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Yagan Hazard

CONTACT INFORMATION

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EMPLOYMENT

2023 – Assistant Professor, Collegio Carlo Alberto and University of Turin (ESOMAS)

VISITING POSITIONS

Visiting Assistant Professor, Ecole Normale Supérieure (scheduled).

Spring 2026

Visiting Research Scholar, Brown University (sponsored by Prof. Jesse Shapiro).

Spring 2022

EDUCATION

Ph.D, Economics, Paris School of Economics.

2019-2023

Thesis Title: *Essays on the Econometrics of Treatment Effect Models and Labor Economics*.

Defended on the 12th September 2023.

Jury: Eric Maurin (President), Peter Hull (Referee), Aleksey Tetenov (Referee), Clément de Chaisemartin (Examiner), Philipp Ketz (Examiner), Luc Behaghel (Supervisor).

Diplôme de l'ENS, Economics, Ecole Normale Supérieure.

2016-2020

M.Sc, Economics, Paris School of Economics, *highest honours*.

2017-2019

B.Sc, Economics, PSL Research University, *highest honours*.

2014-2017

RESEARCH AND TEACHING FIELDS

Theoretical and Applied Econometrics, Labor Economics.

WORKING PAPERS

“The Potential of Recommender Systems for Directing Job Search: A Large-Scale Experiment ” (with L. Behaghel, S. Dromundo, M. Gurgand and T. Zuber). 2024. *Conditionally accepted, Econometrica*.

Abstract: We analyze the employment effects of directing job seekers' applications toward establishments likely to recruit. We run a two-sided randomization design involving about 800,000 job seekers and 40,000 establishments, based on an empirical model that recommends each job seeker to firms so as to maximize total potential employment. Our intervention induces a 1% increase in job finding rates for short term contracts. This impact comes from a targeting effect combining (i) a modest increase in job seekers' applications to the very firms that were recommended to them, and (ii) a high success rate conditional on applying to these

firms. Indeed, the success rate of job seekers' applications varies considerably across firms: the efficiency of applications sent to recommended firms is 2.7 times higher than the efficiency of applications to the average firm. This suggests that there can be substantial gains from better targeting job search, leveraging firm-level heterogeneity.

“Improving LATE Estimation in Experiments with Imperfect Compliance” (with S. Löwe). 2024.

Abstract: Experiments with imperfect compliance are ubiquitous in applied economics and policy evaluation. Estimation of causal effects in such setting relies on an Instrumental Variable (IV) strategy, which can often yield imprecise and thus possibly uninformative inference when compliance rates are low. We tackle this issue by proposing a Test-and-Select estimator that exploits covariate information to restrict estimation to a subpopulation with non-zero compliance. We derive the asymptotic properties of our proposed estimator under standard and weak-IV-like asymptotics, and study its finite sample properties in Monte-Carlo simulations. We clarify under which conditions it dominates the usual 2SLS estimator in terms of precision. Under an assumption on the degree of treatment effect heterogeneity, our estimator remains first-order unbiased with respect to the Local Average Treatment Effect (LATE) estimand, setting it apart from alternatives in the burgeoning literature on the use of covariates to improve the precision of IV estimators. This robustness to treatment effect heterogeneity is illustrated using Monte-Carlo simulations and an application to a large-scale experiment on job search counseling. Our proposal therefore provides an alternative to applied economists seeking an improvement in precision while keeping an estimator more tightly linked to the original LATE estimand.

“Who With Whom? Learning Optimal Matching Policies” (with T. Kitagawa). 2025.

Abstract: There are many economic contexts where the productivity and welfare performance of institutions and policies depend on who matches with whom. Examples include caseworkers and job seekers in job search assistance programs, medical doctors and patients, teachers and students, attorneys and defendants, and tax auditors and taxpayers, among others. Although reallocating individuals through a change in matching policy can be less costly than training personnel or introducing a new program, methods for learning optimal matching policies and their statistical performance are less studied than methods for other policy interventions. This paper develops a method to learn welfare optimal matching policies for two-sided matching problems in which a planner matches individuals based on the rich set of observable characteristics of the two sides. We formulate the learning problem as an empirical optimal transport problem with a match cost function estimated from training data, and propose estimating an optimal matching policy by maximizing the entropy regularized empirical welfare criterion. We derive a welfare regret bound for the estimated policy and characterize its convergence. We apply our proposal to the problem of matching caseworkers and job seekers in a job search assistance program, and assess its welfare performance in a simulation study calibrated with French administrative data.

“Occupational Mobility and Retraining: Experimental Evidence on Firms' Hiring Preferences” (with G. Azmat, L. Behaghel, R. Rathelot and J. Sultan). 2025.

Abstract: Governments typically address occupational mismatch through two types of interventions: (i) redirection policies, which nudge workers toward tighter labor markets, and (ii) retraining policies, which aim to bridge skill gaps. To assess the effectiveness of these policies in a unique setting, we conducted a large-scale correspondence experiment in France, sending 6,668 fictitious applications across six tight occupations and randomly varying applicants' training and experience. We find that candidates with both initial training and experience in the target occupation received the highest callback rate, followed closely by movers who completed long retraining programs. Short-retraining and untrained movers received half as many callbacks. We also find that the retraining premium increases with the tightness in the local labor market. These

results clarify the relative effectiveness of redirection versus retraining policies; we conclude by discussing the conditions under which the costs of these two policy instruments for the government are offset by savings on unemployment benefits.

PUBLICATIONS

“Skill Distance Between Occupations and Post-Training Professional Transitions of Jobseekers” (with D. Mayaux, K. M. Fritz and T. Zuber). 2025. *Economics and Statistics*.

Abstract: Does vocational training help correct structural imbalances in the labour market? We propose a new measure of the skills distance between occupations, obtained by fine-tuning a large language model on a sample of job offers. Using this method, we demonstrate that the "return to employment" differential between jobseekers with and without training is driven by a reallocation of workers towards occupations that are very different from their previous posts in terms of the skills required. From a purely reallocative perspective, however, the return to employment differential associated with vocational training does not appear to be driven by more jobseekers moving to occupations where employers are struggling to recruit.

WORK IN PROGRESS

“Exploiting Bounded Treatment Effect Heterogeneity for Improved Inference in (Quasi-)Experiments with Imperfect Compliance” (with X. D’Hauteffœuille and S. Löwe).

Abstract: As a follow-up research project, this work consider the setting studied in Hazard and Löwe (2024, see above) under a bounded treatment effect heterogeneity assumption. Relying on the constraints imposed by the LATE (Angrist and Imbens, 1994) identifying assumption on the joint distribution of the reduced form and first-stage estimands, we propose a novel estimator based on a projection of empirical moments on the constraint with a high potential for reduction in RMSE. Inference results based on resampling methods—taking into account the bias of the estimator as well as the challenge raised by inference at the border of the parameter space—are currently being developed, with encouraging results in Monte-Carlo simulations and candidate applications.

“Evaluating the Effect of Training Programs for the Unemployed: an Examiner Design Approach” (with L. Behaghel, M. Gurgand, U. Oyon Lerga).

Abstract (early stage project): We exploit the random allocation of caseworkers to job seekers in France—and the heterogeneity in caseworkers’ propensity to place individuals in training programs—in order to build an instrument for entering a training program while unemployed. To alleviate threats to the exclusion restriction assumption, we are currently developing an identification approach combining (i) the intuition behind of so-called “zero-first-stage” falsification test, (ii) an identification-at-infinity argument and (iii) a single-index assumption imposed on caseworkers’ direct impact on individuals’ job finding rate (violating the exclusion restriction of the instrument). Our framework lends itself nicely to the use of machine-learning predictions in a first step to identify the zero-first-stage subgroups that are essential for our identification-at-infinity approach.

TEACHING EXPERIENCE

Lecturer

Fall 2023–... Econometric Theory I (Masters & PhD), Collegio Carlo Alberto.

Spring 2025 Advanced IV Methods (PhD), Paris School of Economics.

Fall 2023 Econometrics (Masters), University of Geneva.

Teaching assistant

Fall 2021 Advanced Treatment Effect Models (Masters), Paris School of Economics . TA for M. Tô.
Topics: RCT, Clustering, RDD, IV, Marginal Treatment Effects, Advanced DID/TWFE

Spring 2021, Econometrics 3 (Masters), Paris School of Economics. TA for L. Behaghel and P. Ketz.

Spring 2023 Topics: Treatment Effect and Selection Models, Panel Data, Limited Dependent Variables

CONFERENCES AND PRESENTATIONS (INCLUDING UPCOMING)

- 2026 Université Libre de Bruxelles DULBEA Seminar (scheduled), European University Institute (scheduled), Paris HiJoS Workshop (scheduled), Oslo Workshop in Labor and Public Economics (scheduled)
- 2025 CCA Workshop on Optimal Transport in Econometrics, ESOMAS Internal Seminar, Innsbruck HiJoS Workshop, Paris Econometrics Internal Workshop, LMU-NYU Workshop on Advances in Policy Analysis, Math+Econ+Code Seminar.
- 2024 KU Leuven, Duke Microeconometrics Class of 2022 & 2023 Conference, PSE EAYE meeting, Bocconi internal seminar, NBER Summer Institute, LSE Advances with Field Experiments Conference, University of Oslo
- 2023 CREST-ENSAI, University of Saint-Gallen, University of Gothenburg, University of Surrey, University of Manchester, Erasmus University Rotterdam, LMU Munich, University of Geneva, Collegio Carlo Alberto, University of Essex, 2023 EEA-ESEM (University Pompeu Fabra), 2023 Brucchi Luchino Workshop (Cagliari)
- 2022 2022 North American Winter Meetings of the Econometric Society, Brown Econometrics Coffee, International Econometrics PhD Conference (Erasmus University Rotterdam) (scheduled).
- 2021 PSE-CREST Econometrics Internal Seminar.
- 2020 PSE Labor and Public Economics Internal Seminar.

HONORS, SCHOLARSHIPS AND GRANTS

Nov. 2024 France Travail research grant, €95,000.

Jan. 2022 PSE mobility grant, €3840.

Dec. 2021 DARES (French Ministry of Labor, Statistical Unit) research grant, €190,387
Research project: Evaluating the effect of online training programs on employment: a randomized control trial (with P. Arni, L. Behaghel, M. Gurgand, R. Rathelot, and T. Zuber)

Aug. 2021 DARES (French Ministry of Labor, Statistical Unit) research grant, €61,221.
Research project: Measuring occupational distances and the aggregate potential of training policies for labor force reallocation (with D. Mayaux and T. Zuber).

Oct. 2020 DARES (French Ministry of Labor, Statistical Unit) research grant, €289,656.
Research project: Evaluating the effect of training programs on occupational transitions: a correspondence study (with G. Azmat, L. Behaghel, R. Rathelot and J. Sultan)

PROFESSIONAL SERVICE

Referee for *The Quarterly Journal of Economics*, *The Review of Economic Studies*, *The Review of Economics and Statistics*, *Journal of Political Economy: Microeconomics*, *EAYE Annual Meeting*, *IAAE Annual Meeting*, *Economics and Statistics*, *Labour: Review of Labour Economics and Industrial Relations*

Co-organizer of *2026 AI, Economics, and Society Conference*, *2025 CCA Workshop on Optimal Transport in Econometrics*.

MISCELLANEOUS

Programming R, Stata, Git, GitHub

Communication English (fluent), French (native), Italian (beginner)

PERSONAL INFORMATION

Born 1996 / He/Him/His / French citizen / Practicing sport climbing & trail running in my free time