**Laura’s current research projects**

(I would be delighted to hear from colleagues and students interested in these or related issues):

**a) Environmental and Energy Economics Projects**

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| Title of research | **Moral preferences, warm glow and optimal taxation of green consumerism and corporate social responsibility**  Lucy Hyde (DUBS), Laura Marsiliani (DUBS) and Thomas Renstrom (DUBS) |
| Contact details | LAURA MARSILIANI; [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | Green consumerism is on the rise- a recent report by Ernst and Young (2021) states that 62% of UK energy consumers are more likely to purchase sustainable alternatives. Engagement in green consumerism is a vital complement to green investment and is key to reducing climate change and conserving natural resources. Incorporating green consumerism into economic modelling requires enriching neoclassical frameworks with concepts of moral preferences and warm glow. This project provides novel insights into the impact of moral preferences and warm glow on the optimal taxation of green consumerism and corporate social responsibility. |

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| Title of research | **Optimal dynamic transport policies in the presence of pollution, congestion and heterogeneous consumers**  Xiaoxiao Ma (Leeds), Laura Marsiliani (DUBS)and Thomas Renstrom (DUBS) |
| Contact details | LAURA MARSILIANI (DUBS); [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | Surface transport currently accounts for 27% of UK GHG emissions, which calls for a robust action towards sectoral decarbonisation. We are working towards developing a new theoretical framework to analyse optimal dynamic fuel and vehicle taxes and energy-efficiency subsidies both in the first and second best (in the presence of distortionary taxation) world, accounting for heterogeneous households and transitional dynamics. We will calibrate and simulate the model for the US and UK economy, using pollution data from different fuels and ascertain the impact of several transport policies on pollution, congestion, carbon emissions and welfare of different households. Our results will shed light on issues of efficient and just transition to net zero carbon. |

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| Title of research | **Pollution, health and socio-economic characteristics in China: A spatial econometric approach**  Jingyuan Di (DUBS),Laura Marsiliani (DUBS) and Thomas Renstrom (DUBS) |
| Contact details | LAURA MARSILIANI; [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | The latest report of the Lancet Commission on Pollution and Health highlights that diseases caused by pollution were responsible for an estimated 16% of all deaths worldwide. In 2017, pollution in China caused 1.24 million deaths with PM2.5 being the major contributor. This project links the epidemiological impact of pollution with demographic and social-economic considerations. We deploy innovative spatial econometric techniques to estimate the health impact of ambient and indoor air pollution controlling for household income and other socio-economic, demographic and geographical variables. Our dataset is from Chinese government official pollution monitoring records and the China Health and Retirement Longitudinal Study (CHARLS), which includes 15870 observations from a survey of individual adults from 439 urban and rural areas within 28 Chinese provinces. Our results will provide policy implications for China development strategy including energy, environmental, health and social policies. |

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| Title of research | **Responsible investors and green finance**  Laura Marsiliani (DUBS),Thomas Renstrom (DUBS) and Luca Spataro (Pisa) |
| Contact details | LAURA MARSILIANI; [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | Since the mid-1990s the net total assets of funds incorporating Environmental, Social and Governance Factors has increased more than 400% in many countries. Our research project focuses on issues in connection to sustainable finance and private green investments, their role for protecting the environment and whether government intervention is still desirable. We first explore the finance channel through which investors have an influence on corporate decision making regarding pollution abatement and decarbonisation ('greener production'). We then analyse the firms’ incentives (through the capital market) in reducing pollution. We solve for the equilibrium when households differ in the moral objectives. In this context, we also explore the role of the government, in particular the effect of pollution taxes and abatement subsidies. The project is flexible enough to include issues of just transition to a net zero economy. |

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| Title of research | **Energy market reforms in Bangladesh**  Sakib Amin (North-South University Bangladesh), Tooraj Jamasb (CBS), Manuel Llorca (CBS), Laura Marsiliani (DUBS), Ricardo Rainieri (Pontificia, Chile), Thomas Renstrom (DUBS), Farhad Taghizadeh-Hesary (Tokai, Japan) |
| Contact details | LAURA MARSILIANI (DUBS); [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | This is an international collaboration on several projects that investigate important energy economic aspects for emerging economies, with a particular focus on Bangladesh. Within a fit-for-purpose DSGE model, we are currently exploring the macroeconomic, sectoral and welfare effects of:  i) decarbonisation policies such as carbon taxes and removal of fossil fuel subsidies,  ii) removal of price supports for energy,  iii) oil price shocks,  iv) access to the electricity grid by private providers,  v) redistributive impact (across income groups and urban-rural households) of energy reforms,  vl) the role of renewables for growth and just transition to net zero carbon. |

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| Title of research | **A techno-economic model of hydrogen fuelled freight transport for the UK**  Greening, Philip (Heriot-Watt), Laura Marsiliani (DUBS), Pegah Mirzania (Cranfield), Sheema Noorain (Kent), Nazmiye Ozkan (Cranfield), Ramin Raeesi (Kent), Christa Searle (Heriot-Watt), Nadia Taou (Heriot-Watt) and Mi Tian (Exeter) |
| Contact details | LAURA MARSILIANI; [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | This is a project funded by the H2 network and led by Dr Ramin Raeesi at Kent. The UK has recently announced (August 2021) its hydrogen strategy to achieve net zero carbon by 2030. This project aims to develop a novel techno-economic model of hydrogen fuelled freight transport for the UK, including supply, distribution, storage and demand sides. We also simulate government policies in line with the UK hydrogen strategy and the hydrogen experience of other countries. Our results will guide the development of the UK hydrogen agenda, including government intervention in this market. |

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| Title of research | **Community preferences for geothermal energy from disused mines**  Simone Abram (Anthropology, Durham), Sandra Bell (Anthropology, Durham) Anna Hicks (British Geological Survey), Laura Marsiliani (DUBS), plus 2 PDRAs. |
| Contact details | LAURA MARSILIANI; [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | This is a project, within the EPSRC Geothermal Energy from Mines and Solar-Geothermic Heat (GEMS) Working Package 3, started in September 2021 and led by Professor Jeroen van Hunen (Earth Sciences, Durham University), in collaboration with the Durham Energy Institute. The GEMS research project aims to assess all aspects of re-using abandoned, flooded coalmines as a sustainable source for heat extraction and storage for homes and businesses in the UK. This project will provide optimized solutions to the technical, social, and financial challenges of introducing mine-water geothermal energy as a green and sustainable heat source.  Introducing a geothermal heat system in a local community involves several significant infrastructure changes to those communities. Hence we aim to:  i) Assess the private and social value of this innovation to local stakeholders (households and businesses) and  ii) Provide recommendation to policy makers to foster adoption of this technology and ensure that the local communities can benefit from it.  Given the divergent legal and governance frameworks across the UK, we focus on England and Wales. Findings will be tested against a detailed study in County Durham, with a possible comparative case study area in the South Wales former coalfields, where mine geothermal energy is also being developed. |

**b) Other Projects**

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| Title of research | **Non-communicable diseases, sin taxes, health investment and health care**  Jiunn Wang (College of Medicine and Health, Exeter), Laura Marsiliani (DUBS)and Thomas Renstrom (DUBS) |
| Contact details | LAURA MARSILIANI (DUBS); [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | The rising global burden of non-communicable diseases such as diabetes, cardiovascular and coronary heart diseases, and certain types of cancer has driven policy makers to explore approaches to improve population health. We aim to assess the effectiveness of sin taxes (such as alcohol, tobacco, sugar and fat taxes) on reducing consumption of unhealthy goods and improving individual health, in a computable general equilibrium model for the UK. It is not clear-cut whether a sin tax will be effective, as individuals may decrease health investment in response. The COVID-19 pandemic has highlighted the vulnerability to the virus of individuals affected by life-style conditions such as diabetes, obesity, cardio vascular and respiratory diseases. How to curb efficiently unhealthy consumptions is an urgent priority for governments across the world. |

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| Title of research | **Optimal further education policies and second chance students**  Eddy Jiang (DUBS),Laura Marsiliani (DUBS)and Thomas Renstrom (DUBS) |
| Contact details | LAURA MARSILIANI (DUBS); [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | Further education policy can take on a system of student loans or equivalently with government providing education using a graduate tax. The question is then how those loans (or graduate taxes) should be designed, in particular if education and job market outcomes are random. The project focuses on 'second chance': students who fail to obtain a higher payed job and could enrol again and undertake education. |

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| Title of research | **Sovereign default with unobservable capital**  Narongchai Yasawang (DUBS),Laura Marsiliani (DUBS**)** and Thomas Renstrom (DUBS) |
| Contact details | LAURA MARSILIANI (DUBS); [laura.marsiliani@durham.ac.uk](mailto:laura.marsiliani@durham.ac.uk) |
| Abstract | Sovereign debt conditionality often stipulates that countries should employ foreign assess to foster investment and in turn ensure debt repayment. This is complicated by capital in debtor countries not being observable by the lenders. Questions therefore arise on whether countries will borrow for consumption or investment and what their optimal default path will look like. Furthermore, will a model of sovereign default with unobservable capital fit the experience of defaulting countries better than models with observable capital? We develop a dynamic stochastic general equilibrium model with Bayesian estimation to answer these questions and explore the case of Argentina’s default. |