

RESEARCH STATEMENT

HENRIQUE VERAS DE PAIVA FONSECA

I am a development economist with interests in health economics and economic growth, and I aim to address questions that are relevant for long-run development. I use both theory and statistical methods to analyze different questions. In empirical work, I employ secondary data analyses to assess causal relationships. In theoretical work, I employ numerical solution methods and calibration exercises to assess validity of theories. Below, I summarize two current research projects: the first one assesses the long-term socioeconomic consequences of early life exposure to health shocks for lifetime adult outcomes; the second assesses the transition from stagnation to growth, fertility transition, and expropriation risk.

“EARLY LIFE EXPOSURE TO MALARIA AND ECONOMIC DEVELOPMENT” (JOB MARKET PAPER)

In my job market paper I contribute to understanding what are the long-term consequences of early life malaria exposure for lifetime outcomes. Malaria is a vector-borne disease and its transmission varies around the year according to suitable climatic conditions. Individuals born in different months find themselves heterogeneously exposed when inside the womb. I exploit this heterogeneity in different locations in Brazil and different years to estimate the causal effects of in utero exposure to malaria on long-term socioeconomic conditions.

Whereas previous empirical work have identified differences in exposure to malaria by location and year of birth, my research exploits a narrower measure – by month, year, and location – which allows me to distinguish exposure across different critical periods of early, such as different trimesters of gestation. This novel definition arguably controls for unobserved regional-level confounders since I am able to observe variation in exposure within locations, by month of birth. I find negative treatment effects on educational attainment and labor income for exposed individuals. The effects are heterogeneous across timing of exposure, and they are stronger for exposure during the first trimester of intrauterine life.

For further research on this topic, I aim to address the mechanisms that might drive the effects of exposure to malaria on adult socioeconomic conditions. Specifically, I plan on testing the hypothesis that malaria infections hamper cognitive development; I intend to examine this issue by comparing cognition test scores of children who were more and less exposed to malaria while in utero.

“FROM STAGNATION TO GROWTH: THE ROLE OF EXPROPRIATION RISK ON THE FERTILITY TRANSITION”, WITH STEPHEN L. PARENTE

In an effort to understand the fertility transition dynamics, Stephen Parente and I ask why societies chose fertility rates to maintain a constant living standard prior to the modern economic growth era. That is, if societies were able to define their optimal population size,

why not choosing a population consistent with escaping the Malthusian trap and taking-off into sustained economic growth? We propose a novel theory of fertility choices, accounting for the Malthusian population dynamics, in which societies face a positive risk of land expropriation. Unpopulated or sparsely populated areas are more likely to be appropriated by outsiders than well-guarded and populated areas. During the Malthusian phase of development, land is a fixed and important factor in the production process. Therefore, population size should be consistent with the ability of societies to defend the land against expropriation when maximizing living standards. We show that under risk of expropriation, societal fertility choices are consistent with Malthusian predictions, in which improvements in usable knowledge do not lead to increases in living standards, as wealthier societies face higher risk of invasion.

In the next step of the research agenda, we plan to test the theory by calibrating the model to the experience of England during pre-modern times. Moreover, we propose an extension of the unified model of development proposed by Hansen and Prescott (2002), where population growth is endogenously determined by the dynamics of the relative importance of land to the production process. Thus, after industrialization, when land is no longer worth defending – at least not as much as before 1700 – the model endogenously generates the demographic transition, in which societies are able to reduce fertility, while taking-off into modern economic growth.

IN THE FUTURE

In the years to come, I aim to expand my research on the long-term consequences of early life environment by exploring different mechanisms that lead to its effects on different dimensions of development. For example, studying the implications of climatic shocks that affect individuals in heterogeneous ways, such as extreme weather variations causing droughts or other natural disasters, is a line of research that interests me as a researcher aiming to address long-run causal questions.

The broad perspective of this project allows me to relate my field of expertise with other areas of study, such as geography, political economy, and labor economics, among others. This interdisciplinary aspect of the economic research is what drives me to pursue academic work. It pushes me to always seek new knowledge and to connect it with both my research and teaching. It also widens the scope for collaborative work not only with peers but also with students from different areas of expertise. Working collaboratively with colleagues and engaging students in my research agenda are objectives I have for my professional academic career, as I am an enthusiastic about learning and sharing new knowledge.

REFERENCES

Hansen, G. D. and Prescott, E. C. (2002). Malthus to solow. *The American Economic Review*, 92(4):1205–1217.

TEACHING STATEMENT

HENRIQUE VERAS DE PAIVA FONSECA

One of my goals as a scholar is to share my learning with others. I am passionate about teaching, and I truly believe that passion is the key characteristic that makes a great teacher. All of the teachers who have positively impacted me were avid enthusiasts of teaching. I try to bring that same passion to my teaching. My second objective as a scholar is to discover new knowledge. This objective is intrinsically connected with the first: teaching encourages the critical and precise thinking needed to convey abstract concepts. This constant process of learning and teaching is what drives me to pursue an academic career. Below, I present my teaching experience, detailed information about how I approach teaching, and students' evaluations.

TEACHING DEVELOPMENT ECONOMICS

I have taught Development Economics, an advanced undergraduate-level course at the University of Illinois, for the past three years. The goals of the course are twofold: to foment students' independent analytical thinking around the economic theories applied to the development field, and to develop skills to apply the economic concepts to real-world situations. I describe what I do in my courses to achieve these objectives.

Methodology of Teaching. In class, I introduce a new theory or idea by referring back to some fundamental economic concept. I start building up ideas from this basic and abstract definition to the most specific and concrete set of arguments that make up the theory, always asking the students the necessary questions that lead to the next step of the process. For example, in teaching the Solow Model – the workhorse model of the Neoclassical Theory of Economic Development – I start by asking students the simple question of what is a production function. This question invariably directs the students to evoke their prior knowledge acquired in introductory courses of microeconomic principles. Students are then able to develop the stream of thought based on this initial concept by incorporating the ideas that make up the building blocks of the theory, such as the aggregate production function, capital accumulation, etc. I find this approach to teaching effective and rewarding for multiple reasons. First, since this course is usually frequented by students at various stages of their academic career – and as a result, with different background information – building up complex theories and economic models starting from some common knowledge principle provides the opportunity for the entire classroom to benefit equally from the lecture. I try my best to follow the adage “no student left behind.” Second, by facilitating the process of developing independent analytical thinking through this deductive approach, students themselves control how they connect the dots to reach the main conclusions.

The second objective of the course is to expose students to a range of methods and techniques to analyze real data in light of the theories discussed in class. In a profession in which data analysis is becoming increasingly important, developing such skills is paramount to preparing students for the professional challenges that lie ahead on their professional journey, regardless of whether their ambitions are to work in academia or in industry. In the Solow Model example, after discussing all relevant aspects, I engage the students to come up with explanations for the implications of the model and to test them with data from official sources such as World Bank. I believe this approach successfully achieves the joint objectives of helping students to reach conclusions based on their own deductive reasoning, and to critically assess the plausibility of the model in question.

Course Structure and Evaluation. The course is structured on two main modules. In the first module, students are exposed to classical and contemporary theories of economic growth and development. In this module, the lecture contents are heavily based on the main contributions of the theories to understand differences in living standards and policy implications for the developing world. The second module addresses in greater detail specific common issues developing countries face, such as poverty, inequality, and human capital. Lectures in this module are designed for group discussion and debate around the relevant topics. The engagement by students in such activities creates valuable spillovers that frequently benefit the entire class. In addition to lecture engagement, some students make use of extra meetings with personalized attention. I make sure all students understand how important these meetings are for solving questions and filling some gaps in mastering concepts there were not entirely understood. I am always open for meeting students even outside pre-arranged office hours. I am pleased to see the students' acknowledgments of the usefulness of such meetings in their end-of-semester evaluation comments (see students' comments below).

Students are evaluated according to their demonstrated ability to understand and precisely express complex and relevant concepts. Throughout the semester, students are asked to solve problem sets, which are divided in two main components: the first is conceptual, and it is designed to fix important definitions and ideas; the second component is empirical. Students are asked to apply statistical tools to analyze a given data set in light of the theories discussed in class. Additionally, I introduce important scientific articles to be discussed in class. Students have the opportunity to summarize and critically analyze these articles, which often generates more engagement in discussions during the lectures. Another important component of evaluation is the elaboration of a class project, which consists in analyzing a developing country of their choice. The objective of the project is to develop students' abilities to independently think about and to put in practice the vast number of concepts, theories, and methods learned throughout the course. Finally, in-class exams and participation in class discussions make up the remainder of the evaluation mechanism.

Students' Feedback on Development Economics course. Throughout my teaching experience, I have sought feedback from students. The many positive comments I have received from students and their overall evaluation scores reinforce my confidence about the effectiveness of my approach to teaching. Below are some (anonymous) comments I have received on different occasions, as well as evaluations from the students for the Development Economics course:

- (1) "The instructor was well-prepared in the class. His course is in a good logic system. It expanded my view of development economics."
- (2) "Good explanation of course material"
- (3) "Good at presenting material in an understandable, concise manner."
- (4) "Very thorough, explains things clearly, nice, approachable."
- (5) "I think Henrique was very enthusiastic at all times and would really try to explain things thoroughly. The overall information I gained was extremely rewarding."
- (6) "I've taken Latin American Economies and well as International Economics, so I've had some familiarity with 'development economics'. However, using Excel was most beneficial. Enjoyed the 'applied approach'."
- (7) "Patient and well prepared."
- (8) "The instructor always explains the lectures clearly."
- (9) "Goes over material well, ensures all questions are answered."
- (10) "Major strength is his passion for the material."
- (11) "Very knowledgeable about the topics."
- (12) "Good, clear lectures."
- (13) "Easy to communicate with, fair with grading, flexible with scheduling."
- (14) "Organized, approachable, knowledgeable."
- (15) "It provided me with a different view of the world."
- (16) "Lectures were interesting, could tell you knew a lot about the subjects"
- (17) "Very thorough, explains things clearly, nice, approachable."
- (18) "Very passionate and well read."
- (19) "Goes over material well, ensures all questions are answered."
- (20) "Major strength is his passion for the material."
- (21) "Very knowledgeable about the topics."
- (22) "Good, clear lectures."
- (23) "Easy to communicate with, fair with grading, flexible with scheduling."
- (24) "Knowledge and willingness to help"

TABLE 1. Summary of Course Evaluations for Development Economics

Term	Mean	Median	Mode	Std. Dev.
Summer 2017**	5.0	5.0	5.0	0.0
Spring 2017*	4.4	5.0	5.0	0.8
Fall 2016	4.0	4.0	4.0	0.9
Spring 2016	4.0	4.0	4.0	0.6
Fall 2015	3.4	4.0	4.0	1.1

The numbers represent the average students' response to the statement: "Rate the instructor's overall teaching effectiveness". Numbers range from 1, which stands for exceptionally low, to 5, which denotes exceptionally high.

* Rated as "Excellent" on the Instructor and Course Evaluation (ICES) questionnaire forms

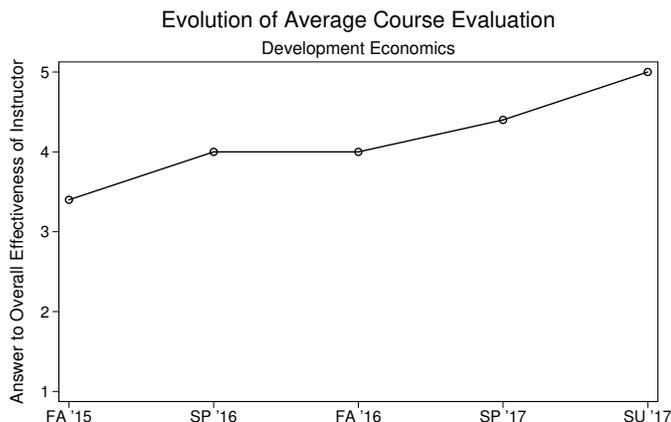
** Rated as "Outstanding" (Top 10%) on ICES forms.

Besides the institutional end-of-semester evaluations, I frequently ask students for a mid-semester informal feedback to gain insight on how they feel about the course and their expectations for the remainder of the semester. I use the information obtained by their feedback to make any necessary modifications or adaptations. One example of a situation in which I benefited from early feedback and had the chance to address the issue in the course of the semester can be summarized by the following anonymous suggestion regarding things that might be approached differently on the course: "Looking at certain developing countries specifically who may be experiencing what we're learning about." Because of feedback such as this I was able to soon realize how important it is for the students' learning to always make the connection between the knowledge acquired in the classroom and real-life situations. In the lectures that followed, I have always tried to fit examples of developing countries struggles related to the topic in question. Below are examples of mid-semester informal feedback received in different semesters:

- (1) "Overall very interesting content. Lecture slides are very helpful and informative. The pace is perfect and the workload is manageable. Really like this class! My favorite Econ elective so far"
- (2) "Lecture material is very interesting so far!"
- (3) "Probably the most straightforward Econ class I have ever taken."
- (4) "Really enjoying the class!"
- (5) "I enjoy the laid back atmosphere, and there is no hesitation if I need to ask a question or make a comment."

Concluding Remarks. The biggest challenge I face in teaching Development Economics is understanding the different levels of expectations by the diverse student body prior to the beginning of the course. Being able to meet these expectations, and being able to avoid frustration or loss of interest in the subject are challenges that require a great deal of daily effort, passion for the profession, and some creativity in the teaching process. The first few semesters of teaching Development Economics proved to be extremely challenging in this respect. Fortunately, the experience acquired throughout the semesters has helped me to create and maintain a channel of mutual respect and trust with the students, providing me useful knowledge about their most compelling needs and aspirations. I am very pleased to

see the improvement on the overall satisfaction of the students with the course, as shown in the figure below. It convinces me that the steps I have been taking to improve myself as a teacher have been reverberating among them.



The numbers represent the average students' response to the statement: "Rate the instructor's overall teaching effectiveness". Numbers range from 1, which stands for exceptionally low, to 5, which denotes exceptionally high.

TEACHING ECONOMICS STATISTICS II

I also had the opportunity to be an instructor of an undergraduate-level Economics Statistics course for three consecutive summers. My teaching methodology applied to Statistics involves a higher dosage of practicing examples and exercises, compared to teaching Development Economics. I believe the learning process of statistical methods and definitions are better understood with the right amount of practice. During the lecture time, whenever I present a new topic, I immediately apply that specific topic to a real-world situation, engaging students in the solution process. Next, I present a couple of different examples involving the same concepts and I ask the students to work on solving them by themselves.

The summer courses at UIUC usually have a different dynamic compared to regular semester courses. During the regular semesters, lectures take place twice weekly, but during the summer session lectures occur four times each week. This means covering the same material in half of the time. The effort required to engage the students and to avoid overwhelming them with the work load is more strenuous compared to regular semester courses. I have been experimenting with different ways to implement my teaching methodology on the summer courses, exploring students feedback, and conducting my own critical assessments for improvements. I believe the courses have been improving over the years, as suggested by the overall students satisfaction with my teaching effectiveness (shown below).

TABLE 2. Summary of Course Evaluations for Economics Statistics

Term	Mean	Median	Mode	Std. Dev.
Summer 2016	4.2	4.5	5	0.9
Summer 2015	4.2	4.0	4.0, 5.0	0.7
Summer 2014	3.9	4.0	4.0	1.0

The numbers represent the average students' response to the statement: "Rate the instructor's overall teaching effectiveness". Numbers range from 1, which stands for exceptionally low, to 5, which denotes exceptionally high.

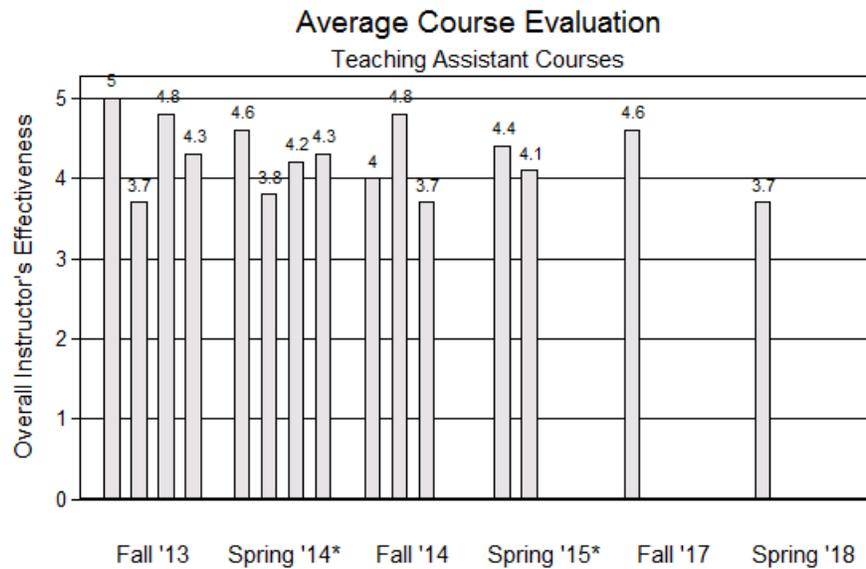
Below are some of the comments students wrote at the end of these courses as part of the UIUC Course Evaluation process:

- (1) "You can tell he really knows the material, which is probably the most important part of being a teacher, in my mind."
- (2) "Patient, asks class questions."
- (3) "Concerned with well-being of students."
- (4) "He was kind and tried his best to accommodate students."
- (5) "Very understanding and nice. Good at explaining"
- (6) "Very good at explaining and seems to be very knowledgeable about stats."

TEACHING ASSISTANT EXPERIENCE

I initiated my teaching career at UIUC as a teaching assistant for the undergraduate-level Microeconomic Principles course during the Fall of 2013. The broad economic, social, and cultural diversity I found among the students has had a great impact on my views on the responsibilities and objectives of being a teacher. I soon realized that one important commitment of a teacher is not only to acknowledge but to embrace and encourage diversity in the University environment. My own personal experiences have also helped me to appreciate students aspirations and struggles in their academic progress; I was born in and have spent a large fraction of my life in a socially and culturally diverse country, Brazil. To draw attention to and engage students debate about the importance of respecting individual differences, I have recently added the topic of discrimination to my Development Economics course, discussing scientific studies on economic causes and consequences of different sources of discrimination, such as gender and race discrimination, in the labor market.

As a Teaching Assistant, I have had the opportunity to teach a list of different courses – from Microeconomic Principles to Economics Statistics and Intermediate Macroeconomic Theory – for students in different levels of their undergraduate programs. This accumulated experience has helped me to incorporate a range of different approaches to my teaching methodology, and has contributed to improvements of my teaching skills. The graph below shows the average rating in each of my sections from the different semesters in which I have worked as a teaching assistant at UIUC. The scale ranges from one to five (with five being the highest overall teaching effectiveness).



* Rated as "Excellent" on the Instructor and Course Evaluation (ICES) questionnaire forms

I had the honor of being awarded the Robert E. Demarest Memorial Teaching Award, as a recognition of outstanding performance in the classroom, in the end of the Spring semester of 2015. Receiving this award further motivates me to be constantly learning and developing new ways of teaching in an effective manner.

Below are some comments made by students at the end of different semesters as part of the UIUC teachers' evaluation process:

- (1) "He was very good at teaching and answering questions. Helped me realize what I want to study."
- (2) "The course was really exciting and fun. I learned new things."
- (3) "Seems to know about all topics."
- (4) "He is very nice and his class is helpful, efficient and attractive. His lecture content is perfect and of great help to me!"
- (5) "Covers all material well. Class is fantastic, why do you pick econ?"
- (6) "Well informed instructor. Good at teaching and well-versed with the subjects."
- (7) "Excellent knowledge of the subjects, made it easy to understand."
- (8) "Was always prepared and expected his students to participate in class. Did a good job in helping understanding. I definitely benefited from going to discussion."
- (9) "Organized, clear, passionate."
- (10) "Good person. Easy going."
- (11) "Intelligent, focused."
- (12) "Presented examples and walked students through them."
- (13) "Great explanations, very helpful."
- (14) "He was very knowledgeable about the subjects."
- (15) "Great in explaining and is approachable."
- (16) "Taught well with clear direction."
- (17) "Great job explaining new content"

- (18) "Great at explaining. Very prepared and patient. The practice exams helped a lot as did the homework and Henrique's explanation of it."
- (19) "He explains the math steps/procedures clearly, which helped a lot in preparing for exams."