POLITECNICO DI MILANO

PhD in SCIENCE, TECHNOLOGY AND POLICY FOR SUSTAINABLE CHANGE - 38th cycle

THEMATIC Research Field: DIGITALIZATION FOR CLIMATE-RESILIENT HOUSEHOLDS

Monthly net income of PhDscholarship (max 36 months)
€ 1500.0 In case of a change of the welfare rates or of changes of the scholarship minimum amount from the Ministry of University and Reasearch, during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	Understanding how to increase the resilience of our societies to widespread climate and environmental risks is a timely and relevant research question, in the face of hazards, weather extreme events exacerbated by climate change and air pollution. The existing literature has already highlighted the significance of digitalization to climate change mitigation. However, how digital technologies can enable climate change resilience has not been investigated. The objectives of this Phd project will be to empirically investigate how households deal with climate and air quality risks by changing their use of energy services at home and adjusting their behaviour. The project will evaluate which digital technologies are most effective at increasing resilience under what conditions while reducing the fundamental inequalities of opportunities. The project will shed new evidence on how digital technologies expand the range of adaptation opportunities, and how technological development and innovation will respond to climate risks, while also facilitating the low carbon transition.
Methods and techniques that will be developed and used to carry out the research	The project will apply state-of-the-art and frontier statistical and econometric methods. Climate and pollution indicators be derived by using hourly meteorological variables from recent reanalysis products available at high spatial resolution and with high frequency, such as those from the Copernicus Atmosphere Monitoring Service (CAMS). These data will be matched with energy usage from smart meter devices available at high frequency,

	which will be analysed using machine learning techniques as well as standard regression methods exploiting the randomized allocation of control and treated groups.
Educational objectives	The objectives are to educate on the application of spatial statistics and machine learning onto impact evaluation approaches based on randomized counterfactual, in order to make the impact assessment more robust and to increase its external validity.
Job opportunities	Professional careers will open up in research organizations, and institutions interested in formal impact evaluation, including international organizations.
Composition of the research group	1 Full Professors 0 Associated Professors 2 Assistant Professors 1 PhD Students
Name of the research directors	Prof Massimo Tavoni

Contacts
Prof Massimo Tavoni email: massimo.tavoni@polimi.it

Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	750.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
Computer and desk will be provided. Teaching assistantship opportunities will be possibly available.