

# The George J. Stigler Center for the Study of the Economy and the State

George Stigler founded the Center for the Study of the Economy and the State at the University of Chicago in 1977. It has from the beginning been a joint enterprise of economists and legal scholars at the Graduate School of Business, Department of Economics and Law School of the University of Chicago. The Center was renamed in George Stigler's memory after his death in 1991.

The Stigler Center is dedicated to the study of the effects of political life on economic life and the reciprocal effects of economic life on political life. That is not a very restrictive program, since there are few areas of our lives where neither economics nor the state intrudes. To carry out its mission, the Stigler Center supports research of faculty at the University of Chicago and of visitors from other academic institutions. The Center publishes a Working Paper series, and it promotes the dissemination of this research to a wider audience via conferences and lectures.

The Stigler Center contributes importantly to the continuity and growth of 'Chicago Economics,' which is known worldwide for two attributes:

- A tough-minded professional style that views economic theory not as an end but as a tool to assist in understanding the real world
- A lively appreciation for the working of private markets

## George J. Stigler

George Stigler joined the faculty of the Graduate School of Business and the Department of Economics at the University of Chicago in 1958. This event and the arrival two years later of Merton Miller is widely recognized as establishing the Business School as a world leader in academic research and making it a full partner in an extraordinarily fruitful cooperative research enterprise with the University's Department of Economics and Law School.

Stigler was one of the great economists of the 20th century. He made seminal contributions to the economic theory of information and oligopoly and to the economic analysis of government regulation and the public sector. Stigler received the profession's highest honors including the presidency of the American Economic Association and the Nobel Memorial Prize in Economic Science. His 1982 Nobel Prize was the first awarded to an economist whose primary appointment was in a Business School.

More information may be found at the Stigler Center's website:

<http://www.stiglercenter.org>

# *THE GEORGE J. STIGLER CENTER EXECUTIVE COMMITTEE*

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Randall Kroszner, Graduate School of Business

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David Weisbach, Law School

## **INTRODUCTION**

This *Annual Report* summarizes the work of the Stigler Center's research community during the 2003/04 academic year. Twelve University of Chicago faculty and three visitors have worked on a wide range of topics during this past year. The projects they worked on are summarized in the following pages.

The Stigler Center's mission is to support economic research about the interface between the private economy and the state. The great breadth of topics covered in this report is testimony both to the pervasiveness of public policy concerns in our lives and to the ingenuity of Chicago economists in applying economics to them. These topics include corporate governance, health, education, inequality, politics, banking and capital markets and others.

Our research community's interest in corporate governance predates the recent corporate upheavals and the subsequent legislation. We continue to do fundamental research on how governance systems work in practice, such as how much control investors in new businesses exercise over day-to-day management (Kaplan) and what is the role of non-monetary compensation ('perks') for managers (Rajan). The increasing policy interest in this area is also represented here. Examples include work on the Sarbanes-Oxley Act (Kroszner) and on the issue of whether individuals or corporations should be sanctioned for corporate crimes (Snyder).

This report includes several projects on health and health care, which has been another area of long-run interest to our research community. This includes work on medical advances (Murphy, Peltzman), drug prices and development of vaccines (Snyder) and the diffusion of medical progress to poor countries (Becker). It also includes work on some contentious policy issues such as the shortage of organ donations (Becker), the war on illegal drugs (Becker, Murphy) and medical malpractice reform (Stratmann).

Our interest in the regulation of banking and capital markets continues to grow. Some of it has been stimulated by banking crises, such as the protracted crisis in Japan (Kashyap) and the shorter but more widespread crises in Asia and elsewhere in the late 1990s. These have provoked issues such as how default on sovereign debt ought to be handled (Kroszner) and whether banking crises cause or are caused by economic distress (Rajan).

The economic analysis of the public sector has long been central to the work of our research community. Among the numerous examples of such research in this Report, some deal with fundamental issues – is economic policy systematically different under democracies and dictatorships (Mulligan). Others examine the effects of regulation of political campaigns (Stratmann). Still others analyze the impact of regulation or the legal system on specific markets (Zingales, Kaplan).

The economics of education and human capital is another area where the Center's work has contributed to ongoing policy debates. This Report summarizes work on some fundamental issues in that debate, such as the adequacy of public education funding (Neal) and the contribution of education to economic growth (Topel).

Of course, these few brief paragraphs cannot do justice to the full range of topics summarized in this report. Some of these research projects are elaborated in the Stigler Center's Working Paper series. Many of these Working Papers are available at the Center's website at: <http://www.stiglercenter.org>.

The Stigler Center promotes discussion of the issues on our research agenda before non-academic as well as academic audiences. The Center organized three important events during the year:

- The European Union selected the Center to organize, in cooperation with the Federal Reserve Bank of Chicago, a conference on the fifth anniversary of the introduction of the Euro. This conference was held at the Federal Reserve Bank of Chicago. It brought together members of our research community, regulators and business people in a discussion of the short history of the common European currency as well as the problems and prospects for the future of European monetary integration.
- The Center together with the American Enterprise Institute/Brookings Joint Center for Regulatory Studies organized a session on the recent corporate governance reforms, such as the Sarbanes-Oxley Act. This was held at the American Enterprise Institute in Washington. The session featured a talk by Steve Kaplan as well as a panel discussion with regulators and policy analysts.
- The Center and the Kellogg School of Business, Northwestern University organized the International Industrial Organization Society meetings held in downtown Chicago. This brought together a large number of academic and non-academic industrial organization economists from all over the world to exchange ideas on a wide variety of topics in the field. More detail on this event can be found in Chris Snyder's summary in this Report.

The Stigler Center's research community occasionally contributes its talents directly to public policy. This year Randy Kroszner resumed his position as Associate Director of the Center after serving a two-year term as a member of the President's Council of Economic Advisers. Randy immediately contributed invaluable guidance to the Center's research program, and he was instrumental in bringing the conference on the Euro and the session on corporate governance to fruition. Two members of our research community remain in Washington to promote sound economic policy. Raghuraj Rajan took up the position of Economic Counselor and Director of Research at the International Monetary Fund. Tom Philipson began the year as Senior Economic Advisor to the new Commissioner of the Food and Drug Administration. He then assumed the same title at the newly created Centers for Medicare & Medicaid Services.

Our accomplishments could not have occurred without the generosity of our supporters. All of the Stigler Center's research community is grateful for that support.

Finally, thanks are due to Vicki Ryberg for excellent administration of the Center's operations and its website.

A handwritten signature in black ink, appearing to read 'Sam Peltzman', written in a cursive style. The signature is positioned to the left of a vertical line.

Sam Peltzman  
Director

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# University of Chicago Faculty

**Gary Becker**

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I have worked on a variety of topics in health economics.

Tomas Philipson, Ricardo Soares and I completed a paper on the impact of increased longevity on world inequality. Usually GDP per capita is used to measure the quality of life of individuals living in different countries. The lack of convergence in this measure for the world as a whole has led to concerns about the impact of globalization of markets on world inequality. However, well-being is also affected by quantity of life, as represented by longevity. Our analysis incorporates longevity into an overall assessment of the evolution of cross-country inequality.

The absence of income convergence noticed in the growth literature stands in stark contrast to the reduction in inequality after incorporating recent gains in longevity. We compute a 'full' income measure to value the life expectancy gains experienced by 49 countries between 1965 and 1995. Countries starting with lower income tended to grow more in terms of 'full' income than countries starting with higher income. The average growth rate of 'full' income is about 140% for developed countries, compared to 192% for developing countries.

Additionally, we decompose changes in life expectancy into changes attributable to thirteen broad groups of causes of death. We find that for poor countries the greatest mortality improvement occurred in infectious and respiratory diseases. In mortality from cardiovascular disease, however, the poor countries fell further behind the rich. We also discuss the recent setback in some poor countries due to the spread of HIV/AIDS.

This paper will be published in the *American Economic Review*.

Kevin Murphy, Michael Grossman, and I have continued work on the market for illegal drugs. The current system of supply interdiction plus penalties for possession has numerous costs – the explicit costs of enforcement and incarceration and the resources devoted by buyers and sellers to evading detection and securing 'turf.' We are comparing those costs to alternative methods of restraining the consumption of these drugs. For example, one alternative that has been discussed is decriminalization plus a tax on consumption. This would replace the implicit non-monetary tax of the current system with an explicit tax. There would however be an important difference in social cost, because the current implicit tax requires an expenditure of resources by criminals and the government. Much of that expenditure would be converted to government revenue with an explicit tax.

Our analysis, in the paper "The Economic Theory of Illegal Goods: The Case of Drugs," suggests that a well-designed monetary tax on drugs could reduce consumption of drugs more than optimal enforcement of an outright prohibition. Thus it may be more effective to fight a war on drugs by legalizing consumption and then taxing it than to pursue the

current policy of criminalizing the production and sale of drugs. The optimal policy depends in part on the price elasticity of demand for drugs. We are currently working on estimating this elasticity for cocaine and heroin from data we have obtained on actual use of these drugs. (Most previous estimates use recall data on consumption.)

Julio Elias and I have continued to analyze the potential of using the price system to overcome the shortage of organs in transplant surgery. We are especially considering payment for live transplants. Almost half of all kidney transplants use live donors and so does also a growing number of liver transplants. These often come from relatives of the donee, who are both more interested and more likely to provide a medically appropriate match.

However, the potential for live transplants seems underdeveloped. Under the present system, the queues for organ transplants have continued to grow, and many persons die while waiting for organs to become available. These queues could be eliminated by allowing organs to be bought at a market clearing price. In our analysis, we integrate the markets for live and cadaver organs, and we show that the marginal donors for kidneys and livers are very likely to be live donors if the price of organs clears the market. Our preliminary calculations indicate that it would not be expensive - relative to the cost of the surgery - to clear the markets for kidneys and livers with live donors.

Richard Posner and I have begun a project on suicide. We apply an economic approach to understanding who is likely to commit suicide and who is likely to attempt suicide weakly. We try to show how both actual suicides and attempts vary with socio-economic characteristics (age, gender, marital and employment status) and other variables.

## **Steven Kaplan**

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In the last year, I have worked on the following projects.

### **Private Equity Performance: Returns, Persistence and Capital Flows**

The performance of publicly traded firms has been intensively studied. However, much less is known about venture capital and private equity funds, which have become an important source of capital, especially for new small firms that cannot easily access the public markets.

In this project Antoinette Schoar and I investigate the performance of venture capital and private equity partnerships using a data set of individual fund returns collected by Venture Economics. Over the sample period, average fund returns net of fees approximately equal the broad stock market, as measured by the S&P 500 Index. However, there is a large degree of heterogeneity among fund returns. Returns persist strongly across funds raised by individual private equity partnerships. The returns also improve with partnership experience. Better performing funds are more likely to raise follow-on funds and raise larger funds than funds that perform poorly. This relationship is concave so that top performing funds do not grow proportionally as much as the average fund in the market.

We find that entry into the private equity industry is cyclical. Funds (and partnerships) started in boom times are less likely to raise follow-on funds, suggesting that these funds subsequently perform worse. Aggregate industry returns are lower following a boom, but most of this effect is driven by the poor performance of new entrants, while the returns of established funds are much less affected by these industry cycles. Several of these results differ markedly from those for mutual funds.

This paper will be published in the *Journal of Finance*.

### **Characteristics, Contracts and Actions: Evidence from Venture Capitalist Analyses**

Venture Capital (VC) firms have a variety of contractual relationships with the firms they invest in. At one extreme the VC is something akin to a passive investor in a publicly traded firm. At another extreme, the VC can become responsible for day to day management of the investee. Per Strömberg and I study how the terms of these contracts are related to the characteristics of the projects they invest in.

We begin with the investment analyses of 67 portfolio investments by 11 VC firms. In these analyses the VCs describe the strengths and risks of the investments as well as expected post-investment actions. We classify the risks into three categories and relate them to the contractual allocation of cash flow rights, provisions for contingencies, and the allocation of control rights and liquidation rights between VCs and entrepreneurs. Our results suggest that VC contracts tend to contain greater restrictions when the quality of the entrepreneur's decisions is hard to measure. There are also more restrictions where

the investment takes a highly specialized form with little salvage value if the project fails (an R&D startup, for example). However, we find that contractual provisions designed mainly to spread risks between the VC and entrepreneur are relatively unimportant.

In general larger VC stakes in the investee are associated with increased management intervention by the VC. For a given investment stake, when the equity portion is greater the VC tends to provide more value-added support to the entrepreneur, such as advice and business contacts.

This paper will be published in the *Journal of Finance*.

### **How Do Legal Differences and Learning Affect Financial Contracts?**

Until recent years, Venture Capital firms seemed to be mainly a US phenomenon. However, they have become an important source of capital for new firms in many countries. In this paper, Fredric Martel, Per Strömberg and I study the role of differences in legal systems on the development of VC financing. One reason the US may have been the pioneer in VC financing is the generally greater legal protection for investors in US law than in other countries. Such protection would make enforcement of VC contracts easier and lessen the need for contractual complexity to overcome weak investor protection.

We analyze venture capital VC investments in twenty-three non-US countries and compare them to US VC investments. We describe how the contracts allocate cash flow, board, liquidation, and other control rights. We find that the contracts do differ across legal regimes. However, the more experienced VCs implement US-style contracts regardless of the legal regime within which they operate. In addition, the VCs who use US-style contracts fail significantly less often than those who do not. The results suggest that US-style contracts are efficient across a wide range of legal regimes.

### **What is the Price of Hubris? Using Takeover Battles to Infer Overpayments and Synergies**

In this paper, Pekka Hietala, David Robinson and I analyze the amount of information that can be extracted from stock prices around takeover contests. This work is motivated by numerous studies showing that bidders tend to overpay for targets in takeover contests. In many of these studies the gains to the target minus the bidder's overpayment are taken to be the market's assessment of the net value created by the takeover. The first part of the paper shows that it is not possible in general to use target and bidder stock price movements to infer the market's estimates of synergies, bidder overpayment, and changes in bidder and target values. In two generic cases, however, we show that it is possible to use bidder and target stock prices to obtain market estimates of overpayment.

In the second part of the paper, we illustrate one of these two generic cases through a clinical study of the takeover contest for Paramount Communications. We find that the market estimated that Viacom, the eventual "winner" of the takeover battle, overpaid by approximately \$1.4 billion when it agreed to purchase Paramount in a \$9.2 billion

acquisition in February 1994. We also find that the market believed that QVC, the eventual ``loser" of the battle, had substantially larger synergies (on the order of \$1 billion more) with Paramount than Viacom. Viacom prevailed because of its willingness to overpay by much more than QVC. This overpayment occurred despite the fact that Sumner Redstone, the CEO of Viacom, owned roughly 2/3 of Viacom. We view the results for Paramount and Viacom as strongly consistent with Roll's Hubris hypothesis as well as the results in Morck, Shleifer and Vishny (1990).

This paper was published in *Financial Management*.

## **Anil Kashyap**

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This past year I continued my work on the economic and financial crisis in Japan. The main finished product is a paper that proposes a set of policies to resolve the problems faced by the commercial banks. After describing this paper I briefly report on two other related projects.

In “Solutions to the Japanese Banking Crisis: What Might Work and What Definitely Will Fail” Takeo Hoshi and I analyze the policy choices that might be taken to end the banking crisis in Japan. The starting point for our analysis is the recognition that there is now a reasonable consensus regarding the four main problems plaguing the banking system. The first is that most of the banks are insolvent, or nearly so when properly evaluated. The second is that the banks are not currently allocating credit efficiently, and instead are directing many loans to borrowers that will not be able to repay them. The third is that the banking sector is too large (in terms of assets) to make adequate returns. The final problem is that the banks’ lack of profitability is partly related to their inability to devise high margin products that are commonplace among their foreign competitors.

We use these four observations as a point of departure for all the subsequent analysis. In particular, a natural way to define the end of the crisis is when the banking sector has shrunk to a level where it can profitably operate and the banks are once again adequately capitalized and no-longer rolling over loans to deadbeat borrowers. Recognizing this constellation of conditions as the eventual equilibrium for the industry is helpful since it identifies the set of problems that a successful policy must confront.

To assess competing policies we investigate how successful each has been in other banking crises outside Japan. We find that the main policies pursued to date in Japan - regulatory forbearance, liquidity support for distressed banks and liability guarantees for depositors - have been tried in most banking crises over the last 25 years. The evidence from other countries suggests that these policies do not typically lead to lower taxpayer costs or speedier resolution of the crisis. Our conclusion therefore is that there is no mystery as to why the Japanese crisis has persisted for nearly a decade: the policy mix has been misguided!

Instead, we suggest using alternative policies that have fared better elsewhere. The biggest single difference between the approaches pursued in other countries and the ones tried thus far in Japan relates to the role of asset management companies. These are usually set up to transfer problem assets from the banks so that the banks can be recapitalized as healthy institutions. We find that successful crisis management has involved aggressive use of asset management companies to dispose of problem loans and restructure them. For instance, the percentages of problem assets transferred by the asset management companies in Finland, Sweden and the United States were 64, 86, and 98 percent respectively. In each case the initial amount of assets transferred was about 8% of GDP. All three of these asset management companies accomplished their loan disposals within five years of establishment. By contrast, in Japan there has been little progress in removing problem assets from the banks, despite the fact that there have been 5 separate asset management companies used over the last decade.

A second important contrast was the willingness to shrink the amount of assets in the industry. For instance, assets in the U.S. Savings and Loan industry declined by 43% between 1988 and 1993. In Finland, total domestic bank assets fell by 1/3 between 1991 and 1995, while in Sweden domestic commercial bank assets dropped by 11% between 1991 and 1993. In stark contrast, the total domestic bank assets in Japan fell less than 1% in the 10 years from December 1993 to December 2003.

Finally, in the non-Japanese cases the financial institutions were decisively recapitalized and typically management was changed during the period when the downsizing and loan disposals were occurring. This has yet to happen in Japan, where instead the policy has been to incrementally and incompletely recapitalize troubled institutions and to often leave the failed management in place.

To start the process of resolving Japan's crisis we recommend a set of strict bank inspections with a consistent standard that closely monitors the health of borrowers and collateral. The scope of special inspections that the government has been conducting for major banks and their largest customers should be extended to cover regional banks and smaller borrowers. Such inspections will uncover many more non-disclosed under-performing loans.

We next suggest moving simultaneously to restructure the bad loans that are uncovered and to close the most insolvent banks. Thus, we seek to attack the lending mistakes from both the bank and the borrower side. This will be contractionary and the money that would have been spent propping up the banks should be used to provide unemployment and other transitional assistance to the displaced workers. The banks and the bad loans should be sold, to foreigners if necessary, but promptly in any case.

We also favor selective and aggressive recapitalization for the healthiest of the banks. Instead of marginal increases in capital, we propose sufficient public assistance to remove any doubts about the solvency of the remaining institutions.

These policies would take the necessary steps to start the financial system on the road to recovery. This would also put an end to the corporate "zombies" – uneconomic businesses often kept afloat by the banks. These have been holding down overall economic growth in Japan. It is a bold program, but we believe that it is particularly appropriate now that there is a bit of aggregate growth. Large scale restructuring has a better chance now than at any time in the last several years.

More details on the four problems plaguing the banks can be found in a second paper with Hoshi, "Japan's Financial Crisis and Economic Stagnation", which was published in the *Journal of Economic Perspectives* last winter. This journal was created by the American Economic Association to "fill the gap between the general interest press and most other academic economics journals." This paper draws heavily on the paper that I described in my Stigler Center summary last year.

Finally, in work with Ricardo Caballero and Takeo Hoshi I am continuing to explore the mechanisms by which the misguided bank lending to the zombies has distorted competition in Japan. We have constructed an index of the mispriced lending and found that almost 15% of loans were made at subsidized rates during the last few years. These loans are most prevalent in the least productive parts of the economy (the construction, real estate, retail and wholesaling sectors) and less common in manufacturing. The firms getting the subsidies are typically less productive and profitable than other firms. Presumably the banks make the loans out of desperation to avoid having to recognize losses that would become apparent if the loans were not renewed. We are now analyzing the effect of these subsidies on the healthy firms in the economy and on aggregate productivity.

## **Randall S. Kroszner**

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After returning from a two-year leave as a Member of the President's Council of Economic Advisers (CEA), I have been engaged in a number of research projects in 2003/2004.

At the CEA, I was heavily involved in the Administration's response to the corporate governance and accounting scandals. Building on my previous research in this area and my policy experience, I am undertaking a series of projects on corporate governance. In the "Economics of Corporate Governance Reform" I outline three basic economic principles for effective corporate governance. The first is information accuracy and timeliness so that market participants have the data necessary to monitor and evaluate managers. The second is management accountability which focuses on strengthening the incentives that managers have to act in shareholders' interests and increasing the likelihood and magnitude of punishment for wrong-doing. The third is auditor independence which reduces the incentives and likelihood that auditors would give managers more leeway to undertake bad or questionable acts. The paper then goes on to give a preliminary assessment of how well legislative reforms, such as the Sarbanes-Oxley Act, regulatory changes at the Securities and Exchange Commission (SEC), and myriad private sector responses conform to these economic principles.

This paper is available as Stigler Center Working Paper #191 and a revised version will be published in the *Journal of Applied Corporate Finance*.

In order to undertake a more comprehensive assessment of the various corporate governance reforms, Philip Strahan and I are gathering extremely detailed data on the corporate governance characteristics and board structures of publicly-traded firms to understand how they have evolved since 2000. We are looking at variables ranging from the size and composition of the board and its committees to the compensation schemes (including stock options) for executives to see how they have changed and how the market reacts to changes in such variables. We also plan to contrast the characteristics of the major firms hit by scandals with other firms and compare the characteristics of firms that are more or less easy for the markets to monitor. That is, we want to see what determines the "opaqueness" of firms. We are still in the data-collection stage but the results should help us to evaluate the impact of legislative, regulatory, and private sector responses.

I also submitted a formal comment to the SEC on their so-called proposal for "shareholder democracy" ("Comment on U.S. Securities and Exchange Commission Proposed Rule on 'Security Holder Director Nominations,'" Joint AEI-Brookings Center for Regulatory Studies, Analysis 03-13, December 2003). In this paper, I argue that the objective of any changes to the rules governing the nomination and election of board members should be to increase shareholder value. I then argue that the SEC's proposed rules on shareholder access add little to achieving this goal and have some potentially large downside risks. Rather than promulgate a new set of regulations governing the inclusion of nominees of significant shareholders in company proxy materials, I believe that the focus of reforms should be on reducing inappropriate barriers for beneficial

involvement of significant shareholders in the corporate governance of publicly-traded firms. I presented this paper at an AEI Policy Forum in February 2004 and at the SEC Roundtable in March 2004 before the SEC Commissioners.

I have also been working on the challenges of restructuring sovereign debt. In “Sovereign Debt Restructuring” and “Enhancing Sovereign Debt Restructuring” I investigate two competing aspects of the growth of emerging market debt markets. On one hand this growth has enhanced investors’ opportunities for risk diversification and broadened the investor base. However, as they become larger these markets raise potential problems of coordination and collective action in the event of a sovereign borrower’s default and restructuring.

One effect of this growth has been the involvement of international financial institutions, such as the International Monetary Fund. Accordingly now three parties are involved in determining the “debt markdown” required to produce solvency—the debtor, creditors, and the global taxpayer through international financial institutions. The complex relationships among the borrowers, creditors, and the global taxpayer have made restructuring obligations costly and time-consuming, especially due to the delay stemming from the hope that official assistance will be forthcoming. Unless and until policies for official intervention are clarified and limited, sovereigns and their creditors will face a needlessly costly and complex process for negotiation.

These two papers have been published in the *American Economic Review* and the *Cato Journal* respectively.

Finally, I also undertook two more projects related to international issues. The first is on how technological improvements have reduced the costs of currency competition across borders. The enhanced competition, I argue in “Currency Competition in the Digital Age,” in Altig and Smith, eds., *Evolution and Procedures in Central Banking*, Cambridge University Press, 2003), has been an important disciplining factor on central bank behavior and accounts for the sharp reduction in inflation world-wide during the last decade. Second, in “Promoting Economic Growth: The Productivity Challenge,” I outline four basic principles required for growth to occur: 1) competition and the importance of market – not government -- allocation of resources; 2) private ownership and protection of property rights; 3) effective and transparent corporate governance systems; and 4) macroeconomic stability and minimally-distorting taxes.

## Casey Mulligan

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Ricard Gil, Pakshun Ng, Kevin Tsui and I have been working on the effect of institutions – democracy and legal origin in particular – on public sector performance. Previous research has found that, compared to common law countries, French and other civil law countries regulate more heavily in a variety of areas, including entry of new firms and labor markets. We attempt to relate this difference between common and civil law countries to the international history of military conscription.

Specifically, France (and subsequently the countries Napoleon occupied and their colonies) developed a strong centralized administrative state that intervened in a broad range of activities. Once this system was put in place, the administrative cost of regulating additional activities on a wide-scale was reduced. As a consequence, when faced with incremental social demands (such as military manpower), France often opted for a regulatory solution. By contrast, England and its colonies did not develop such pervasive administrative states, and therefore did not opt for regulatory solutions, such as conscription, as reliably. And when common law countries did regulate new areas of life, the intervention was not as comprehensive.

We find that civil law countries are (and were) much more likely to draft military personnel rather than hiring them on a volunteer labor market. Furthermore, when compared with common law countries that do draft military personnel, civil law countries are more likely to have complicated conscription systems including numerous exemptions, deferrals, and options for buying out of military service.

We find that there is no difference between democracies and non-democracies in their propensity to use conscription. This result is part of a more general pattern that we have found: democracies and non-democracies are quite similar in terms of a broad range of economic and social policies once one takes account of any differences in the economic and demographic characteristics of their citizens.

Specifically, we have analyzed the evolution of several economic and social policy variables among non-communist countries from 1960-1990. These include several instruments of rich-poor redistribution, such as education spending, welfare spending, pension spending, the corporate income tax rate, and whether or not the payroll tax is capped. We find that the propensity to adopt these policies is affected by socio-economic characteristics such as the average age of the population and its size, the degree of economic development and the importance of agriculture. But this propensity is not affected by whether the country is or is not a democracy. The differences between democracies and non-democracies are mainly found in policies connected to the process of winning and maintaining public office including torture, execution, censorship, and regulating religion.

The findings about democracy were published in the Winter 2004 *Journal of Economic Perspectives*. They are consistent with the “Chicago political-economic school,” which states that public policies may create inefficiencies such as monopoly rights or excessive taxation, but nonetheless deemphasize specific voting institutions as determinants of

public policy. Instead the Chicago view tends to emphasize economic and demographic variables such as interest group size, group cohesion, urban location, and the technology of redistribution as the important determinants of public policies. Conflicts over policy must be mediated by any political leader (whether democratic or not), and in this view, economic and demographic variables may determine the outcome regardless of the type of political system in place.

## **Kevin M. Murphy**

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My research over the past year has focused on five areas: (1) Measuring the Effect of the Crack Epidemic, (2) The Interaction of Population and Income Growth, (3) Black-White Differences in the Economic Value of Improving Health, (4) The Economics of Illegal Goods, and (5) Markets for Influence in Politics.

**The Effect of the Crack Epidemic.** The spreading use of crack cocaine has been among the most vexing issues facing our large urban areas, especially inner cities. Estimating the impact of this crack epidemic on economic and social outcomes has been difficult because direct measures of the consumption of crack cocaine are not widely available. In an effort to compensate for this lack of data, Steve Levitt, Paul Heaton, and I develop a statistical methodology to infer the spread of crack on a city by city basis. Our methodology relies on the fact that the introduction and widespread usage of crack caused a simultaneous move in many economic, social and health related variables including homicide, employment, emergency room visits, arrests, and infant health. By tracking the degree to which deterioration in these measures move together over time in different cities we are able to estimate the dates of introduction and diffusion of crack around the country. The results of our statistical methods agree reasonably well with other less quantitative accounts of the spread of crack in various cities. The measures of crack prevalence generated by our study should help in the study of changes in the urban environment in the 1980s and 1990s.

**The Interaction of Income and Population Growth.** The rates of growth of income and population are two of the key variables summarizing the evolution of an economy. Economists have been studying the link between the growth of income and population at least since Thomas Malthus' work in the early 19<sup>th</sup> century. In the Malthusian framework growth in per-capita income would generate an increase in population, which would then reduce per-capita income (due to diminishing returns to labor). The result of this Malthusian process would be a long-run state of "subsistence" income. In such a world, any gain in per capita income from technical progress would be temporary, because higher population growth would ultimately bring per capita income back down to a subsistence level, at which continued rapid population growth was physically restricted.

The experience of industrialized economies over the past several hundred years contradicts such a simple model. In this paper we propose a simple alteration of the Malthusian model to allow for a richer set of income-fertility interactions. We find that a unified framework where fertility responds first positively and then negatively to the level of income can generate both the Malthusian result and the sustained growth in per-capita incomes witnessed in recent centuries. The key to a transition is a period of rapid progress that allows the level of income to exceed a critical threshold. Even if progress then returns to its old level, per-capita income will then continue to grow. The model can also be used to study the implications of below replacement fertility such as that being experienced in many countries of the world today.

**Black-White Differences in the Economic Value of Improving Health.** Economists typically measure economic progress by the growth in per capita income. There is a

similar focus on incomes when comparisons are made across groups rather than over time. In this paper Robert Topel and I ask a relatively simple question: how much do differences over time and across groups in longevity add to the typical measures of progress and inter-group differentials. Our analysis focuses on changes in longevity as measured from the Vital Statistics of the United States for 1968-1998. We focus on gains for and differences between groups defined by both race (black and white) and gender. Our estimates of the value of longevity are similar to many others in this part of the economics literature.

Over the 30-year period covered by our data we find that the economic value of the progress in longevity was enormous. Measured at birth, the gains for white males were about \$245,000 per person while the gains for black males were far larger, about \$390,000 per person. The gains for women were somewhat smaller with white females gaining about \$150,000 per person and black females gaining about \$305,000 per person. Measured at age 40 (an age somewhat before the onset of death from the major diseases) the gains for white and black men were roughly \$350,000 and \$500,000 respectively while the gains for white and black women were roughly \$180,000 and \$400,000.

Our data thus imply that, while all race and gender groups have gained significantly from reductions in mortality over the past three decades, there have also been significant gains for blacks relative to whites. In 1968, the economic value of the longevity gap between white and black males (per person) was about \$410,000 (measured at birth) and the racial gap for females was about \$325,000. By 1998, these gaps had declined considerably and were about \$260,000 for males and \$170,000 for females.

We then investigate how much of the gap in mortality between whites and blacks can be explained by differences in income. Our estimates suggest that about 1/3 to 1/2 of the current black-white gap can be explained by the larger average income of whites.

We also examine changes in mortality prospectively. In particular we examine the potential gain to our race and gender groups from progress against various categories of disease. We find that a 10% reduction in deaths from cancer would be worth about \$18,000 to a 40 year-old white male and \$23,000 to a 40 year-old black male. For women the corresponding numbers are \$17,000 and \$19,000. The largest racial differences are for infectious diseases (including AIDS), diabetes, hypertensive heart disease, and cerebrovascular disease.

**The Economic Theory of Illegal Goods: The Case of Drugs.** Economists have devoted much attention to the effects of excise taxes on prices and outputs, and they have discussed intensively the normative effects of these taxes. However, most of this analysis has focused on monetary taxes. Non-monetary taxes in the form of criminal and other punishments for illegal production have received little discussion. In this paper Gary Becker, Michael Grossman and I analyze the effects of punishments designed to enforce laws that illegalize the production and consumption of particular goods. We use the supply and demand for illegal drugs as our main example, a topic of considerable interest in its own right, although our general analysis applies to prostitution, restrictions on sales

of certain goods to minors, the underground economy, and other activities.

First, we provide a simple analysis that shows how the elasticity of demand for an illegal good is crucial to understanding the effects of punishment to producers on the overall cost of supplying and consuming that good. We then take account of expenditures by illegal suppliers to avoid detection and punishment, and show how this affects the optimal public expenditures on apprehension and conviction of illegal suppliers.

Optimal enforcement expenditures would depend on the difference between the private and social value of the good, but they also depend crucially on the elasticity of demand for the good. In particular, when demand is inelastic, it would not pay to enforce any prohibition unless the social value of consumption was negative and not merely less than the private value.

We then compare outputs and prices when a good is legal and taxed with outputs and prices when the good is illegal. Our analysis shows that a monetary tax on a legal good could cause a greater reduction in output and increase in price than would an optimal non-monetary tax, such as criminal penalties. This is so even when we take account of producers' attempts to avoid a monetary tax. Indeed, the optimal monetary tax that maximizes social welfare tends to exceed the optimal non-monetary tax. This means, in particular, that it may be easier to fight a war on drugs by legalizing drug use and then taxing consumption than by continuing to prohibit the consumption of drugs.

**Markets for Influence in Politics and Elsewhere.** Influencing people is important in many areas, such as politics, advertising or building a fan base for a sports team or television show. Often influence comes through networks where people are influenced by others with whom they talk and discuss news, ideas and current events. Ties made to other individuals based on a common interest in one dimension (say a given political issue) can then help transmit ideas between these individuals on other political issues or even other elements having nothing to do with politics.

Andrei Shleifer and I base our analysis of these communication networks on the idea that they are not simply created by chance. Rather firms, individuals and organizations such as political parties, religious groups and trade unions cultivate and nurture these networks to meet their own ends. How these organizations use these networks can also either strengthen or weaken the network itself. For example, spreading ideas on which members already agree will strengthen the network and make it easier to influence its members in the future. Spreading ideas on which members disagree initially will influence the members of the network but may come at the cost of reducing the network's cohesiveness.

The dynamics of these networks follows mostly from the idea that individuals are most easily influenced by other individuals with whom they agree on other (perhaps unrelated) issues. Hence, forming a network of like thinking individuals allows those same individuals to be more easily persuaded to think alike on other issues in the future.

Our first application of these ideas has been to politics. In “Persuasion in Politics” we review some empirical regularities from social psychology and public opinion research. First, beliefs are flexible and can be relatively easily influenced, particularly in areas where people do not have significant personal involvement. Second, people are often persuaded by those they personally interact with. Such influence from friends, co-workers and other “discussants” significantly affects decisions on whether and how to vote. Third, in the political arena, voter awareness of specific issues is quite low, and hence susceptibility to persuasion is high.

We use these three regularities to develop a model of the creation of social networks, and of their use by politicians to obtain support. These networks can be formal organizations, such as parties, unions or political action committees, or they can be informal, such as listeners to Rush Limbaugh’s radio show. The key idea is that people are influenced by those inside their network, but much less so by those outside, because those inside a network talk to and persuade each other. Networks are created by entrepreneurs using core issues that are centrally important to members, such as religious beliefs or union wages, but can then be “rented out” to politicians who seek votes as well as support for other initiatives and ideas, which might have little to do with their members’ core beliefs.

This paper has been published in *American Economic Review Papers and Proceedings*.

## Derek Neal

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In the past year, I continued my work on measuring black-white inequality and understanding the role of education and skills in determining the racial wage and income gaps we observe. I wrote three new papers on these topics.

In “Resources and Educational Outcomes among Black Children,” I discuss the common argument that the remaining black-white skill gaps among children is due to under funding of public schools in black neighborhoods. I show first that the argument is factually wrong, because public schools in black neighborhoods are, on average, funded at the same levels as schools in white communities. I then point to the relative decline in family resources available to school-aged children in black families over the past two decades. The continued rapid rise of single-parent families in the black community after 1980, and growing incarceration rates of young adult black men over the past decade or more, have widened the resource gap between black and white families. This paper will be included in a forthcoming Brookings volume that contains papers from a Harvard conference that looked back at black progress in education since the Brown decision in 1954.

The second paper, “Data Problems and the Measurement of Racial and Gender Wage Gaps over Time,” co-authored with Nathaniel Baum-Snow, shows how a particular form of measurement error in census data led some government agencies to greatly overstate the economic progress of blacks, especially women, during the 1970s, and also to overstate the lack of economic progress among blacks after 1980. The reason for the mistake is simple but surprising. Wages are calculated as earnings divided by hours worked. We show that a significant fraction of people who respond to the census questions on usual hours worked per week answer as if they are responding to a question on daily hours worked. We estimate the frequency of this error by comparing answers to similar questions in other data sets. It is clear that the frequency of the error is correlated with gender and race and also varies over time. Anyone who answers 8 hours when they mean 40 will show wages that are 5 times higher than the actual wage, because weekly earnings will be divided by 8 when they should be divided by 40.

We then show that blacks were especially likely to make this error in the 1980 census. Accordingly estimated black wages in that year, especially wages of black women, are greatly inflated. Consequently, the progress up to 1980 and the lack of progress after 1980 are also exaggerated.

In the third paper, “Has Black-White Skill Convergence Stopped?” I discuss some disturbing recent trends in the skills of black children. I show that up to 1990 there had been more than a half century of steady convergence between black and white children in terms of measured skills or attainment levels. This came to a halt in 1990. The gaps that remain are large, and they emerge early in life.

One explanation for these gaps has been that racial discrimination in the labor market makes the return on investment in skills smaller for blacks than whites. I show in great detail that this common argument is entirely implausible. In fact, measured returns to

skills have been at least as high for blacks as for whites (and often higher) for at least the last two decades. Once again, shrinking resources within families that raise black children may be the most important problem.

This paper will appear in the *Handbook of the Economics of Education*.

## Sam Peltzman

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I have continued to work on a project on the behavioral consequences of medical breakthroughs. This is an empirical investigation of whether large, unexpected improvements in medical technology lead to changes in risky behavior. Thus, suppose there is a significant invention, such as a cure for cancer. Once implemented, this will substantially reduce mortality rates. But, I argue, this advance will also induce changes in behavior that can affect mortality.

Some of these behavioral changes can be favorable, such as the freeing up of medical researchers to work on other diseases. But other responses can work the other way. For example, resources (including time, effort, etc.) formerly devoted to avoiding or treating cancer can also be shifted to other activities that people enjoy but which also entail health risks. My project focuses on these latter sorts of responses.

The first phase of the project analyzed mortality data from the period surrounding the introduction of antibiotics and other anti-bacterial drugs. This was arguably the most important medical advance of the 20th century. So this period should show whether the possibility that medical advances encourage behavior with collateral risks has any empirical content. I found that the evidence was broadly consistent with the view that part of the health benefits from antibiotics was offset by increased mortality from non-infectious causes. This was true both in the US and in most other developed countries.

This earlier work is summarized in Stigler Center working Paper 177.

My ongoing work in this area is focusing on a newer medical breakthrough, the treatment of heart disease. While there is no single cause, and while the effects are not as profound as the antibiotic advance, there has been a notable acceleration in progress against heart disease mortality since around 1970. This acceleration has continued until at least the mid 1990s, so it is harder to make the kind of before-after comparison for this advance that I relied on in the case of antibiotics. Nevertheless, I am trying to see the behavioral response patterns in this case are similar to antibiotics.

I am investigating two kinds of behavioral response to the heart disease advances. One is a 'within mortality' response: do the groups most favorably affected by the advance in treatment do things that raise the risk of getting heart disease. One example of this is the well known rise in obesity. This is a major risk factor for heart disease.

I find that the timing and age distribution of the rise in obesity is plausibly related to the medical progress against heart disease. The broad trend toward increased obesity goes back to at least the mid 1970s and probably further, so this is not plausibly related to the sudden improvement in heart disease mortality. If the improvement in heart disease mortality were driving this broad trend toward obesity that trend should have emerged only after the improvement in heart disease mortality was well-established.

There is, however, a marked acceleration of the trend toward obesity among young adults in the late 1970s or early 1980s, which is around a decade after the improvement in heart disease mortality began. There is no similar acceleration in obesity for those over age 40. This pattern is consistent with a simple cost-benefit model in which obesity is treated as a long-run life style choice (consistent with the notorious recidivism among dieters) and the improvement in heart disease mortality is modest (i.e., unlike antibiotics, which wiped out many infectious diseases).

The greatest benefits from obesity (less culinary restraint) accrue over the longer lifetimes of the young. The costs are concentrated among the relatively old (the risk of heart disease mortality is insignificant until age 40). Accordingly, a young person who might previously have been just deterred from obesity by the costs would no longer be deterred if there was a modest advance in treating heart disease. However, as the same young person grows older, it requires a larger improvement in heart disease mortality to cause a switch, because the older person has lost a major part of the lifetime benefit from obesity.

Another type of response is ‘across mortalities’ whereby non-heart disease risks respond to the heart disease advance. I have begun to investigate this kind of response. For example, I want to see if progress in non-heart disease mortality changed in any way for the affected age groups once the magnitude of the heart disease advance became clear. A major problem here is that the 1970s were a decade of accelerated mortality improvement generally, not just for heart disease. Thus disentangling within from across mortality behavioral responses and disentangling both from the effects of broad improvements in medical technology may be difficult.

## Raghuram Rajan

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Though I am currently at the International Monetary Fund\*, I continue to work on the projects I began under the auspices of the Stigler Center. Three finished papers are most representative of the work I have been doing:

In **“The Real Effect of Banking Crises”** Giovanni Dell’Ariccia, Enrica Detragiache and I look for evidence that bank failures have adverse real effects, over and above the shocks that cause them. Specifically, banking crises are usually accompanied by a sharp decline in economic growth. Is this because crises tend to take place during economic downturns, or do banking sector problems have independent negative effects on the real economy?

To answer this question we examine the consequences of banking crises at the industrial sector level. If banking crises have a detrimental effect on real activity, then sectors more dependent on access to credit should perform relatively worse during banking crises. The evidence in this paper supports this view.

We also find that differential effects are stronger in developing countries, in countries with less access to foreign finance, and where banking crises are more severe. The effects last for about three years from the inception of the crisis, and they occur whether or not the banking crisis is also accompanied by an economy-wide recession or a currency crisis.

In **“Business Environment and Firm Entry: Evidence from International Data”**, Leora Klapper, Luc Laeven, and I use a comprehensive database of firms in Western and Eastern Europe to study how the business environment in a country drives the creation of new firms. Our focus is on regulations governing entry. We find entry regulations hamper entry, especially in industries that naturally should have high entry. Also, value added per employee in naturally “high entry” industries grows more slowly in countries with onerous regulations on entry.

The consequences of more restrictive entry barriers are seen, not in young firms, but in older firms. They grow more slowly and to a smaller size than similar firms in countries with less restrictive entry regulation. Thus the absence of the disciplining effect of entry has real adverse effects. Interestingly, regulatory entry barriers have no adverse effect on entry in corrupt countries, only in less corrupt ones.

Taken together, the evidence suggests bureaucratic entry regulations, when effectively implemented, are neither benign nor welfare improving. However, not all regulations inhibit entry. In particular, regulations that enhance the enforcement of intellectual property rights or those that lead to a better developed financial sector do lead to greater entry in industries that do more R&D or industries that need more external finance.

In **“Are Perks Purely Managerial Excess?”** Julie Wulf and I ask why some firms tend to offer executives a variety of perks while others offer none at all. A widespread view in the corporate finance literature is that executive perks are a form of private benefit and a way for managers to misappropriate some of the surplus the firm generates. According to

this view, firms with plenty of free cash flow that operate in industries with limited investment prospects should typically offer perks. The theory also suggests that firms that are subject to more external monitoring should have fewer perks. Overall, the evidence for the private benefits explanation is, at best, mixed. We do, however, find evidence that perks are offered most in situations where they are likely to enhance managerial productivity. This suggests that a view of perks that sees them purely as managerial excess is incorrect.

*\*Rajan has been on leave since September 2003 as Economic Counselor and Director of Research at the International Monetary Fund. Nothing in this summary should be taken to reflect the views of the Fund.*

## **Lester Telser**

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My research has focused on the effects of Federal Reserve policy on banking competition. In recent years the main instrument of Federal Reserve policy has become the Federal Funds rate. (Prior to 1992 reserve requirements were a prominent policy tool, but these have been virtually eliminated since then.)

I have found that the rate charged by banks to their best customers, the Prime Commercial rate, varies closely with the Federal Funds Rate, with the latter tending to lead the former. This close relation suggests the Fed may be an unwitting facilitator for a cartel of its member banks. One manifestation of reduced competition among banks would be market shares that are more stable than otherwise. Such stability would also be fostered by the reciprocal borrowing and lending between banks that arises from their day to day clearing operations. I am currently investigating whether market share stability has increased since the Federal Funds Rate became the main instrument of policy.

## Robert Topel

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I have worked on a project with Fabian Lange on the social and private benefits to education. A traditional rationale for government support of education is that the social returns to education exceed the private returns. We are seeking quantifiable evidence on the divergence between the private and social returns to education.

There are three main arguments for a difference between private and social returns. First and least quantifiable, educated individuals may simply be better citizens. They are more informed voters, make better neighbors, and are more interesting to talk to, so the social benefits exceed the private returns. Second, critics of education often argue that an individual's years of schooling act as a labor market "signal", serving to distinguish more able individuals from less able ones, even if productivity is not affected. If this is true the private returns to schooling exceed the social benefits and (some) education is wasteful. Third, an educated workforce may raise social productivity by more than it raises private productivity. For example, interactions among more educated individuals may lead to a faster production and diffusion of new ideas and innovation, which raises economic growth. This kind of externality is not taken into account by private decision makers, so if it is important it would reinforce the case for subsidizing education.

In "Externalities, Growth and Schooling" we focus on the second and third issues – signaling and productivity spillovers. This paper studies models of economic growth applied to census data on American states from 1940 to 2000. During this period income differences between states converged markedly. In particular, the large difference between per capita income in the North and South declined markedly. We find that this convergence is mainly attributable to convergence in skill endowments. There is scant evidence to support the notion of human capital externalities. That is, the private and social returns to human capital investments appear to be roughly the same. Accordingly, our results cast doubt on models of economic growth that emphasize positive externalities, as well as on signaling models of education that predict private returns in excess of social returns.

I have also written "Social Returns to Human Capital and Education," which will appear in the *Handbook of the Economics of Education*. This is a review and extension of both the empirical literature on the positive spillovers from education to economic growth and the theoretical literature on signaling.

## Luigi Zingales

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During the academic year 2003-2004 my research explored three major areas: 1) the role of media in financial markets, 2) the connection between culture and financial and economic development and 3) the effects of financial regulation.

In “The Media and Asset Prices” Alexander Dyck and I investigate how media coverage affects asset prices and why. We do so by looking at how the stock market reaction to earnings announcements is modified by media reporting. While this is certainly not the most interesting dimension of news reporting, it has distinct advantages for our purposes. One is that we have an accurate measure of the information that has been revealed. So we can more easily quantify the impact of the way media report news, while controlling for the actual information revealed to the market. It is also an area where we can more easily classify the spin chosen by the media.

We show that stock price responses to earnings announcements are systematically related to the way they are reported in the media, even after controlling for the size of the earnings surprise. For example, earnings announcements often contain two numbers. One is calculated according to “generally accepted accounting principles” (GAAP) and the other (sometimes called “street” earnings) is released by companies to eliminate the impact on earnings of “extraordinary” charges. We find that if newspapers report GAAP earnings first, the stock price reaction is more sensitive to GAAP earnings and less to street earnings, even after controlling for the actual size of the earnings surprises. The opposite is true when newspapers report street earnings. The responsiveness to street earnings is accentuated if newspapers’ articles only report street earnings, the same is true (although the effect is weaker) if newspapers only report GAAP earnings.

We also find that the impact of the media on asset prices is larger when investors have fewer alternative sources of information to turn to, and when the newspaper providing coverage is more reputable.

Finally, we find that newspapers’ reporting is influenced by companies’ spin. If the press release emphasizes street earnings, newspapers are 45 % more likely to emphasize street earnings. If the press release reports only street earnings, the probability of a newspaper article emphasizing street earnings goes up by 34% and the probability of an article reporting only street earnings goes up by 43%. This is more so, the fewer alternative sources of information about a company are available, the more demand for information there is, and the less reputable a newspaper is. This evidence is most consistent with a *quid pro quo* relation between journalists and their sources, whereby they receive private information in exchange for a positive spin on companies’ news.

I have been engaged with Luigi Guiso (Universita’ di Sassari) and Paola Sapienza (Northwestern University) in an ongoing project on the role of culture in financial and economic development. Our current work is focusing on how cultural stereotypes affect international exchange. Specifically, we are studying how these stereotypes affect

portfolio investments and direct investments by one country's residents in another country.

A major difficulty in studying the effects of cultural perceptions is to distinguish rational expectations from less objective sources of stereotypes. For example, if a group is considered untrustworthy they will attract little investment whether or not they would actually have mistreated the investors. We try to get around this difficulty by using a cross-national survey, which has data on the degree of trust that European citizens have towards citizens of other countries (both in Europe and outside). We assume that the average degree of trust toward country A reflects the objective characteristics of the citizens of A. Then we try to understand why some countries have more or less favorable perceptions toward country A.

Some of the difference can reflect differences in available information. As measures of information we use the geographical distance between the two countries, their proximity, and the commonality between the two languages. To capture the implicit positive or negative bias against other nations present in a country's cultural tradition, we use its history of wars. The other source of cultural stereotype we use is similarity. People with similar cultural backgrounds and similar appearances tend to trust each other more. We use commonality of religion as a measure of similarity in culture. As a measure of somatic similarities we use a measure of genetic distance between indigenous populations, as developed by Cavalli Sforza et al. (1993).

We find that relative trust is negatively related to different measures of information. That is, it is not true that people trust more those whom they know better (i.e., who are closer and speak the same language). Apparently, on average people have a positive bias in trust, which is corrected as they acquire more information. By contrast, all the proxies of stereotypes are important in explaining trust, not only from a statistical point of view, but also from an economic one.

We then show that the degree of relative trust affects the pattern of international investment. Portfolio investments are tilted toward countries whose citizens are considered relatively more trustworthy. We find the same results when we analyze the pattern of foreign direct investments. In addition, we find that the historical and cultural components of trust are the most important contributors to this relationship. We conclude that cultural perceptions are important, though generally ignored, determinants of economic exchange.

A long standing issue in the economic analysis of government regulation has been to disentangle the broad public benefits from those accruing to narrower interest groups. In "The Cost of Banking Regulation" Luigi Guiso, Paola Sapienza and I use the Italian banking law of 1936 to disentangle these two effects empirically.

The law was introduced in 1936 after major bank failures. In common with much bank regulation historically, including the contemporaneous New Deal reforms in the US, the 1936 Italian law sought to enhance bank stability through severe restrictions on competition among banks. While homogeneously imposed throughout the country, these

restrictions had different impacts in different areas, because the law granted different flexibility to expand to different types of banks. Thus, an unintended consequence of the law was a different degree of competition across Italian provinces, determined on the basis of the conditions pre-existing the 1936 law. We exploit this exogenous variation to assess the impact of restrictions on competition on the structure of the banking industry and on the economic performance of an area.

We find that more severe restrictions on competition led to higher cost of credit, less access to credit, and - contrary to expectations - more bad loans. The effect on bad loans increases after the restrictions on competition were liberalized, suggesting that banks operating in a noncompetitive environment become more inefficient in allocating credit. These effects translate into lower growth of the local economy and of firms operating there. In fact, the entire growth gap of Southern Italy after World War II, which has probably been the most prominent and politically contentious aspect of recent Italian economic development, can be explained by the effects of banking restrictions imposed in 1936.

# Visitors

## David Genesove

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My research while visiting the Stigler Center focused on the economics of innovation. In the waning days of World War I, the U.S. government confiscated German owned US chemical patents, of which the most important were the dye patents. Around 1200 of those (the Bayer patents) were transferred by way of auction and then subsequent sale to a single firm. The remaining 4,500 or so patents (those of Badische, AGFA, Hoechst, and the other predecessor firms of IG Farben) found their way to a hastily organized trade association, the Chemical Foundation, which then licensed them non-exclusively to American chemical firms.

This event offers a unique opportunity to study the effects of market structure on innovation. All at once the number and identity of the significant firms in the dye industry had been changed. The preceding British embargo of German trade and the subsequent high American tariffs on dyes had the additional effect of removing German competition from all but the highest value dyes. Since American chemical manufacturers had limited competency in dyes, there is an additional opportunity here to investigate the nature of firm entry, and its deviation from optimality, for a “new good”.

## Christopher Snyder

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During my visit to the Stigler Center, my research covered a wide range of topics in applied industrial organization and law and economics.

I worked on several projects about the pharmaceutical industry. One is about the stylized fact that larger buyers pay lower prices on average for drugs than small buyers. In “**Countervailing Power in Wholesale Pharmaceuticals**,” Sara Ellison and I try to distinguish among a number of explanations for this fact. And we find that looking only at the size of the buyer can be misleading.

Specifically, we examine wholesale prices for antibiotics sold into various distribution channels---chain and independent drugstores, hospitals, HMOs---in the US during the 1990s. Our key finding is that chain drugstores, which are among the largest buyers, only obtained a discount for products for which they had some substitution opportunities (i.e., not for on-patent branded drugs). This suggests that large buyers do not automatically obtain price discounts from suppliers but that supplier competition is also a necessary element. The results have implications for recent government proposals to form purchasing alliances to reduce prescription costs.

In “**Why Is There No AIDS Vaccine?**” Michael Kremer and I provide a new answer to the puzzle of why firms tend to invest more in drugs than vaccines when vaccines may provide more social surplus. We argue that if consumers differ in their risk of infection, pharmaceutical manufacturers can obtain more revenue from a drug, sold after infection status is realized, than with a similarly-effective vaccine, sold beforehand. This effect will tilt the private incentives toward drug development even when the social returns to drugs and vaccines are the same. Moreover, vaccine producers may find it difficult to commit not to lower price over time so as to serve lower-valuation customers. That would depress private returns on vaccines.

Calibrations suggest that for sexually-transmitted diseases, where infection risk differs greatly across consumers, profits from drugs may exceed those from vaccines by a factor of four. Consistent with the model, empirical tests suggest vaccines are particularly unlikely to be developed for sexually-transmitted diseases.

A more common explanation for a bias toward drug development relies on externalities. Vaccines are more likely than treatments to interfere with disease transmission, but the benefit of reduced exposure to the disease is captured partly by those who are unvaccinated. That external benefit cannot be captured by the producer of the vaccine. By contrast most of the benefits from drug sales are private – the reduction of symptoms in diseased individuals. According to this line of reasoning producers will tend to find drugs more profitable than vaccines because their profits come from exploiting private benefits, which are greater for drugs.

Michael Kremer, Heidi Williams and I examine this externality-based explanation in “**Vaccines: Integrated Economic and Epidemiological Models**” We build an integrated economic and epidemiological model. The model implies that the revenue gap between

drugs and vaccines will be largest in the case of rare diseases. Thus, for a given disease burden, firms will find it more profitable to develop vaccines for the common but less serious diseases like the flu than for rarer but more deadly diseases. Since HIV/AIDS is rare in the high-income countries that account for the bulk of pharmaceutical markets, the model suggests that drug producers will be able to capture a greater fraction of the social value of AIDS drugs than of vaccines for this disease.

My work on “Why Is There No AIDS Vaccine?” suggested some larger economic principles might be involved. David Malueg and I explored these in “**Bounding the Relative Profitability of Price Discrimination.**” This is a fairly technical, theoretical paper that proposes conditions under which the relative profit advantage of price discrimination over uniform pricing can be bounded by the number of markets the monopolist serves.

In the area of law and economics Wallace Mullin and I completed a paper on “**Targeting Employees for Corporate Crime and Preventing Their Indemnification.**” The paper is motivated by the recent wave of corporate scandals. The existing law and economics literature on corporate crime focuses on crimes committed by employees who are not necessarily acting in the interest of the firm. In this setting it is clear that employees should be penalized for their crimes, but it is not clear that the firm they work for should be penalized as well.

The recent wave of corporate scandals has a different character: in many of these cases, the crime serves firm owners' direct interest; and employees commit crimes only in response to incentives provided by the firm. In this latter setting it is clear the firm should be sanctioned, but not as obvious that the employees should also be punished. We derive a number of rationales for the sanctioning of employees. We show that preventing indemnification is usually inefficient. The one case in which we find it to be useful is to encourage the employee's cooperation with prosecutors to increase the probability of successful prosecution of the firm.

Mark McCabe and I undertook a project on “open-access” journals with support obtained from the Open Society Initiative. A traditional scholarly journal obtains its revenues from readers and libraries. By contrast, an open-access journal's articles are available over the Internet free of charge to all readers. The revenue to cover publication costs comes from authors' fees. This new business model for scholarly journals has gained wide attention recently.

In “**The Economics of Open-Access Journals**”, we present a model of the journals market that draws upon the emerging literature on two-sided markets (where two users derive benefits from the good.) Telephony is a classic example of such a market, since both the sender and receiver of a call benefit from it. In the case of journals both the author and reader derive benefits. But our model highlights features distinguishing journals from examples like telephony.

We analyze the efficiency of different kinds of author and reader fee schedules for various industry structures and for various assumptions about journals' objective

functions. We ask whether open-access journals are viable in these various economic environments. Spin-offs from this project will be published in *Nature's* web forum and in the *American Economic Review Papers and Proceedings*.

In addition to my research, I organized and administered the **2004 International Industrial Organization Conference** held in Chicago. The conference was co-sponsored by the Stigler Center and included heavy participation by industrial organization economists at the University of Chicago. The conference had 420 registrants, 320 presenters, and an equal number of discussants. They came from all parts of the world and from government and industry as well as academia. It was the largest industrial organization conference held in the US, and was about equal in size to the largest held in the world (the EARIE Conference in Europe). The website <http://www.ios.neu.edu/> provides further details on the conference including the conference program.

It is remarkable that the seminal contributor to the area surveyed by each of the two keynote speakers was, in both cases, George Stigler. Robert Porter, speaking on the problem of detecting collusion, noted the foundational role of Stigler's 1964 "Theory of Oligopoly." Paul Joskow, speaking on recent economic studies of regulation and deregulation cited Stigler and Friedland's 1962 paper "What Can Regulators Regulate? The Case of Electricity" as the first truly modern study of regulation.

## Thomas Stratmann

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My research at the Stigler Center focused on various political economy topics and on the intersection of law and health economics.

One of the puzzles in the campaign spending literature is that spending, especially by incumbents in congressional elections, appears to be ineffective. I reexamine this puzzle in “How Prices Matter in Politics: The Returns to Campaign Advertising.” Previous work has assumed that the price of media advertising is the same in each congressional district, and that therefore campaign spending equals campaign advertising. However, this assumption can be misleading if there is substantial variation in the price of advertising across districts. In that case the same expenditure in a high price market would buy fewer ads than in a low price market.

I show that there is indeed substantial variation in advertising prices. I then estimate the relation between campaign advertising and vote shares. However, unlike the previous estimates of this relationship, I take account of the advertising price differences across districts. My main finding is that campaign spending is productive for both incumbents and challengers once advertising prices are taken into account.

Another aspect of the apparent ineffectiveness of campaign spending has to do with the distinction between the average and marginal effects of the spending. The productivity of spending may appear to be low because we are observing candidates who operate on the relatively “flat” part of their election returns function, where the marginal return is low. In the paper “Contribution Limits and the Effectiveness of Campaign Spending” I exploit differences in state campaign finance laws to test this hypothesis. If these laws severely limit how much candidates can spend, the likelihood that candidates will be able to operate on the flat part of the vote-spending function is reduced. Accordingly, we would then find that spending an extra dollar in a restrictive state buys more votes than in one with little or no funding restrictions.

My results are consistent with this view. Campaign expenditures by incumbents, challengers, and open seat candidates are more productive when candidates run in states with campaign contribution limits than in states without limits. Further, in the states with contribution limits, incumbent spending and challenger spending are equally productive, and spending by both candidates is quantitatively important in increasing their vote shares.

In “Does Medical Malpractice Reform Help States Retain Physicians and Does It Matter?” Jon Klick and I ask two questions which have been at the heart of the debate about malpractice reform. The first is whether states that have passed medical malpractice law reforms are more successful in retaining and attracting physicians than states that have not passed such laws. Physician groups advocating reform have argued that high malpractice rates reduce the number of practicing physicians. Opponents argue that reforms diminish incentives to provide a high level of health care. Therefore the second question we ask is whether these reforms lead to worse health outcomes.

We find that some malpractice reforms have helped states retain doctors while others have not. For example, caps on non-economic damages lead to more physicians in a state, but eliminating joint and several liability has an insignificant effect on the number of physicians. However, improving incentives for the retention of doctors comes at a cost. We show that some malpractice law reforms have lowered the level of care provided, as measured by an increase in infant mortality.

In many states of the United States candidates must meet certain requirements in order to be listed on the ballot. Such requirements include filing fees and minimum number of collected signatures. In the paper “Ballot Access Restrictions and Candidate Entry in Elections” I examine whether incumbents benefit from these requirements by facing less competition from challengers.

Specifically, this paper examines the impact of filing fees and signature requirements on the number of candidates in US state races by analyzing state lower house elections in 1998 and 2000. I find that higher filing fees reduce the number of major and minor party candidates. The larger effect is on minor party candidates. More stringent signature requirements reduce the number of major party candidates in elections.

This paper will be published in the *European Journal of Political Economy*.

In “Corporate Campaign Contributions, Repeat Giving, and the Rewards to Legislator Reputation,” Randy Kroszner and I examine whether politicians are rewarded with more corporate campaign contributions when they follow a strategy of reputational development. A strategy of voting consistently for one interest group could help to reduce uncertainty about a candidate’s future positions and thereby lead to high campaign contributions from favored interests. Alternatively, such clarity could alienate those who disagree and not permit the politician to obtain contributions from groups on both sides of an issue.

We outline an approach that considers conditions under which a politician would and would not prefer reputational development and policy-stance clarity and consistency in the context of repeat dealing with special interests. We measure reputational development by the percent of repeat givers to a legislator. Then we ask whether this measure goes up over time, as a model of reputational development would suggest. We find support for such a model, in that repeat giving by corporate political action committees rises with a legislator’s tenure on his committee assignments and declines with his probability of leaving office.