



ESRC End of Award Report

For awards ending on or after 1 November 2009

This End of Award Report should be completed and submitted using the **grant reference** as the email subject, to reportsofficer@esrc.ac.uk on or before the due date.

The final instalment of the grant will not be paid until an End of Award Report is completed in full and accepted by ESRC.

Grant holders whose End of Award Report is overdue or incomplete will not be eligible for further ESRC funding until the Report is accepted. We reserve the right to recover a sum of the expenditure incurred on the grant if the End of Award Report is overdue. (Please see the ESRC Research Funding Guide for details.)

Please refer to the Guidance notes when completing this End of Award Report.

Grant Reference	RES-167-25-0562		
Grant Title	Local governance, urban mobility and poverty reduction. Lessons from Medellín, Colombia		
Grant Start Date	1/9/10	Total Amount Expended:	£242,131.61
Grant End Date	30/11/12		
Grant holding Institution	UCL		
Grant Holder	Dr Julio D Dávila		
Grant Holder's Contact Details	Address	Email	
	DPU, UCL, 34 Tavistock Square London WC1H 9EZ	j.davila@ucl.ac.uk	
		Telephone 020 76791111	
Co-Investigators (as per project application):	Institution		
Prof. Nick Tyler	UCL		
Caren Levy	UCL		
Dr Peter Brand	National University of Columbia		
Prof. Jorge Acevedo	University de los Andes		
Dr Juan Pablo Bocarejo	University de los Andes		

I. Non-technical summary

Please provide below a project summary written in non-technical language. The summary may be used by us to publicise your work and should explain the aims and findings of the project. [Max 250 words]

This two-year research project set out to examine critically the experience of Medellín, Colombia's second largest city (with a population of 3.5 million), in seeking to reduce poverty and integrate into the urban fabric large marginalised areas, marked by years of severe poverty and violence. The research focused particularly on the impact of two aerial cable-car lines connecting high-density hilly neighbourhoods with the rest of the city, and an associated urban upgrading programme. Though costly for local residents, the cable-cars lines provide a speedy and convenient system with low levels of environmental impact. The research found that the city's investment in a comprehensive programme of upgrading of the areas served by the cable-car lines involving social housing, increased public space, new libraries and schools, and economic support to local residents (training and employment in public works) had an even wider impact on residents quality of life than the highly visible and attractive new form of public transport.

The research also sought to contrast Medellín's successful experience with that of Soacha (population 450,000), a municipality adjacent to Bogotá, Colombia's capital city, where an aerial cable-car line has been proposed by the national government. The contrast between a well-resourced, well-managed municipality like Medellín with a homogenously poor and institutionally weak municipality like Soacha offers valuable lessons to other cities in Latin America and elsewhere. Results show that, to succeed, a new aerial cable-car line would have to be complemented with a broader set of urban upgrading interventions of the kind seen in Medellín.

2. Project overview

a) Objectives

Please state the aims and objectives of your project as outlined in your proposal to us. *[Max 200 words]*

The overall aim of this research is to examine the links between mobility, poverty reduction, social inclusion and urban integration, through the study of an innovative mobility experiment: the Metrocables of Medellín. Specific objectives:

1. To document the economic, institutional and political factors underpinning local government intervention in the construction of two aerial cable car lines and related upgrading processes in Medellín and the extent to which, as argued in official documents, public participation was central to the success of physical upgrading.
2. To outline the basic technical and financial features of Medellín's two aerial cable-car lines and associated urban upgrading.
3. To examine the effects of these interventions on mobility, quality of life, increased (or reduced) opportunities residents and workers in the case study areas, and in terms of social inclusion and sense of 'citizenship'.
4. To assess the potential impact on mobility and quality of life of a cable-car system proposed for Soacha, as well as the system's technical potential to link into Bogotá's new BRT extension into Soacha.
5. To examine the transferability of aerial cable-car technology to cities with similar topographic, institutional and socio- economic conditions both in Latin America and

elsewhere.

b) Project Changes

Please describe any changes made to the original aims and objectives, and confirm that these were agreed with us. Please also detail any changes to the grant holder's institutional affiliation, project staffing or funding. *[Max 200 words]*

No changes were made either to the original aims and objectives, or to affiliation, staffing or funding.

c) Methodology

Please describe the methodology that you employed in the project. Please also note any ethical issues that arose during the course of the work, the effects of this and any action taken. *[Max 500 words]*

The research comprised three distinct stages.

a. Institutional analysis in Medellín and Soacha: this involved literature reviews and archival research in institutions in both cities. It also involved interviews with past and present decision makers (in Medellín's case, with two former mayors and a range of current and past high-ranking government officials; in Soacha with local officials, as well as with agencies both in Bogotá and in the national government), as well as with local community leaders. These were triangulated with the results of focus group discussions with local residents. The information collected fed onto project objectives 1, 2 and 4.

b. Mobility and socio-economic impact analysis: To meet objective 2, technical information was gathered from the Medellín Metro Company and the municipality of Medellín (particularly the Planning Office and the Empresa de Desarrollo Urbano). Meeting objective 3 involved accessing a broader range of secondary data sources dating back to 2000 at the scale of the commune, e.g. Human Development Index, Quality of Life Index, property transactions, mobility (origin-destination survey), as well as focus group discussions with separate population groups (e.g. youth and adults). These were used to prepare a stated-choice survey for close to 400 respondents (users and non-users of the aerial cable-cars) to measure three dependent variables: impedance (in accessing the system), changes in access to opportunities (income, study), and changes in purchasing capacity; and two independent variables: gender and age. The data were subsequently fed into a model.

To meet the socio-economic elements of objective 4, the Soacha research team drew on evidence from Medellín. The social scientists in the Soacha team participated in focus group discussion in Medellín (with additional local funding). A range of secondary socio-economic data (collected by municipal and national government agencies, and aerial cable-car consultants) was collected including the 2005 national population census, and origin-destination surveys for the metropolitan area of Bogotá. This background quantitative data

was judged to be sufficient for the analysis, and it was felt that ad-hoc surveys might prove not only unnecessary but also counter-productive in terms of generating expectations among residents of an area where the state is seen with some suspicion and as having virtually no presence. Another factor considered was the prevailing insecurity in the area meaning that it was not advisable for researchers or assistants to carry out house-to-house surveys. A series of focus groups were organised instead with support of UNCHR's House of Rights, considered a safe and neutral place to conduct such meetings with local residents.

c. Replicability and dissemination: Meeting objective 5 firstly involved disseminating the project objectives from early on in the project (UCL-based website, a large number of international lectures and conference presentations, publications including a book in Spanish and in English). It also involved contrasting the two case studies with similar schemes proposed in other cities, in Colombia, Latin America and elsewhere. A national workshop in Colombia brought together delegates from the national government, local governments, and academics. The final international workshop held in Medellin in December 2011 attracted 180 participants, including 16 community leaders, six international invitees from as many countries, 24 paying delegates from outside Medellin - including nine international participants - and 99 non-paying students (from six countries), in addition to the 25 researchers and research assistants directly associated with the research project.

d) Project Findings

Please summarise the findings of the project, referring where appropriate to outputs recorded on the ESRC website. Any future research plans should also be identified. [Max 500 words]

The research has rigorously examined Medellín as a case study of municipally-led interventions across successive administrations seeking to redress deep and long-standing social and spatial imbalances, working with communities whilst strengthening the city's municipal revenue base and maintaining public ownership of key assets. In a context of neoliberal urbanisation where the market is often seen as the main contributor to 'modern' urban development, under some conditions local government can provide crucial leadership. Central to this are a strong and stable revenue base and a small number of institutions within Medellín, e.g. the Metro Company and the municipally-owned public utilities company (EPM) which in 2010-11 injected close to US\$880 million in surplus to the municipality. By contrast, Soacha lacks the capacity to administer a similar project, and only the intervention of powerful institutions such as the government of Bogotá or even the country would offer any chance of success. Outputs outlining this include: Brand & Dávila (2011); Dávila (2012 & 2013 - forthcoming); Dávila & Brand (2013), Bahl (2012), Acevedo (2013).

A second finding relates to the nature and impact of the aerial cable-cars (*Metrocables*) as a novel and highly successful form of urban transport infrastructure. Medellín was the first city in the world to use conventional ski lift technology to connect some of the poorest neighbourhoods (where daily lives had marked by high levels of deprivation and violence) with the city's mass-transit overground train. Residents' views about *Metrocables* vary: some benefit from lower travel costs and time savings, others complain about the long

queues at peak hours. Transport costs have fallen for those making multi-modal trips (cable-Metro-feeder bus), and this compensates for the waiting time during peak hours. Gendered perceptions of modal safety affect the modal choice of bus over *Metrocable* by women. See Arango et al. (2011), Agudelo et al. (2011), Dávila (2012 & 2013 - forthcoming), Levy (2013), Dávila & Daste (2012).

A third finding relates to the relative importance of isolated transport infrastructure such as *Metrocables* compared to wider urban interventions. Municipal investment in a comprehensive programme of upgrading had an even wider impact on residents' quality of life than the new form of public transport. New public facilities are designed by top architects using high-quality materials, a deliberate reversal of the conventional approach of providing low-quality services for the poor. While a gender perspective is not explicitly mainstreamed in these interventions, the way spaces have been upgraded and developed make them safer and more secure. See Dávila (2012 & 2013 - forthcoming), Brand & Dávila (2011), Levy (2013); Dávila & Daste (2011).

A fourth finding relates to the scale of interest that a project of this kind arises among specialists and municipal officials around the world. This was shown in the high number of hits received by the project website (close to 8,000 pageviews since 1/12/10 and 250 online reads of the Spanish-version book since mid-December 2012). The main output of the research (Dávila 2012 & 2013 - forthcoming) brings together for the first time selected case studies in cities which have or are seeking to implement similar projects: Caracas, Rio de Janeiro, La Paz and Cali.

The project findings will continue to be disseminated (not least at the World Urban Forum, Medellín 2014). A UCL-based PhD student under the PI's supervision is building on the research results in Soacha (Oviedo & Dávila, 2013).

e) Contributions to wider ESRC initiatives (eg Research Programmes or Networks)

If your project was part of a wider ESRC initiative, please describe your contributions to the initiative's objectives and activities and note any effect on your project resulting from participation. [Max. 200 words]

N/A

3. Early and anticipated impacts

a) Summary of Impacts to date

Please summarise any impacts of the project to date, referring where appropriate to associated outputs recorded on the Research Outcomes System (ROS). This should include both scientific impacts (relevant to the academic community) and economic and societal

impacts (relevant to broader society). The impact can be relevant to any organisation, community or individual. *[Max. 400 words]*

Medellín's local authorities have promoted what they call the 'Medellín Model', a series of urban interventions in low-income settlements placing highly visible transport and social infrastructure at the core, while seeking to attract international investment and visitors. This research is an attempt to rigorously examine these claims, using the aerial cable-car lines and urban upgrading as entry points. The research attracted the attention of decision makers and academics internationally, resulting in a large number of invitations (over 20 lectures and conference presentations in nine countries and four continents), and requests to contribute case studies to international publications (see for example Dávila & Daste, 2013).

In terms of scientific impact, the research has made a significant empirical contribution to a wider understanding of the technical and financial dimensions of the cable-cars and associated urban upgrading programmes, as well as to the institutional landscape that made these possible in Medellín. It successfully combined qualitative methods from the social sciences with quantitative methods from transport engineering to draw a complex picture of the trade-offs faced by transport users but also the difficulties in understanding causality in urban interventions in problematic social environments.

In terms of economic and social impact, the project can be said to have made an impact. By shining a light on these interventions, the research added to a sense of ownership of the new urban infrastructure and pride among the residents in low-income settlements. This helps strengthen the hand of communities in negotiating 'a better deal' with the authorities. It provided established and young researchers with an opportunity to undertake rigorous research on an important issue that they would otherwise not have researched with the same depth, thus having an impact on local capacity building.

In terms of policy impacts, the Medellín-based research team was approached by the government of Bogotá in October 2012 with an interest in building cable-car systems in low-income hilly areas. The Bogotá-based team was approached by the national government for advice on Soacha, where the aerial cable-car has been revived with national and provincial government funding.

Internationally, the research project has attracted attention from academics and especially policy-makers. The final workshop in Medellín in December 2011 provided a platform for a better understanding of the impact that this simple technology might have not only in transport terms, but also in terms of the wider integration of low-income isolated hilly areas to the urban fabric. The Medellín Metro Company also benefitted from this, insofar as they have developed expertise in designing such systems in difficult urban terrains, and so are increasingly called to provide consultancy services to other cities (including Soacha).

b) Anticipated/Potential Future Impacts

Please outline any anticipated or potential impacts (scientific or economic and societal) that you believe your project might have in future. *[Max. 200 words]*

In terms of scientific impacts, the research will hopefully continue to contribute to the scant scientific literature linking mobility and urban poverty, with its methodology adapted for the examination of transport technologies other than aerial cable-cars.

In terms of economic and social impacts, it is hoped that the project results will continue highlighting the fact that a major new infrastructure project cannot be isolated from its urban, social and institutional context. Hopefully the Colombian authorities will heed the conclusions from the Soacha study. As in Medellín, by shining a light on the potential of the intervention, the lives of Soacha residents could be significantly improved were there to be a comprehensive intervention comprising not merely a transport system but also a series of more wide-ranging urban upgrading projects of the kind seen in Medellín.

Making outputs available in English, Spanish and French will help future policy impact. The main output (Dávila, 2012 & 2013 - forthcoming) is a freely-downloadable 210-page book in Spanish and English, whose publication was co-financed by Universidad Nacional de Colombia (Medellin campus) with a grant of £4,000 (to which must be added local co-financing from both universities, such as the Universidad Nacional's £5,000 grant towards the international workshop reported in the January 2012 progress report).

You will be asked to complete an ESRC Impact Report 12 months after the end date of your award. The Impact Report will ask for details of any impacts that have arisen since the completion of the End of Award Report.

4. Declarations

Please ensure that sections A, B and C below are completed and signed by the appropriate individuals. The End of Award Report will not be accepted unless all sections are signed. Please note hard copies are **not** required; electronic signatures are accepted and should be used.

A: To be completed by Grant Holder

Please read the following statements. Tick **one** statement under ii) and iii), then sign with an electronic signature at the end of the section (this should be an image of your actual signature).

i) The Project

This Report is an accurate overview of the project, its findings and impacts. All co-investigators named in the proposal to ESRC or appointed subsequently have seen and approved the Report.

ii) Submissions to the Research Outcomes System (ROS)

To cite this output:

Davila, J, et al (2013) Local governance, urban mobility and poverty reduction. Lessons from Medellin, Colombia
ESRC End of Award Report, RES-167-25-0562. Swindon; ESRC.

Output and impact information has been submitted to the Research Outcomes System. Details of any future outputs and impacts will be submitted as soon as they become available.

or

This grant has not yet produced any outputs or impacts. Details of any future outputs and impacts will be submitted to the Research Outcomes System as soon as they become available.

iii) Submission of Data

Data arising from this grant have been offered for deposit with the UK Data Service.

or

Data that were anticipated in the grant proposal have not been produced and the UK Data Service has been notified.

or

No datasets were proposed or produced from this grant.