

Focus on Geography

Spotlight on ERC projects

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Human, social and environmental geographers study the interactions between humans and their environment. These branches of geography investigate the spatial structures of societies and how social, cultural and economic processes manifest themselves in space and both the built and natural environment. Geography is an inherently inter-disciplinary subject – with close connections to urban studies and regional science for example.

The European Research Council (ERC) is the first pan-European funding body designed to support investigator-driven frontier research and stimulate scientific excellence across Europe. The ERC aims to support the best and most creative scientists to identify and explore new directions in any field of research (Physical Sciences and Engineering, Life Sciences and Social Sciences and Humanities) with no thematic priorities. In particular, it encourages proposals which cross disciplinary boundaries; address new and emerging fields and introduce unconventional and innovative approaches. Since 2007, the ERC has funded over 4 000 researchers. The ERC awards long-term grants to individual researchers of any nationality and age who wish to carry out their research projects in Europe. Excellence is the sole criterion for evaluation.

The projects presented in this brochure are investigating: how to model urban agglomerations; the development of “smart cities”; how the urban environment could affect cardiovascular health; energy poverty; anxiety, consumer culture and food safety and the role of space in policy making.



The value of urban concentrations

This ERC-funded project examines the changing role of cities in an increasingly networked world. Prof. Denise Pumain and her team are tracing the struggle between the dominance of larger cities and their diversity. They are examining whether diversity in our cities is a strength or a weakness, and what its future might be.

Building on the World Bank's recognition that urban concentrations have a recognisable value, even in poorer economies, the GeoDiverCity project examines the wider implications of the growth in regional inter-dependence. Focusing on the proliferation of networks across the world, this project asks whether such networks amplify risks, or can help to mitigate them. Does the sheer scale of networks such as the internet or the global airline system guarantee their vulnerability to attack? Prof. Pumain argues that such networks can be beneficial because they can disseminate information rapidly, and provide solutions in times of need: an epidemic for example.

This project considers such positives as aspects of cities' collective territorial intelligence. Cities are inherently adaptable, because they have evolved to suit changing circumstances, and they have not only survived but thrived. Cities are hubs of growth and innovation, but they are encountering obstacles: not least the fact that ecological resources are not infinite. The challenges posed by climate change, for example, have made the population much more aware of their dependency on the natural world. This research interrogates this shifting situation by asking whether certain forms of population organisation are more sustainable than others; what the future is for the largest cities and whether policies can be tuned to the levels of development specific to a particular region.

This research is shedding light on how cities evolve in relation to each other, as they both constrain and enable those around them. One of the contentions of this project is that if we understood more about the dynamics of these processes, we would be better able to respond to them, and exercise a degree of control. The GeoDiverCity project is constructing tools to simulate the consequences of these inter-city dynamics. The team are working with comprehensive databases on a large sample of cities (approximately 30, 000 urban agglomerations all over the world) from a diverse range of countries: Brazil, China, India, Russia, South Africa and the United States. They are also creating a series of models which can forecast how territorial balances will evolve. This work has strengthened the ability of researchers in the field to simulate urban evolution with confidence, as they can draw on innovative methods of validating models developed by the GeoDiverCity team. These modelling tools will enable, for example, a more precise testing of how city networks could respond to policies aimed at combatting the consequences of climate change.

Principal Investigator: Prof. Denise Pumain

Host Institution: Centre National de la Recherche Scientifique (CNRS), France

ERC Project: Analysing and modelling the geographical diversity of cities and systems of cities (GeoDiverCity)

ERC Call: Advanced Grant 2010

ERC Funding: €1.8 million for five years

Researcher's web page: <http://www.parisgeo.cnrs.fr/spip.php?article164&lang=fr>



Software and “smart cities”

Software is now essential to the functioning of modern cities. It is used in urban management, governance, planning and service provision. It is part of the everyday lives of citizens: how they work, shop, travel and communicate. Prof. Robert Kitchin is using his ERC Advanced Grant to study how software is created and how it is being used to produce “smart cities”.

Prof. Kitchin and his team focus on understanding the relationship between software and urban life, infrastructure and management, and consider the possible consequences of code becoming essential to many city functions and systems. They aim to provide an analysis of “smart cities”, and the associated roles of big data and ubiquitous computing in their development.

The team wants to understand how new digital technologies are being embedded into the fabric of cities to make them increasingly programmable, and how they are reshaping urban practices such as city governance, commuting and shopping. This kind of analysis is crucial at a time when cities are ever more dependent on software and its use is multiplying rapidly.

The SOFTCITY project is based on the analysis of how cities are being translated into software and how software is affecting city life, each considered in relation to four key urban practices: understanding, managing, working and living in the city.

With respect to the translation of the city into code, the project is interested in how citizens and cities get captured as digital data, how aspects of city life and management such as policy, good practice guidelines and the law get formulated as algorithms, and how in combination, data and algorithms reshape how citizens act and cities work.

Many new digital technologies produce enormous volumes of data that offer the possibility for monitoring and governing cities in real-time. New systems proclaim that they enable the intelligent and efficient regulation of urban infrastructures, such as traffic flow. The pace of adoption of such technologies is, however, outstripping a consideration of their implications and consequences. For example, are we creating cities that are overly technocratic, panoptic, and “buggy”, brittle and hackable? The team will thus investigate and assess attempts to produce the “smart city”.

The second aspect of the project is concerned with how software systems, once developed, affect cities and their citizens, and what it is like to live in a “smart city”. This part of the project covers numerous areas, including how software influences policy development, urban regulation, working practices and the movement of citizens. For instance, the development of tablet and smartphone software has enabled a shift in working practices, allowing many residents to work on the move. Software has created more effective surveillance for the regulation of cities, but such advances also raise ethical and political questions and challenge us to find a balance between regulation and privacy.

Prof. Kitchin’s project brings together a range of disciplines including geography, urban studies, sociology and software studies to provide fresh insight into the emerging issues of programmable urbanism.

Principal Investigator: Prof. Robert Kitchin

Host Institution: National University of Ireland, Maynooth (Ireland)

ERC Project: The Programmable City (SOFTCITY)

ERC Call: Advanced Grant 2011

ERC Funding: €2.3 million for five years

Researcher’s webpage: <http://www.nuim.ie/progcity/contributors/rob-kitchin>



Neighbourhood watch: how your area affects your heart

When choosing a neighbourhood to live in, most people consider the cost, the distance to work or good schools for their kids. But should they also be thinking about health? Prof. Manuel Franco and his team are studying how certain features of the neighbourhood you live and work in could be associated with the risk of cardiovascular disease.

Cardiovascular (CV) diseases are the number one cause of death in the EU. Given the high prevalence of risk factors (smoking, physical inactivity, obesity, diabetes, hypertension etc.) and the cost of treatment, they represent the largest social and economic burden of all diseases.

Prof. Manuel Franco proposes to measure diet, physical activity levels and alcohol and tobacco consumption of 90 neighbourhoods in Madrid, a city with a similar historical and demographic profile to many other European cities, and to correlate the results with cardiovascular primary care health records. A pilot study has already measured the characteristics of the urban areas. The HeartHealthyHoods project will be able to assess factors such as the location and accessibility of fast food restaurants and green spaces in relation to healthy diet and physical activity respectively.

The neighbourhood you live in can determine your daily routines, exercise, eating habits and social activities, such as smoking or drinking. It's very important that city planners recognise the importance of urban geography in terms of a healthy lifestyle for residents.

Although the primary aim of the project is to study associations between the social and physical features of urban environments and cardiovascular health, the researchers will also consider several other perspectives on this issue. For instance, they intend to evaluate whether public policy interventions which occur during their study are successful in modifying the food choices and physical activity patterns of the citizens taking part.

In the process of conducting the study, the team will also develop a new methodology to characterize social and physical urban environments in a more systematic and accurate manner. They will also compare their results with Prof. Franco's previous work on the situation in the US, in order to gain an inter-continental perspective on city life and the health of its citizens.

By combining a rigorous epidemiological design with a social science perspective, the research team hope to offer the first complete portrait of the CV health of a sample of around 2.2 million people.

Principal Investigator: Prof. Manuel Franco

Host Institution: Universidad de Alcalá (Spain)

ERC Project: Social and Physical Urban Environment and Cardiovascular Health: The Much Needed Population Approach (HeartHealthyHoods)

ERC Call: ERC Starting Grant 2013

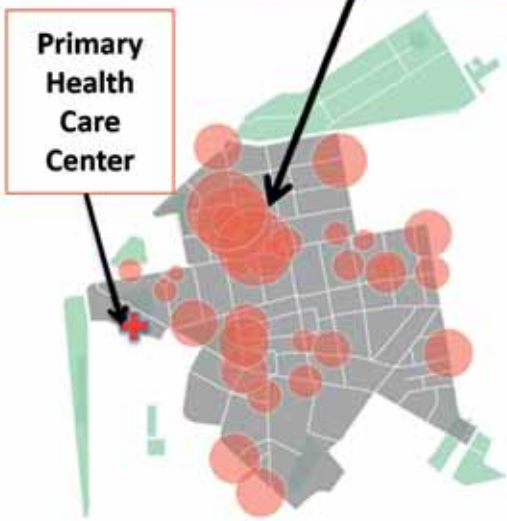
ERC Funding: €1.5 million for five years

Researcher's webpage: https://portal.uah.es/portal/page/portal/epd2_profesores/prof30188

Photo A



Photo B



Map A



Map B

Putting energy poverty on the map

Unlimited electricity is something many people in Europe take for granted, yet millions of households are increasingly vulnerable to energy poverty – the inability to meet their domestic energy needs to an adequate level. Price increases, cold climates, inefficient housing, decaying infrastructure and income poverty all play a role in this widespread condition.

Most of the previous research done on this issue has been in the UK and Ireland, where inefficient housing and high levels of income inequality have led scientists and policy-makers to work together to tackle the problem. Prof. Stefan Bouzarovski, however, is studying the geography of energy poverty in Eastern and Central Europe, focusing particularly on countries that have gone through a difficult transition period in managing their energy infrastructure. Energy vulnerability is gradually becoming a major political issue in Eastern and Central Europe, due to the inability of many households to access affordable energy services, and the lack of adequate social safety nets to support low-income groups.

Prof. Bouzarovski's study differs in several ways to previous approaches. Instead of using broad-level statistics, the team will measure energy poverty via detailed household and neighbourhood-level data, often comparing levels of spending among groups with different economic means. They will also develop a range of analyses to test actual energy consumption, as opposed to energy expenditure, in order to account for the loss of useful energy in inefficient homes, appliances and heating systems.

The project also involves various investigations of the actual lived experience and consequences of energy poverty, in order to provide local and national policy-makers with some much needed expert knowledge to prompt remedial action.

Prof. Bouzarovski hopes his research will provide the data to help develop better interactions between the economic, institutional and technical aspects of state and industrial policy. He also aims to understand how the recent transitions undergone by Eastern and Central European countries have affected energy needs and provision. Such data could be crucial for global policy in helping us to understand how future urban transitions – such as the change to a low carbon energy supply – could play out for household consumers and urban systems alike.

The research can also aid climate change mitigation by assessing the cultural and social barriers that prevent the improvement of end-use energy efficiency in Eastern and Central European countries. The results of the EVALUATE project can help governments to provide affordable energy in the future through a good match of housing types, heating systems and household needs: a key balance that will also play its part in the environmental, social and economic goals of European decision-makers in the years to come.

Principal Investigator: Prof. Stefan Bouzarovski

Host Institution: University of Manchester (UK)

ERC Project: Energy Vulnerability and Urban Transitions in Europe (EVALUATE)

ERC Call: Starting Grant 2012

ERC Funding: €1.4 million for five years

Researcher's webpage: <http://www.manchester.ac.uk/research/Stefan.bouzarovski/>

Project webpage: <http://urban-energy.org/evaluate/>



A recently-upgraded apartment building in Zaspa housing estate (Gdansk, Poland) demonstrates the multiplicity of living arrangements present in such areas.

“From farm to fork”: anxiety, consumer culture and food safety

This ERC-funded project mapped the ramifications of anxieties about food, and their consequences for consumer culture. Food safety controls are tighter than they have ever been, and yet consumers are still anxious. Public interest in the topic is fanned by media speculation about food “scares”, and government policy seems to be able to do little to calm this combustible combination.

Prof. Peter Jackson and his team raised awareness of these questions by exploring consumer anxieties from the micro to the macro scale: from individual household choices to the movements of global food markets. They examined the phenomenon of food-based anxieties from multiple perspectives and concluded that such anxieties have significant social implications. Such “scares” are disruptive because they upset routines, and threaten to disturb how we think about the world around us.

The impact of these events is multifarious, involving competing interests and often conflicting messages. In an atmosphere of heightened awareness, even food labelling becomes a site of contention. They concluded that anxieties about food stem, in part, from consumers’ increasing disconnection from the sources of food production, which is caused not only by modern agricultural methods and the global scale of food supply chains, but also by the growing concentration of retail power. Consumers have more and more choice about what they spend their money on, but less and less choice about where they spend it.

A series of case studies - from areas as diverse as the UK, Sweden, Brazil and China – demonstrated the importance of taking into consideration not only the practical and political implications of food “scares” but also their emotional impact on the population at large, even if they are not directly affected. Prof. Jackson’s research also looked at how food anxieties have acquired a moral dimension, particularly in terms of the debate about how and what we feed our children, and who is responsible for rising rates of childhood obesity.

At the domestic level, the CONANX project used ethnographic methods and practical participation exercises (such as cooking observations and kitchen tours) to examine how consumers behave around food. They also looked at how far consumers’ concerns are shaped by both policy initiatives and media preoccupations: from the levels of cookery skills people have, to the rise of celebrity chefs. The healthy eating agenda was traced at the level of policy and media transmission but also in terms of manufacturers’ attempts to change the composition of food to make it more nutritious.

The conclusions of this research are being carried forward through a second ERC grant (a “Proof of Concept”) which crystallises the practical and policy implications of this work. Prof. Jackson and his team are investigating the commercial potential of their findings about the nature of consumer anxieties. They are exploring the possibility of offering research expertise and advice to a wide range of clients: not only manufacturers and retailers, but also NGOs and food campaigners.

Principal Investigator: Prof. Peter Jackson

Host Institution: University of Sheffield (UK)

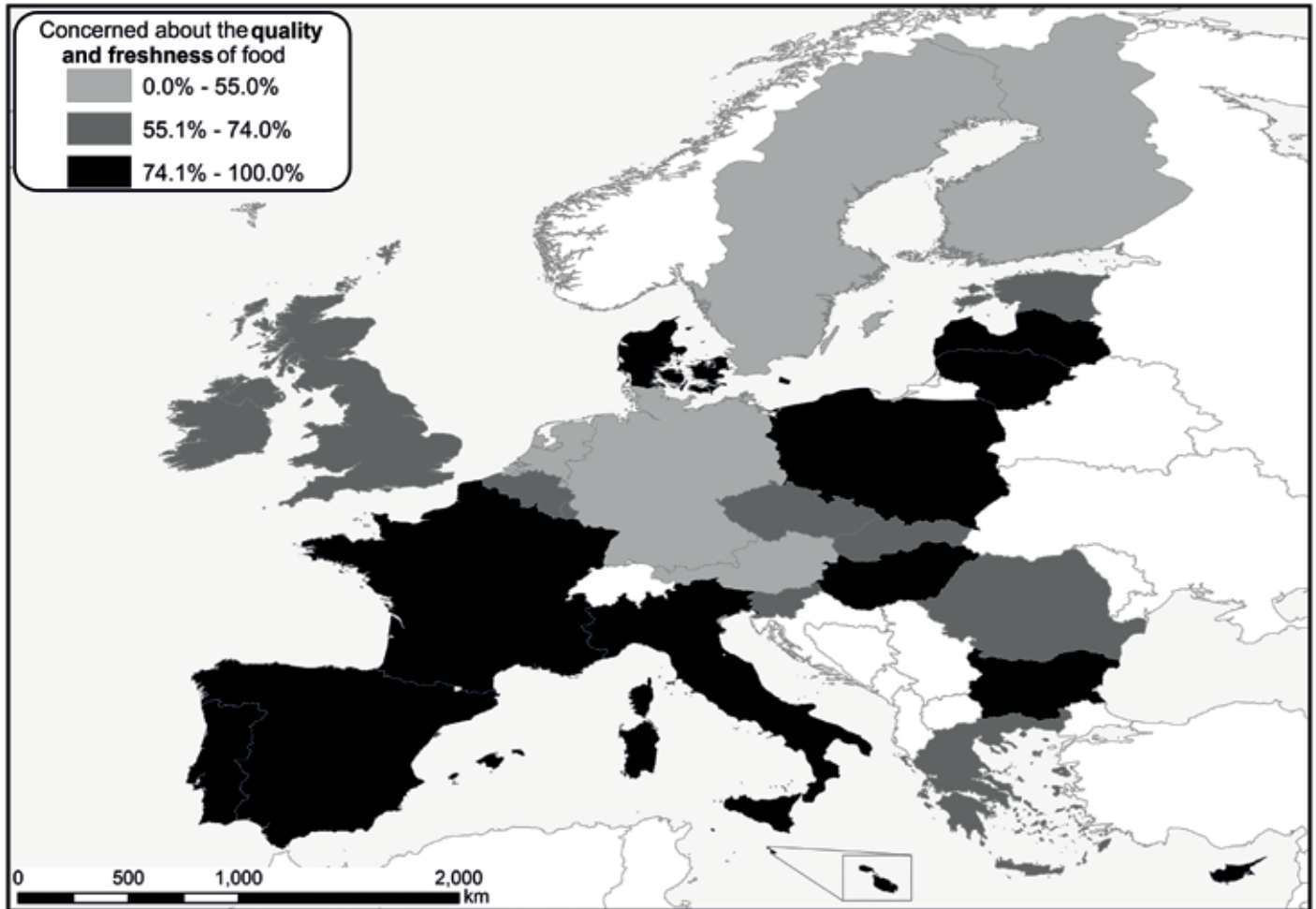
ERC Project: Consumer culture in an age of anxiety: political and moral economies of food (CONANX) • Food Futures: providing independent research and advice to food businesses and NGOs (FoodFutures)

ERC Call: Advanced Grant 2009 and PoC 2011

ERC Funding: €1.68 million for four years and €148,652 (PoC 2011)

Researcher’s webpage: http://www.sheffield.ac.uk/geography/staff/jackson_peter

Project webpages: <http://conanx.org.uk/> • <http://www.sheffield.ac.uk/foodfutures>



Consumer concerns about food quality and freshness in Europe (Eurobarometer 2010)

The importance of space in policy making

This ERC-funded research aims to forge a dialogue between two disciplines, geography and economics. Academics working across both fields, economic geographers and geographical economists, have not always taken account of each other's work. Prof. Andrés Rodríguez-Pose and his team hope to prove that the two disciplines have more in common than they perhaps realise, and in doing so address questions which would benefit from closer collaboration between the two fields.

The core of their research is an examination of how economic agglomerations emerge, how they interact with other agglomerations worldwide, and what are the implications of these changes for intermediate and peripheral areas. These questions are being approached from both a theoretical and an empirical standpoint, alongside a broader examination of the policy implications of their findings. Central to the argument of this project is that the meaning of distance itself, let alone its implications, is in flux. Economic geographers have increasingly switched their attention from geographical distance to other types of distance, such as institutional, cognitive, organizational, or social distance. Economists, by contrast, have become more and more concerned with physical distance and close-quarter interaction at the local level. Prof. Rodríguez-Pose explores what different distances mean in this changing context, where the question of who benefits from interactions can be examined at the level of the city itself, in terms of the interplay between cities, or of cities with their hinterlands, or on an international scale.

This project posits that the policy implications of these diverse views are in fact strikingly similar. Both disciplines are faced with a world in which agglomeration is a fact of life, and in which agglomerations are increasingly dependent on each other. The division between the disciplines, Prof. Rodríguez-Pose argues, has heightened their differences, so that economists are increasingly specialists in interpreting what occurs within a region's boundaries, whereas geographers concentrate on what happens between and beyond regions. Economists champion spatially-blind policies, whilst geographers push for place to be a key determinant in policy-making.

The SPIKES project calls for greater cooperation between economists and geographers in order to respond to a rapidly shifting global environment. Agglomerations exist, and persist, because they are internally active, but also because they interact with each other. Competitiveness relies on the internal strength of territories, but also on their capacity to connect and interact with other territories, both at a national and international scale. Economic exchange may be still be dominated by person-to-person interactions, but the fast pace of global trade and ever-expanding communications brings with it the capacity to change established paradigms, and to do so very rapidly.

Answers to these questions will be sought across three inter-related work-streams: an exploration of the sources and microeconomic characteristics of spatial "spikes"; of the territorial ground found in such "spikes", and between them, and the implications of these interactions for the design of spatial policy.

Principal Investigator: Prof. Andrés Rodríguez-Pose

Host Institution: London School of Economics and Political Science (UK)

ERC Project: Spatial spikes: bridging geography and economics to study distance, agglomeration, and policy (SPIKES)

ERC Call: Advanced Grant 2010

ERC Funding: €1.91 million for five years

Researcher's webpage: <http://personal.lse.ac.uk/rodrigu1/>



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Jean-Pierre Bourguignon
ERC President and Chair of its Scientific Council



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