Methodological Developments in Data Linkage, John Wiley & Sons, Ltd.

GRANT OBJECTIVES, TRAINING AND RESEARCH PLAN

The initial grants is for 12 months, with a planned starting date in September 2018. The specific objective of the training programme is the combination of data sources for the modelling of consumer choices. The successful candidate will be trained in the following activities:

a. Probabilistic matching and record-linkage methods
b. Data-set management
c. Run statistical analysis and simulations using software such as Stata, R, SAS
d. Write scientific reports and conference/journal papers

Training will include:
1) Supervision and guidance by members of the research team
2) Attendance of short courses on quantitative methods relevant to the project objectives
3) The opportunity to spend study/research periods at the institution of international collaborators

The candidates will contribute to the creation of a data-set by pooling and merging data from different sources. The successful candidates should master oral and written English language, have previous experience in research, and demonstrate a multidisciplinary attitude to applied statistical and economic research.

The research plan develops as follows:
- Months 1-2: review of the relevant background literature on statistical methods, preparation and management of raw data, plan for statistical analysis
- Months 3-8: application of the pooling/merging methods
- Months 9-10: finalization of the data-set
- Months 11-12: preliminary analyses of determinants and report writing