

Rudi Rocha de Castro

**Empirical Essays on Human Capital and
Development**

Tese de Doutorado

Thesis presented to the Postgraduate Program in Economics of
the Departamento de Economia, PUC–Rio as partial fulfillment
of the requirements for the degree of Doutor em Economia

Advisor : Prof. Claudio Ferraz
Co–Advisor: Prof. Rodrigo R. Soares

Rio de Janeiro
April 2011



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Rio de Janeiro — April 1, 2011

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Rudi holds a BA and a MA in economics from the Federal University of Rio de Janeiro (IE-UFRJ), and now a PhD in economics from PUC-Rio. The primary focus of his research has been development, labor economics, rural and agricultural economics, and political economy. Rudi has collaborated in policy advising and research projects sponsored by distinguished Brazilian and multilateral organizations, such as the OECD, FAO, UNIDO, the World Bank, IADB, ILO, Action Aid, Conservation International, the Brazilian Ministry of Education, Fundação Itaú Social, among others. Rudi is an associate member of the Institute for Studies on Labor and Society (IETS) since 2003, and he was the Brazilian chapter head of the LACEA/World Bank/IADB/UNDP Network on Poverty and Inequality between 2004 and 2006. He is currently a lecturer in political economy at the Department of Economics at PUC-Rio, and a senior analyst at Climate Policy Initiative (CPI-Rio).

Bibliographic data

Rocha, Rudi

Empirical Essays on Human Capital and Development / Rudi Rocha de Castro ; advisor: Claudio Ferraz; co–advisor: Rodrigo R. Soares. — 2011.

146 f. : il. ; 30 cm

Tese (Doutorado em Economia)-Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, 2011.

Inclui bibliografia

1. Economia – Teses. 2. Desenvolvimento; Educação e Saúde; Colonialismo e Imigração Européia; Violência Local; Choques Climáticos.. I. Ferraz, Claudio. II. Soares, Rodrigo R.. III. Pontifícia Universidade Católica do Rio de Janeiro. Departamento de Economia. IV. Título.

CDD: 510

Acknowledgments

Aqui vai o meu agradecimento a todas as pessoas que me ajudaram a seguir adiante nestes últimos anos. Em primeiro lugar agradeço à minha mãe Helena, e meu pai drasto, Adalberto, por tudo e mais um pouco. Esta tese é dedicada a eles. Agradeço muitíssimo a Paula Lobato, meu anjo da guarda. Agradeço muitíssimo a Mariza, Yula, Andrew e Liam, pelo carinho e pela torcida.

Sou profundamente grato ao meu orientador, Claudio Ferraz, e meu co-orientador, Rodrigo Soares. Foi um privilégio contar com tanta excelência, dedicação e generosidade ao meu lado. Aprendi com eles a sempre seguir um pouco mais adiante.

Muito obrigado a todos os professores do Departamento de Economia da PUC-Rio, que tanto contribuíram para minha formação. Um agradecimento especial a Gustavo Gonzaga e Luiz Correa do Lago, pela dedicação como professores em seus cursos. Muito obrigado aos funcionários do Departamento, pelo apoio sempre tão atento e eficiente.

Agradeço aos meus amigos de PUC mestrandos e doutorandos. Muitíssimo obrigado a Arnildo Correa, Daniela Fontes, Hamilton Kai, Isabelle Agier, Joana Monteiro, Marcelo Nuno, João Paulo Pessoa, Pedro Carvalho, Fernando Silva, Guilherme Ayres, Diana Moreira, Tarso Mori, Fernanda Lima, Guilherme Lichand. Agradeço em especial a Joana Monteiro minha co-autora no último capítulo desta tese.

Agradeço muito aos meus amigos de longa data, que têm me ajudado a seguir adiante desde o começo. Muito obrigado a Gabriel Ulyssea e Dimitri Joe, queridos amigos que acompanham de perto o meu trabalho. Agradeço muito pela amizade e pelo apoio de Joana Naritomi, fundamental nos primeiros anos de meu doutorado. Agradeço pela amizade e pela torcida incondicional de André Wagner, Flavia Alexim, Heloisa Borges, Laura Zoratto, Marcos Gurgel, Rafael Garaffa, Ricardo Steffen, Thiago Renault, Tchonney e Vicente Avellar.

Um agradecimento mais do que especial àqueles amigos que têm contribuído tão generosamente para minha formação profissional ao longo dos últimos anos. André Urani e John Wilkinson, por todo o aprendizado e pela confiança. Adriana Fontes, Miguel Foguel e Steven Helfand, pela amizade e pelas orientações sobre a profissão.

Por fim, gostaria de agradecer a pessoas e instituições que apoiaram o desenvolvimento dessa tese. Seguindo ordem cronológica, por capítulos, agradeço a Adalberto Cardoso, Eustáquio Reis, Joana Naritomi, Maria Silvia Bassanezi, Fernanda Becker, Michel Azulai, Paulo Ferraz, Marcio Costa, Ignácio Cano, Zeca Borges, SME-Rio, INEP/MEC, IETS e Disque-Denúncia.

Abstract

Rocha, Rudi; Ferraz, Claudio (Advisor); Soares, Rodrigo R. (Co-Advisor). **Empirical Essays on Human Capital and Development**. Rio de Janeiro, 2011. 146p. Tese de Doutorado — Departamento de Economia, Pontifícia Universidade Católica do Rio de Janeiro.

This thesis is comprised of three empirical articles. The first article studies the long run development impacts of a colonization policy undertaken by public authorities in the Brazilian state of São Paulo. By the late 19th century, almost 30 settlement colonies were created across São Paulo, *Neo Europes* characterized as rural villages formed by small plots of land and populated by relatively higher-skilled European settlers. The unique features of this colonialism episode enable us to support empirically the view that settlement colonies fostered long run development of settled regions through improvements in early levels of human capital. The second article examines to what extent idiosyncratic weather patterns during the time in utero have affected infant health at birth and educational outcomes in the Semiarid Northeast Brazil. We build two parallel databases. The first one is a municipality by month of birth database that combines site-specific rainfall fluctuations before birth with infant health and mortality rates. The second one combines the same weather outcomes with student level data on school attainment and achievement. We find statistically significant evidence that areas hit by negative rainfall fluctuations experience higher incidence of low birth weight, preterm gestation and infant mortality rates. We also find that adverse rainfall fluctuations when in utero are associated with lower academic test scores, higher incidence of delayed enrollment, dropout and grade repetition among young primary school students. The third article investigates whether and how armed conflict among drug gangs in Rio de Janeiro's slums affect children's educational outcomes. We explore time and geographical variation in localized violent events in order to identify causal effects of exposure to violence on students' achievement test scores and mobility across schools. We find that students from schools close to areas that experience more violence over time perform worse in standardized math exams, while no significant effect is found for language exams. Violence is also associated with higher grade repetition and dropout rates.

Keywords

Development; Education and Health; Colonialism and European Immigration; Neighborhood Violence; Weather Fluctuations.

Resumo

Rocha, Rudi; Ferraz, Claudio (Orientador); Soares, Rodrigo R. (Co-Orientador). **Ensaio Empírico Sobre Capital Humano e Desenvolvimento**. Rio de Janeiro, 2011. 146p. Tese de Doutorado — Departamento de Economia, Pontifícia Universidade Católica do Rio de Janeiro.

Esta tese é composta por três artigos. O primeiro deles estuda os impactos de longo prazo de uma política de colonização implementada no estado de São Paulo. Ao final do século 19, quase 30 assentamentos coloniais foram criados no estado, colônias caracterizadas como vilas rurais, formadas por pequenos lotes de terra e povoadas por imigrantes europeus relativamente mais educados. Características únicas deste episódio nos permitem mostrar empiricamente que estes assentamentos estão associados ao desenvolvimento de longo prazo das regiões de colonização via especificamente o canal de capital humano. O segundo artigo examina em que medida choques idiossincráticos de precipitação durante o período de gestação afetam saúde infantil ao nascer e educação de alunos da escola primária no Semiárido nordestino. Os resultados mostram que choques climáticos adversos diminuem o peso ao nascer, e causam uma maior incidência de mortalidade infantil. Também encontramos impactos negativos sobre aprendizado, evasão e reprovação escolar. O terceiro artigo investiga o impacto da violência associada ao tráfico de drogas no Rio de Janeiro sobre o desempenho educacional em escolas mais expostas aos conflitos entre facções criminosas. Os resultados indicam que violência tem um impacto causal negativo sobre desempenho escolar em matemática, enquanto que nenhum efeito é encontrado sobre o desempenho em português. Também encontramos que a violência é associada a probabilidades mais altas de reprovação e evasão.

Palavras-chave

Desenvolvimento; Educação e Saúde; Colonialismo e Imigração Européia; Violência Local; Choques Climáticos.

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