

**RESEARCH** WITHIN REACH

# Using economics to help explain adolescent addiction

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Economists have traditionally focused on the individual and ignored their connection to others. Dr Onur Ozgur has flipped that convention, with important implications for addressing social issues like smoking and alcohol use.

Ask any podcast lover if they've heard of *Freakonomics*, and chances are they'll immediately start humming the catchy, staccato intro tune.

What began as a best-selling book by economist-journalist duo Steve Levitt and Stephen Dubner has since turned into more books, an award-winning podcast and even a TV show.

The secret formula? Explaining the importance of economics to the average person by applying theories which would otherwise exist only inside university lecture halls and academic papers to everyday topics – or, as the show's tagline decrees, “exploring the hidden side of everything”.

In many ways, the same sentiments underpin Dr Onur Ozgur's research. An economic theorist who looks at how social connections and interactions influence behaviours, Dr Ozgur wants to drive home the message that economics must take into account the

social structures we all exist within, and not just focus on individuals as “isolated atoms, but rather, as interacting entities”.

“I am interested in social and group determinants of individual behaviour, which until recently has been the missing link in economics,” he says.

Dr Ozgur is an Assistant Professor of Economics at Melbourne Business School who teaches managerial economics and investments to MBA students as well as conducting research that pushes the boundaries of how economic theory has traditionally been applied.

“Traditional economics has taken a different path for a long time, for various reasons,” he says.

“The individual – as traditionally modelled – lives an isolated life and makes ‘perfect’ decisions affected only through the market mechanism.



"This traditional state of affairs is now changing rapidly thanks to the geniuses of Becker and Simon among others in economics, and to a great many others in disciplines such as sociology, psychology, and neuroscience.

"A big part of my current research follows their footsteps in putting the social man, as we know it, into economics."

## The importance of connections

Life as we understand it is organised in connections.

Connections play an essential role in seemingly unrelated phenomena of all kinds, from criminal activity to school attendance, addictive substance use, obesity, fashion and fads, job searching, adoption of new technologies, financial crises and asset price bubbles.

They also play a central role in the transmission of information, which

helps to determine why we buy certain products, which languages we speak, how we vote, how much education we obtain and our likelihood of professional success.

Understanding the links that underpin all interactions – from day-to-day friendships to relations between nations – is a vital part of trying to make sense of them. As the old saying goes, "no man is an island".

Now with the advance of academic disciplines like economics, game theory, network theory and computer science, and with the availability of higher-frequency, micro-level, and better-quality data collected on individuals, businesses and institutions, we finally have the science to quantify all those connections – and see how they can create value and improve welfare.

It was this thinking that led to Dr Ozgur's latest research project with Tiziano Arduini of the University of Bologna, Elonora Paracchini from Cornell University and Alberto Bisin from NYU.


**"I am interested in social and group determinants of individual behaviour, which until recently has been the missing link in economics."**



## Research by



### Onur Ozgur

 o.ozgur@mbs.edu

Onur Ozgur is Assistant Professor of Economics at Melbourne Business School, who holds a PhD in Economics from New York University.

Onur's research ranges from investigating risk and uncertainty in entrepreneurial economies to measuring the implications for economics of group behaviour, including the impact of social interactions on decisions by adolescents to indulge in risky behaviour, such as smoking and drug and alcohol use.

Onur's research has been published in such leading publications as Games and Economic Behavior, the Journal of the European Economic Association, the Journal of Economic Theory and the Handbook of Social Economics.

He currently teaches Managerial Economics and Investments on our MBA programs.

## Predicting health risk behaviour

To see how much value economic theory could bring to a pressing social problem, Dr Ozgur and his colleagues decided to study how social connections can influence risky health behaviour by studying the smoking and alcohol consumption of teenagers in a school environment.

Adolescents are particularly vulnerable to behaviour associated with the effects of smoking and alcohol use. Approximately one million young people under 18 years old begin smoking each year, and the majority of adult smokers initiate smoking before age 18 years.

Because smoking is addictive and leads to long-term health consequences later in life, discouraging smoking initiation among young people is critical to ending the epidemic of diseases related to tobacco use around the world.

Similarly, research indicates that alcohol use during the teenage years could interfere with normal adolescent brain development and increase the risk of developing an alcohol use disorder later in life.

Abuse of alcohol is one of the world's leading preventable causes of death, and can be a major contributing factor in other problems such as assault, crime and vehicle collisions.

Dr Ozgur and his colleagues set out to measure the impact that social factors such as friends, family, neighbourhood and school had on drinking and

smoking among adolescents by structuring them as a dynamic game on a network.

What made the project possible was having access to the right longitudinal data – which, until recently, had not been easy to aggregate or access.

“Twenty years ago, we did not have access to this kind of rich data at the individual level,” Dr Ozgur says.

“Google, Facebook, and Amazon have changed the nature of the game, and now we have richer data which allow researchers as well as businesses to come up with more sophisticated strategies and methods to explain what people do and why they do it.”

The database of friendship networks from the US National Longitudinal Survey of Adolescent Health, known as Add Health – which collected data on students in grades 7 to 12 from a nationally representative sample of roughly 130 private and public schools in 1994-95 – was particularly important for the research.

“It’s one of the most extensive studies of its kind and enabled us to identify underlying patterns and influences on teen behaviours,” Dr Onur says.

The data was comprised of questionnaires containing sensitive individual and household information (such as in-home and parental data), and included multiple interviews with the students throughout different periods of their lives – first in 1995-96, and then again in 2007-2008.

“I was interested in social and group determinants of individual behaviour, as well as interested in why kids behave the way they behave, in particular regarding substance use,” Dr Ozgur says.

“Demonstrating social interaction effects in individual behavior is a notoriously difficult task, with well-known inferential problems potentially leading to biased estimates which might mislead the researcher as well as the policy-makers.

“Moreover, studying social interaction effects on addictive behavior in the long-run requires complex models, which explains previous studies’ short-termist approach to it.”

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## Findings and wider implications

The study, titled *Dynamic Social Interactions and Health Risk Behaviour*, took four years to complete and yielded a range of insights about the influence of social connections on smoking and alcohol use over time.

Some of the findings were that the peer effects for binge drinking are significant for not only men but women, and they are also stronger for students who did not binge drink prior to college. The study also showed tentative evidence that the peer effects for smoking may be positive for men but negative for women.

Just as important as the individual findings is the progress the study has made in clearing a way forward for researchers to use economic models to analyse other social problems.

“Our study confirms the existence of addiction effects, social interaction effects, as well as a forward-looking component characterising students’ health risk behavior,” Dr Ozgur says.

“Furthermore, this study provides a unique methodology and easy-to-apply cookbook algorithms and other tools that can be used by researchers from any related disciplines, to help answer similar questions regarding long-term consequences of how connections influence individual behaviour.”

Dr Ozgur says such an approach could help policy-makers learn how to tackle problematic behaviour – such as smoking or alcohol abuse – by understanding the social influences that contribute to them.

“The importance of social interactions for policy analysis relies on the fact that when social interactions are quantitatively important, well-targeted policy interventions at a smaller scale might have much larger effects at the aggregate,” he says.

“Our study demonstrates that the design of policy interventions should be tailored to the students’ network

structure and should consider the dynamics of the network itself, as students anticipate its natural breaks.”

As we all know, our relationships with other people – and whether we want to impress, scare, please or avoid them – play a leading role in determining what we do and when we do it.

And for the first time, economists want to understand it.


**“Our study confirms the existence of addiction effects, social interaction effects, as well as a forward-looking component characterising students’ health risk behaviour.”**



## Interview by



**Caroline Zielinski**

 caroline.zielinski@gmail.com

Caroline Zielinski is a journalist and media specialist who has worked at the country’s biggest newspaper publishers, News Corp Australia and Fairfax Media. She completed a Master of Journalism at Monash University, where she also worked as a Senior Communications Officer.

Caroline’s articles have appeared in *The Age*, *The Sydney Morning Herald*, *The New Daily*, *The Daily Telegraph* and *news.com.au*. She is a media advisor for organisations including Refugee Legal and OneRoof, a co-working space for female founders in Melbourne.

## More information

**Research Within Reach** is a regular publication from Melbourne Business School designed to explain the latest research by our academic faculty in easy-to-understand language. For more information, please contact:

### **Bogaçhan Çelen**

Associate Dean, Research

 b.celen@mbs.edu

### **Andrew Ramadge**

Media and Communications Director

 a.ramadge@mbs.edu

## Our faculty

**Yalçın Akçay**

Professor of Operations Management

**Tomohiro Ando**

Associate Professor of Management

**Pat Auger**

Associate Professor of Marketing

**Gerardo Berbeglia**

Associate Professor of Operations

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Professor of Organisational Behaviour

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Assistant Professor and Fellow, Centre for Business Analytics

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Professor of Marketing

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Associate Professor of Management

**Onur Özgür**

Assistant Professor of Economics

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Adjunct Professor of Marketing

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Principal Fellow

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Assistant Professor of Accounting

**Leon Zolotoy**

Associate Professor of Finance



## Recent research publications

### Humility Breeds Authenticity: How Authentic Leader Humility Shapes Follower Vulnerability and Felt Authenticity

*Organizational Behavior and Human Decision Processes*

**Burak Oc, Michael A. Daniels, James M. Diefendorff, Michael R. Bashshur, Gary J. Greguras**

Leaders who express authentic humility can make their followers feel less vulnerable and, consequently, more authentic at work, our empirical research finds.

By including social factors, often overlooked in authenticity studies, we theorised that the natural desire to seek approval from important

others can make us shy away from expressing our true selves and act to please others. Using this theoretical rationale, we empirically tested and found that leaders who express humility – or admit their failures, show fallibility and teachability – can create an environment that allows followers to feel more secure and build strong social bonds with them.

As followers felt less vulnerable in their relationship with their leaders, they felt authentic and were more likely to express themselves consistent with who they really are. Importantly, however, this beneficial effect holds only when leader humility is seen as authentic.

### Stock Liquidity and Corporate Tax Avoidance

*Review of Accounting Studies*

**Yangyang Chen, Rui Ge, Henock Louis, Leon Zolotov**

Tax avoidance constitutes an important dimension of corporate planning with major societal implications. When deciding how much tax avoidance to engage in, if any, executives walk a fine line. Being conservative results in loss of a firm's cash to tax authorities. Being aggressive may lead to fines, loss of a firm's reputation, and customer boycotts – lowering shareholder value. Hence, to create value for

shareholders, managers should avoid both extremes. However, managers may deviate from this “balanced” approach to pursue private benefits at shareholders' expense through overly-conservative or overly-aggressive tax avoidance.

We cast stock liquidity as a powerful governance mechanism that curbs such managerial opportunistic behaviour,

allowing shareholders to express concerns over tax avoidance decisions through their voting power or the sale of their stakes. We find that firms with liquid stocks are less likely to have extremely high or low effective tax rates, suggesting that stock liquidity mitigates extreme avoidance – and its strength varies predictably across firms, depending on their shareholder and stock characteristics.

### Secret Search

*International Economic Review (forthcoming)*

**Andrew John and Ian King**

Our theoretical research into secret (confidential) and open (non-confidential) search processes to fill high-level positions, such as for CEOs or university deans, finds that salaries are lower under secret searches and the expected ability of candidates decreases as the advertised salary increases under open searches.

We analysed results from a simple model where a firm seeks to hire one of two candidates whose abilities are known to the candidates but not the hirer unless they search openly. Also, candidates are more willing to apply in a confidential search as they avoid the stigma attached to losing out in a public search.

We also found organisations prefer secret searches when candidate quality is relatively unimportant and sometimes prefer a secret search even when open search would be more efficient.

## CAMPUS LOCATIONS:

### HEAD OFFICE

#### CARLTON

200 Leicester Street  
Carlton VIC 3053  
Australia

T: +61 3 9349 8788

ABN 80 007 268 233 CRICOS 00116K

### SYDNEY

Level 21, 56 Pitt Street  
Sydney NSW 2000  
Australia

### KUALA LUMPUR

Unit A-22-8 Menara UOA  
BangsarJalan Bangsar Utama  
Bangsar Kuala Lumpur 59000  
Malaysia

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