GREETINGS FROM THE CHAIR

I am very pleased, as departmental chair, to introduce you to the premier issue of what we hope will become a welcome link between the Department of Economics at Brown and its many alumni and friends.

This is an exciting time for the department. We are currently undertaking four faculty searches, two senior and two junior. We have also applied for a number of additional positions as part of President Simmons’s initiative for academic enrichment. The President is working with us to build an endowment for the department that will provide flexible funds that we can use to provide better resources to the faculty, bring in top quality scholars as short-term distinguished visitors, and attract the most promising applicants to our graduate program. As George Borts tells us in his article we are now using Robinson to its capacity. To house the new faculty we have been given 6 additional offices in a nearby building (Blistein House).

I have tried in putting this newsletter together to give you a sense of the intellectual excitement that is at the core of this department at Brown. In addition to Borts’s article, I have included excerpts from a speech given by Peter Howitt at the occasion of the dedication of the Lyn Crost Chair, which he now holds, an article by Louis Putterman, who has been working for the last several years in the area of experimental economics, and a summary of a project by Ignacio Palacios-Huerta and a coauthor on a subject near and dear to the hearts of many academics—how do we establish which scholars and papers are the most influential? I have also included summaries of the research of one graduate and two undergraduate theses currently underway.

I hope you will find the articles engaging and that you will take the opportunity to provide suggestions and comments. You can reach me by email at afoster@brown.edu, or through the mail at Economics Department, Box B, Providence, RI 02912. Andrew Foster, Professor and Chair

A letter to Alumni and Friends,

I have been asked by Professor Andrew Foster, Chairman of the Economics Department, to describe the changes that have occurred in the department over the years since you graduated. I have a longer memory of Brown than my colleagues. It is likely that you would not know all their names, nor realize how many you outrank in age.

When I came to Brown at the close of the Wriston era, there were 10 faculty in the economics department. Today there are 30. We had perhaps a dozen graduate students, who like their present counterparts, took courses, carried out research, and helped with the teaching of undergraduate conference sections and the grading of exams. Today there are 80 graduate students.

Income Inequality and Economic Growth*

By Peter Howitt
Professor of Economics and Lyn Crost Professor of Social Sciences, Brown University

Thank you President Simmons. I am gratified to be receiving this recognition from my University. I feel especially honored to be the first occupant of a chair named after someone as dedicated to the cause of truth and justice as Lyn Crost was. In the first chapter of her “Honor by Fire” she told of how after leaving here and moving to Hawaii she was given her first job by a Brown Economics Professor. So I feel as if the torch has been passed back to the Economics Department, and I am proud to be the one charged with holding it.

* Excerpted from a speech made at the dedication of the Lyn Crost Professorship of Social Sciences, Pembroke College, Brown University, September 17, 2002.
Borts continued

We are still located in Robinson Hall, having created barely enough work space by converting all but one classroom into office cubicles and transforming the basement from a storage area for stuffed birds who escaped the John Hay to rooms for computers, grad student desks, and a microwave oven. If you are old enough you will remember that at one time, the building boasted a single telephone, steam radiators were omnipresent, and air conditioning consisted of open windows. Today it is a maze of wires, with enough wattage to serve computers, copiers, printers, phones, and FAX machines, and sufficient heating/cooling capacity for a commercial bakery or an ice cream factory.

Intellectually, academic economics has changed in many ways. It has become more theoretical and mathematical. There is more theory to teach and much of it cannot be understood without a mathematical approach. Nevertheless, we still try to make economics intuitively digestible, because economics is not a branch of mathematics. It is a social science. Much of the work is still highly empirical and oriented toward economic policy. Because the majority of students are more mathematically mature than they were in previous generations, it has become possible to increase the theoretical content of the undergraduate curriculum, the opposite of “dumbing down.” Many of the topics that were taught to graduate students a few decades ago are now part of the undergraduate curriculum.

Another change has occurred in the identity of the topics that are taught. In the micro area, there is much more interest in bargaining and strategic behavior in market situations involving a small number of participants. Here the possibility of understanding how the market arrives at equilibrium prices and allocations depends on the modelling of strategy and interactions between a few participants. This is very different from the basic models of competition and monopoly taught in the past.

Macroeconomics has expanded in scope to include investigations of economic growth, strategic behavior between government and individuals, inflation, and technological change. The finance area was at one time the study of laws, institutions, and corporate practices. Today it is a highly theoretical (and still empirical) field focusing on risk taking behavior and the pricing of risky assets. Econometrics is now more integrated into economic theory, and much of the modeling focuses on explanations of the observational implications of various theories under conditions of uncertainty and randomness.

At the same time that the subject has expanded in scope and complexity, there is much less certainty in the economics profession about the ability of economists to predict the future or to give advice to government and business. Part of this attitude may arise from the inability of a trained economist to comprehend all the branches of the discipline. There is just too much literature to stay abreast of it all. And as you might expect, there are many more economists today than any time in the past. I like to think that they are smarter and more modest in their expectations.

“How would you rank different web pages according to their importance? How would you measure the impact of specific legal precedent on current legal decision making? How would you measure the impact of the academic publications and the quality of the scholarly productivity of Brown’s faculty using the citations that their research receives?”

All the questions above share the same basic problem. They all involve determining how to measure influence or importance using the information contained in the citations of one document by other related documents. Analyses of citations are used in a variety of fields to establish the importance of particular entities and individuals. In academia, the number of times one’s research is cited by other scholars is used widely as a management tool for making decisions on hiring, promotion, and salary at virtually all academic institutions in the United States and other countries. The department of economics at Brown is no exception.

Despite the apparent relevance of these questions, the methods that are used are rather primitive. They basically involve “counting” citations. In fact, “counting” is already a well-established method of empirical research in law, economics, sociology, and academic administration.

Clearly, however, the use of citation counts must be approached with great caution. A principal criticism is that the number of citations may be a poor proxy of what is really of interest, whether it is reputation,
Experimental Economics Takes Root at Brown

While economists have always tried to approach their subject matter scientifically, they once assumed that the experimental method, central to the natural sciences, could not be used in their own field. In recent years, though, an increasing number of economists have been turning to the laboratory to test their theories. Using the experimental method, researchers have found strong evidence for many basic economic theories, but occasionally they’ve found anomalies, leading to adjustments in the theories (as in the now classic experiments on preference reversal). Experiments have been particularly useful in studies of microeconomics, game theory, and externalities.

The still young field of experimental economics has lately spread to many economics departments, including Brown’s. Professor Toby Page, who had collaborated on experimental research with former colleagues at CalTech, has been offering an undergraduate course on experimental economics since the early 1990s. When Brown colleague Louis Putterman became interested in the experimental approach in the late 1990s, the two teamed up to design a series of experiments. Since the 1999-2000 academic year, they and their students have conducted more than seventy-five experimental sessions at a CIT computer lab, with almost 1200 Brown undergraduates from every class and concentration participating as subjects. Their research has been supported by several grants, including major funding from the National Science Foundation.

See Putterman, page 6
Risk and Strategic Behavior in Final Offer Arbitration

My thesis is an empirical study of Final Offer Arbitration (FOA) in Major League Baseball. It will also provide a theoretical background of the type of formal models that may capture the observed behavior of the parties involved in this process. To provide some background, FOA is a process in which two disputing parties submit a final offer to an arbitrator; he then chooses one final offer or the other. This differs from conventional arbitration in that the arbitrator is not permitted to compromise the demands of the parties. Game Theory analysis suggests that the arbitrated settlement will lie outside the bounds of Nash equilibrium. Thus, the FOA mechanism is designed to provide an incentive for the parties to reach a negotiated settlement.

It has been well documented that the traditional Game Theory analysis holds true in baseball—most players who file for arbitration settle outside of court. However, using statistical data from Major League Baseball, we are able to gain a great deal of knowledge about the types of players who go through the arbitration process. For instance, are journeymen players or superstars more likely to see arbitration through to completion? In other words, which specific human capital characteristics in this labor market are a determinant of particular outcomes? Also, what kind of an impact do increasing salaries and other varying aspects of the labor market for professional players have on the arbitration process? Do we see evidence here of a classic Ultimatum Game, that is of a downward sloping demand for fairness? It will be my effort to answer these questions through a detailed empirical analysis of all players who have participated in the Baseball’s FOA process since its inception in 1974.

Matthew Accornero

The Impact of Drug Formularies on HMO Bargaining Power

In the last twenty years, health maintenance organizations (HMOs) have become an increasingly important institution in the world of health care. The main objective of these organizations is to provide health care at the cheapest cost possible by emphasizing preventative health and restricting unnecessary expensive medical purchases. One of these measures, and a fairly new invention, is the drug formulary, which is a list of all the available drugs that an HMO subscriber can purchase without paying the full price out of pocket. While the formulary is best known to control costs by substituting less costly drugs for more expensive drugs that are considered chemically equivalent, the effect of the formulary on an HMO’s ability to negotiate lower wholesale drug prices from pharmaceutical companies has been less studied.

In my thesis I will study the ability of the drug formulary to secure lower drug prices with respect to theories of buyer size and product substitutability using formularies from HMO’s from all around the United States. While economic theory states that large buying groups will possess greater bargaining power, evidence exists showing that drug formularies may be able to shift bargaining power by increasing the level of competition between drugs of similar therapeutic classes. Through investigation of drugs placed on HMO formularies I hope to gain insight into how the formulary may affect HMO bargaining power.

Vilas Patwardhan
Pedro DalBo earned his Ph.D. in Economics from UCLA in 2002. His dissertation was titled “Essays on Repeated Games.” Among his research interests are Microeconomics, Empirical Finance, and Applied Microeconomics. He is working on new research related to testing the number of regimes in switching models.

Brian Knight earned his Ph.D. in Economics at the University of Wisconsin-Madison in 2000. His research focuses on fiscal federalism and fiscal institutions. Since 2000 he has served as an economist in the Division of Research and Statistics at the Federal Reserve Board.

Sean Campbell earned his Ph.D. in Economics from the University of Pennsylvania in 2002. His dissertation was titled “Essays on Regime-Switching in Economics.” Among his research interests are Applied Econometrics, Empirical Finance, and Applied Microeconomics. He is currently studying the relationship between corruption and the quality of politicians.

New Faculty in the Department of Economics

Econ DUG,
Economics Department Undergraduate Group

The Economics Department is pleased to announce that the Econ DUG, the Economics Department Undergraduate Group, is resuming its activities this academic year. The purpose of the Econ DUG is furthering the interests of the Economics Undergraduate Community at Brown University. Some of the organization’s main goals are:

1. Foster increased communication and outside classroom interaction between faculty and undergraduate students concentrating or interested in Economics.
2. Foster interest in Economics and in Economic Research, on the part of undergraduate students at Brown University.
3. Provide guidance to undergraduate students as they pursue their academic development within the Department of Economics at Brown University.

If you have ideas or questions, please e-mail econdug@brown.edu.

Palacios continued

the proliferation of arbitrary rankings and ad hoc measurement methods, and the important role that these questions play in personnel decisions in academic institutions and in the study of many socioeconomic phenomena of interest, it is somewhat surprising that neither the authors that propose these methods nor those who use them, have tried to justify these methods of adjustment formally.

The result is that, in terms of quality, the information content of the network of journals, patents, webpages, publications, and all other forms of documentation that play a paramount role in the exchange, dissemination, and certification of scientific knowledge is little understood.

In a new research paper entitled “The Measurement of Intellectual Influence,” Ignacio Palacios-Huerta an assistant professor at Brown and his co-author Oscar Volij from Iowa State University take an entirely different approach. They bring economic methodology to bear on the “ranking problem.” Specifically, rather than assuming arbitrarily a method that “seems reasonable”, they derive a procedure for measuring influence based on a series of axioms or basic principles.

Applying this axiomatic approach, Palacios-Huerta and Volij obtain a remarkable result. They find that a unique ranking method can be characterized by means of four simple desirable properties. Moreover, this method is both easily implementable and differs significantly from the measures regularly used in social and natural sciences, arts and humanities, and computer science.

The presence of such an index cannot, of course, substitute for the careful exercise of judg-

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Early 1990’s was a very interesting period in the history of Poland and its region. The rapid change of political and economic systems underway had no precedent in history. Problems of the new economic reality became the number one topic of public debates. Issues of inflation, budget deficit and unemployment quickly seized newspaper headlines. Disputes about privatization and trade liberalization in the new democratically elected parliament were heated and engaging. Everyone wanted to know more about these new issues. It is no wonder that in this environment many young people wanted to study economics. I was among them when I decided to major in economics at the Warsaw University in 1993. I eventually earned a Masters degree and decided to pursue a doctorate.

I came to the Brown Ph.D. program in 1998. What struck me the most about graduate school was how different it was from any experience of being a student I had before. Despite having to read textbooks, attend lectures, solve homework problems and cram for midterms and finals one very quickly realizes how close to the frontier of research he is. Studying no longer means taking the existing explanations as given. It becomes about understanding assumptions and questioning them, about thinking of the next step in the analysis or about an entirely new and better explanation. Realizing this is an exciting and unique experience.

In my research I have stayed true to my original inspiration from aggregate phenomena and concentrated on macroeconomics. I focused my attention on issues of economic growth, a field of economics in which Brown’s Economics department is particularly strong. In my work I look at differences in productivity, which are an important source of the enormous disparities of income among countries. I try to understand what causes productivity to be very low in some countries and how it can be improved.

This is most likely my last year at Brown. I have already passed on the captainship of the department soccer team to the “younger generation”. Next year I hope to graduate and continue my research as an assistant professor of economics at another university. And perhaps someday start advising graduate students.

Michal Jerzmanowski
Econ Graduate Student
their favor. The result is a theoretical framework that allows us to study in detail how economic growth depends on institutions, policies, customs, laws, and other factors that affect people’s willingness and ability to invest in technological change.  

The theoretical framework is too technical and complicated for me to present in detail in my brief remarks today, but let me just tell you about one important equation:

\[
\text{Long-run growth rate} = \text{frequency} \times \text{average size of innovations}
\]

This is no deeper than the advice to the runner: take longer strides, and more often. Nevertheless it is a useful equation to keep in mind when analyzing the determinants of long run growth.

**Confronting the theory with evidence**

When we examine the record of the richest countries of the world over the second half of the 20th Century we don’t see the widening income gap I talked about earlier. Instead, we see a kind of convergence. The proportional gap between the richest and poorest of the 20 most advanced countries is only half today what it was in 1950. This creates a challenge for our theory, given that there are large differences in institutions, customs, regulations, etc., among these advanced countries, and some of them invest much more heavily than others in R&D. Why have those with bigger R&D investments not continued to widen their lead over the rest?

Our theory explains this process of convergence as a result of technology transfer. Suppose one country were to reduce its R&D investments. In the short-run it would indeed start to fall further behind the others because the frequency of innovations would fall. But as long as it continued to make some investments in R&D it would find that the further behind it falls that bigger is the average size of its innovations, because the typical innovation would incorporate global technological knowledge that has advanced a long way since the previous innovation in the same sector in that country. This “advantage of backwardness” as the economic historian Alexander Gerschenkron called it, would dampen the fall in the country’s growth rate, and it would continue to do so until the rise in average size of innovations finally offset the fall in frequency (recall the equation I described a moment ago). The implication is that all countries should end up growing at more or less the same rate as the very richest country in the long run, as we appear to have observed within the most advanced countries over the past 50 years or so.

This doesn’t mean that the level of productivity should be the same in all counties. Those who invest little in R&D will grow as fast as those that invest a lot, but only after their productivity has fallen far enough below the others. This prediction of the theory is confirmed by the evidence that there are indeed large differences in productivity across countries, even among the richest, and that these productivity differences account for at least 50% of income differences across countries.

**The puzzle deepens**

This raises a further problem however, which is why the force of technology transfer that we think accounts for convergence among the richest countries in recent decades was not working over the longer period of time since the Industrial Revolution, where we have seen the “Big-time divergence”, to use Lant Pritchett’s term, that we set out originally to explain. Moreover it leaves unexplained the fact that the proportional income gap between the United States and the very poorest of countries continues to widen, and is now about twice what it was in 1950.

As the above equation makes clear, any explanation of divergence must work through the frequency or size of innovation. Given the advantage of backwardness, which tends to raise the size of innovations of countries that are falling behind, the most likely channel is frequency. Our hypothesis is that preexisting productivity differences have become magnified since the Industrial Revolution by the increasing complexity of technology, which has raised the cost and skill requirements of technology investment, and has given an advantage to nations with advanced scientific institutions. This trend of increasing complexity started sometime in the late 19th Century, with the increasing interdependencies between science and technology, and with the advent of the modern R&D Lab, starting with Edison’s Menlo Park.

Because of increasing complexity, countries not at the cutting edge of technology suffer a disadvantage of backwardness, because they may be unable to afford the skills, infrastructures and scientific institutions needed to take part in global technological progress. Their “absorptive capacity” is reduced and they benefit less from technology transfer. The result is a fall in the frequency of their innovations.

For countries in an intermediate situation, behind the frontier but still making substantial investments in technology, this disadvantage will eventually be overcome by an increase in size of innovations,

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through the process I just described; after a long period of falling further behind the leaders they will eventually start growing as fast as the leaders.

But for countries whose investments in technology are too small, the advantage of backwardness will not be enough to stabilize the gap separating them from the technological frontier. The theory predicts that these countries will fall further and further behind, and that eventually they may fall into a poverty trap from which it is hard to emerge. They are increasingly poor relative the world’s richest countries because they lack skills, infrastructure and scientific institutions, and they lack those things because they are so poor. Breaking out of such a vicious circle may well be beyond the capacity of the world’s poorest countries in the absence of help from the rest of us.

Howitt continued

Palacios continued

ment in terms of the quality and importance of research that must enter any decision about hiring or promotion to tenure. It does, however, provide a critical framework for thinking about what constitutes intellectual influence and for determining how the extensive data on citations can best be utilized to inform this judgment.

The development of a new and theoretically grounded index of influence opens up a whole variety of research directions. The measure can be applied to citations data such as legal decisions and web pages in addition to academic papers. One can evaluate the extent to which rankings done in this way differ from more traditional measures. One can assess how this measure relates to more qualitative measures of influence.