

1. Personal information

First name: Patricia Sofia Coelho de

Last name: Melo

2. Data of diploma giving access to doctoral studies in the country in which the diploma was obtained:

Date of start: 02-10-2006 / Date of submission: 31-03-2010 (waiting for VIVA exam)

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Dean Surtees
Senior Assistant Registrar

22 October 2009

Ref: 00459471

TO WHOM IT MAY CONCERN

THIS IS TO CERTIFY THAT THE UNDERNAMED:

Surname: Melo
Forenames: Patricia
Date of Birth: 28 February 1981

Is currently registered on a Full Time course for the academic year 2009/10, details as follows:

Course: Civil Engineering Research
Start Date: 01 October 2006
Expected End Date: 31 March 2010



Dean Surtees



3. Current status and affiliation:

PhD student

Centre for Transport Studies, Imperial College of London

4. Motivation letter:

Subject: Application to the 23rd ERSA Summer School

Dear Sir or Madam

I am writing to apply to the 23rd ERSA Summer School focusing on the topic "Productivity and Financing of Regional Infrastructure".

I am presently completing my PhD at the Centre for Transport Studies at Imperial College of London and hold an MSc in Transport from the same institution and a BSc in Economics (ISEG-Lisbon). I was driven to economics by my curiosity to understand why economies perform so differently and which combination of factors determines their productivity. One of the key contributors to productivity, as I then learned, is of course the availability and quality of infrastructure.

After I finished my degree in Economics I worked in Lisbon airport, an experience that triggered my interest on the linkages between transport and the economy. It also motivated me to do a Master in transport and since then I have been academically involved in the estimation of the relationship between transport infrastructure and economic performance. In my MSc project I used econometric models to estimate the effect of the availability of motorway and railway networks on new firm births in Portugal. The results suggested that both transport networks contributed to new plant openings, and that there were positive spatial spillover effects from transport networks in neighbouring municipalities. This work benefited from comments and feedback provided by the participants of the 2007 ERSA Summer School (Bratislava) in which I was given the opportunity to participate.

My PhD project developed more towards regional and urban economics and focuses on the empirical estimation of the relationship between worker productivity and urban agglomeration economies. Although the link to transport is not modelled explicitly in the analysis, the estimates I produce can tell something about the potential productivity gains from transport improvements that arise through reinforced agglomeration. This idea has motivated the UK Department for Transport to develop a framework for CBA where such economic impacts from transport schemes are considered. Currently, there is much debate around the topic.

Although my previous research has enabled me to acquire knowledge and practice in the measuring of productivity effects of regional infrastructure and the use of spatial econometrics, I lack a theoretical and applied background on the other issues to be covered in the summer school. More importantly, these issues are all pertinent to the area of research I intend to pursue after completing my PhD.

Given my interest in the topic and its relevance to my research I believe that this summer school can improve my understanding of the field and endow me with new analytical techniques that I consider to be useful to my scientific career. Finally, I also think that the summer school will be a good opportunity to network with researchers from other institutions who are also interested in the same issues.

Thank you for taking the time to consider this application.

Yours faithfully,
Patricia Melo

5. Scientific CV:

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University: Room 602 Skempton Building
Imperial College, SW7 2AZ London
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RESEARCH

My main research interests are in the field of regional and urban economics, particularly the topics of agglomeration economies, transport infrastructure, and productivity. Presently, I am doing a PhD in which I measure the productivity benefits from agglomeration externalities. I use panel data micro-econometrics to estimate elasticities of productivity with respect to agglomeration. Other interests include the application of spatial econometrics.

EDUCATION

2006 - Date

PhD in Transport Economics

Centre for Transport Studies, Imperial College London

Sponsor: Transport for London (TfL)

Thesis: The central research question of this dissertation concerns the importance of agglomeration economies to economic productivity. Although existing evidence tends to agree on positive productivity gains from urban agglomeration, estimates vary greatly in magnitude. Among the reasons underlying the size-differences are factors related to the diversity of data and study-designs. Moreover, there are some important unresolved methodological issues that also play a role in the explanation of the variation in size of the agglomeration-productivity relationship. In my thesis I conduct extensive empirical analysis based on longitudinal microdata to improve the current understanding of the relationship between worker productivity and agglomeration economies.

2005 - 2006

MSc in Transport (*Distinction*)

Centre for Transport Studies, Imperial College London

Thesis: Firm Formation and Transport Infrastructure: A Study of Portugal. This paper investigates the relationship between the availability of transport infrastructure and new plant openings in Portugal. It tests whether denser motorway and railway networks have a positive effect on firm formation in Portuguese municipalities for various sectors of the economy.

1999 - 2003

BSc in Economics (*TOP1%*)

School of Economics and Management Studies (ISEG), Technical University of Lisbon (UTL)

Erasmus Aug. - Dec. 2001 (*Hons*), Vrije Universiteit Amsterdam

JOURNAL PUBLICATIONS

Melo Patricia C., Graham Daniel J., and Noland, Robert B., (2009) A Meta-Analysis of estimates of urban agglomeration economies. *Regional Science and Urban Economics*, 39, 332-342.

Graham Daniel J., Melo Patricia C., Jiwattanakulpaisarn, P. and Noland, Robert B., (2009) Testing for causality between productivity and agglomeration economies, *Journal of Regional Science* (in press).

Melo Patricia C., Graham Daniel J., and Noland, Robert B., (2009) Agglomeration and gravity: estimating the spatial decay of labour pooling spillovers using data on commuting flows. (*under revision by Journal of Economic Geography*).

Melo Patricia C. & Graham Daniel J., (2009). Agglomeration Economies and Labour Productivity: Evidence from Longitudinal Worker Data for GB's Travel-to-Work Areas. *Journal of Urban Economics* (*under review*)

Melo Patricia C., Graham Daniel J., and Noland, Robert B., (2010) Impact of Transport Infrastructure on Firm Formation: Evidence from the Portuguese Municipalities. *Transportation Research Record* (*accepted*).

TEACHING EXPERIENCE

2008 - 2009

Teaching Assistant, Imperial College London

I worked as a tutor of practical classes of Microeconomic Theory for MSc students. My work also included providing assistance to students both through office hours and more casual meetings. I also helped setting up the exam questions and correcting their answers.

WORK HISTORY

2008 - 2009

Independent Consultant, Department for Transport (DfT)

This work consisted of validating the commuting patterns produced by the National Transport Model (NTM) against observed data on commuting patterns from official surveys (Annual Survey of Hours and Earnings and Census). I also advised on the assessment of the wider economic benefits from agglomeration externalities in the context of the High Speed Two (HS2) rail connection.

Nov/Dec 2004

EU Leonardo d' Vinci Internship, Munich Airport

During my internship I examined the working practices in the Marketing & Traffic Development Departments of Munich and Lisbon airports. I produced a report comparing in detail the two organisations and how the different practices impacted on performance levels.

- 2003 - 2005 **Market Research Analyst, ANA-Aeroportos de Portugal, SA**
 I worked on three main areas. My main function consisted of persuading airlines to open routes to Lisbon, for which I developed reports benchmarking Lisbon as a profitable route.
 I was also responsible for the production of the weekly and monthly air traffic statistics, and more occasional reports like the study on the impact of the Euro 2004.
- 2002 - 2003 **Research Assistant, Centre for Research on Financial Economy (CIEF/ISEG):** This worked consisted of investigating the relationship between money demand and velocity.
- Summer 2000 **Internship, Centre for Environmental Law & Sustainable Dev.**
 I investigated the cooperative management of mutual resources between Portugal and Spain, in particular referring to Natural Parks and Hydrological Basins.

PROFESSIONAL MEMBERSHIPS

- 2009 onward Transport Economists' Group
 2006 onward The Institution of Highways & Transportation

TECHNICAL SKILLS

- Languages: Native in Portuguese and fluent in English and French. I have a good knowledge of Spanish and intermediate understanding of German.
- Techniques: Microeconometrics & spatial econometrics (Spatial Econometrics Advanced Institute, Rome, 2008; ERSA Summer School, Bratislava, 2007).
- Software: Statistics: STATA, R, SPSS, LIMDEP; GIS: ArcGIS.
 General: Microsoft Office (Word, Excel, PowerPoint and Access).

CONFERENCES & COURSES

CONFERENCES

- January 2010 Transportation Research Board 89th Annual Meeting, Washington, DC, US
 August 2009 49th European Regional Science Association Congress, Lodz, Poland.
 Second Prize EPAINOS Award for best Young Scientist paper.
- May 2009 Institute for Transport Planning and Systems (IVT) Seminar "How does accessibility create value?", Zurich, Switzerland
- March 2009 SERC/LSE Junior Seminars in Spatial Economics
- January 2009 Transportation Research Board 88th Annual Meeting, Washington, DC, US
- December 2008 Centre for Transport Studies Seminar (CTS), Imperial College of London & University College of London

November 2008	55th Annual North American Meetings of the Regional Science Association International, New York, US
March 2008	Centre for Transport Studies Seminar (CTS), Imperial College of London & University College of London
January 2008	Transportation Research Board 87th Annual Meeting, Washington, DC, US
November 2007	Winter Conference 2007, Transport, Mobility and Regional Development, London, UK
October 2007	Netherlands Network of Economics Research Day, Utrecht University
August 2007	47th European Regional Science Association Congress, Paris, France

COURSES

June 2008	Spatial Econometrics Advanced Institute, Rome
Jan/Feb 2008	Statistical Modeling and Estimation, London Taught Course Centre, London
Jan/Feb 2008	Stochastic Processes, London Taught Course Centre, London
July 2007	Spatial Economics and Spatial Statistics, Marie Curie ERSA Summer School, Bratislava

AWARDS

2009	Second prize of the Epainos Award for the best paper in Regional Science by a young scientist (49th Congress of the European Regional Science Association, Lodz, Poland). The paper is entitled "Agglomeration economies and labour productivity: evidence from longitudinal worker level data for GB's Travel-to-Work Areas".
2002	Merit Scholarship awarded by the Ministry of Education for the academic year 2000-2001.

REFEREEING ACTIVITY

Journal of Economic Geography, Computers, Environment and Urban Systems

REFERENCES

- 1) Prof. Robert B. Noland, Professor and Director, Alan M. Voorhees Transportation Centre, Bloustein School of Planning and Public Policy Rutgers University, US (rnoland@rutgers.edu)
- 2) Dr. Daniel J. Graham, Reader, Centre for Transport Studies, Imperial College London, UK (d.j.graham@imperial.ac.uk)
- 3) Mr. Nuno Almeida Costa, Head of Marketing Aviation, ANA – Aeroportos de Lisboa, Portugal

6. Short description of previous and current research:

My first research project was conducted during my MSc in transport and focused on the impact of transport infrastructure on firm formation in Portugal (published in the Transport Research Record). As I described in the motivation letter, the work focuses on the empirical estimation of the effect of the motorway and railway networks on new firm births in Portugal. I concluded that both transport networks contributed to new plant openings, and that there were positive spatial spillover effects from transport infrastructure.

Most of the research conducted since then, is within the context of my PhD. This research consists of a series of empirical analyses aimed at improving the current understanding of the relationship between worker productivity and agglomeration economies. The first empirical work consisted of a quantitative review, in the form of a meta-analysis, of previous evidence for productivity elasticities of urban agglomeration economies (published in *Regional Science and Urban Economics*).

The major piece of research of the thesis focused on the estimation of the causal link between worker productivity and agglomeration economies for different economic sectors of the British economy. I applied various econometric analyses to longitudinal worker microdata to quantify: (i) the impact from reverse causality on the size of the productivity elasticities of agglomeration; (ii) the impact from omitted ability bias on the size of the productivity elasticities of agglomeration; and (iii) the sectoral differences in the productivity effects from agglomeration economies. Part of this research is published as a SERC (LSE) Discussion Paper.

In the following work, I applied linear and nonlinear regression analysis to test for the spatial decay of agglomeration economies. In this paper I quantify the rate at which agglomeration externalities diffuse across space and how these rates differ across economic sectors. The last piece of research conducted attempts to measure the relative contribution of the micro economic determinants of agglomeration economies (known as *Marshallian* sources) to its overall effect. This is important for urban and regional policy because different mechanisms call for different policies to enhance economic productivity through agglomeration economies.

In parallel to the PhD work, I had the opportunity to engage in other research projects. Together with my supervisor, I tested for the direction of causality between productivity and agglomeration economies (published in *Journal of Regional Science*). Another project of joint research with my supervisor investigated the decay of commuting flows in British labour markets as a way to test for the presence of labour pooling forces spillovers (under revision by *Journal of Economic*

Geography). Finally, I conducted some research for the Department for Transport related to the validation of commuting patterns produced by the National Transport Model (NTM) against observed data on commuting patterns from official surveys, and some preliminary analysis of the wider economic benefits from agglomeration externalities from High Speed rail.

7. Short description of career plans:

I am at the final stage of my PhD, which I hope to complete by April of 2010. Further to completing my PhD, I have recently started working as a research associate at the Centre for Transport Studies at Imperial College. This post is essentially focused on estimating the economic impacts from investing in transport.

My plans are to continue in academy and apply for a post-doctoral position in transport economics, in particular in areas related to the measurement of the economic impacts from transport infrastructure and investment. I would also like to expand my area of research and skills to topics related to the financing of transport investments and acquire new techniques such as the spatial computable general equilibrium models.

Finally, and as I noted in my motivation letter, I believe that the summer school will allow me to establish contacts with researchers from other research centres with whom I hope to develop research collaboration in the future. This is why I consider that my research career can benefit from the programme of the 23rd ERSA Summer School.

8. Name and address of doctoral/PhD supervisor:

Dr Daniel J. Graham

E-mail:d.j.graham@imperial.ac.uk

Tel: +44(0)20 7594-6088

9. Name and address of two researchers who are willing to write a letter of recommendation:

Daniel J. Graham

Centre for Transport Studies, Dept of Civil and Environmental Engineering

Imperial College London, London SW7 2AZ

E-mail:d.j.graham@imperial.ac.uk

Robert B. Noland

Alan M. Voorhees Transportation Center, Edward J. Bloustein School of Planning and Public Policy

Rutgers University, New Brunswick, NJ 08901

E-mail address: rnoland@rci.rutgers.edu

10. Title and abstract of the intended presentation:

Measuring the differences in Airport Productivity: Evidence from the Portuguese Airports

This paper uses panel data econometrics to investigate productivity differentials across Portuguese airports. We estimate production functions for the 9 airports over a period of 20 years to identify the key factors determining airport productivity. The results show that there is considerable variation in productivity performance of the various airports that can be explained by factors other than the basic inputs to production.