

Economics IN ACTION

The "COLLEGE PREP FOR ALL" MANDATE IN SAN DIEGO

By
Julian Betts, Ph.D.
Sam Young, M.A.
Andrew Lau, M.P.H.
Karen Vole Bachofer, Ph.D.



Chair's Corner

Welcome to *Economics in Action*.



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Martin Gaynor '77

Dedicated faculty and diverse curriculum prepared director of Bureau of Economics, FTC

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ALUMNI SPOTLIGHT

Martin Gaynor '77

Dedicated Faculty and Diverse Curriculum Prepared Director of Bureau of Economics, FTC

By Jenelle Dean, Alumni Director, Division of Social Sciences



Martin Gaynor is the former director of the Bureau of Economics at the Federal Trade Commission, where he was head of the economic side of federal antitrust enforcement. Martin graduated a quarter early from Muir College in 1977 with a Bachelor of Arts in economics then traveled for a few months around Europe and Israel. He attended Northwestern University for graduate school, earning both his master's and doctoral degrees in economics in 1979 and 1983, respectively.

Martin has served as a faculty member at universities across the country, including Virginia Polytechnic Institute and State University, University of Texas at Arlington, and Johns Hopkins University. He currently serves as the E.J. Barone Professor of Economics and Health Policy at Carnegie Mellon University.

Martin has lived in Pittsburgh, Pennsylvania, for 20 years and has been married for over 30 years to Ellen Vegh, whom he met as a graduate student at Northwestern University. Together they have three children: Shoshana, Noah and Gabriel.

What were your experiences like in the Department of Economics? Which courses/faculty/opportunities made an impact on you?

I say with great confidence that the faculty and advisors were an excellent resource, supportive and flexible. At the time (1975-77), computers were not as easily available off-campus as they are now, and I did not own a computer, so I spent many evenings in the department computer lab.

There was a mandatory Excel class that I took that had a huge impact on my career: I quickly became known as the expert in Excel (and therefore Access) at work at a time when these were the only known programs that could manipulate data.

What were you involved in while you were on campus?

I was very involved in the Union of Jewish Students, which was the Jewish student organization on campus at the time. We also had a campus Jewish newspaper that I worked on. A highlight was interviewing Herbert Marcuse – may he rest in peace – for that newspaper. He was very gracious and accommodating, and fascinating, of course.

I played pretty much every intramural sport. Freshman year we had a terrific flag football team. We had a very talented group of guys and that was really fun. I have to say that the most fun intramural sport for me was coed inner-tube water polo. It was kind of ridiculous, but also pretty competitive. I also started running for exercise as part of a PE fitness class. Previously I'd only run as required for football or in PE class in high school. I enjoyed running for many years and eventually ran a marathon.



Martin Gaynor as a student at UC San Diego

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Unfortunately one of my knees went bad, so I no longer run (I bike instead), but it was very rewarding.

I started out at Revelle and ended up graduating from Muir. One thing I really appreciated at Revelle was the tremendous teaching in the freshman sequence: science, math and humanities. I loved freshman physics. In addition, I was fortunate to take courses from incredible teachers in humanities and math. I read things I never would have read on my own and learned how to write. It was initially a rather painful experience – I wasn't as good a writer as I thought I was! Not only did that provide me with a well-rounded education, but it built in me an appreciation for these subjects that I've carried with me ever since.

Other than that, just enjoyed being at UC San Diego and in San Diego. How could you not like being in college in La Jolla and San Diego! I got a fantastic education, made close friends and had a fabulous experience.

What were your experiences like in the Department of Economics? Which courses/faculty/opportunities made an impact on you?

I came to UC San Diego intending to be a science major but ended up in economics. I liked the combination of scientific rigor with application to real-world social problems. Again, I found the teaching to be really first rate. I particularly remember enjoying macroeconomics and econometrics.

The course that made the biggest impression on me was Industrial Organization, taught by Dick Schmalensee, now at MIT. That course covered theories and evidence on markets and competition, and the economics of antitrust. In particular he covered the economics of some important antitrust cases and that really captured my imagination. I found that fascinating, and it stuck with me. I not only ended up doing research in that area but was fortunate enough to be given the opportunity to serve as the director of the Bureau of Economics at the Federal Trade Commission, heading up the economic side of federal antitrust enforcement at the agency.

Describe your transition after graduation? How did UC San Diego prepare you for this transition?

I actually graduated a quarter early. I was able to save enough money – tuition was only \$212 a quarter then – to take off and hitchhike around Europe and Israel for the spring and summer. In the fall, I started graduate school at Northwestern University in Chicago, working on my doctorate in economics.

I received excellent preparation in economics at UC San Diego, and I'm very grateful for that. I was very intimidated going to Northwestern, a big name private school "back East," and having classmates who had gone to places like Princeton and the London School of Economics. However, once I got settled in, I realized that I'd gotten as good an education as anyone else and better than some. Undergraduate economics courses at UC San Diego were taught using calculus, which was not that common for undergrad econ courses, and were pretty technical and rigorous. That was excellent preparation for graduate school. The Department of Economics also had the tradition of allowing undergrads to serve as teaching assistants for introductory courses when they were seniors. I did that, TAing for Bob Russell (now at UC Riverside). That was a great experience. Not only did I have to be prepared and responsible, but I was forced to learn basic economics in a deep way so I could answer students' questions.

UC San Diego provided me with the foundation to go out and succeed. I got a great education, second to none. I am very appreciative of that. It's also very important that UC San Diego provides, and continues to provide, affordable access to a high quality education to the citizens of California. That's become increasingly difficult to do but is an essential mission of a public institution and one that should not be lost.

What was your career trajectory?

I had a fairly rocky start. It took me a long time to finish my dissertation and then a long time after that to publish any research papers. I moved quite a bit and was at a number of different universities, some rather undistinguished. I was actually out of academia for a couple of years, working at a consulting firm. Fortunately, I got a big break and was hired by Johns Hopkins and left the consulting firm. I then got a couple of good research papers out and things took off from there.

I'm very appreciative of everything that has happened to me professionally, particularly because my career had such a rough beginning.

What are your future professional goals?

I still want to do science. I feel like I have some good research ideas in me that I'd like to pursue. There's nothing more exciting than coming up with a good idea and then seeing it actually turn into something. I'd also like to be involved in policy. Being in Washington was a very exciting experience. It was really gratifying to feel like I was serving the country and contributing to things that were making a difference.

What are some of your favorite things about UC San Diego?

It was a great learning environment with really dedicated faculty and terrific students. From everything I know, that's even truer today than it was when I was a student. Obviously it's also an incredibly beautiful place. There's something about the air – maybe being near the ocean or due to the eucalyptus trees – it's incredibly gentle and soft. It just feels good to be there.

Any advice for economics students?

Well, like anyone doing anything, work hard, don't give up, but also relax and have some fun. Specific to economics, you really need to have extensive math preparation nowadays, even more than when I started, so make sure to get the math skills you'll need. I'd also advise them to be omnivorous: Don't just take economics. Take courses that open your eyes to fascinating things that are going on in the world and the multiple approaches to problems. You may learn something that will lead you to be a better economist, and you'll certainly be a better person.

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UC San Diego

Chair's Corner

Welcome to this edition of *Economics in Action*. In our featured article, Julian Betts and a team of education researchers investigate the impact of the required college-preparatory curriculum on high-school students in the San Diego Unified School District. We introduce our new associate professor Charles Sprenger and shine our alumni spotlight on Martin Gaynor, who graduated with an economics degree in 1977 and enjoyed a remarkable career in government and academia, which led to his current position as the E.J. Barone Professor of Economics and Health Policy at Carnegie Mellon University.

A Banner Year for Faculty Awards

Assistant Professor **Paul Niehaus** was one of five UC San Diego faculty members to be honored by the Alfred P. Sloan Foundation with a Sloan Research Fellowship for 2015. In economics these awards ordinarily go only to assistant professors in the very top departments. We are extremely proud of Paul for receiving this rare honor. A story about Paul's research and philanthropic organization was the feature article in the [fall 2013 issue of *Economics in Action*](#).

Teaching Professor **Melissa Famulari** received the Chancellor's Associates Award for Excellence in Undergraduate Teaching, given to only one UC San Diego faculty member each year. In her role as our vice chair of undergraduate studies, Melissa has created a more effective teaching program for undergraduate economics by redesigning the curriculum to implement multiple channels for learning and retention. Her leadership extends throughout the University of California system with the development of interactive technologies for intermediate microeconomics and service to students with disabilities. Melissa also received the Outstanding Faculty Award from Thurgood Marshall College. She was voted the most outstanding faculty instructor by the 2015 senior class.

Professor **James Hamilton** received the Chancellor's Associates Award for Excellence in Research in Humanities and Social Sciences, given to only one UC San Diego faculty member each year. Jim's research has had an enormous impact on both academics and policymakers. His textbook *Time Series Analysis* is the authoritative resource for graduate econometrics courses and practicing economists. His research on oil-price shocks and U.S. recessions was the subject of the feature article in the [fall 2014 issue of *Economics in Action*](#).

Teaching Professor **Kate Antonovics** received a Distinguished Teaching Award from the UC San Diego Academic Senate. Kate has been a path breaker in the use of technology on this campus, transitioning students from passive listeners to active participants. Her reputation as a dynamic teacher and a well-respected scholar extends beyond campus; her visibility in the profession is such that she is currently co-authoring an introductory-level textbook *Principles of Economics* with Ben Bernanke and Robert Frank.

Yet More Faculty Accomplishments

Vince Crawford will be a von Neumann lecturer at Brown University's 250th Anniversary Symposium, immediately preceding Nobel laureate Kenneth Arrow. **Ross Starr's** recent book *Why is There Money?* received a lengthy and beautifully written review in the European journal *Oeconomia*. **Allan Timmermann** has been appointed chair of the [Model Validation Council](#), which assists the Federal Reserve System in its "stress testing" of large banks.

Alumni Awards: June 6

Ken Kroner, PhD '88, will receive the Distinguished Leadership Award at the 2015 UCSD Alumni Celebration dinner on June 6. Ken, a student of Nobel laureate Rob Engle, is head of multi-asset strategies and head of scientific active equity at BlackRock. He serves on the UC San Diego Foundation

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board of trustees and has been a longtime supporter of many campus programs and initiatives. Our alumni Economics Leadership Council will host a table at the June 6 event. Tickets are available [here](#).

Undergraduate Programs

In winter quarter, Professors Melissa Famulari and Joel Watson used the nearly completed *Intermediate Microeconomics Video Handbook* as a supplement to their 100A and 100B classes and to “flip” a few of their classes. They taught nearly 1,000 students and there were over 34,000 views of the videos. Student response was extremely positive: When asked whether the videos, on average, held their attention, 93 percent of the students agreed or strongly agreed. A welcome but surprising finding was that many students watch the videos before lecture. The handbook is available to all UC instructors free of charge.

Our [Rising Leaders Program](#) has entered its fifth year. This program is designed to promote the professional mobility of our top undergraduates. In addition to awarding a \$1,500 academic scholarship, the program provides a strong network of alumni in industry to help recipients prepare for a career-launching internship. Past Rising Leaders have interned for Citi Group, Credit Suisse, Ernst & Young, Bank of Singapore, Booz & Co. South Korea, and Kroll Bond Ratings, among other top companies. With the support of our alumni Economics Leadership Council, the program grew in 2014-15 to support 11 new Rising Leaders.

Graduate Students Moving Out and In

In her article in this issue, placement officer Julie Cullen discusses the record-breaking 26 students we had on the job market this year, and the extraordinarily diverse range of positions they found. On the other end, 23 new students will join us this fall, from a pool of 857 applicants. Twelve are domestic, including three from California, and eleven are international. The international students span the globe, from Argentina, Bolivia and Mexico to China, Japan and the Russian Federation, and include our first students from Pakistan and Tanzania.

We are also proud to announce that Chen Liu, a third year doctoral student, has won a National Bureau of Economic Research (NBER) Pre-doctoral Fellowship on the economics of high-skill immigration. The NBER is the world's largest economics research organization. Each year, it awards just two pre-doctoral fellowships on the economics of immigration. Chen's research will examine the impact of high-skilled immigration on the supply of labor to STEM (science, technology, engineering, math) occupations in the United States. Congratulations, Chen!

Sincerely,



James Rauch

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Charles Sprenger

Understanding Individual Decision-Making Over Time With Risk



In January, Charles Sprenger joined the Department of Economics as an associate professor and joined the Rady School of Management at UC San Diego as an associate professor of economics and strategy.

Hailing from Santa Cruz, Calif., Charlie completed his undergraduate studies at Stanford University (Bachelor of Arts in economics, 2002), his master's degree at University College London (Master of Science in economics, 2005), and his doctoral studies at UC San Diego (Doctor of Philosophy in economics, 2011). Prior to joining UC San Diego, he worked for three years as an assistant professor of economics at Stanford University.

Research: Decision-Making

Charlie is a behavioral and experimental economist with primary interest in how individuals make decisions over time and in

uncertain environments. His work uses novel laboratory measures of behavior and field data to learn about the preferences that govern decision-making in these environments. His work has been published in leading journals in both economics and psychology, including *The American Economic Review*, *The Journal of Political Economy*, *The Quarterly Journal of Economics*, and *Psychological Science*.

Present Bias

Charlie's most well-known research focuses on the behavioral phenomenon of "present bias." A present-biased decision-maker behaves patiently when making decisions for future dates but will behave more impatiently when making decisions that involve the present. Models of present bias are used to explain a wide variety of behaviors, from procrastination in filing taxes to borrowing excessively on high-interest credit cards. Experimental tests for such models largely rely on having individuals choose between monetary payments at different dates in time. For example, a subject might be asked to choose first between \$45 today and \$50 in one month and then between \$45 in one month and \$50 in two months. Choosing the \$45 in the first question and the \$50 in the second question would be taken as evidence of present bias.

In joint work with fellow UC San Diego faculty James Andreoni, Charlie developed new experimental methods to study such preferences. The findings highlighted some challenges with the previous experimental approach. In particular, Charlie and Jim found that observations of present bias might be closely related to the risks that subjects place on actually getting paid. That is, \$45 today might be particularly attractive if it will be paid with certainty. When payment risks are closely controlled, present bias is actually quite limited.

This research challenged a broad set of findings in decision-making over time and has led to interesting new research questions. One set of questions revolves around the use of monetary payments to study present bias. Money is fungible, being movable through time via saving and borrowing. In theory, experimental questions about money should thus be of limited use for learning about preferences, as subjects can potentially unwind any laboratory decisions with their saving and borrowing devices.

One of Charlie's recent papers investigates present bias for a less fungible good: required transcription of Greek texts. Interestingly, in such environments, present bias re-emerges. This finding demonstrates the value of designing experiments closely tied to theories of decision-making and provides key validation of models of present bias.

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Charlie describes himself as “extremely enthusiastic” about rejoining UC San Diego. He will be teaching behavioral and experimental economics at the graduate level and strategy for master of business administration students at the Rady School.

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UNDERGRADUATE RESEARCH

Tulip Mania 2.0? A Closer Look at Cryptocurrencies

By Christopher Campos

My experiences in the military led me to confront and overcome many challenges. As a transfer student entering UC San Diego with long-term goals fixated on graduate school, it was a clear and evident choice to take Econ 191. However, the Econ 191 experience was like no other that I have encountered previously and proved to be the most rewarding. It allowed me to pursue a topic that lies at the intersection of my three preferred areas of study: economics, mathematics and computer science. The structure of the seminarlike course provided the appropriate environment for undergraduate students to present their ideas.

The long-term bonds I formed with my Econ 191 peers and Professor Starr are all the desired results of the hard work and dedication it took to complete the sequence. I attribute my success to their ongoing support throughout the research process. I am fortunate to have been allowed the possibility of embarking on such a journey.

Formulating a Research Plan

My research question was simple: Are these newly introduced cryptocurrency systems, fuddled with noise and speculation, economically stable? Contrary to the structure of centralized banking networks, a cryptocurrency designates random strangers to manage a person's digital wealth.

The idea of strangers managing another's currency struck me as a preposterous idea, and I believed it was certainly doomed in the long run. Given that random strangers, known as miners, are managing the wealth of others, the economic incentives of the miners would reveal valuable insight into how stable cryptocurrencies could function. Before analyzing such a complex issue, Professor Starr, whose research encompassed monetary foundations in general equilibrium models, suggested I take a historical tour of the literature pertaining to money.

The literature review provided me a new perspective on what the role of money in society really is. This realization was largely in thanks to Professor Starr's guidance and helped to provide the foundation for much of my paper. Not only would the economic stability of a network need to be sound, but such a network would also need to fit the role conventional money plays in society today, or at the minimum be an improvement to the current standards. The numerous talks with my fellow classmates and the guidance of Professor Starr helped to give structure to my thoughts as well as formulate a strategy and plan the discourse of my research project.

The Research Process

I then embarked on answering three questions:

- Are the structures of cryptocurrency networks economically stable?
- Do cryptocurrencies serve the three primary roles of money: a store of value, a medium of exchange and a unit of account?
- Are cryptocurrencies a serious and viable alternative to today's currencies, or is this a 21st-century tulip mania?

I answered the first question by creating a stochastic model that appropriately accounted for the random nature of cryptocurrency networks, as well as simultaneously incorporating the economic incentives of the miners, whom I treated as profit maximizing entities.

To address the second question, Professor Starr suggested research of the literature about money to help narrow down a specific econometric approach to determining whether cryptocurrencies could be a

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store of value. Specifically, I sought to analyze if lagged logged differences in exchange value affected future exchange values: a random walk test.

To answer the third question, I analyzed the diffusion of the cryptocurrency technology. If cryptocurrencies were to be a serious alternative, then individuals holding digital wealth should be actively trading with their currency. Moreover, given the increasing popularity of the Bitcoin network, I hypothesized that true diffusion would, on average, imply an increase in the frequency of use.

In addressing the economic stability of cryptocurrencies, I witnessed how economic theory can come to life. Miners all supply one good – computing power – to a network with infinite demand. The cryptographic properties of these networks coupled with free entry led to rapid increases in supply. Although the stochastic model I created departs slightly from traditional economic models taught in intermediate microeconomics courses, many of the common results still arose: Profits are driven to zero in the long run; entities in perfectly competitive environments exert no market power; and ultimately, prices are driven down to marginal cost. Found therein was self-sustaining network equilibrium.

Seeing these properties arise in the research process and applying the theory I learned in economics and mathematics courses was enlightening and fulfilling. The accuracy of the model was later tested and proved to be accurate with very slight margins of error.

The remaining questions involved acquiring data. Given the open-source nature of the Bitcoin network, it was possible to extract data pertaining to all the historical microeconomic activity. With such data I would be able to analyze the frequency of use for different holders of digital wealth, analyze the distribution of wealth, and examine other key important properties. However, in order acquire this data, I had to learn a scripting language specific to the Bitcoin network.

Upon gathering the data, I then sifted through millions of transactions. Although the number of users was increasing rapidly, the frequency of trade conducted was stagnant. On average, users would transact in Bitcoin in time intervals of 296 days, with the median values not too dissimilar. In other words, holders of digital wealth were hoarding. Professor Starr and my peers attributed this behavior to the fact that the interest in Bitcoin was strictly a bubble. The expectation of increases in value removed the incentive to spend, but the pure expectation was simply evidence of a bubble.

The efficient market hypothesis states that information is incorporated into the market price, which should be at equilibrium and should not change unless new information is attained. Since the disbursement of information and events are unpredictable, then prices should be equally so. In relation to Bitcoin, if this were the case, then one would expect previous values of its price to have no statistically significant effect on future prices; however, this was not true and the exchange prices did not follow a random walk.

Results

Cryptocurrency networks proved to be mathematically sound and a self-sustaining network equilibrium was derived. Several of the behavioral attributes were explained in the model; however, much of the popularity attributed to cryptocurrencies. Bitcoin, in specific, was not associated with actual adoption of the potential alternative and much of the value attributed to exchange prices was due to a bubble. The potential exists, but adoption rate will eventually determine the success of this interesting alternative.

Final Thoughts and Thanks

Completing the Econ 191 sequence was a culminating experience of my economic studies at UC San Diego. Sharing ideas with like-minded peers, receiving and providing feedback, and following an idea from conception to completion allowed for a glimpse into what graduate school can be like. I would like to thank Professor Starr for his guidance throughout the process, and all of my Econ 191 peers, to whom I willingly attribute any success. I would highly encourage any economics student to confront the challenge of completing a senior thesis.

GRADUATE RESEARCH

The Effectiveness of International Trade Boycotts

By *Kilian Heilmann*

The use of trade policy in international conflicts has been a popular tool. Boycotts, embargoes and sanctions have become more prevalent and have largely replaced armed conflicts. In my research, I focused on international trade boycotts and pursued the question of how harmful they can be to international trade relations.

Trade boycotts have a long history. Not long ago, there were calls for boycotts against French products in the United States over disagreement about the Iraq question, which led to the infamous renaming of french fries to freedom fries.

The advance of the Internet even in poor countries has allowed consumers to coordinate grassroots boycotts that are not dependent on government intervention. Understanding consumer reaction to international conflicts is important in the age of globalization; however, the economic literature has found little conclusive evidence on whether boycotts are effective in the long-term or only temporarily: Who is the main driver behind them, and which goods are affected?

The Case Studies

To answer these questions, I made use of two events that act as natural experiments and allow me to identify the effect of consumer boycotts on international trade relations.

The first event was in September 2005. A Danish newspaper published a series of cartoons depicting the Islamic prophet Muhammad in an unfavorable manner; the most striking one showed him with a bomb in his turban. This caused a huge outcry in the Muslim world and violent protests followed. After the Danish government refused to apologize for the cartoons, Muslim religious leaders called for a consumer boycott of Danish goods.

The second case involves Asia's two biggest economies: China and Japan. In the summer of 2012, a long-lasting territorial conflict about some islets in the East China Sea escalated when the Japanese government announced a plan to nationalize them. Furious protests broke out in China and a consumer boycott was staged against Japanese products.

Analysis

In my project, I analyzed monthly export data for Denmark and Japan around the consumer boycotts. The quality of the data set allowed me to identify different products on a very fine level. For example, I could trace the value of a specific product like cameras or certain types of cheese. Since trade flows are subject to considerable seasonal fluctuations, the main difficulty was to construct a counterfactual. To do so, I used the synthetic control group approach: This compared the trade flows to the boycotting country with a weighted average of the flows to other countries where the weighted average resembles the boycotter closely in the period before the events broke out.

Results

The empirical results for the two very different case studies showed some remarkable similarities. At first, the effect on bilateral trade relations is U-shaped. The boycott reduces imports little in the first months, then takes up, but finally dies out after a year or two. This suggests that it takes time for boycotts to

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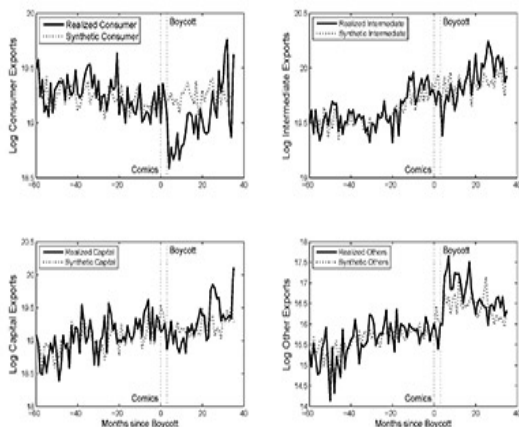
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Danish exports to Muslim world by product type. Click graph to enlarge.

actually alter trade patterns and that any effects are temporal.

Furthermore, in both boycott cases, consumer goods dropped much more than intermediate or capital goods: a clear indication that the boycotts are mainly carried out by consumers and not firms. This effect is particularly strong for highly branded signature consumer goods.

For example in the case of Japan, passenger car exports to China dropped by a massive 31.8 percent.

It is maybe not surprising that firms that rely on foreign inputs are less willing to participate. Further cross-country analysis showed that countries with higher press freedom boycott more, which suggests that consumer boycotts rely on the ability of consumers to communicate and coordinate their actions.

Discussion

What are the lessons we can learn from these boycotts and their effects? Should we be afraid of boycotts and avoid cultural conflicts in order to protect exports? While the cases in my study are certainly unique and cannot easily be generalized, a few patterns emerge that can be applied more broadly.

First, while trade boycotts are certainly disruptive for bilateral trade, their total effect on the boycotted country's total export is quite small, amounting to only 0.4 percent for Denmark and 0.5 percent for Japan. Both countries have a broad export base, and a single export partner takes up only a small percentage of overall trade. The same is true for the United States and most European countries with highly diversified base of export partners.

Second, Denmark and Japan, like most industrialized countries, export mainly intermediate and capital goods for which consumer boycotts work less well. Given the temporary effect of trade boycotts, cultural conflicts are very unlikely to change international trade relations significantly.

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IN ACTION

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Throughout his presidency, President Obama has repeatedly called for the nation's high schools to prepare all students for success in both college and career. Currently, 23 states and the District of Columbia require all students to complete a college-prep and career-ready curriculum. This type of curriculum reduces tracking and ensures access to the relevant and rigorous instructional program that students need to gain entry to college and jobs after high school.

Although California is not one of the states requiring college prep for all, the American Civil Liberties Union (ACLU) has campaigned to ensure that all students in California have access to college-prep course work. It has done so by auditing student access to "a-g" courses in high schools in San Diego and elsewhere. In California, high school students must complete a set of college-prep courses known as the a-g requirements, with grades of C or higher, in order to apply for admission to either of the state's public university systems: the University of California (UC) or the California State University system (CSU).

Partly in response to the ACLU audits, several large California school districts – among them Los Angeles, Oakland, San Francisco and San Diego – have adopted graduation policies requiring all students to complete the a-g course of study in order to graduate from high school. However, because the new course-work requirements are quite challenging, most of these districts allow grades of D or higher, rather than the C or higher grades required by our two state university systems.

This policy change holds important implications for equality of opportunity in California. On the one hand, the policy could increase college access for historically underserved populations. But on the other hand, the policy change could inadvertently lessen equality of opportunity. Poorly prepared high-school freshmen may become discouraged by the more rigorous curriculum. Their attendance may start to lag. Their grades may drop. Ultimately, they may be more likely to drop out or to persist until grade 12 without earning a diploma.

We recently published the first of two reports that examine the progress that high-school students in San Diego Unified School District (SDUSD) are making toward meeting the demands of a new "college prep for all" graduation policy, which will apply to students in the class of 2016 and later. The report follows students in the class of 2016 through the end of their ninth-grade year (June 2013). (Readers can find the full report <http://sanderu.ucsd.edu>.)

How is the Class of 2016 Adjusting to the New Graduation Requirement?

First, the good news. As shown in Figure 1, the number of a-g courses completed with grades of D or higher has been increasing for some time; even better, the class of 2016 has accelerated that pre-existing trend. Students in the class of 2016 seem to be responding positively to the new policy. We found a similar improvement in the average number of a-g courses completed with grades of C or higher.



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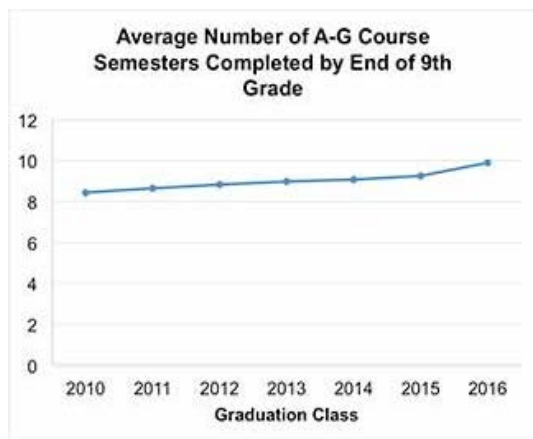


Figure 1: The average number of a-g semester courses completed with grades of D or higher by the end of 9th grade, by year of expected graduation. Click graph to enlarge.

Next, the not-so-good news. We calculated the average number of courses completed by the end of ninth grade and compared everybody in the class of 2016 with those in earlier classes who had completed the a-g requirement by the time they graduated. The difference tells us how far the average student lags behind successful students in older cohorts.

Table 1 shows the results. Overall, the average student in the class of 2016 was 2.1 semester courses behind successful students in older cohorts. The table suggests that, on average, students in the class of 2016 are 0.8 of a semester course behind in mathematics, and 0.5 semester courses behind in World Languages. Neither of these gaps seems impossible to close, but if the gaps persist or widen by the end of tenth grade, they will become cause for concern.

We also compared the number of courses completed by students in each subgroup (e.g., English learners) to the number of courses that successful students in older cohorts (in the same subgroup) had completed. We found large variations. Students who appear to be the furthest behind include English learners, students receiving special education services, students whose parents have not graduated from high school, African American students, and Hispanic students. For example, on average, English learners in the class of 2016 completed only 5 a-g semester courses by the end of 9th grade, compared to 12 for all students in older cohorts who met the course-work requirement by the end of 12th grade. Students in these groups are at risk of not completing the a-g requirement.

	History/ Social Science	English Language Arts	Math	Lab Sciences	World Languages	Visual and Performing Arts	College Prep Elective	Total
Successful Students in Classes of 2011- 13	0.5	2.0	3.9	1.3	2.7	0.9	0.7	12.0
Class of 2016	0.4	1.6	3.2	1.0	2.2	1.1	0.6	9.9
Difference	0.1	0.4	0.8	0.3	0.5	-0.2	0.2	2.1

Table 1: A comparison of the average number of a-g semester courses completed with grades of D or higher by the end of 9th grade among students in the classes of 2011-13 who met the district's new a-g requirement, and students in the class of 2016

Side Effects

We tested for three possible negative side effects from the new policy. First, was there a reduction in Career and Technical Education (CTE) course completion? CTE courses, such as graphic design, prepare students for careers but often do not qualify as a-g courses. Second, did student absences rise with the new strict graduation requirement? Third, have students' grade-point averages (GPAs) declined now that students are taking more rigorous courses?

Figure 2 shows trends for ninth grade students in the cumulative number of yearlong CTE courses completed, the percentage of days students were absent, and GPA. Our statistical tests suggest that there has not been any change in cumulative CTE course completion, GPA or absence rates in ninth grade for the class of 2016.

The Bottom Line

Our first report suggests that students are completing more a-g courses under the new policy, but some student groups lag far behind others and will probably find it challenging to

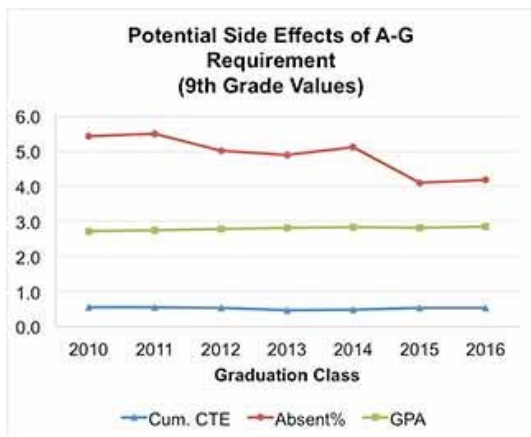


Figure 2: 9th-grade trends in the cumulative number of yearlong CTE courses completed, the percentage of days absent, and GPA, by expected graduation class. Click graph to enlarge.

meet San Diego’s new graduation requirement. However, none of the perverse side effects we were concerned about have emerged – at least not yet.

Looking Ahead

We are now beginning a follow-up study that will continue to monitor a-g course-taking by students in the class of 2016 through the end of their 10th-grade year; in addition, we will follow the class of 2017 (the second cohort of students bound by the new requirement)

through the end of their 9th-grade year. We expect that this report will provide more definitive signs of whether the graduation rate will fall due to the new graduation policy and which student subgroups face the greatest risk of not graduating.

In our new report, we also expect to study a reform in San Diego Unified, which has recently increased spending on summer-school programs to help students meet the a-g course-work requirement. We will assess whether this expansion of summer school is helping students to get on track toward meeting the district’s new college-prep course-work requirements.

Julian Betts is a professor of economics and the executive director of the San Diego Education Research Alliance (SanDERA), which is a research center housed in the Department of Economics. Sam Young is a doctoral candidate in the Department of Economics. Andrew Zau and Karen Volz Bachofer are senior statistician and director of SanDERA, respectively. The authors are grateful to the Yankelovich Center for Social Science Research at UC San Diego for financially supporting this research project.

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Banner Year for Job Placement

By the Department of Economics

This year was unprecedented in the number of our graduate students on the job market. There were 26 candidates in the cohort, including three students who obtained jobs before the market began. Though demand was fortunately strong, it has been a long ride. The market has played out slowly, as the top institutions extended their first offers quite late. After withstanding extended delays between interviews, fly-outs and offers, nearly all students have found matches. The hard work leading up to this phase has paid off with another year of fantastic outcomes.

Half of the students have chosen positions at leading academic institutions:

This set includes representatives from the entire array of fields. Macrofinance economist Larry Schmidt had broad success and ultimately decided to join the faculty at the University of Chicago. Zheng Fang, one of our two econometricians, will also be in the Midwest at Kansas State University. Our other econometrician, Juwon Seo, will be moving a bit farther away to Singapore's flagship university, the National University of Singapore. Behavioral and experimental economist Andy Brownback will be heading to the University of Arkansas, while public economist Anh Pham accepted a position at George Mason University.

Those with environmental economics as an area of specialization were overrepresented among those landing tenure-track positions: Stephie Fried, Matt Gibson, Jamie Mullins and Tamara Sheldon are off to Carleton College, Williams College, UMass Amherst and the University of South Carolina, respectively. Two other environmental economists will also be affiliated with universities: William Leung accepted a joint research position at UC Davis and the California Air Resources Board, and Chris Steiner will be a visiting assistant professor at Penn State University.

The other half will begin their careers as researchers in government, nonprofit or private-sector institutions:

Government opportunities attracted several of our students with macroeconomic and applied microeconomic expertise. Financial econometrician Sungje Byun will be at the Federal Reserve Bank of Dallas, while macroeconomist Hie Joo Ahn will be at the Federal Reserve Board of Governors. Health economist Matt Knepper, labor economist Marina Kutyavina and public economist Erin Troland will also be in Washington, D.C., at the Bureau of Economic Analysis, the Congressional Budget Office, and the Department of the Treasury, respectively.

The remaining candidates were recruited to positions in nonprofit and private-sector organizations with agendas that align well with their research interests. Denise Clayton, a health economist, is joining the Research Triangle Institute. Ben Miller, an environmental and public economist, will be at RAND. Ling Shao, a labor economist, has accepted a position at Amazon. Public-policy expert Andrew Chamberlain has taken on the challenge of being the first chief economist at Glassdoor, while behavioral and experimental economist Matt Goldman has accepted a position in the office of the chief economist at Microsoft. Financial economist Xuan Liang will be joining Moody's Analytics. Yana Morgulis and Mike Wither will be applying their applied microeconomic expertise at the Boston Consulting Group, and Charles River Associates, respectively.

Congratulations to the graduate students and to the faculty and staff who supported them. Thank you all for contributing to the department's continuing reputation for producing outstanding economists.

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