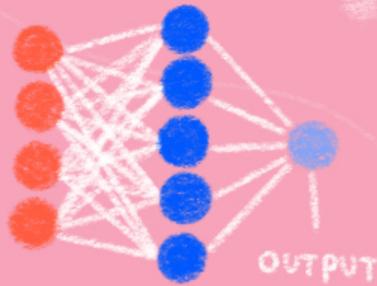


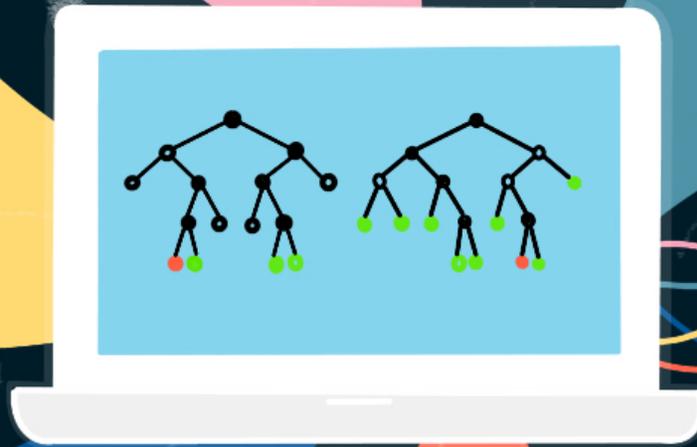
BRIGHAM YOUNG UNIVERSITY

ECONOMICS

DEPARTMENT MAGAZINE | ISSUE 8 | 2019



$$y = x\beta + \varepsilon$$
$$\hat{\beta} = (X'X)^{-1}X'Y$$
$$\hat{\beta}_1 = \frac{\sum_{i=1}^n (x_i - \bar{x})y_i}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

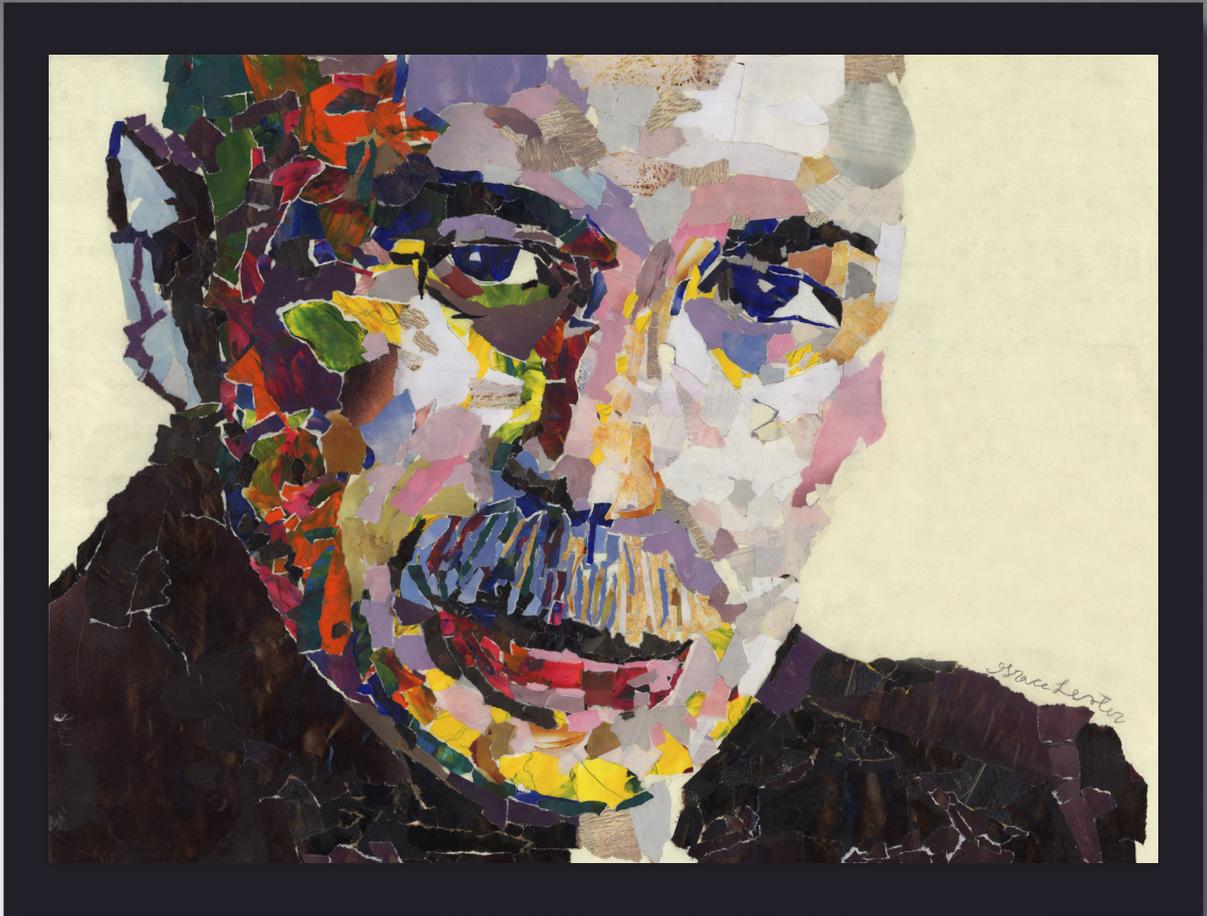


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16 WHEN ARE TWO BADS BETTER THAN ONE?

BYU ECONOMICS ART CONTEST WINNER



John Maynard Keynes : Macroeconomist

ARTIST : GRACE LESTER

MEDIUM : PAPER & PAINT

ECONOMICS

FROM THE CHAIR



Hello from the Econ Department! This year's magazine opens with the winning entry to the First Annual BYU Economics Department Art Contest (inside cover. Artist: Grace Lester). The contest is open to

all, with the stipulation that it ought to include some nod to economics. This piece, along with other top entries, now adorns the hallway of the Crabtree building which temporarily houses the Econ Department. Please stop by if you are in town.

We note with sadness that our Department Office Manager, Terri Moser, is moving on to higher things in the university. She has been a wonderful addition to the department over the last three years, and we will miss her.

Special thanks goes to staff, faculty, and students for putting together this year's magazine. Jessica McDowell led the effort as editor, with design expertise provided by Sohee Choo. We also want to welcome our newest faculty member, Emily Leslie!

We hope you enjoy the magazine!

Sincerely,

Mark Showalter
DEPARTMENT CHAIR

Visit our website, economics.byu.edu, for more information about BYU Economics!

FEATURES



MACHINE LEARNING AND ECONOMICS: COMPLEMENTS OR SUBSTITUTES?

Professor Brigham Frandsen discusses the role of machine learning in economics and the new Machine Learning for Economists course.



YOU & ME & OUR ECON DEGREES

Alumni share their favorite parts of being married to a fellow econ major.



MEDITATION IN AND OUT OF THE CLASSROOM

How can you live a calmer life? Professor Steve Waters shares his experience and advice for overcoming anxiety through meditation.



WHEN ARE TWO BADS BETTER THAN ONE?

Why do people make self-destructive decisions? Recent research by Professors Lefgren, Stoddard, and Stovall seeks to answer that question.

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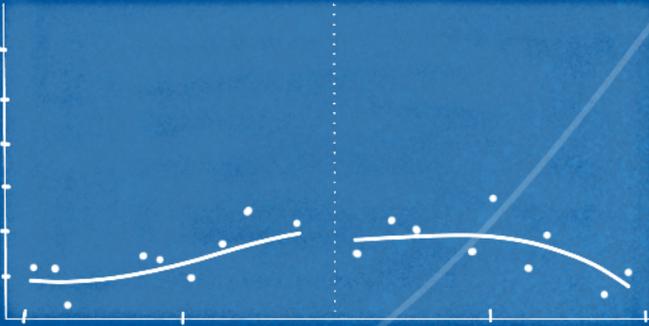
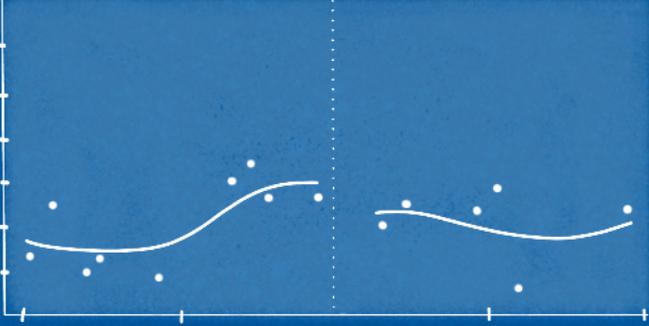
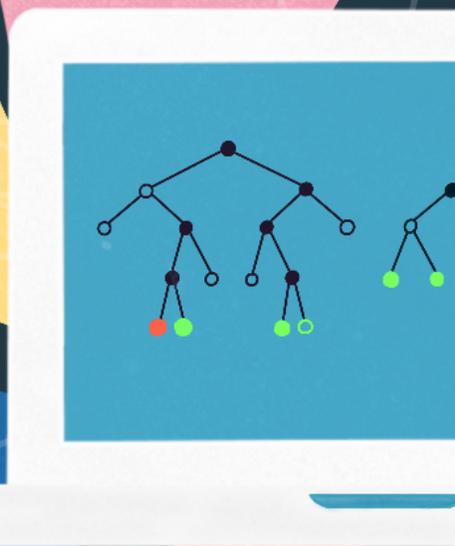
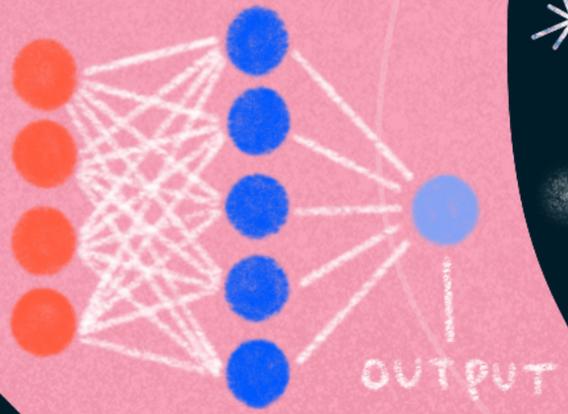
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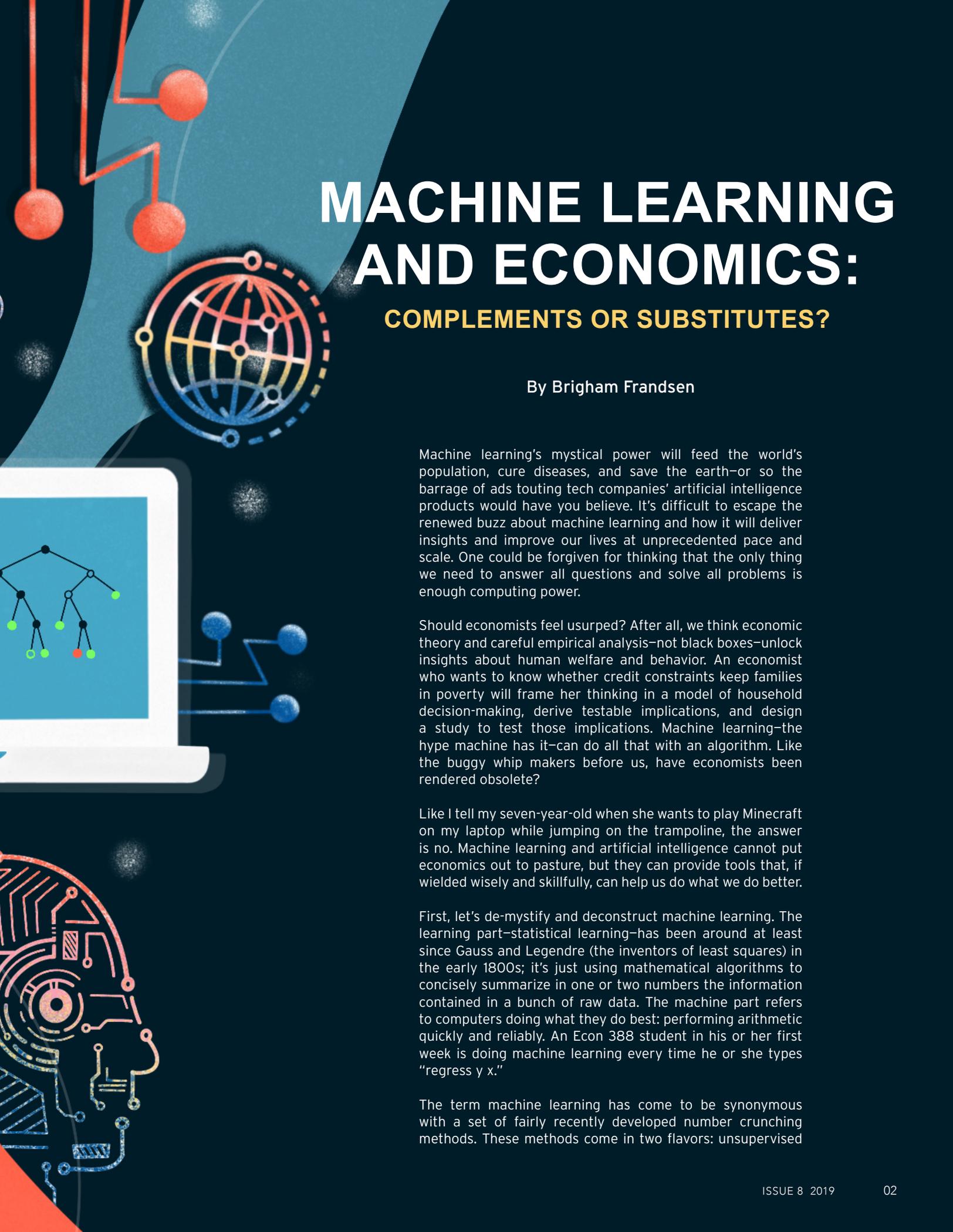
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MACHINE LEARNING AND ECONOMICS:

COMPLEMENTS OR SUBSTITUTES?

By Brigham Frandsen

Machine learning's mystical power will feed the world's population, cure diseases, and save the earth—or so the barrage of ads touting tech companies' artificial intelligence products would have you believe. It's difficult to escape the renewed buzz about machine learning and how it will deliver insights and improve our lives at unprecedented pace and scale. One could be forgiven for thinking that the only thing we need to answer all questions and solve all problems is enough computing power.

Should economists feel usurped? After all, we think economic theory and careful empirical analysis—not black boxes—unlock insights about human welfare and behavior. An economist who wants to know whether credit constraints keep families in poverty will frame her thinking in a model of household decision-making, derive testable implications, and design a study to test those implications. Machine learning—the hype machine has it—can do all that with an algorithm. Like the buggy whip makers before us, have economists been rendered obsolete?

Like I tell my seven-year-old when she wants to play Minecraft on my laptop while jumping on the trampoline, the answer is no. Machine learning and artificial intelligence cannot put economics out to pasture, but they can provide tools that, if wielded wisely and skillfully, can help us do what we do better.

First, let's de-mystify and deconstruct machine learning. The learning part—statistical learning—has been around at least since Gauss and Legendre (the inventors of least squares) in the early 1800s; it's just using mathematical algorithms to concisely summarize in one or two numbers the information contained in a bunch of raw data. The machine part refers to computers doing what they do best: performing arithmetic quickly and reliably. An Econ 388 student in his or her first week is doing machine learning every time he or she types "regress y x ."

The term machine learning has come to be synonymous with a set of fairly recently developed number crunching methods. These methods come in two flavors: unsupervised

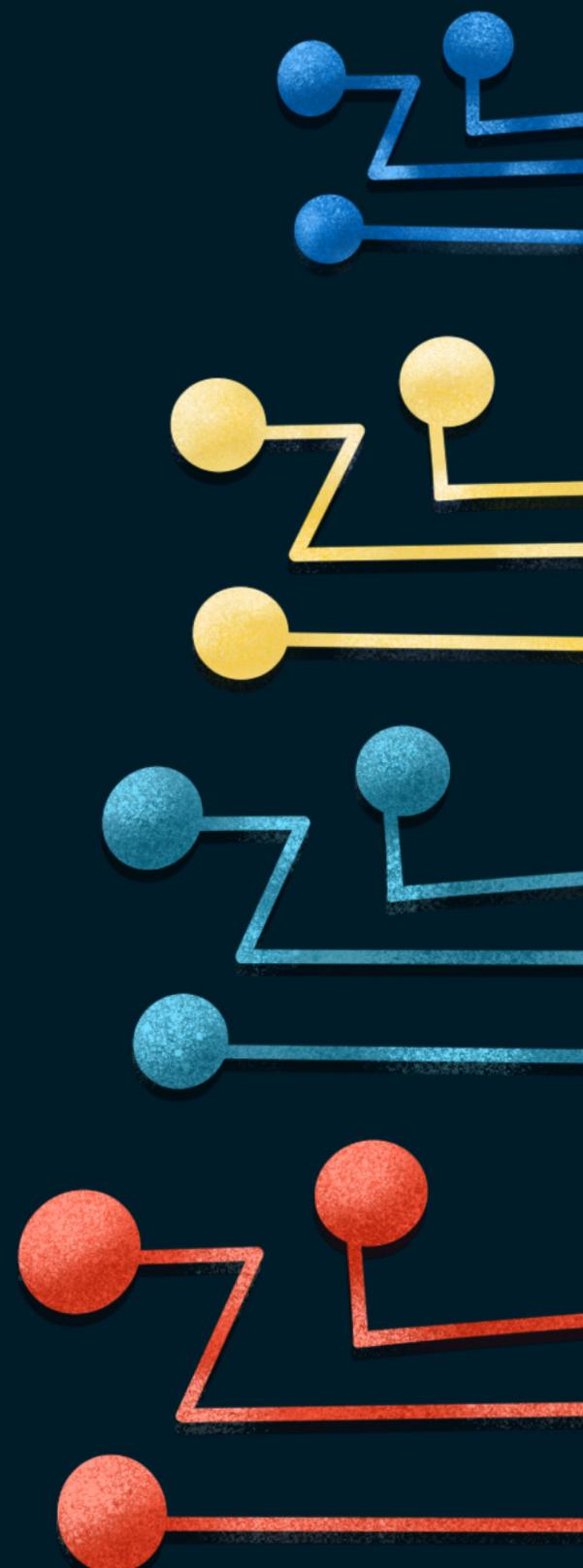
and supervised (computer scientists do have one thing on economists; they have taken seriously the charge to multiply and replenish the world's jargon). Unsupervised machine learning takes as its input a dataset with lots of candidate explanatory variables ("features" as computer scientists have it) and spits out a much smaller number of explanatory variables that capture much of the variation in the large set of input variables. Examples include principal components analysis (PCA) and k-means clustering. Supervised machine learning takes as its input a sample ("training set" to computer scientists) with observations on an outcome variable ("label") and a bunch of explanatory variables and spits out a black box that can then be used to translate explanatory variables to a prediction for the outcome. Examples here include regression trees, random forests, neural networks, support vector machines, and LASSO. Both flavors have their uses, but supervised machine learning is closer to what economists do, so we'll focus on that.

At first blush, a black box that promises to take x-variables and deliver a prediction for a y-variable would seem to make obsolete all the work empirical economists do. But machine learning can't replace what economists do, for two reasons. First, economists focus on causal relationships. These reveal the consequences of possible future changes in policy or personal decisions. Machine learning describes relationships in the past. This is nothing more than the old adage "correlation is not causation." Second, machine learning turns x-variables into a prediction (y-hat, in our parlance). It says nothing interpretable about which x-variables contributed how much to y-hat. Machine learning gives predictions, but economists want to know relationships. Is a method that gives correlation instead of causation and predictions instead of relationships useful? Immensely, just not necessarily to economists. Netflix desperately wants to predict which movies you want to watch. Someone's life depends on whether your Tesla thinks it's looking at a pedestrian or a fire hydrant. Those just don't happen to be questions economists are trying to answer.

So do economists have any use for modern machine learning methods? Yes, but not directly. Machine learning cannot answer the questions economists are asking, but it can provide inputs to help us answer them. Machine learning seems well-suited for three roles in applied economics: (1) a method to control for a potentially large number of confounding factors in a regression; (2) as the first stage in instrumental variables (ongoing research I am doing with Josh Angrist suggests caution here); (3) to create new data (genealogy record linking, satellite images to infer economic activity, etc.).

Finally, machine learning may prove valuable for something else economics faculty members should care about: useful (read: lucrative) skills for our students. Although economics as a social science discipline has fairly limited uses for machine learning, data science skills are in high demand. Helping our students acquire the skills and learn how and when to wield them will make them attractive hires in many fields. Whether they knew it or not, generations of BYU economics graduates have already gained top-notch data science and machine learning skills by taking Econ 388, 488, and 588. Starting in fall 2019, we will offer Econ 484: Machine Learning for Economists in which students will learn the theory and practice of modern data science methods, the place they have in economics, and the kinds of questions they can and cannot answer.

Is more computing power all we need to answer the most pressing questions and solve the world's problems? No, we still need economists for that. But perhaps machine learning can help us do it a little better.





The Friendliest of Neighbors By Emma Pankratz

In December of 2018, the Economics Department moved from the Faculty Office Building to its temporary home on the fourth floor of the Crabtree Technology Building. While the department was sad to leave behind the building that had been its home for over thirty-five years, the CTB brought one advantage that has recently been lacking in the FOB: neighbors!

These aren't the kind of neighbors who'll be able to lend the department a cup of sugar, though I'm sure they'd be happy to if ever it was needed. Instead, the School of Technology can lend something vastly more valuable—a wealth of technological knowledge and application they're developing and willing to share, not just with the Economics Department, but with the world.

As part of the Ira A. Fulton College of Engineering, the School of Technology takes technology beyond sitting at a computer to real-world applications. With programs ranging from Construction Management to Industrial Design to Facilities & Property Management, the School blends technological aspects with a variety of applications, such as teaching, drawing and model making, manufacturing, and construction projects. Many of their programs are highly ranked nationally, and their Information Technology graduates are some of the most in demand BYU graduates.

When the School of Technology was first formed, its offices were actually on the fourth floor of the CTB—where the Economics Department offices are now located. Their current office space on the second floor instead housed a research lab. When the need for more space became apparent in the mid-90s, the lab was renovated, and the School of Technology moved in. Now, the Crabtree Building is filled not only with the School's office spaces, but with labs that provide hands-on opportunities for students to hone their crafts and test new ideas. Students are able to create prototypes for product development, use both plastic and metal 3D printers, practice welding and refinery skills, create and work on furniture in wood shops, mix and manipulate cement, and so much more.

The School of Technology teaches its students to use technological resources to solve problems that make life easier and better. A large part of economics is the study of how people use resources and respond to incentives, so not only are the School of Technology and the Economics Department neighbors—they're family.



YOU & ME & OUR ECON DEGREES

What's it like being married to a fellow econ major? Check out these alumni's responses.

Q: How did you meet?

We met in Stat 441 toward the end of the first semester after Katie returned home from her mission. Katie felt as though all math had left her in the previous eighteen months, so she spent some quality time at the TA lab for the course. Brad was often there as well, in part hoping to get a chance to introduce himself to Katie. The following semester Katie took Econ 588 with Dr. McDonald, which Brad had taken the year before, but he often attended anyway (ostensibly to refresh his memory about the material, but in reality to talk to Katie). After a while, Brad finally got the guts to ask Katie out, and Katie finally noticed that Brad was interested.

Q: What are you each doing now? How do you use economics in your current endeavors?

Brad is an economics professor at Stanford University, and Katie spends her days at home with their kids. Brad's use of economics is probably self-evident. He researches, teaches, and advises students in industrial organization economics every day. Besides understanding Brad's research issues better than if she had no econ background, Katie uses economics when critically assessing various confidently asserted positions as well as

making decisions about how to allocate time, money, energy, LEGOs, and other scarce resources in their family.

Q: How has being econ majors impacted your marriage?

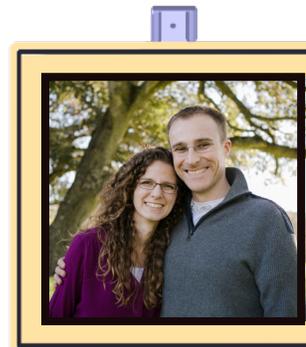
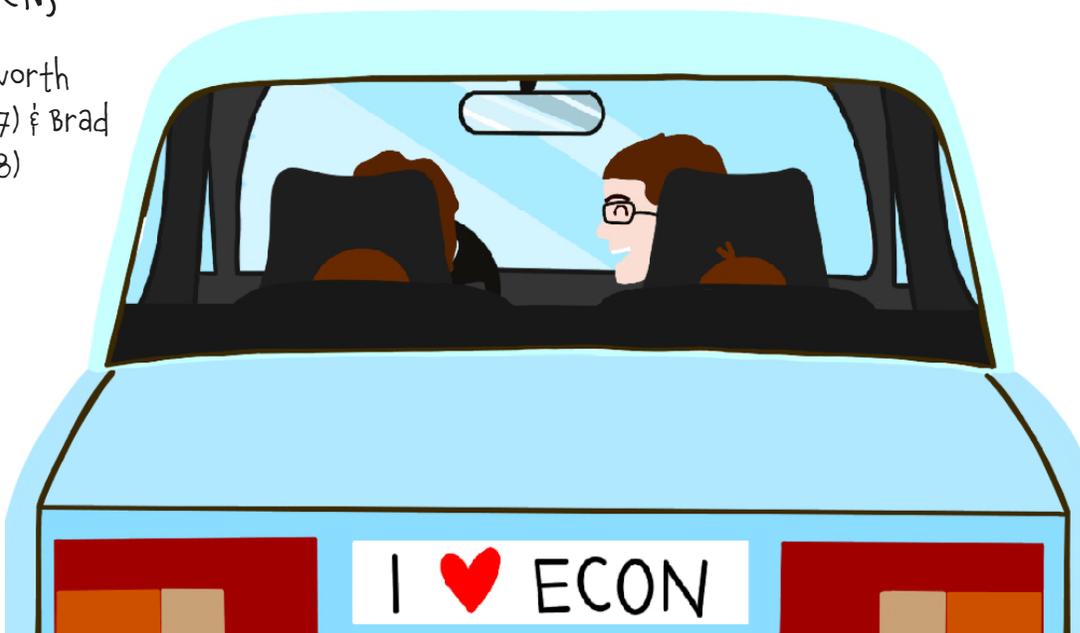
It gives us a shared language that we use, mostly tongue-in-cheek, but occasionally earnestly when we make decisions large and small. One example is how we do long drives as a family. Long ago, we decided that Katie had both the comparative and absolute advantage in driving, and Brad had at least the comparative advantage in entertaining the kids, so that is how we do almost every long drive, or even just the drive to church. Our younger kids have been known to ask Brad, "Why are you sitting in Mom's seat?" or "Dad, do you even know how to drive?" when he occasionally takes the wheel.

Q: If you have kids, how have you taught them economic principles?

We haven't proactively taught our kids economic principles, but these principles come up in unplanned conversations—sometimes because we are discussing economics and the kids want to know what we're talking about. We can recall multiple discussions with the kids about where prices come from, the benefits of competition, and the definition of collusion.

The Larsens

Katie Farnsworth
Larsen (2007) & Brad
Larsen (2008)



The Fairchilds

Angelyn Otteson Fairchild
(2010) & Ryan Fairchild (2010)



Q: How did you two meet?

A: My husband Ryan and I met in Econ 380 with Dr. Lefgren in 2007 where we cracked jokes about Giffen goods and carved the Slutsky equation into a pumpkin. We also gave [Dr. Lefgren] the Slutsky pumpkin. (He said it was the best gift he ever received; he carried that pumpkin around campus for a whole day.) We got married in 2009 and graduated in 2010.

Q: What did you like about having the same major as your spouse?

R: I loved that we got to hang out and that, really, by having the same major, it led to us dating and getting married. But even more than that, I love that the major reflected a commonality in how we thought and communicated. We still use economic terms to talk about decision-making and still tell econ jokes to each other. Economics, in some weird way, also reflected who we were as people and how we fit.

A: Economics has become a logical language that we both speak. Some of that is rooted in the intellectual experience of learning to think like an economist, but some of it came from moving through our courses at the same time. We remember the same jokes and classroom examples; we spent hours together deriving equations on whiteboards, and even when we took different upper level electives, we were under the same basic pressures. That made it easy to empathize and understand one another's struggles and also allowed us to work out answers together based on our studies in different classes. It also provided a measure of intellectual respect that has been enduring—we know we are fairly equally matched, and as we have diverged into very different fields and developed our own comparative advantages, that basic feeling of equal footing remains.

Q: What are you each doing now? How do use economics in your current endeavors?

A: Ryan is now a lawyer starting a niche practice representing professional video game players. I have been working in health economics research consulting for the past eight years or so,

and an econ degree was a prerequisite when I first applied for the job that ended up leading me here. I use micro theory and econometrics every day—I spend a lot of time thinking about tradeoffs and utility optimization and how to design data collection tools that will represent a utility-theoretic decision framework while generating data that I can reliably use. I also use Stata (and other programs) almost daily running models and interpreting the results. I find myself wishing that I had opted to take the more rigorous math and econometrics classes, though at the time I didn't think they would be relevant. I will be starting a PhD in Business Strategy at UNC Chapel Hill in the fall.

R: While economics is generally useful in law, understanding the economics of esports is key to understanding the industry. Revenue flow and incentives color everything from licensing deals to contracting to business decisions to disputes and more. I think about the economics of esports nearly every day, and I tend to think of the industry more holistically because, at root, I still love economic thinking and how that informs and shapes decisions.

Q: If you have kids, how have you taught them economic principles?

R: I don't know that we've talked about them explicitly, but we may have, and I know we bring up analogies and examples. I do talk to them about how they choose to spend their allowance (if you buy this LEGO set, you won't be able to buy XYZ or get the Bank of Parents interest rate, etc.), so that's opportunity cost indirectly. I'm sure more of those principles find their way in, whether implicitly or otherwise.

A: We also think a lot about incentive structures when we make household rules and norms—we want to create a system that encourages the kids to make good choices with the least possible friction, and incentives play a big role there. I also have found that a little bit of psychology/behavioral economics combined with economic theory goes a long way in understanding why humans (kids and adults) do some of the seemingly irrational things they do.

Q: How did you meet?

S: We met in Dr. Phillips's Econ 382 Macroeconomics class. We first spoke because I didn't have an assignment and knew Raelynn's name, so I called her to get the assignment. Raelynn thinks that calling her about the assignment was a scheme to ask her out, but I really needed the assignment. I also didn't need to rely on a fabricated reason to talk to her. I later used my "skills" to ask Raelynn out.

R: Sam knew my name because he stole it off my notes or homework or something, looking over my shoulder in class. We always sat on the same row but had never talked until he called me about homework. In those days, he called BYU information from a landline. I hadn't even realized that we sat close enough for him to see my paper. But we started studying together, and the rest is history. You can decide what is the real story.

Q: What did you like about having the same major as your spouse?

S: We didn't get married until after graduation, but we were engaged our final semester. Having Raelynn to study with that semester was great for me; I got my best economics grades ever. For Raelynn, it was more of a distraction; she got her worst grades.

R: It was really fun having the same professors, knowing the same students, working on and discussing assignments, and graduating together. The Economics Department was small, so we got to know our professors and the other students well. You definitely felt like you were a part of something great and it was even better to share that with Sam. Dr. Farrell Jensen would also give us marriage advice. I should have written some of that down!

Q: What are you each doing now? How do you use economics in your current endeavors?

S: I'm a tax attorney who works for Ernst & Young in its business tax advisory group. Although I don't use economics directly, the economics knowledge I gained is always in the background. I also enjoy keeping up on economics by listening to economics themed podcasts and reading about economics.

R: My love of econometrics led me to getting my master's degree in Statistics. I worked for seven years in that field before staying at home full time. I feel like economics still impacts my life. For example, I can take advantage of my son's inelastic demand to play the Wii by requiring extra chores from him before he can play. Living with kids is all about maximizing everyone's utility, minimizing opportunity costs, and working within the confines of irrational decision makers. Every family has its own economy having nothing to do with money. People unfamiliar with economics just might not see it that way.

Q: If you have kids, how have you taught them economic principles?

S: Given my career, I'm more about taxing than maximizing utility.

R: We asked our kids (ages nine and fourteen) if we've ever taught them any economic principles and weren't too surprised when they seemed to have no idea what we were talking about. But we can see our kids doing simple cost-benefit analyses or responding in various ways to incentives. They even see the impact of inflation when a trend begins, everyone jumps on it, and then suddenly it's not so cool anymore. Helping them to think about economics comes from asking them questions about what move to make rather than dictating each move they make. I guess we just need to use more lingo because without BYU Economics, they wouldn't be here!

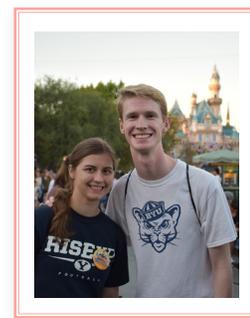
The Williamses

Raelynn Barton Williams (2000) †
Sam Williams (2000)



The Lannings

JENNIFER BICKHAM LANNING (2015) &
RYAN LANNING (2016)



Q: How did you meet?

R: My first semester at BYU after my mission, I lived in the same housing complex she was in, and we were in the same YSA ward.

Q: What did you like about having the same major as your spouse?

J: Honestly, I felt a bit indifferent that Ryan was majoring in economics. I was just about to graduate, and he was still finalizing his choice of major shortly after his mission. I'm pretty sure we were married before he even decided to finish up with economics. But I did appreciate that he was taking some of the same classes I took, and that helped us to think similarly about approaching different choices.

R: Jennifer was ahead of me and was also really good at math (her other major), so she could help me figure out some hard stuff and knew which professors and classes to seek out and avoid.

Q: What are you each doing now? How do you use economics in your current endeavors?

J: I stay home with our kids and live my crazy life of cleaning, food preparation, groceries, budgeting, church callings, and teaching children. I suppose the main things I use economics for in my life are subconsciously with things like comparative advantage (such as, is it worth the time to make yogurt myself to save the money of buying yogurt? Hint: Yes), opportunity costs (vacation planning, grocery shopping, etc.), and sunk costs (it is just time to forsake those not very good leftovers and move on to eating better food).

R: I am a data analyst for a large window and door manufacturer. I often use ideas from econometrics when I'm determining relationships between different metrics that the business uses.

Q: Can you think of any times when your econ major has impacted your marriage?

J: It helps that we think similarly about time and money management with how we run our family. We both approach decisions with the same basic understanding of how it could affect other decisions in our life. A simple example is with our vacation planning. We know that Ryan only gets a certain amount of time off, and we have chosen to allocate a certain amount of money to our vacation fund. We decide together which vacations are most reasonable given time and money (and children) and can plan something fun together that we are both excited about, even planning the details of the trip with economic principles in mind.

R: Opportunity costs are everywhere! You can only spend the same dollar once, so we have to make sure it is on what is most important or what gives us the most utility. And sometimes time is worth more than money, so it is easy to decide to call the plumber instead of trying to unclog the kitchen sink for another entire evening.

Q: If you have kids, how have you taught them economic principles?

J: Our oldest kid isn't quite three, so we haven't started training him in game theory or econometrics just yet. We'll start that in the next year or two. But we do teach our children principles like opportunity cost (you can have this color of plate or this color, not both) as we teach them how to be respectable human beings.

R: It's all about choices! Put your toys away, or get in trouble. Eat your peas, or skip dessert. I think helping children understand choices and trade-offs is very important.



The Wikles

Jocelyn Smith Wikle (2002)
 & Brian Wikle (1999)

Q: How did you meet?

Dr. Larry Wimmer unknowingly played cupid. We met when we were both hired by Dr. Wimmer for an econ research project. Who would have thought that digitizing Civil War veterans' health records in the old press box shed behind the FOB could be romantic, even when reading about unmentionable ailments? We began studying for our class together and continued to hang out for two years until we were ready to step up our relationship. Being good friends before dating has made it easy to be each other's best friends now.

Q: What are you each doing now? How do you use economics in your current endeavors?

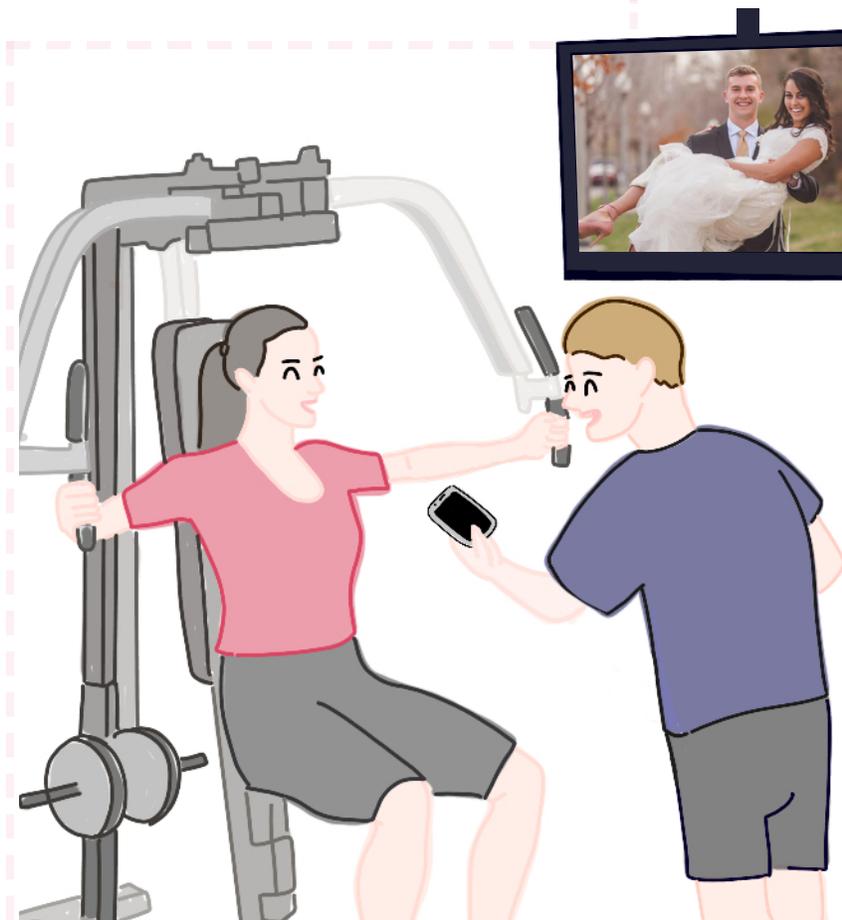
Brian, Senior Economist with Utah's Office of Legislative Fiscal Analyst, applies economic principles in budget projections and policy analysis. With a PhD from the University of Texas, Jocelyn recently wrapped up teaching BYU economics students and hopes they will apply sound economic principles in government and the private sector.

Q: How has being econ majors impacted your marriage?

We like to talk about principles that we see cropping up in life around us, and it's fun to have each other as sounding boards. We also enjoy stepping outside of economics. Brian organizes outdoor activities for our family and has passed on his love for nature to the rest of us. Jocelyn regularly takes our family to live music events and is hoping that someday the children will stop dragging their feet.

Q: If you have kids, how have you taught them economic principles?

Oh, the poor children. While the neighborhood kids wear T-shirts emblazoned with "Utah Jazz" or "Star Wars," our children are reduced to wearing shirts with the message, "Keep Calm, Kearn On" or "95% Confident." Without hesitation, our children let us know that having economists as parents means never going to Disneyland, LEGOLAND, or even Lagoon. We were shocked to learn that our well-planned vacations centered on the U.S. Mint, our Regional Fed, and Wall Street (even with the accompanying cool opportunities in those neighborhoods) were not their idea of fun. So if nothing else comes from this article, at least there will be four happy children going to Harry Potter World this fall.



The Tengelsens

Laura Carter Tengelsen (2011) †
Ben Tengelsen (2012)

Q: How did you meet?

We met while we were doing homework in the Math Lab. Laura was doing linear algebra, and Ben was doing differential equations. He asked to borrow her calculator, and the rest is history!

Q: What did you like about having the same major as your spouse?

It was fun to have a class together—we got to share the joy of 588 with one another. But mostly it's nice to view the world through the same lens and be able to make nerdy jokes that the other person understands (particularly Ben :))

Q: What are you each doing now? How do you use economics in your current endeavors?

Laura followed up her econ degree with an MA in Public Policy and Management from Carnegie Mellon University. Most of the time, she is at home with our three kids, ages six, four, and two. She also looks for opportunities to use her analytic skills with the local government and school system.

Ben finished his PhD in econ from CMU in December. He currently works as the director of data science at IntelyCare, a high-tech nurse staffing agency and software company. He uses econ every day to create pricing algorithms.



Q: How has being econ majors impacted your marriage?

Our oldest son is named after an economist. It started with a discussion that went like, "We would never actually do this, but if we had to name our child after an economist, who would it be?" Then three days after our son was born, we still didn't have a name until Laura suggested "Nash." It was the only name where neither of us chose to deviate, so Nash it was!

Q: If you have kids, how have you taught them economic principles?

Last weekend, our two boys, ages four and six, held their first ever lemonade stand. The day before, we were making a sign for the stand and asked the boys what the price should be. Our oldest thought for a bit and then suggested \$5! After a quick discussion that amounted to "demand curves are downward sloping," they settled on \$1. They made a quick \$20 and immediately spent it all on LEGOs.

Q: How did you two meet?

We met in the BYU student gym. I walked up and asked her out while she was using the fly machine. Our first date was at Coldstone.

Q: What are you each doing now? How do you use economics in your current endeavors?

We are currently working as Quantitative Marketing research assistants for Dr. Jeff Dotson in the Marriott School of Management. We are preparing to enter Business PhD programs at Drexel University this fall. I will be studying Business Analytics, and Morgan will be studying Quantitative Marketing. We utilize econometrics daily during our research, and we anticipate utilizing it throughout our PhD programs and our future careers.

Q: What did you like about having the same major as your spouse?

We really like being able to talk about economics and relate economics to whatever is going on in our lives. We work

The Bales

Morgan Rhodes Bale (2017)
† Cameron Bale (2019)

on homework assignments together and currently work as Quantitative Marketing research assistants together, where we utilize econometrics to analyze scanner data. Morgan went through the econ program at BYU before I did, so she was able to help me decide which classes to take and from which professors. The econ program has helped us develop a good way of thinking about the world around us and how we interpret it, especially causal relationships.

Q: How has being econ majors impacted your marriage?

We use comparative advantage to get things done around our apartment quickly. While cleaning the apartment or preparing food, we've learned what we are good at, and we specialize in those things, so that we accomplish and produce things more quickly. We also make sure we don't consider sunk costs when making decisions, and we do consider opportunity costs, such as what is my real hourly wage if I get paid \$20 per hour to tutor but have to spend time preparing for and driving to and from the tutoring session?



[RILEY WILSON] [JOCELYN WIKLE]

THE IMPACT OF HEAD START PRE-SCHOOL ON THE EMPLOYMENT DECISIONS OF SINGLE MOTHERS

There has been a sustained interest in understanding how the federal, low-income preschool program, Head Start, affects the accumulation of cognitive and non-cognitive skills of participating children. Most of the research finds that Head Start leads to short run gains, which fade out quickly over time. However, a relatively new literature extending the analysis to long run outcomes, such as high school graduation or earnings, has found evidence that Head Start leads to long run improvements.

Although this is often interpreted as the value of early childhood education interventions, this simplification ignores the fact that Head Start not only affects the child enrolled but also affects the decisions and constraints faced by family members. For a low-income single mother, access to Head Start likely provides a massive childcare cost subsidy, which might affect her labor supply decisions in both the short and long run. In a working paper, Jocelyn Wikle and I attempt to identify the impact of Head Start on the work decisions of single mothers by exploiting several sources of quasi-experimental variation at different points in time.

As part of the 1998 Head Start Reauthorization, Congress determined that an experimental study should be conducted to evaluate the impact of Head Start on children's educational outcomes. Using a lottery at over-subscribed Head Start centers, Head Start applicants were randomly awarded Head Start slots. For the next four years, applicants' parents were re-interviewed, allowing us to track their labor supply decisions as a function of

the Head Start treatment status. From this experiment, we find that Head Start increased labor supply among single mothers, leading to stronger labor force attachment and more full-time work. The treatment effects were largest for women offered Head Start at centers that offered full-day programs and among women without younger children. There is some evidence that Head Start increased employment and income in the long run as well.

To understand the broader impacts of Head Start on maternal labor supply, we also exploit variation across cities in Head Start funding, created by the Head Start Expansion and Quality Improvement Act of 1990. This policy increased funding (and enrollment) proportionally based on pre-expansion funding levels. As such, we are able to compare single mothers with age-eligible children to single mothers with younger children and estimate how increased Head Start funding affects mothers' employment. We find that increasing Head Start funding increased employment and earnings among eligible mothers.

When conducting a cost benefit analysis of Head Start, we should consider the indirect employment and income benefits accrued by mothers of participants. These benefits might also prove an important mechanism for understanding how Head Start improves children's long run outcomes.

Wikle, Jocelyn, and Riley Wilson. 2019. "The Impact of Head Start Pre-School on the Employment Decisions of Single Mothers."



[BRIGHAM FRANSDEN]



[LARS LEFGREN]



[EMILY LESLIE]

JUDGING JUDGE FIXED EFFECTS

Judges have the final say on a variety of decisions. They determine everything from whether a defendant in a criminal case will be held in jail while the case is being adjudicated to whether some people can keep getting government disability assistance. It turns out that there is a lot of variation across judges in how lenient they are in their decision-making. A growing number of researchers in recent years have taken advantage of this variation, and the fact that cases are often randomly assigned to judges, to answer policy-relevant questions like, does being held in jail pretrial make people more likely to be convicted? How do disability benefits affect how much a person decides to work?

For this research strategy to work, there are a few assumptions that need to hold. One is that the judges can't have other ways of affecting the outcome besides the decision that the researcher cares about. If judges who determined pretrial status also get to decide whether the defendant gets a public defender, then they have two ways of affecting case outcomes, and it's difficult, if not impossible, to disentangle them. Another is that all the judges need to order people in the same way; this

means that anyone put in jail pretrial by a more lenient judge would also be held in jail by a harsher judge.

Brigham Frandsen, Lars Lefgren, and Emily Leslie collaborated to come up with a way to assess whether these assumptions appear to hold. This can help researchers who are thinking about using judge assignment to figure out if their research design is good or not. To understand the idea behind the test, imagine there are two judges who hold the same fraction of people in jail pretrial. If all the assumptions hold, then the defendants who come before these two judges should be pleading guilty at the same rate. If they aren't, that means the judges do other things that affect guilty pleas, or the judges are choosing different types of people to hold in jail. The researchers are creating computer code to make it easy to run the test, so that hopefully other researchers will start using it, and we can be more confident in their findings on the important questions that judges help us answer.

Frandsen, Brigham, Lars Lefgren, and Emily Leslie. 2019. "Judging Judge Fixed Effects." NBER Working Paper No. 25528.

HOW ACQUISITIONS AFFECT FIRM BEHAVIOR AND PERFORMANCE: EVIDENCE FROM THE DIALYSIS INDUSTRY

[PAUL ELIASON]



Healthcare, like many markets, has become increasingly concentrated through mergers and acquisitions. Proponents of this industry trend cite potential benefits of consolidation, including lower costs through economies of scale and better patient outcomes through coordinated care. But greater concentration may also lead to higher costs and lower quality if it diminishes competition among healthcare providers. We study how a wave of over 1,200 acquisitions of dialysis facilities by for-profit chains affected patient outcomes and Medicare expenditures. To do this, we use data on over 400 million dialysis treatments in the U.S., complete with rich metrics on the quality of care received by patients. While previous literature has looked at broad relationships between product quality and market concentration, we are able to unpack this black box and document directly how large chains transfer their corporate strategy to the facilities they acquire, which consequently has a large effect on the cost and quality of their treatments.

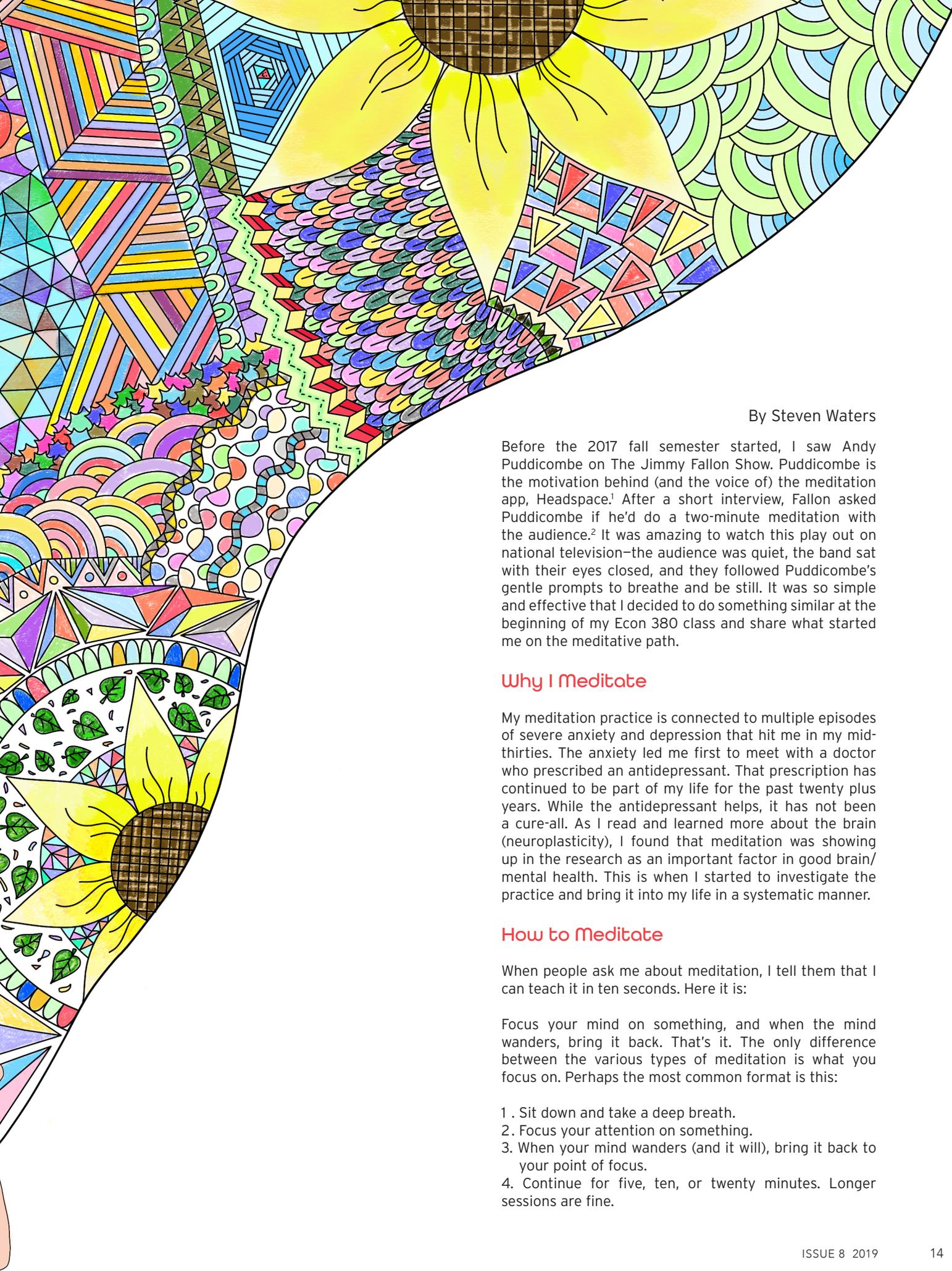
Overall, we find that acquisition increases the profitability of dialysis providers but results in worse outcomes for patients. One of our headline findings is that after being acquired, dialysis providers increase the doses

of a drug called Epogen by 129%, on average. Epogen is a drug used to treat dialysis patients for anemia. Using higher doses wins dialysis providers higher payments from Medicare, but this comes at a cost to Medicare (which spent \$2 billion on this drug in 2010) and to patients, who suffer from side effects of excessive Epogen doses, including increased risk of stroke and heart attack. We also find that acquisition leads to an increase in hospitalizations and mortality and a decrease in the likelihood that dialysis patients receive a kidney transplant or are added to the transplant waitlist. Finally, we show that these effects seem to be the result of the transference of firm strategies from the acquirer to the acquired facility. We find that the acquisition effect is the same for locations where the acquisition changed concentration and those where it did not. This illustrates how market concentration may have detrimental effects that are independent of competitive channels.

Eliason, Paul, Benjamin Heebsh, Ryan C. McDevitt, and James W. Roberts. 2018. "How Acquisitions Affect Firm Behavior and Performance: Evidence from the Dialysis Industry." Forthcoming in *Quarterly Journal of Economics*. *This paper was recently cited in an expert testimony in a House Judiciary Committee Hearing on consolidation and anticompetitive conduct in healthcare markets.

Meditation In and Out of the Classroom





By Steven Waters

Before the 2017 fall semester started, I saw Andy Puddicombe on The Jimmy Fallon Show. Puddicombe is the motivation behind (and the voice of) the meditation app, Headspace.¹ After a short interview, Fallon asked Puddicombe if he'd do a two-minute meditation with the audience.² It was amazing to watch this play out on national television—the audience was quiet, the band sat with their eyes closed, and they followed Puddicombe's gentle prompts to breathe and be still. It was so simple and effective that I decided to do something similar at the beginning of my Econ 380 class and share what started me on the meditative path.

Why I Meditate

My meditation practice is connected to multiple episodes of severe anxiety and depression that hit me in my mid-thirties. The anxiety led me first to meet with a doctor who prescribed an antidepressant. That prescription has continued to be part of my life for the past twenty plus years. While the antidepressant helps, it has not been a cure-all. As I read and learned more about the brain (neuroplasticity), I found that meditation was showing up in the research as an important factor in good brain/mental health. This is when I started to investigate the practice and bring it into my life in a systematic manner.

How to Meditate

When people ask me about meditation, I tell them that I can teach it in ten seconds. Here it is:

Focus your mind on something, and when the mind wanders, bring it back. That's it. The only difference between the various types of meditation is what you focus on. Perhaps the most common format is this:

1. Sit down and take a deep breath.
2. Focus your attention on something.
3. When your mind wanders (and it will), bring it back to your point of focus.
4. Continue for five, ten, or twenty minutes. Longer sessions are fine.

The first step isn't actually necessary because, while sitting is the most common way that meditation is done, you can do it while walking, standing, eating, and, indeed, doing anything, like the dishes (a subset of the standing meditation group). The fourth step isn't about some magical number. The meditation may be as short and simple as one deep, mindful breath or it might be as long as several hours, days, or months.

As for the second step, you might wonder what to focus on. A very common starting point is the breath. Just notice your breath. Don't try to change it or force it to conform to any particular pattern. Just watch it. Where do you feel it? Can you feel it where it comes in at the tip of the nose? Do you feel your abdomen rise? Do you feel your chest expand? What is the moment when the in-breath ends and the out-breath starts? Breathing meditations are nice foundations because everybody breathes, and you always have your breath with you.

Things to Focus On

In the classroom, I start the meditation by having everyone take a deep breath in, hold it briefly, and then let it out slowly. Next, I will give them something to focus on. This might involve counting the breath, a word to hold in the mind, or a phrase to slowly repeat. I remind the students that success in meditation is found every time they bring their minds back to the point of focus. Notice that this means that success is not in having a blank or a calm mind or being in a state of perpetual bliss. Meditation is a practice, and you practice by bringing your mind back to the point of focus every time it wanders.

Here are some things to focus on that can be part of your meditation practice.

Focusing on the Breath

- Counting
- Count to ten, then start again—In (1), Out (2), In (3), Out (4) . . .
- Breathe in to the count of four, hold for the count of four, breathe out to the count of four
- Think the word "In" on the in-breath and "Out" on the out-breath
- Think the word "I" on the in-breath and "Am" on the out-breath

Focusing on Words

- Kindness
- Hope
- Light
- A name of Christ
 - Savior
 - Redeemer
 - Messiah
 - Jesus
 - The Mighty God
 - Good Shepherd
 - Rock

Focusing on Phrases

- "The Lord is my shepherd" (Psalms 23:1)
- "I can do all things through Christ which strengtheneth me" (Philippians 4:13)

- "Be still, and know that I am God" (Psalms 46:10)
- A favorite scripture that you have memorized

When I focus on phrases or words, I let them slowly go through my mind. I'm not trying to see how fast or how many times I can say the words; rather, I'm trying to be still with the words. I'm using the words to help still my mind.

A quote that I apply to meditation comes from Epictetus, the Stoic philosopher, who wrote:

"What ought one to say then as each hardship comes?
I was practicing for this, I was training for this."³

Meditation is how I practice and train for the challenges of life. And, just like exercise, I have to do it regularly, so that I have the conditioning in place for when I really need it. When my mind is being pulled hard toward anxiety, anger, irritation, lust, hurt, pain, greed, envy, pride, gluttony, etc., that is when I put the training to work and pull harder to bring my mind back to a chosen point of focus—over and over again.

A Spiritual Path

While mental health brought me to the meditation cushion, it has been the spirituality of the practice that has kept me there. Meditation has changed how I pray, read the scriptures, worship, and participate in the Sacrament and ordinances of the gospel; it has increased my understanding, practice, and feelings surrounding core gospel principles such as faith, repentance, and the Atonement.

The Psalmist writes, "Be still, and know that I am God," (Psalms 46:10) but when have you been taught how to be still?

President David O. McKay said, "Meditation is one of the most secret, most sacred doors through which we pass into the presence of the Lord;"⁴ but when have you been taught how to meditate? What if being still is as simple as breathing, and meditating is as simple as returning your focus to your breath?

"To pray is to know how to stand still and dwell upon a word."⁵

The striking thing to me about meditation is how deceptively simple it is. As I mentioned above, I teach the basics in ten seconds. One of the challenges I faced early in my practice was feeling like what I was doing was pointless—I mean, I'm just sitting and focusing on my breathing when I could be mowing the lawn, reading a book, or riding my bike. Don't be deceived because of the easiness of the way. Don't forgo a sacred experience because you are not being asked to do some great thing.

Start today. Start by taking a deep breath. Start by just breathing in and breathing out a few times. Start right now by being still.⁶

¹ Information about the Headspace app can be found at <https://www.headspace.com>. I also use the free functions of the app "Insight Timer" that can be found in the Apple App Store and the Google Play Store.

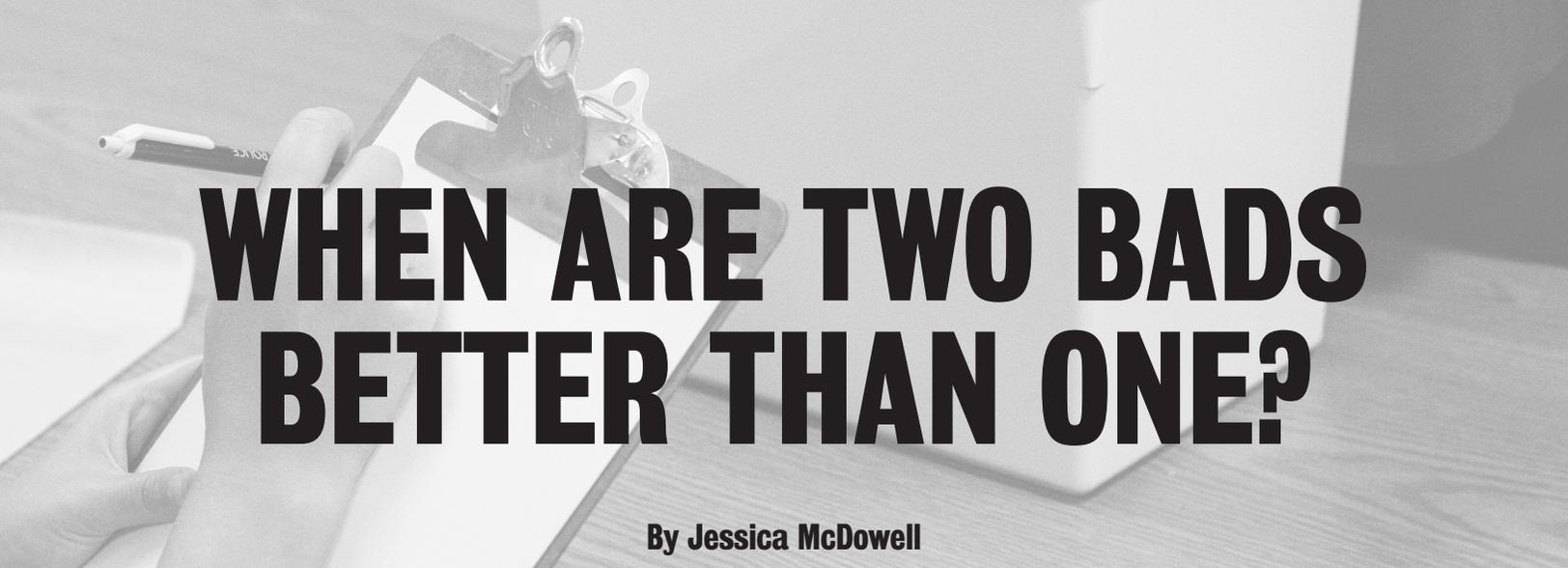
² The two-minute video with Fallon and Puddicombe can be seen at <https://bit.ly/2IEkGU>

³ <https://bit.ly/33i250f>

⁴ <https://bit.ly/2e3duVZ>

⁵ Hesche, A.J., "Man's Quest for God: Studies in Prayer and Symbolism," New York: Charles Scriber Sons, 1954. <https://bit.ly/2lx2PZ>

⁶ If you are interested in additional notes on meditation, send an email to smwaters@byu.edu, and I'll send you the notes (complete with resource links) that I have prepared over the past several years.



WHEN ARE TWO BADS BETTER THAN ONE?

By Jessica McDowell

Have you ever wondered why people make seemingly self-destructive decisions? Why does a family go to Disneyland when their sole bread winner has just been laid off? Or, why does an individual with a rocky marriage, low-paying job, heaps of credit card debt, and a multitude of other problems only seem to focus on ranking highly in the online game Fortnite? Perhaps even more significant, why do people facing deep emotional pain choose to harm themselves?

In “When Two Bads Are Better Than One: A Model of Sensory Limitations,” Professors Lars Lefgren, Olga Stoddard, and John Stovall seek to explain this phenomena within an economic framework.

Forming the Paper

The paper began with a simple idea as Dr. Lefgren was walking from his car to the FOB one day. He explains, “I was wondering why people seem to act in kind of crazy ways in the sense that they have a lot of problems, and they don’t seem to fix any of them. If they fixed their problems, would they actually feel any different? Imagine you’ve got twenty bad problems, would you feel better if you got rid of one of them?”

These questions inspired him to think about salience. If a problem, an object, or a stimulus is more salient (i.e. more prominent or important) than others, then an individual will not be able to focus on anything else—even on other problems or negative stimuli. The paper offers a simple example of this: If you have a headache, and you’re watching a movie, there are sensory limitations that force you to focus on either the movie or the headache. If the headache is too strong, you can’t focus on the movie. However, if the headache is mild enough, watching a movie may actually provide a welcome distraction from the headache. Whichever stimulus is more salient will be the one that keeps your attention.

Dr. Lefgren explained his idea to several faculty members and met with Dr. Stovall, one of the theorists in the Economics Department, to come up with a way to model salience. Dr. Stovall recognized that the idea shared similarities to a model proposed by Strotz in the 1950s¹ and reiterated by Gul and Pesendorfer in 2001.²

The Gul and Pesendorfer theory was used to explain temptation, but as Stovall describes of the paper, “We’re just reinterpreting that here . . . giving it a new story, one that’s novel and hasn’t been done before. So, the theory itself is not new, but our interpretation of it is new. We’re essentially giving it different names. Instead of temptation, we’re calling it salience.” Furthermore, their paper explores questions not previously studied in economics.

Once the theoretical framework was in place, Dr. Lefgren approached Dr. Stoddard about using a lab experiment to test the theory.

Testing the Theory

As Dr. Stoddard recalls, she was at home when she got a call from Dr. Lefgren. “The very first thing he said was, ‘I have this idea. What would you do? Would you rather hold one hand in cold water or two hands in cold water?’” Dr. Stoddard found this thought experiment and its application to economics intriguing and joined Dr. Lefgren in designing an experimental protocol to test the theory.

“In the experiment, what we wanted to test was whether individuals would prefer enduring two negative stimuli as opposed to the more salient [or noticeable] of the two,” Dr. Stoddard explains. Though she has run dozens of lab experiments, this one was particularly unusual for Dr. Stoddard, since she typically does experiments that involve computerized tasks.



To begin, subjects were led to a private room with a research assistant and were asked to practice four tasks for thirty seconds each. The first task was to put on headphones and listen to an 85-decibel siren (about as loud as a vacuum cleaner or blender). The second task was to put a hand in 32-degree water. The third task was to put one hand in the water while listening to the siren, and the fourth was to put both hands in the ice cold water (but not listen to the siren).

After practicing the tasks twice, the subjects were asked to write down a minimum amount of money between \$0 and \$15 they would be willing to accept to complete one of these tasks for two minutes. Using this incentive compatible selection mechanism (a method that incentivizes the subjects to reveal their true willingness to complete the task), Dr. Stoddard and the research assistants selected one of the tasks at random in front of the subject.

Then, the research assistants³ randomly selected a threshold amount between \$0 and \$15 from an envelope. If that amount was more than the subject's minimum payout the subject would accept, then the subject would have to do that task for two minutes. If the threshold amount was less than the subject's minimum amount he or she would accept, then the subject could not participate and would instead sit in the room for the allotted two minutes.

On average, the test took fifteen minutes to complete, and the subjects were paid \$6 plus a \$2 fee for showing up. Of the sixty-five original subjects, five dropped out. However, the results were still conclusive. "Basically, we confirmed that two-thirds of our subjects had a reservation payment (minimum willingness to pay) corresponding to the predictions of our theoretical model. They prefer to endure both negative stimuli compared to enduring just the most painful one," Dr. Stoddard explains.

The Key Insights

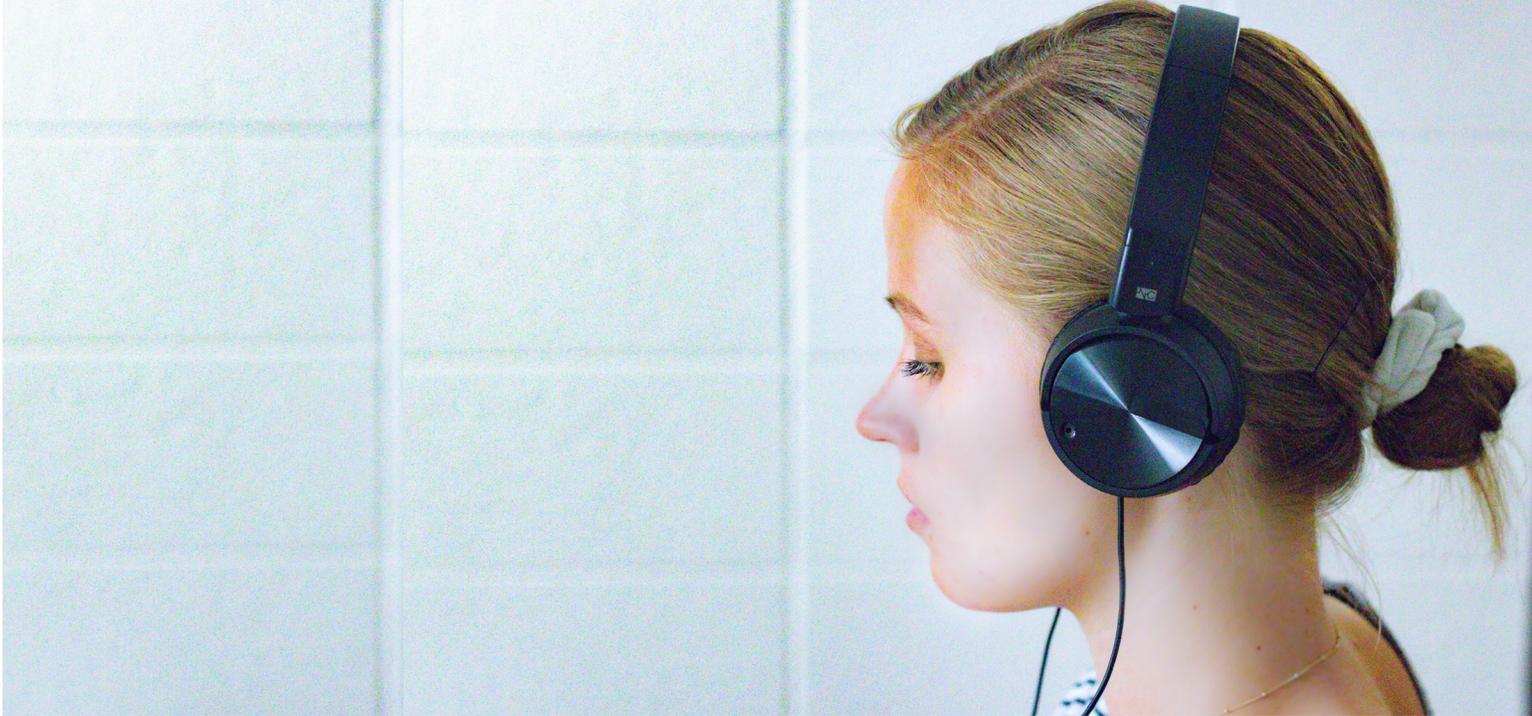
We are all exposed to many stimuli every day, and we all try to optimize our behavior. We distract ourselves from unpleasant stimuli (i.e. exercise, household chores, etc.) with more pleasant stimuli like listening to music or watching Netflix. This seems fairly obvious, but what isn't obvious is why people distract themselves with unpleasant or negative stimuli.

There are three important phenomena that can be explained by the model presented in this paper:

Self-Harm: "Suppose an individual is exposed to an emotionally painful event, perhaps due to poor mental health or a difficult interpersonal conflict. In this case, an individual may engage in cutting, not because the stimulus is pleasurable but rather because it has higher utility than the emotional suffering and is more salient."⁴ The individual may want a pleasant distraction, but their pain may be more salient than any other more positive distractions.

Depression: "Because depression is so salient, it crowds out the utility associated with activities that would normally be considered pleasant. Consequently, depressed individuals have little motivation to engage in a variety of activities associated with a functional life."⁵ This can explain why depressed individuals seem apathetic or why they engage in self-destructive behaviors.

Multiple Problems: "Individuals experiencing multiple problems have a diminished incentive to fix any single problem. This is because the benefit of removing one negative stimulus is negligible if the individual is also experiencing a more negative stimulus."⁶ It doesn't help the individual to remove a negative stimulus, because then another will be brought to the forefront of the individual's mind.



This may sound like a psychology question, but while psychologists have looked at behaviors like self-harm in terms of distraction, this is the first time the idea has been formally modeled. “One thing that I think makes this an economics question is that we think explicitly about optimizing behavior. If people have preferences, and they engage in behavior that’s purposeful, then you can explain how they behave based on the incentives and constraints they face,” says Dr. Lefgren.

Furthermore, Dr. Stoddard explains, “People haven’t really considered this second aspect of stimuli which is salience. It’s not just the utility that matters. It’s not about which stimuli is less unpleasant. They could be equally unpleasant, but one could be more salient. There’s nothing in psychology literature that has looked at that.”

This paper has importance for psychologists and economists alike. “It explains why some people who are in extreme poverty or terrible life situations don’t really put any effort into fixing these things, because they’ve just got one big problem that they’re paying attention to and the other ones they’re not going to put any effort into,” Dr. Stovall clarifies.

Professors Lefgren, Stoddard, and Stovall hope that future researchers will use this paper as a starting point to study how therapy can change the salience of negative stimuli and find ways to apply this theory to improve the lives of people dealing with extremely salient negative stimuli.

*The working paper is available online at <https://www.nber.org/papers/w25060.pdf>

¹ <https://bit.ly/2KXGFy4>

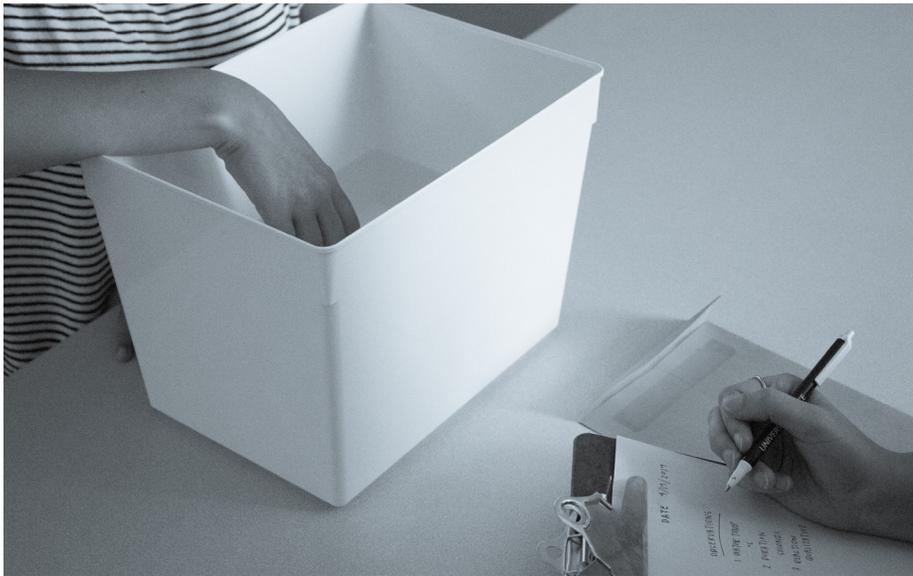
² <https://bit.ly/325ZTY5>

³ This project was made possible by the research assistance of Matt Ross (Econ PhD candidate at UNC)

⁴ Lefgren, Lars, Olga Stoddard, and John Stovall. 2018. “Are Two Bads Better Than One? A Model of Sensory Limitations.” NBER Working Paper 25060, 3.

⁵ *Ibid.*, 3.

⁶ *Ibid.*, 3.



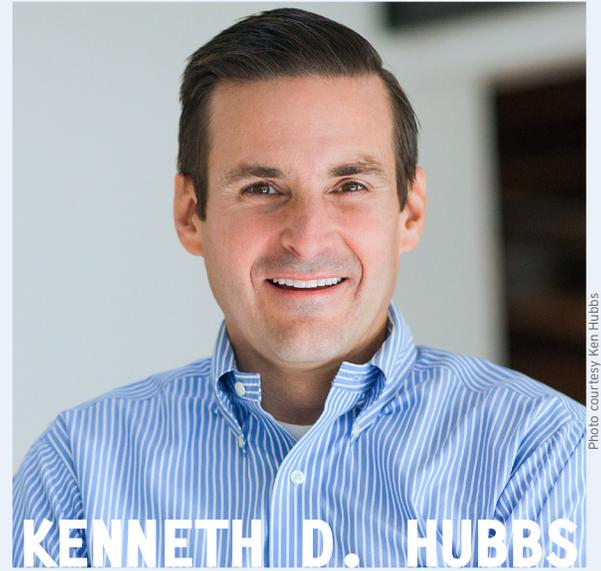
“ Never be afraid to live your values. You don't have to be judgmental or prudish, but people will respect you for living your values. ”

Kenneth D. Hubbs (1994) was attracted to economics from his first day of Dr. Kearl's Econ 110 class when Dr. Kearl pulled out a \$100 bill and allowed the class to bid for it starting at \$1. The only caveat was that the highest bidder won the \$100 and the second highest bidder had to pay the amount they bid. “The lesson taught was that of maximizing gain and then minimizing costs. . . . To this day I can remember this exercise—it clearly left an impression on me.”

This lesson and the subsequent economics training he received at BYU have played a significant role in his success in the private equity industry. Ken explains, “Economics helps understand the behavior of markets and the behavior/motivations of individuals within those markets. As a private equity investor, I need to understand the motivations of the management teams of the companies in our portfolio.”

Following graduation from BYU, Ken went to work as an investment banking analyst at Smith Barney in Los Angeles, providing services to private equity firms. He then moved on to an associate position at Kirkland Messina, advising portfolio companies on corporate strategy. In 1999, he graduated from Harvard Business School with an MBA and was part of the founding team at General Catalyst Partners, a private equity firm managing \$150 million and focused on venture and early-stage growth.

After a few years in Boston, however, Ken and his wife felt that they should make a change to allow their children to grow up near family. So, without a job and without having sold their Boston home, they moved



to Southern California in the summer of 2001. Although it was a time of great uncertainty, one of Ken's goals throughout his career has always been to put his family first, and he has never regretted taking that risk.

Within a couple months of relocating, Ken found a principal position at Westar Capital, a family-run private equity firm working specifically on middle-market buyouts. In 2005, Ken took a position as Managing Director at RLH Equity.

In his current role, Ken works exclusively with entrepreneurs/founders who are looking for board-level help and to sell ownership of their business to diversify their financial holdings. He explains, “These entrepreneurs have built successful businesses, but they are seeking additional guidance and help from people who have been able to assist other, similar companies.”

Ken works on a variety of tasks like sourcing new opportunities, negotiating transactions, strategic planning of portfolio management, and eventually, exiting the portfolio company. His goal with each of the companies he works with is to be “true partners to focus on building the business (vs. merely a financial partner).” This is evident in the friendships he's made along the way.

“I have actually become quite good friends with most of the senior management of our past portfolio companies. And not just me, but my wife as well. We have maintained friendships long after we have exited the portfolio company.” He advises with building these business relationships, “Never be afraid to live your values. You don't have to be judgmental or prudish, but people will respect you for living your values.” **JM**

* ELLEN'S ADVICE *

- Strengthen your data analysis and storytelling skills. Be the bridge between the data and the insights that executives need to formulate and execute strategies.
- Lean into opportunities offered by the programs/courses/professors at school. Join clubs, seek out internships, be a TA, go to career fairs, and make the most of your collegiate experience.

Photo courtesy Ellen Abamonte



"Make sure to pair economics with another one of your interests," Ellen Abamonte (2010) advises economics students. Ellen originally pursued an economics minor because she enjoyed her AP Macroeconomics class in high school and Econ 110 her freshman year. After returning home from her mission, however, she decided economics better aligned with her goals and switched from a theatre education major to economics with a theatre minor. Graduating with a major in economics and a minor in theatre is a little untraditional; nevertheless, it is her interest in media and theatre arts combined with her economics skills that have translated into Ellen's unique and fulfilling career.

After graduating in 2010, Ellen worked as an economic analyst in Washington D.C. for a year supporting United States policy makers by monitoring and assessing Middle East economic policy. The following year, Ellen married and relocated to Atlanta where she joined WarnerMedia (formerly Turner—owner of TV and film studios like Warner Bros., HBO, CNN, and TNT) working in a variety of research and consumer insight positions. In college, Ellen worked for BYU Broadcasting as a cost analyst, which helped her land the position at Turner. "My unique combination of media experience and economic/analytic training prepared me for the world of media research."

Currently, Ellen works as a Director for TNT Research and Consumer Insight, where she uses both quantitative and qualitative research to drive actionable, strategic insights in areas like ad sales, finance, scheduling, acquisitions, marketing, strategy, development, and programming. In her current role, she manages the audience forecasting for a multibillion-dollar network and leads pilot and marketing research for new original

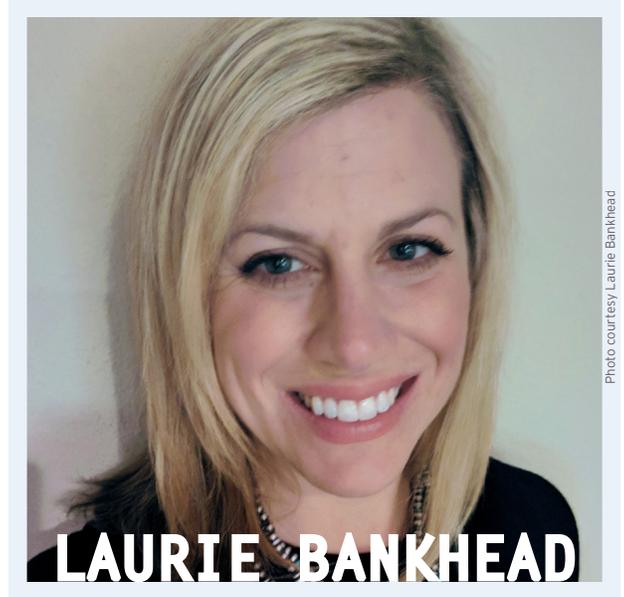
series including hit dramas *Animal Kingdom*, *Claws*, and *I Am the Night*.

Combining economics and theatre creates a unique perspective on interpreting and explaining data. She says, "I see both as disciplines who seek to model the world around them. One through data and the other through art." Ellen's economic background has provided her with a strong analytic foundation, while her creative side helps her clearly visualize and disseminate important findings in an easily digestible way. "It's my job to be the bridge between the data and the strategy."

In her experience, Ellen has found that continual learning has been crucial to her successes. "The world is rapidly evolving, and to be an innovation leader requires a culture of curiosity and an investment in continual learning." She cautions, "As big data exploration becomes more accessible, it can be easy to make simple mistakes without a deep understanding of tools and methodologies. It's a very real concern in the business world. Take the time to build a strong analytic foundation, cultivate curiosity, and invest in continual learning to stay on top of new trends and make yourself as competitive as possible."

The media industry has changed a lot over the last eight years, and more growth and change are yet to come. While this can be challenging for some, Ellen sees this as a chance to continue innovating a better consumer experience. Competing with other companies like Netflix, Apple, and Disney+, WarnerMedia plans to roll out a direct-to-consumer service, HBO Max, in the spring of 2020. As Ellen spearheads custom research on new original series for HBO Max, she will have more opportunities to broaden her data-driven storytelling skills. **JM**

“ I’m committed to making sure women know that they have a contribution to make in the world – in their families, in the workplace and in the community. I’m so grateful that my education has put me in a position to provide for my family and engage in an industry I care about. ”



It was an Intro to Nursing class at BYU that first sparked Laurie Bankhead’s (1999) interest in solving healthcare problems. “They were talking about [challenges in healthcare], and I wanted a way to understand those challenges. At the same time, I was taking Econ 110, and I loved it. It provided a framework for understanding the issues my nursing class had raised.” Though she also loved her anatomy classes, by her second econ class, Laurie’s plans to major in nursing changed completely. “At the time, [econ] wasn’t a popular major, and it felt like a risky move, but I was hooked.”

After graduating in 1999, Laurie’s career began in the Economics & Quantitative Analysis Group of Ernst & Young. A few years later, she took a consulting position at Charles River Associates and then went on to pursue a Master’s in Public Policy and a certificate in Health Administration & Policy at the University of Chicago. In 2010, she started a position in strategic planning at Kaiser Permanente in the San Francisco Bay Area.

Laurie now works as director of the Business Development and Strategic Relationships team at Kaiser Permanente, where she focuses on helping Kaiser expand into new markets. Though she says it’s difficult to make an impact on a billion-dollar industry like healthcare, she is still passionate about solving healthcare problems. To her, that starts with providing accurate information and correctly diagnosing problems.

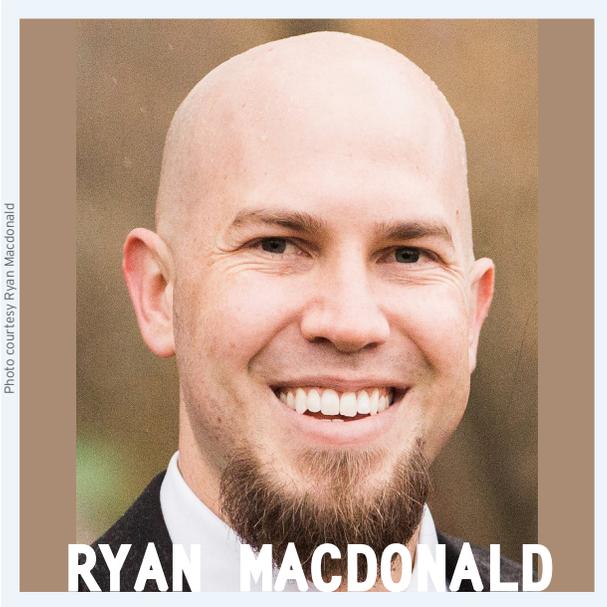
“It’s an industry where there’s so much inefficiency, and many assumptions from classical economics don’t hold. I’m excited about thinking through how the industry works and how market and policy changes can make it better, even though it will never be perfect. It’s an interesting problem.”

Laurie also has a passion for helping women see their contributions in the workplace. She explains, “I worked briefly; then I had kids. Later I needed to get divorced and provide for myself and my family. No one expects that, but it happens. I’m committed to making sure women know that they have a contribution to make in the world, in their families, in the workplace, and in the community. I’m so grateful that my education has put me in a position to provide for my family and engage in an industry I care about.”

She hopes female students of economics recognize how useful their degree can be and encourages all students to take advantage of mentoring opportunities: “I had a couple of teachers in the economics program—all men—who really mentored me and supported me, not just while I was in school, but afterwards, and who I felt took an interest in me and my career. That was a game changer for me. So, I would encourage any student, but especially women, to be open to mentors, regardless of gender.” JM

* RYAN'S ADVICE *

- Prioritize internships that will help you get the job you want long-term, not an internship that promises to let you make bank over the summer. Try your best to do a meaningful internship every summer leading up to graduation.
- Join the Management Consulting Club and sign up to practice case interviews with your peers. Consulting is not for everyone, but if you want to land any job that is analytical, chances are high that your prospective employers will case you, so start practicing now.



Ryan Macdonald (2008) originally planned to graduate in April, but since he was unable to secure a post-grad job in a tough labor market, he decided to take on another summer internship and delay graduation until December. This decision worked in his favor, because while many of his classmates struggled to find jobs or had offers rescinded, Ryan was lucky enough to land a position with L.E.K. Consulting in Los Angeles.

The position was not without its challenges. A few weeks after starting his job, the firm announced that all employees would be required to take a one-month furlough. Since Ryan's wife was about to give birth to their first child, the company waived the requirement for him. During this time, he saw very little of his family due to the strenuous work schedule his job required.

"I worked seventy to eighty hours per week, mostly managing interview campaigns with industry experts. Late at night, my wife would call and read *Harry Potter* to me while I worked. This was the only time we really talked during the week."

After two years in consulting, Ryan took a position with Capital One where he worked in car financing (business strategy, pricing, and credit strategy) until 2014. He explains, "I'm passionate about fixing problems and then moving on. I've never stayed in a role for three full years. . . . I feel a great deal of passion around the idea that people should move around frequently. 'Comfort' in

your role is dangerous and self-limiting. Success is largely determined by your willingness to feel uncomfortable and then to find a way to make things work anyway."

Currently, Ryan is Director of Unit Economics and Portfolio Profitability for T-Mobile, where his team does financial and statistical modeling to determine the value of each of T-Mobile's 70+ million customers. "Our models are leveraged in a wide range of applications, including investment and pricing decisions, promotion strategy, etc. As director of the team, I'm responsible for making sure that everyone's work comes together smoothly and is as accurate, automated, and efficient as possible." On top of his day-to-day work, he also shares his team's insights with executives, works on modeling projects (in Teradata, SAS, and R), and runs company training initiatives.

Though he has had a lot of success in his career, Ryan has also learned that everyone experiences periods of difficulty. When you inevitably pass through periods of depression or anxiety, or feel overwhelmed, he recommends, "Continue to go through the motions of the things that you know, at least at an intellectual level, are good things to do; cut out every unnecessary thing from your life and get help early-on! Admitting that you're struggling isn't a sign of weakness; it's a sign of strength. Getting help will make you a better employee, a better parent, a better spouse, a better person, and will dramatically improve your quality of life." JM

Farewell FOB

By Jessica McDowell

On Friday, October 19th, 2018, the Economics Department celebrated its home of thirty-five years with a chili dinner and games. Students, alumni, faculty, and staff showed up to the event to share their memories of the beloved Faculty Office Building before its demolition in 2019.

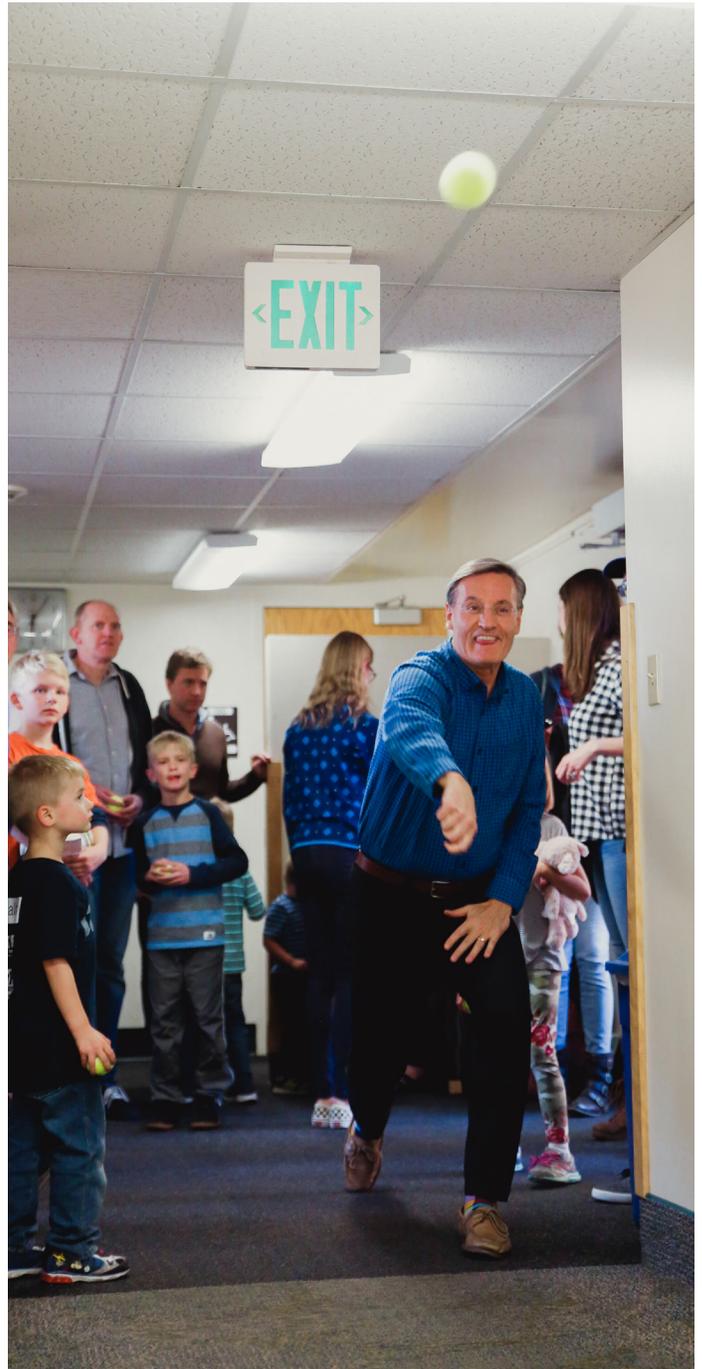




▲ New and old friends reminisced on their time in the BYU Econ program.



▲ Students and alumni enjoyed talking and reconnecting in the north parking lot of the FOB before going inside and testing their FOB knowledge with trivia games and prizes.



▲ A favorite game of the professors while they worked on the weekends, guests tried their hand at throwing a tennis ball from one end of the curved FOB hallway to the other—not an easy feat!

GRAD SCHOOL

73% PLAN TO ATTEND GRADUATE SCHOOL

- Barcelona Graduate School of Economics
- Brigham Young University
- Case Western Reserve University School of Medicine
- Cornell University
- Georgetown University
- Loyola Marymount University
- Midwestern University
- Princeton University
- Rocky Mountain University of Health Professions

27% HAVE BEEN ACCEPTED TO GRADUATE SCHOOL

- Stanford University
- Texas Tech University Health Sciences Center
- University of Alabama
- University of California, Berkeley
- University of Chicago
- University of Hawaii
- University of Michigan
- University of North Carolina
- University of Utah

CLASS STATS

80% KNOW WHERE THEY'LL BE AFTER GRADUATION

Utah: 45%

West: 14%

- Arizona, California, Idaho (not including Utah)

Midwest: 11%

- Illinois, Michigan, Ohio, South Dakota, Wisconsin

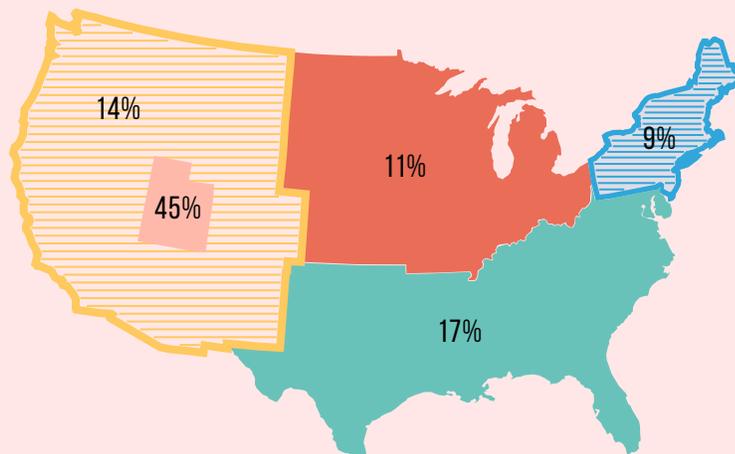
East: 9%

- Maryland, New Jersey, New York, Pennsylvania, Washington D.C.

South: 17%

- Alabama, Arkansas, Georgia, Texas, North Carolina, Florida

International & Hawaii: 3%



GRADUATE PROGRAMS



2018-2019

JOBS

82% PLAN TO WORK AFTER GRADUATION

83% HAVE A FULL-TIME JOB OFFER

- Analysis Group
- Anglepoint
- Barclays
- Bates White Economic Consulting
- Becker Friedman Institute
- Behr Paint Company
- BKD CPAs & Advisors
- Blue Diamond Capital
- Blue Raven Solar
- Boston Consulting Group
- Branded Entertainment Network
- Brigham Young University
- Canopy Tax
- Charles River Associates
- Cicero Group
- Clearwater Analytics
- Colemere Realty Associates
- Collective Health
- Delta Airlines
- DirectMed Benefits
- Disruptive Advertising
- DJ Auto
- Double River Investments
- DuckerFrontier
- E*Trade
- Ecolab
- Epic
- Federal Reserve Board of Governors
- Fidelity Investments
- Goldman Sachs
- Grow
- Home Depot
- Intercap Lending
- JP Morgan Chase
- Kelco Contracting
- KT Tape
- LendingClub
- Lewis Young Robertson & Burningham
- Lucid Software
- McKinsey & Company
- Merrill Lynch
- Millburn & Company
- Morgan Stanley
- MyHeritage
- National Security Agency
- P.B. Brown, LLC
- Podium
- Qualtrics
- Select Bankcard
- Select Portfolio Servicing
- Simmons Energy
- SolutionReach
- Teach for America
- U.S. Air Force
- U.S. Army
- U.S. Bank
- U.S. Navy
- University of Chicago
- Vivint
- Walmart
- Wasatch Window Wells
- WealthGuard Advisors
- Y2 Analytics
- Zions Bank

ADVICE FROM A RECENT GRAD

By Elijah Broadbent (2019)



Courtesy BYU Photo

1. DON'T BE AFRAID TO TALK TO YOUR PROFESSORS.

Professors in the Economics Department are very kind and encouraging to their students and want them to succeed. This is reflected in the countless hours of mentoring that they give. In addition to the invaluable experience I had with those who went out on a limb to hire me as their assistant in various classes and projects, I found that nearly every professor was willing to help in whatever way they could.

During the process of entertaining offers from various PhD programs and jobs, I was touched by the willingness of professors I had never met before to meet with me and offer their counsel. Even if you plan to work in a non-academic field after graduation, ask your professors what they know about your field. Often your professors will have family members or former students in that field and can connect you to a helpful network.

2. BECOME A TEACHING AND/OR RESEARCH ASSISTANT.

I learned a tremendous amount by working as a teaching and research assistant in the department. Even though I earned top grades in Statistics for Economists and Applied Econometrics, I only gained long-term mastery of these subjects after teaching them. Being able to talk about these advanced subjects fluidly in interview settings has paid off in spades.

Research has similarly proven valuable in developing technical skills and résumé items to round out how I pitch myself to prospective employers and academic departments. In a recent round of interviews, I was amazed to find every research project I have participated in over the past two years come up in my interviewers' questions. Semester projects and collaborations on long-term research your professors are doing can be really impressive if you strive to always do your best work.



Courtesy BYU Photo



Daniel Ricaros on Unsplash

3. TAKE THE TIME TO LEARN PROGRAMMING SKILLS.

I had the opportunity to teach STATA workshops through the Economics Student Association and to take the Applied Machine Learning class recently added to the Department. Learning programming through these avenues has been a great asset in my research as well as a marketable skill to include on my résumé. Once you get your feet wet in the programming world, look to expand your skills through supplementary classes outside the department. STAT 223 (Applied R), Finance 585 (Python & Matlab), and IS 201 (VBA, SQL, HTML) have a lot to offer and can help you polish your economic skills for application in career fields that interest you. Machine learning and prediction modeling in particular are major buzz words that will get you interviews and eventual job offers if you can back up the résumé item with technical know-how.

4. PARTICIPATE IN VISITING SCHOLAR BREAKFASTS AND SEMINARS.

Visiting scholar breakfasts and seminars helped me learn how to interact with successful scholars in the field and speak the language of economics fluently in formal and informal settings. One conversation I had with a visiting scholar helped get me an interview with University of Wisconsin-Madison's economics program, and several others helped strengthen my interest in future areas of research.



Courtesy BYU Photo



Brooke Cagle on Unsplash

5. MAKE THE MOST OF GROUP WORK.

My biggest regret from my early courses in the major is that I did not work with my classmates on a regular basis. I am convinced that my 300-level course GPA would be significantly higher if I had stepped out of myself to ask classmates and TAs for help while also offering my insights and understanding. A related point: put yourself on the tutoring list. You don't have to be the world expert on a class or command a \$30/hour wage to help students who are struggling in their coursework. You will greatly improve your understanding in the process.

STUDENT HIGHLIGHTS

Josh & Samuel Higbee

Econ PhD University of Chicago

It's not too uncommon for siblings to choose the same major, but brothers Samuel and Josh Higbee have definitely gone beyond the norm. They both double majored in Economics and Mathematics, graduated in April 2019, and are now pursuing PhDs in economics at the University of Chicago, a top five economics graduate program.

What led them to choose such similar paths? A shared love of exploring interesting and complex questions using mathematics was a start. Josh, the older of the two, considered pursuing economics even before coming to BYU. "In high school, I was always interested in several subjects (including math, history, government, public policy), and I felt that economics combined topics from each with the power to analyze them effectively. I was also able to take AP Microeconomics and Macroeconomics in high school, which introduced me to some basic aspects of economics. I decided that I would declare it as my major if 110 were anything like what I had already seen—I thoroughly enjoyed the class and declared economics as my major about a month in."

While studying at BYU, both did research with professors in the Economics Department. For two and a half years, Josh researched with Professors Emily Leslie, Jim McDonald, and Arden Pope, while Samuel worked with Professor Lars Lefgren. The experience was invaluable for both of them as they have considered their future career paths.

Samuel explains, "Doing applied research has been very important in helping me become comfortable exploring ideas on my own and understanding what makes good research and, perhaps more importantly, what makes good research feasible. It has exposed me to a wide empirical literature that broadened my thinking on what economic research can look like and how I might go about finding topics to research."

Beyond academic research, Josh did a summer internship with Compass Lexecon, an economic consulting firm. "I was able to work on a few interesting projects while I was there and got a greater understanding of how economics is applied in the private sector."



The Higbee brothers Samuel (left) and Josh (right)

Samuel also participated in BYU's folk music ensemble, Mountain Strings. "Having a creative outlet is a great way to keep the school/life balance healthy." He played the guitar and banjo with the group and performed several times each semester. He also had the opportunity to tour with the BYU International Folk Dance Ensemble.

So, what was it like to study economics together? Samuel answers, "It has been a blast. Josh and I have taken almost all of our econ classes together and many math classes as well. He's a great study partner, and working together has helped both of us understand the material better. It also provides some friendly competition."

Josh remarks, "It has been an incredible experience and one I had never imagined would happen when I was younger. . . . I'm lucky to have been able to spend so much time with such a smart guy and hard worker. I've been able to work through difficult concepts quickly with him, talk through new ideas, and have someone who constantly inspires me to do my best work."

For future economics students, Josh advises, "Take advantage of every opportunity to learn—internships, clubs, or supplementary classes."

Samuel adds, "Get to know your professors. If you have questions about a class, go in and talk with them. If you don't have questions about the material, asking questions about further applications will help you prepare for future classes. Developing relationships with professors is vital for getting involved in research and getting recommendation letters. It will help you get the most out of your undergraduate experience." JM



Rachel Bagnall

Teach for America

Econ students follow many different educational paths, and Rachel Bagnall's experience is no different. "You fit in economics," she tells students considering the major, "and you don't have to fit in exactly the same way that others do." For Rachel, this meant finding a path that would allow her to work on solving meaningful problems.

She first majored in engineering, because her father is an engineer, and she liked the idea of using math to solve problems; being a woman in STEM also appealed to her. After taking a few classes in the subject, however, she realized it wasn't the right decision for her. "I had heard great things about Kearsy's Econ 110 class, and having listened to Freakonomics Radio growing up, I thought I'd give it a shot." Economics was the perfect fit she was looking for. "Overall, I like how economics approaches important social problems in a rigorous way."

Over the course of her undergrad, Rachel participated in a variety of activities, from researching with Dr. Price in the Record Linking Lab and Dr.

Stoddard on behavioral economics experiments to being a member of the BYU Triathlon Club. Between her junior and senior years, Rachel interned at Bruegel, an economic think tank in Brussels, Belgium, where she studied environmental policy and its effects on the poor. She was also a teaching assistant for Econ 110 and Political Economics. "Being a TA has been one of my absolute favorite experiences as an undergrad. I love teaching students and learning material more thoroughly."

Rachel's teaching knowledge will certainly help her as she joins Teach for America as a corps member in rural Idaho. "Because I want to work in education policy someday, I decided I wanted to gain some classroom experience to hopefully inform my research."

After finishing with Teach for America, Rachel plans to pursue a master's in Education Policy from Johns Hopkins and then eventually go on for a PhD. Though she isn't sure of all that her future holds, Rachel hopes her research will help shape education policy. **JM**

To Robert Wagner, the students are what made the econ program exceptional. "It was great to be around like-minded peers." In fact, he says the most meaningful part of his undergraduate experience was being a teaching assistant for Econ 378, 388, and 580. "I loved being able to help students and being forced to really master the material myself."

In addition to being a TA, Robert also did research with Dr. Eide and Dr. Showalter for two years. "One project had to do with documenting how children's health outcomes (specifically how much they slept) varied over the Great Recession." He also worked on a research project with them focused on comparing economic conditions to how adults choose to allocate their time.

On top of those two jobs, Robert participated in the BYU Tocqueville Society, a political philosophy club, and was president of that club for one semester. During his last semester, he completed a research internship at the Skolkovo Institute of Science and Technology in Moscow, Russia. His work focused on "topological data analysis and modeling consumer

lifetime value." He was also selected as the 2019 Economics Department Valedictorian.

Robert has been accepted to the Economics PhD program at Princeton University and hopes to live out his dream of becoming an economics professor. "I love the intellectual freedom that comes with being able to choose your own research projects. I love teaching as well. And what can I say? I love stable careers." He deferred his enrollment for a year to work for a foreign investment fund where he uses the machine learning, programming, and statistical skills he learned in the major.

To future economics students, Robert advises, "Take interesting classes. I took twelve credits of political philosophy, a few extra Spanish classes, some Russian language, and a class exclusively on the works of Fyodor Dostoevsky, a Russian author. I loved all of that. If I went back and did it again, I'd take those classes again, even though they have nothing to do with my career path. The econ major is short and lets you do things like that. Take advantage of it." **JM**



Robert Wagner

Econ PhD
Princeton
University

A little nudge from her brother led Annie Painter to economics, but it's the sense of community and the personal connections with faculty and fellow students that have helped her feel at home in the major.

Annie originally planned on studying psychology; however, after returning home from her mission, her feelings changed. Knowing that she was struggling with deciding on a major, Annie's brother (who studied economics at another university) offered to pay for the rest of her undergraduate tuition if she majored in economics instead of psychology. Though she didn't end up accepting her brother's offer, she did take his advice to try Econ 110 and decided economics would be a good fit for her.

Since joining the economics major, Annie has really enjoyed the relationships she's had with faculty and students. "I have felt like I found something that I could study where I got to actually have personal interactions with my peers and professors. . . . I found friends in these classes as well that I feel like I now have a lifelong connection with. Everyone that

is majoring in economics, at least it seems to me, is always willing to help each other out."

Working with people has been an important theme of her undergraduate experience, and Annie has had the opportunity to pursue internships and volunteer opportunities that have involved helping others. For the last two summers, she interned at Raymond James Financial Services in Chicago. "I really loved this experience, because it taught me how you can help so many people through the management of their finances." She also volunteered at the Utah State Hospital in the Forensic Unit and as a Jr. Jazz basketball coach for two years.

Upon graduating, Annie will join Teach for America teaching secondary mathematics on a reservation in South Dakota. "I chose this path, because Teach for America is something that I have wanted to do since I was in junior high, but I never thought I would get the opportunity to do. When I was given this opportunity, I could not pass it up." She also plans to attend graduate school in the near future. **JM**



Annie Painter

Teach for America



Hans Ringger

Teach for America

Like many economics majors, Hans Ringger did not plan on pursuing economics at first. Even after taking Econ 110 as one of the introductory core courses for the International Relations major, he still didn't plan on changing his major. It wasn't until he started looking for internships (about two years after taking 110) that he realized what a degree in economics could do for him.

While some students shy away from the quantitative side of the major and dread the econometrics courses, it is this aspect of the major that drew Hans in. "The most meaningful part of my undergraduate experience was learning econometrics from Dr. Frandsen and Dr. Lefgren. . . . Learning how to run meaningful experiments on virtually everything surrounding us is a skill I will use until the end of my life in whatever job I end up in."

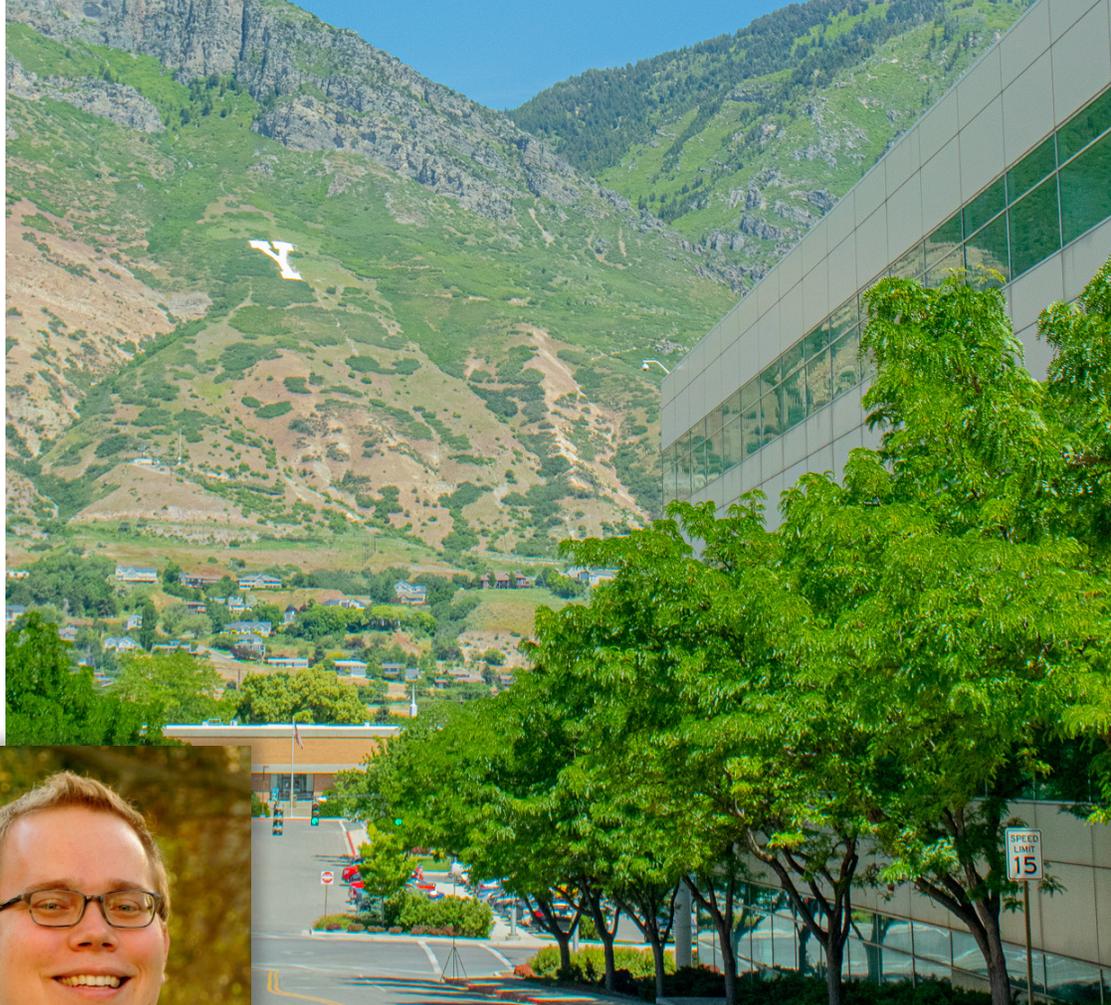
His interests and skills in econometrics have already helped him in a variety of jobs and internships. His first internship was in Vienna, Austria at the Kuratorium Sicheres Österreich (a non-profit association focused on cybersecurity and other security issues). Then, last summer, he

participated in the Washington Seminar program working for Fraym, a small consulting company that specializes in African markets. "While working there, I was able to participate in market-size estimations and lots of data cleaning. During the school year, this role has developed into a part-time job as a data quality specialist." His data cleaning experience also allowed him to land a job as a research assistant for Dr. Wilson this year.

Though he loved his econometrics courses, Hans says, "My favorite part of the econ major was the field survey classes. . . . Dr. Eide's Economics of Education was so impactful and insightful that it changed my career plans."

After graduation, Hans will be joining Teach for America as a high school math teacher at a school in downtown Los Angeles for two years. After teaching, he hopes to pursue an advanced degree in public policy, education, or economics. Ultimately, "I would like to end up with a consulting firm's educational practice, working to restructure and optimize school districts. After that, who knows?" **JM**

NEW IN THE DEPARTMENT



BYU Economics is excited to welcome Daniel Argyle as our newest adjunct instructor. Daniel graduated with a degree in economics in 2009 and earned his PhD in Economics from the University of California–Santa Barbara in 2014.

Since finishing graduate school, Daniel has worked on merger investigations at the antitrust division of the Department of Justice. He now works at FiscalNote, a data science company. He explains, “I use machine learning and econometric tools to analyze the legislative process.”

Daniel is originally from Pleasant Grove, Utah, but most recently from

Washington D.C. He and his wife moved back to Utah County last August when his wife started as a professor of Political Science at BYU.

In his free time, Daniel enjoys reading and playing board games. He is also a fan of cooking and enjoys using the sous vide machine (a machine for precisely cooking food in a vacuum-sealed water bath) he got for Christmas last year.

His research expertise is econometrics, specifically machine learning and data science; he is teaching Econ 380: Intermediate Price Theory this fall.

On returning to BYU, Daniel is most excited about “the people.” He says, “I really appreciate the opportunity to work with the amazing students and faculty members in the econ department.” **JM**

IN THE NEWS

1 The Department is very excited to welcome Brigitte Madrian, Dean of the Marriott School of Business and BYU Economics alumnus, as a new courtesy appointment in the Economics Department. Dean Madrian received her PhD from MIT and has been a faculty member at the University of Chicago, the University of Pennsylvania, and most recently, Harvard University.

2 In February 2019, Professor Mark Showalter was interviewed for an article in *WalletHub*, "Healthiest & Unhealthiest Cities in America." Check out the article at this link: <https://bit.ly/2zgxVfT>

3 Professor Emily Leslie is joining the department as an assistant professor in fall 2019. She was originally hired as an adjunct instructor in 2016 and then as a visiting assistant professor in 2017. The Economics Department is delighted to have her continue teaching and researching at BYU full time.

4 Professor Lars Lefgren was recently invited to join the National Bureau of Economic Research (NBER) as a research associate. The NBER is one of the leading research groups in the world and sponsors a highly cited and influential working paper series.

5 Professor Olga Stoddard was interviewed by *Deseret News* in June 2019, summarizing the research on the happiness of women who earn more than their husbands. Check out the article entitled, "Are 'Breadwinner' Wives Happy?" at this link: <https://bit.ly/2P7x0sY>

6 A working paper by Professors Jeff Denning and Eric Eide and alumnus Merrill Warnick was highlighted in *The Chronicle of Higher Education*. Read more about their research in the article, "Graduation Rates Are Rising, But Is that Because Standards Are Slipping?" at <https://bit.ly/2KlySej>

7 Economics major Ethan Davis presented a paper at the 17th Annual Claremont-University of California Undergraduate Research Conference on the European Union. Out of nearly forty student papers from universities across the county, his paper on immigration and European welfare states was one of ten selected for publication in an edited volume.

8 Two economics classes have new course numbers. The Career Prep Seminar is now Econ 210, and the new course, Machine Learning for Economists, is Econ 484.

9 During winter semester 2019, the Economics Department hosted its first data science trek for students interested in machine learning, data analytics, and data science. Ten students from the department's machine learning class were selected to visit data science teams at three local companies: DigiCert, Adobe, and Lucid Software. These students were able to network with professionals in the field and witness how data science is being used in the local tech industry.



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