

# Christian Zünd

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**EDUCATION**     *PhD candidate*, Zurich Graduate School of Economics     since 09/2014  
University of Zurich  
Supervisor: Prof. Ernst Fehr

*Visiting scholar*, Department of Economics     10/2018–06/2019  
Centre for Experimental Social Science  
University of Oxford (Nuffield College)

*MPhil*, Economic Research     09/2013–08/2014  
University of Cambridge (Trinity College)  
GPA 75/100 (distinction)

*BA*, Economics     09/2010–07/2013  
University of Zurich  
GPA 5.75 (summa cum laude)

*Gymnasial Matura* (University Entrance Certificate)     08/2003–08/2009  
Kantonsschule Zurich Oerlikon  
Major Subject: Physics and Applied Mathematics

**PUBLICATIONS**     Cohn, A., Maréchal, M. A., Tannenbaum, D., & Zünd, C. L. (2019).  
Civic honesty around the globe. *Science*, 365(6448), 70–73.

                                  Commentary: Shalvi, S. (2019). Financial temptation  
increases civic honesty. *Science*, 365(6448), 29-30.

                                  Linnér, R. K., et al. (2019). Genome-wide association analyses of risk  
tolerance and risky behaviors in over 1 million individuals identify hundreds  
of loci and shared genetic influences. *Nature genetics*, 51(2), 245–257.

**JOB MARKET**     *Job Market Paper*: "It's not all about the money: How corruption undermines policy  
effectiveness."

*Interviews*: I will be available for interviews during EEA meeting in Rotterdam, as well  
as ASSA/AEA meeting in San Diego.

*Placement Director*: Prof. Joachim Voth, University of Zurich, voth@econ.uzh.ch

**REFERENCES**     *Prof. Ernst Fehr*     *Prof. Michel Marechal*     *Prof. Pietro Biroli*  
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<b>SCHOLARSHIPS</b>	<i>Dissertation Fellowship</i> , Department of Economics, University of Zurich	08/2019
	<i>SNF Doc.Mobility Fellowship</i> , Swiss National Science Fund	08/2018
	<i>Excellence Scholarship</i> , Excellence Foundation Zurich	09/2014
	<i>Cambridge Trust Scholarship</i> , Cambridge Trust (declined)	03/2014
<b>SPECIAL TRAINING</b>	<i>RSF Summer Institute in Behavioral Economics</i>	06/2018
	Russell Sage Foundation (RSF) Waterville Valley, USA	
	<i>Winterschool in Practical Artificial Intelligence</i>	01/2018
	Research Council of Norway and SINTEF Geilo, Norway	
	<i>RSF Summer Institute in Social Science Genomics</i>	06/2017
Russell Sage Foundation (RSF) Santa Barbara, USA		
<i>ETH Zurich</i>	Since 2016	
Graduate-level courses in Bioinformatics, Functional Genomics, Cancer Genetics, and Evolutionary Biology.		
<b>WORK EXPERIENCE</b>	<i>Executive Assistant (Civil Service)</i> , Hospital Zollikerberg	02/2017–04/2018
	<i>Research Assistant</i> , University of Zurich	04/2012–07/2013
	<i>Internship</i> , AXA-Winterthur Insurance	10/2009–03/2010
<b>TEACHING EXPERIENCE</b>	<i>Programming for PhD Students</i> , University of Zurich	Fall 2018
	<i>Advanced Microeconomics I</i> , University of Zurich	Fall 2017
	<i>BA- and MA-Thesis Supervision</i> , University of Zurich: Thomas Braschler, Flavio Caderas, Karim Ben Hassine, Flurin Noldin, Nicolas Sampl, Noemi Heller, Seït Käch, Jan Aeberhard, Cosma Gabalio, Marco Schwarz, Ninjas Zegg, David Saitta, Felix Wüthrich	
<b>LANGUAGE SKILLS</b>	English C2 (CPE), German C2 (native), French B2 (good)	
<b>PROGRAMMING</b>	<i>Scripting languages</i> : Python, PHP <i>Statistical packages</i> : Stata, R <i>Scientific computation</i> : Matlab, Mathematica <i>Bioinformatics</i> : R Bioconductor, Biopython, Plink <i>Machine learning</i> : Pytorch, Tensorflow, Keras <i>Web development</i> : Javascript, html	

**PROJECTS IN  
BEHAVIOURAL  
ECONOMICS**

*"Civic honesty around the globe", Science, 365(6448), 70–73, 2019.*

In my first year of graduate school, I joined Michel Maréchal and Alain Cohn to investigate how incentives affect honesty as measured by the willingness to return lost wallets. We turned in more than 17'000 apparently lost wallets (containing business cards, a shopping list, some money, and a key) at the reception desks of public and private institutions in 40 countries. We varied the amount of money that the wallets contained, including either no money, about 13 USD, or almost 100 USD. Surprisingly, money increases the number of people who try to return the wallet. This result is truly a global phenomenon—in virtually all countries, wallets with money were more likely to be reported. The same holds for different institutions and demographic groups.

To identify the motives to keep or return the wallet, we conducted additional treatments and nationally representative online experiments in three countries. The results suggest that a combination of altruism and an aversion to stealing drive a finder's behaviour. In the extensive supplementary materials, we show that other motives such as finder's fees or the risk of detection have little explanatory power and we build on a rich literature of cross-country studies to explain the observed reporting rates.

*"Income inequality and populism"*

Motivated in part by the negative correlation with income inequality in our lost wallet study, we began to think about how changes in income inequality affect civic preferences and behaviour. Among the hypothesised consequences of increasing inequality is the current surge in right-wing populism. Michel Maréchal, Alain Cohn, Leandro Carvalho and I are conducting a field-experiment to study the effects of increasing income inequality on political extremism in Dutch neighbourhoods.

As neighbourhoods with high and low inequality differ from each other in many other ways, isolating the effect of inequality is challenging. We exploit exogenous variation in income inequality generated by the popular Dutch Postcode Lottery. Each week, the lottery's "street prize" goes to a postcode of about 20 addresses, and residents who subscribed to the lottery win from €12,500 to €75,000, depending on the type of subscription they have. By comparing areas around postcodes that recently won the street prize to areas around winners of smaller prizes (e.g., musical tickets), we can estimate the causal effect of a random change in neighbourhood income inequality. After a postcode has won, we invite nearby households to a survey experiment that combines questions about political attitudes and views on populist policies with incentivised tasks where subjects can make real donations to various political parties and causes.

*"It's not all about the money: How corruption undermines policy effectiveness"*  
(*Job Market Paper*)

My job market paper demonstrates how corruption negatively impacts policy effectiveness in a program that is explicitly designed to have strong safeguards against corruption, Brazil's Bolsa Família cash transfer program. Bolsa Família makes monthly payments to millions of families, transferring funds directly to beneficiaries so that local officials cannot pocket the money. Moreover, the selection of beneficiaries is anonymized and conducted through a central process to prevent clientelism.

By using data from the Cadastro Único, the official database used for beneficiary selection, I can reconstruct the algorithm's priority strata to identify families on the margin of the program that were randomly included or not included in Bolsa Família. This

allows me to estimate the program's effect on school enrolment in different years and municipalities. I then show that Bolsa Família's effectiveness increases by a third after a municipality has been audited at random. Using a theoretical model, administrative data, and a field experiment with 6,998 registration centres, I find that local corruption increases the probability that families successfully underreport their income when registering for Bolsa Família, undermining the program's ability to target the families that benefit most.

*"Bolsa Família and civic behaviour"*

As poverty-relief programs expand, concerns are being raised about their effect not only in economic terms but also regarding their impact on the very fabric of society. Critics argue that welfare programs offer means to curry favor with voters and erode civic responsibility through wide-spread abuse of the social system.

To test how inclusion in Bolsa Família shapes civic behavior, I am working on a lab-in-the-field experiment conducted over mobile phones. Building on the identification strategy I develop in my job market paper, pairs of families are recruited such that one family has randomly been exposed to Bolsa Família for a significantly longer time. The experiment measures attitudes towards welfare fraud and towards selling one's political voice under the threat of exclusion from the welfare program, and it also assess the willingness to cheat fellow-citizens, to illegitimately claim government benefits, and to take advantage of the study (by sharing the incentivized survey despite being instructed not to do so). Throughout the experiment, incentive-compatible elicitation methods are used to minimize the risk that participants give socially desirable but untruthful responses.

**PROJECTS IN  
BEHAVIOURAL  
GENETICS**

*"Genome-wide association analyses of risk tolerance and risky behaviors in over 1 million individuals identify hundreds of loci and shared genetic influences", Nature Genetics, 51(2), 245–257, 2019.*

Together with the Social Science Genetic Association Consortium, I studied the genetics of risk tolerance. We conducted a genome-wide association study (GWAS) using data on approximately one million individuals from the UK Biobank, the Health and Retirement Study, and proprietary data from 23andMe, among other sources. We identified 611 genetic loci associated with measures of risk tolerance or risky behaviour, including 124 associated with the standard risk tolerance question ("Would you describe yourself as someone who takes risks?"). We found substantial genetic correlations with several risky behaviours, including speeding, health-related habits such as smoking and drinking, and risky sexual behaviours. Moreover, polygenic scores constructed from the GWAS predict various behaviours of interest to the social sciences, including related personality traits, health-related behaviours, and economic decisions.

*"Genes, pubs, and drinks"*

While existing research robustly shows that our genes affect how much alcohol people drink, it is unclear what this implies for effective alcohol licensing policy. In a joint project, Pietro Biroli and I analyze how people's genetic propensity to drink moderates their consumption behavior in response to changes in alcohol availability and licensing policy. We combine data from the UK Biobank with geo-coded data on pubs and retailers, as well as data on alcohol licensing from local licensing boards in England and Wales. This allows us to construct a fine-grained measure of local alcohol availability for each one of the approximately 500,000 participants in the UK Biobank. The project is part of a broader research collaboration that investigates genes' and the environment's

contribution to inequality in health and educational outcomes, the GEIGHEI project funded by NORFACE.

Our preliminary results show that individuals with a high genetic propensity to drink self-select into environments with easier access to alcohol, react less to changes in the availability of alcohol, and respond less to restrictive licensing. Importantly, while local licensing authorities are allowed to consider the effects of pubs on children, crime, or public disturbance, they cannot base their decision on public health factors, which mitigates concerns of reverse causality. Using data on co-morbidity and hospitalizations, we quantify the effect from a public health perspective, showing that the majority of alcohol-related public health costs is attributable to individuals with the highest polygenic risk. Thus, we show that supply-focused licensing policy to mitigate alcohol abuse can clash with individual predispositions and might exacerbate genetic inequality, suggesting the need for a more targeted approach.

*"Improving poly-genetic prediction with machine learning "*

Polygenic risk scores, the most widely used method for predicting individuals' traits from their genome, originated from genome-wide association studies (GWAS). As a result, they are constrained by strong linearity assumptions and can use only GWAS summary statistics. While these constraints are essential for researchers interested in discovering which parts of the genome are responsible for a particular phenotype, they are unnecessary if the aim is to make the most accurate predictions about traits and behaviours.

Together with Pietro Biroli, I develop machine learning techniques that significantly increase the power to predict traits and behaviours in smaller samples. The algorithm first applies random forests to select a subsample of mutations with high predictive power, before using a deep neural architecture to model non-linearities. The algorithm is recursively applied, and Bayesian optimization is used to tune the hyperparameters for the next iteration of the model. Our method vastly outperforms the state-of-the-art polygenic risk scores for benchmark traits (BMI and height), increasing predictive power by a factor of 10 in small samples (< 40,000 individuals), and by a factor of 4 in medium-sized samples (40,000-200,000 individuals).