

How to diagnose and remedy information imperfections on labour markets?

Roland Rathelot (Institut Polytechnique de Paris, ENSAE)

Joint work with Ghazala Azmat (Sciences Po), Luc Behaghel (PSE), Joseph Barreau (France Travail), Manon Bouju (France Travail), Marion Brouard (ifo, LMU), Sebastian Butschek (Innsbruck), Louise Demoury (IPP), Adelaide Fabbi (IP Paris), Mattis Gilbert (Sciences Po), Yagan Hazard (Collegio Carlo Alberto), Lena Hensvik (Uppsala), Jeremias Klaeui (IP Paris), Thomas Le Barbanchon (Bocconi), Mitia Oberti (IP Paris), Marina Schwab (Innsbruck), Andreas Steinmayr (Innsbruck), Joyce Sultan (IPP)

May 2026



Mismatch on labour markets

- ▶ Coexistence of unemployed job seekers and unsatisfied job vacancies on all labour markets
- ▶ Due to skill or geographic mismatch?
 - ▶ Empirical evidence suggests this does not account for most of the problem (Sahin et al. 2014, Marinescu and Rathelot 2018, Fontaine and Rathelot 2022)
- ▶ What about information frictions?

Information frictions

- ▶ What agents may not observe on the market: may cover a variety of different mechanisms
- ▶ Supply side (workers):
 - ▶ Which vacancies are available?
 - ▶ How much utility would they derive from a given job?
 - ▶ How likely are they to be hired if they apply to a given job?
- ▶ Demand side (employers):
 - ▶ *Knowledge about the market*: Which workers would be attracted by given parameters of a job ad?
 - ▶ *Screening*: How productive are given candidates, and how likely are they to accept an offer?

Information frictions and AI

- ▶ The technology underlying the way workers and employers meet/interact should matter for matching outcomes (e.g., how long they take to match and how well they match)
 - ▶ Surprisingly little evidence or relatively small effects of the internet: best evidence so far using broadband expansion in Norway (Bhuller, Ferraro, Kostol, Vigtel 2023)
 - ▶ Increasing the information set available to agents may lead to overloading them
 - ▶ (Coordination failures may also play a role, in the absence of a central planner)
- ▶ A role for AI?
 - ▶ Cognitive overload and inattention may limit the impact of information interventions: AI to sort relevant from irrelevant information
 - ▶ Extreme heterogeneity on both sides of labour markets: AI to parse heterogeneity
 - ▶ Reducing costs on one side of the market may lead to congestion on the other side: AI to deliver individually tailored recommendations following clear aggregate policy objectives

How to move ahead?

- ▶ Goals:
 - ▶ Identify problems, and learn which problems are binding/first-order
 - ▶ Evaluate potential solutions, with an open mind
- ▶ What we need:
 - ▶ Data
 - ▶ Novel solutions
 - ▶ Careful evaluation protocols
- ▶ Feed back into (largely non-existent) theoretical frameworks

Outline

Does pushing relevant job vacancies help?

How do job seekers react to job ad information?

Helping firms know their markets

Experimental evidence on firms' preferences for skills

Lowering sourcing costs for Public Employment Service caseworkers

Does pushing relevant job vacancies help?

with Thomas Le Barbanchon and Lena Hensvik

- ▶ Baseline situation:
 - ▶ Job seekers use a job platform to search for jobs
 - ▶ The main tool to navigate the market is a search engine, combined with detailed info on job ads
- ▶ Personalised recommendations may be a way to remedy inattention, in two ways:
 - ▶ Bring to job seekers the jobs they may have missed in between search sessions
 - ▶ Handle multidimensionality better than filters/search terms

Welcome to *platsbanken.se*!

Platsbanken

Lediga jobb för hela Sverige

Sök på ett eller flera ord

 Sök

Ort ▾

Yrke ▾



Job seekers can list vacancies

Platsbanken

🕒 Senaste sökningar ▾

☆ 0 sparade annonser ▾

Sök på ett eller flera ord

umeå personlig assistent|



🔍 Sök

Ort ▾

Yrke ▾

Filter ▾

Umeå personlig assistent [Bevaka](#)

40 annonser med 59 jobb

Sortera efter relevans ▾

Ny

Möjliggörande personlig assistent! Umeå

Lystra personlig assistans - Umeå

Personlig assistent

Publicerad 6 maj, kl. 07.57

☆ Spara

Ny

Personlig assistent sökes till kvinna i Umeå

Aktiv Assistans - Umeå

Personlig assistent

Publicerad 19 maj, kl. 22.15

☆ Spara

Ny

Personlig assistent schemarad 75 % - UMEÅ

TRYGGA ASSISTANS I NORR AB - Umeå

Job seekers can view specific jobs and apply



Translate Spara

Möjliggörande personlig assistent! Umeå

Lystra personlig assistans

Personlig assistent

Kommun: Umeå

Omfattning: Deltid

Varaktighet: 6 månader eller längre

Anställningsform: Tillsvidare- eller tidsbegränsad anställning

Kvalifikationer

Arbetslivserfarenhet

Ingen arbetslivserfarenhet krävs

Sök jobbet

Ansök senast 30 juni (om 37 dagar)

Ansök via arbetsgivarens webbplats

Ansök här

Om jobbet

Lystra personlig assistans bygger på erfarenhet, kunskap, medvetenhet och trygghet.

Genom att handplocka personal och samarbetspartners med unik kompetens skapar Lystra den trygghet som ger förutsättningar för en kvalitativ personlig assistans. Vi vet att personalen är vår största och viktigaste resurs samt att det är vår uppgift som arbetsgivare att ge alla rätt förutsättningar för att utföra sitt arbete. Lystra personlig assistans skapar kvalitet genom tillit och trygghet för kund och personal. Den tilliten och tryggheten skapar vi genom att respektera varandra och varandras värderingar.

Recommendations in practice

 **ARBETSFÖRMEDLINGEN**
SWEDISH PUBLIC EMPLOYMENT SERVICE

Logga inLanguagesSökMeny

Recent searches0 saved ads

Place banks

Vacancies for the whole of Sweden

Search for one or more words

OrtProfession



Suggestions for you

Environmental and health protection...

Ekerö municipality - Ekerö

Environmental protection officer for t...

Swedish Environmental Protection Agency - Stockholm

Environmental strategist for energy companies...

Jefferson Wells - Stockholm

Quality and environmental manager

Nyckelrekrytering AB - Stockholm

Algorithm

- ▶ The objective of the algorithm is to generate *relevant* recommendations and to avoid recommending jobs that have *already received a lot of attention*
- ▶ We use the clicks made by workers to define what they like, and recommend jobs clicked by other workers who have similar click history
 - ▶ Item-to-user collaborative-filtering recommender system with implicit feedback
- ▶ Input: 30 days of past click history
 - ▶ “naturally occurring” data on such websites
- ▶ Output: For each user, a set of open vacancies with high type similarity to the user
 - ▶ Deal with congestion: Jobs with more than 200 views: excluded from recommendations
- ▶ Around 10 recommendations generated every night

» Formal problem

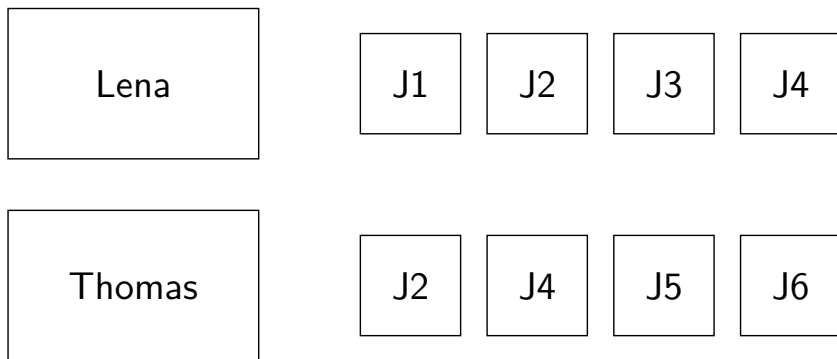
» Recommended ads

How do we evaluate this?

- ▶ Randomisation #1: Treated vs. control job seekers
 - ▶ Some job seekers see the recommendation box. Others only have the business-as-usual tool: the search engine
- ▶ Randomisation #2: Treated vs. control job ads
 - ▶ Some job ads are shown in the recommendation box. Others are not.
- ▶ Randomisation #3: Treated vs. control local labour markets
 - ▶ In some local labour markets, no job ads are ever displayed in the recommendation box: these are the *super-controls*

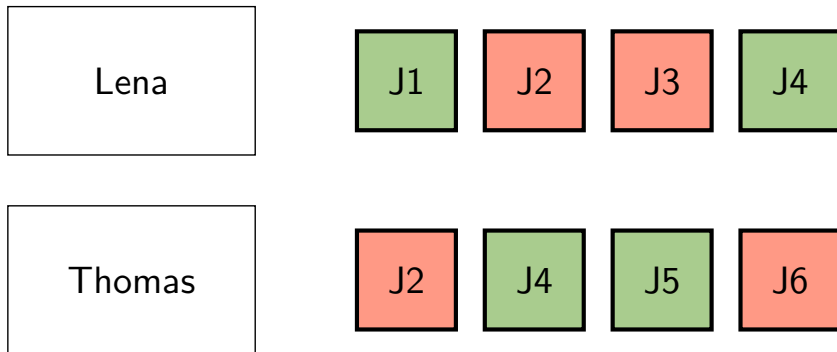
Experimental Design: Example

- Example: Two job seekers, with recommended jobs J .



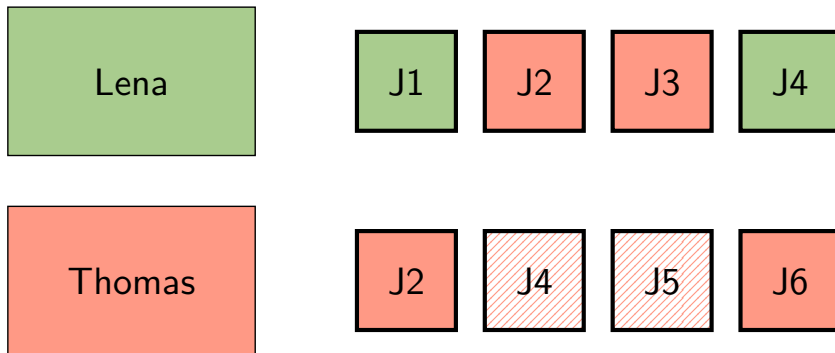
Experimental Design: Example

- ▶ Example: Two job seekers, with recommended jobs J .
 - ▶ Half of the recommendations are treated



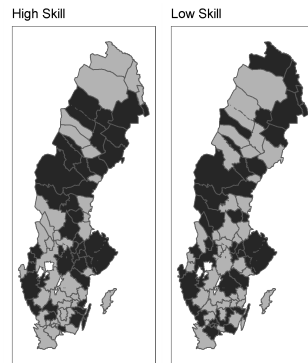
Experimental Design: Example

- ▶ Example: Two job seekers, with recommended jobs J .
 - ▶ Half of the recommendations are treated
 - ▶ Half of the individuals are treated



Experimental design

- ▶ Experimental period: April 2021 - March 2022
- ▶ **Two-sided**: both workers and job ads permanently assigned treatment status (50% treatment rate)
- ▶ Treatment
 - ▶ Treated workers see recommendations, control workers do not
 - ▶ Treated ads are displayed in recommendation box
- ▶ **Clustered**: in last 5 months of RCT, we added market-level randomisation (across 138 CZ $\times$ Skill group, excl. Stockholm)



User-level treatment effects on views and apps

- ▶ Data on 1.7 million users observed 8.5 times on average being active on the platform during the RCT
- ▶ **Zero (precise)** effect on total number of views and applications
- ▶ Reallocation from control and untreated ads to treated ads
- ▶ Number of applications on treated ads by treated users increased by **31%** (very precise effect)

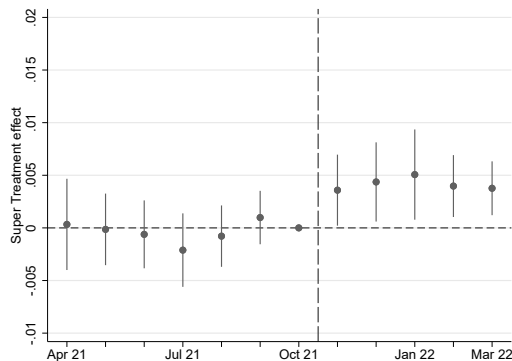
Worker-level treatment effects on employment and earnings

- ▶ Data on 245,000 registered unemployed active on the platform during the RCT
- ▶ Probability of receiving some earnings increased by .6% (5% significant)
- ▶ On earnings and employment duration: same magnitude, less statistical precision

Market-level treatment effects on employment

- ▶ Market-level randomisation for vacancies posted from Nov. 2021 to March 2022
- ▶ 27,000 firms who posted job ads during the RCT
- ▶ For firm j in local market $m(j)$:

$$\text{LogEmp}_{jt} = \alpha_j + \sum_k \delta_k 1\{k = t\} T_{m(j)} + \text{Month} \times \text{RandPairFE}_{m(j)} + \text{Month} \times \text{IndFE}_j + \epsilon_{jt}$$



- ▶ On average: **+5%** on firm size at end of RCT (sig. 5%)

Pair-level employment effect and heterogeneity

- ▶ Average effect between fully treated pairs (treated worker and treated vac.) and fully control pairs (control worker and control vac.) ($E_{TT}/E_{CC} - 1$): 5.5% (p-value = .001) [▶▶ Table](#)
- ▶ Stronger positive effects for:
 - ▶ less-educated workers
 - ▶ job seekers unemployed at time of assignment
 - ▶ immigrants
 - ▶ unpopular vacancies (with low # clicks by control users)
- ▶ No significant heterogeneity by worker's gender and age

Conclusion

- ▶ Takeaways:
 - ▶ The recommender system increased market-level firm size by around .4%
 - ▶ Benefited mostly workers with a lower probability of finding jobs and jobs that are less likely to be filled
 - ▶ Produced recommendations that job seekers took seriously: they viewed and **applied** to these recommended ads
- ▶ Where is this going?
 - ▶ The devil is in the detail: how to increase takeup?
 - ▶ Caseworker and AI: how to make them good complements?
 - ▶ Conception of model-based algorithms that solve a clear aggregate policy objective (Bied et al., 2026) and leverage all available features (e.g., Audoly, Bhuller, Reiremo, 2026)
 - ▶ How will GenAI change the way people search for jobs? And how should recommender systems adjust to this?

Outline

Does pushing relevant job vacancies help?

How do job seekers react to job ad information?

Helping firms know their markets

Experimental evidence on firms' preferences for skills

Lowering sourcing costs for Public Employment Service caseworkers

Know your labour market

- ▶ Do employers know their labour markets?
- ▶ When they post a job ad, employers have to decide on its terms: wage + non-wage amenities
- ▶ Trade-off:
 - ▶ Higher wage will attract more applicants and better applicants; better-paid workers may remain longer
 - ▶ Paying higher wage is costly
- ▶ Example of the restaurant industry:
 - ▶ Wages are low, yet the market is said to be very tight
 - ▶ Lots of small, independent employers
 - ▶ Why don't wages go up?

Study job seekers' reactions

joint with Louise Demoury and Adelaide Fabbi

- ▶ What are the elasticities of the number and quality of applications to posted wages and non-wage amenities?
 - ▶ Note the feedback loop between supply-side information imperfections and labour demand decisions!
- ▶ We use data from Extracadabra:
 - ▶ Private online platform specialised in the restaurant industry in Paris
 - ▶ Very short employment spells (typically, a few days)
 - ▶ Interesting feature: Extracadabra records not only applications but also shortlisting by employers
 - ▶ Data from Jan 2021 to Aug 2024: 42,000 jobs, 57,000 job seekers, 2.2M applications

This is Extracadabra

Auto-entrepreneur



 Chef de rang

 Restaurant Italien

 75016 paris

 Début de la mission
22/08/2024
13h00-17h00

 Temps de travail
1 jour

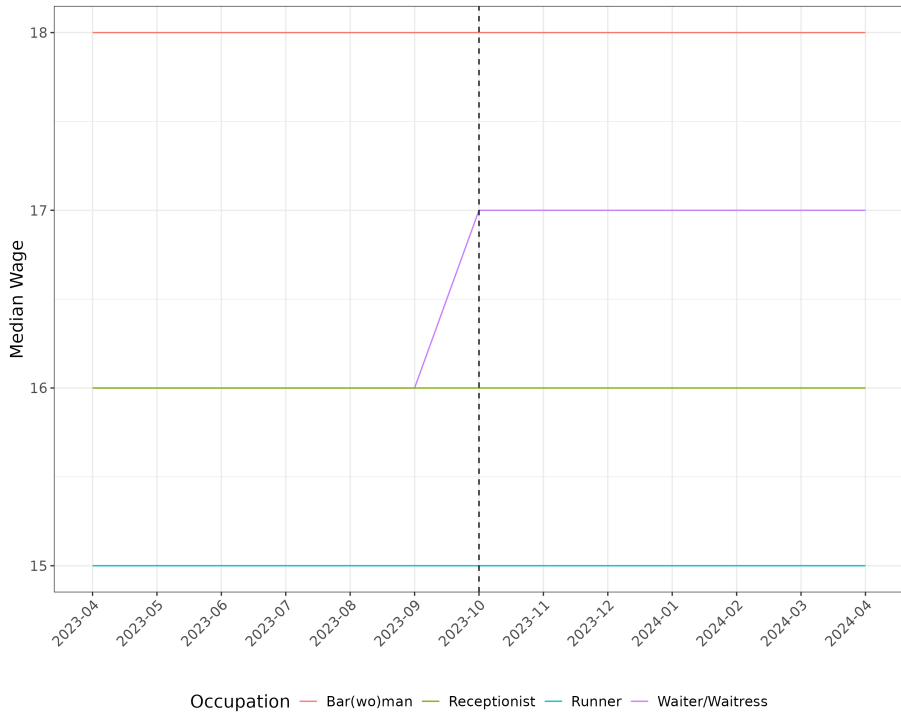
19,50 € / heure

Total prévisionnel
78 €

Voir l'offre

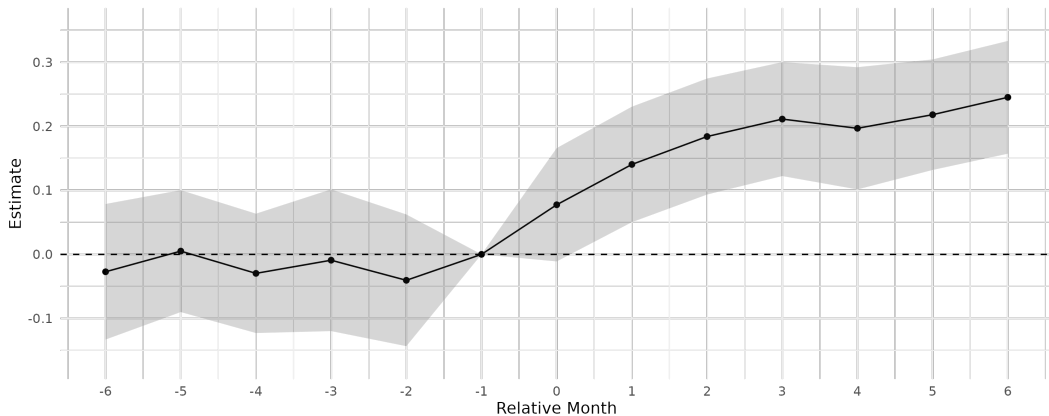
Identification

- ▶ For wages: Evolution of wages induced by an exogenous hike of “default wage” (diff-in-diff by occupations and time)
 - ▶ From time to time, the platform increases the default wage for some occupations
 - ▶ We focus on the increase in waiters' wages in 2023, comparing them to neighbouring occupations
- ▶ For non-wage amenities: Within job category/restaurant cross-job-ad variation in amenities
 - ▶ Thought experiment: a restaurant posts vacancies and sometimes improves working conditions (controlling for wages)



Occupation — Bar(wo)man — Receptionist — Runner — Waiter/Waitress

Number of applications (Poisson model)



	Nb. of Applications			
	(1)	(2)	(3)	(4)
Post $\times$ Treated	0.2586*** (0.0205)	0.1847*** (0.0200)	0.1912*** (0.0208)	0.1943*** (0.0221)
Observations (# of Missions)	26,239	26,053	25,864	25,405
Share of Treated Observations	0.483	0.481	0.479	0.475
Dependent Variable Mean	12.1	12.2	12.2	12.1
Number of Venues	2,199	2,019	1,832	1,380
Controls Included	✓	✓	✓	✓
Occupation FE	✓	✓	✓	✓
Week FE	✓	✓	✓	✓
Category FE		✓	✓	
Postcode FE		✓	✓	
Category $\times$ Postcode FE			✓	
Venue FE				✓

Notes: Time spans 01-04-2023 to 30-04-2024; 13 months centered around the shock. All specifications are estimated with a Poisson model offset on the number of matches.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust SEs clustered at the mission level.

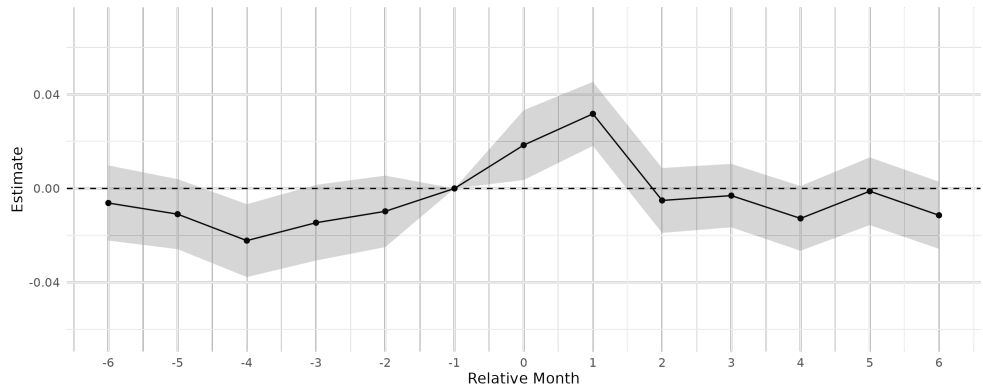
Number of applications: The role of wages and other job amenities

- ▶ We find that a 1% increase in the posted wage increases the number of applications received by a job ad by 3%
- ▶ Wages are not the only amenities that matter:
 - ▶ Workers dislike split shifts
 - ▶ They don't dislike working at weekends (in this sample, at least)
 - ▶ Jobs that explicitly say they are open to novices receive more applications

What about quality?

- ▶ What is quality?
 - ▶ Employers care about productivity, they also care about the probability that applicants will ultimately accept an offer
- ▶ We adopt a relatively hands-off way to assess quality
 - ▶ Estimate a prediction model, on the set of applications, of the probability of being called back based on applicant and pair characteristics
 - ▶ Compute a predicted probability of being called back

Quality of applications (OLS)



Do higher wages improve the quality of applications?

- ▶ Effect on the average quality of applicants (+3 pp from an average of 51%), back to zero after two months
- ▶ Stronger effects on minimum quality of application pool (+6 pp from an average of 32%) than on maximum quality (+2 pp from an average of 73%)

Do higher wages increase hiring?

- ▶ Tricky outcome: depends on employers' reactions to the increase in wages: do they raise the bar?
- ▶ Results: 10% increase in the number of hires; nothing visible on the quality of hires (but imprecise)

Takeaways

- ▶ The application pool changes with the parameters of the job ad
 - ▶ Do employers (especially small ones) themselves know to what extent?
 - ▶ If not, guiding them would help make more and better matches
 - ▶ An elasticity of 3 is not that large, given the market we are studying: remaining imperfections on the worker side?
- ▶ Related papers/projects:
 - ▶ *The Role of Wages and Fringe Benefits in Job Search: Evidence from a Large-Scale Field Experiment*, by Andreas Beerli, Stefano Fiorin, Andreas Gulyas, Daniel Kopp, Masha Khoshnama, and Michael Siegenthaler
 - ▶ *The Measure of Monopsony: The Labour Supply Elasticity to the Firm and its Constituents*, by Nikhil Datta
 - ▶ *Wage Surging: An Analysis of Firms' Search during Hiring Difficulties*, by Zoe Cullen, Mitch Hoffman and Felix Koenig

Outline

Does pushing relevant job vacancies help?

How do job seekers react to job ad information?

Helping firms know their markets

Experimental evidence on firms' preferences for skills

Lowering sourcing costs for Public Employment Service caseworkers

Information Intervention: “Widget Attractivité Offre”

joint with Mattis Gilbert, Sebastian Buschek, Andreas Steinmayr, Marina Schwab

- ▶ Setting: France Travail, public employment service and largest job board in France
- ▶ Employers have to fill an online form to post a job on francetravail.fr
- ▶ After specifying the occupation, they are asked about
 - ▶ A lower bound for the wage (68% provide it)
 - ▶ An upper bound for the wage (38% provide it)
- ▶ Experimental intervention: shown how the lower-bound wage is positioned in the distribution of (lower-bound) posted wages in the same local labour market

Comment souhaitez-vous indiquer le salaire ?



Je saisis un salaire brut



Je ne peux pas saisir un montant



Précisez les informations de la fourchette de salaire

Le SMIC est de 11.65€/h, soit 1766.92€/mois pour 35h/semaine (au 1 janv. 2024)

Salaire minimum

euros brut

Salaire maximum (facultatif)

euros brut

Période de paiement

Mensuel



Découvrez quel est le salaire attractif pour votre offre ?

Pour vous démarquer autrement, mettez en avant les avantages ou compléments de salaires.

Dans ce département, **65% des employeurs proposent des salaires supérieurs** pour ce métier.



Vous hésitez à modifier votre salaire ? [Estimer le coût de votre salarié en fonction du salaire](#)

Experimental Design

Randomisation:

- ▶ Randomisation at the *establishment level*
- ▶ Recruiters may post multiple ads and across markets

Treatment arms:

- C : Control (no widget)
- T_1 : Widget shown **after** entering wage
- T_2 : Widget shown **before** entering wage

Tracks:

- ▶ **Ad creation:** in T_1 , recruiter can skip the wage field and never see the widget — not an option in T_2 (widget shown first)
- ▶ **Ad duplication:** both arms behave similarly — widget displayed alongside the duplicated wage

Data

29 September 2025 – 4 May 2026.

Outcome	Data source
Interaction with widget	Wages typed <i>before</i> form submission + <i>before</i> time spent on the form
Job ad characteristics	Posted wages, experience required
Attractiveness	Number of views & applications
Hires	Hired worker in posted occupation (UE)

Sample: drop temp agencies, public sector, randomisation hiccup → **162k ads, 42k establishments**

ATE — First stage

Do treated establishments interact with the widget?

Table: DDML estimates — Main — Firststage

	N wage entries	Seconds on wage page	log seconds on wage page
Treated	0.054*** (0.010)	3.063*** (0.956)	0.081*** (0.028)
N	133,316	162,671	162,645
N clusters	36,980	42,651	42,651
Control mean	0.612	68.867	3.278

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cluster-robust SE in parentheses.

ATE — Selection into wage posting

Does the widget motivate and/or demotivate wage posting?

Table: DDML arm-specific estimates — Creation track — Wage posting

	Post lb wage (0/1)	Post ub wage (0/1)
Widget shown after	0.002 (0.002)	0.014 (0.009)
Widget shown before	-0.001 (0.004)	0.026** (0.013)
N	59,790	59,790
N clusters	29,792	29,792
Control mean	0.680	0.382

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Cluster-robust SE in parentheses.

- ▶ No need to consider Lee bounds
- ▶ To do: Look at probability of abandoning posting an ad entirely.

Effect on posted wages: theory-driven heterogeneity analysis

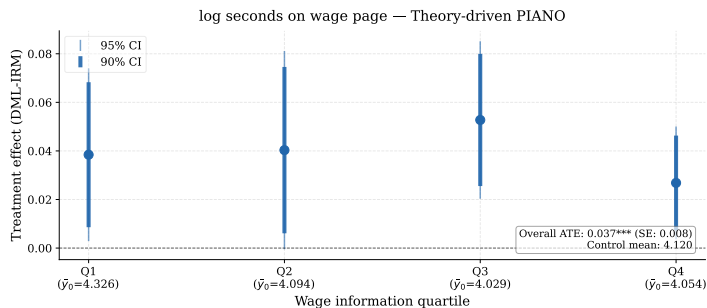
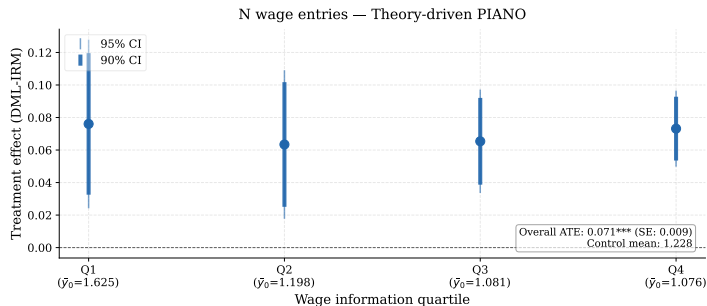
The widget's effect should be *heterogeneous* depending on the *counterfactual wage* the recruiter would have posted, absent the widget.

- ▶ **Low-wage recruiters:** incentive to revise upward → more applicants → more hires
- ▶ **High-wage recruiters:** may decrease wages or become more selective

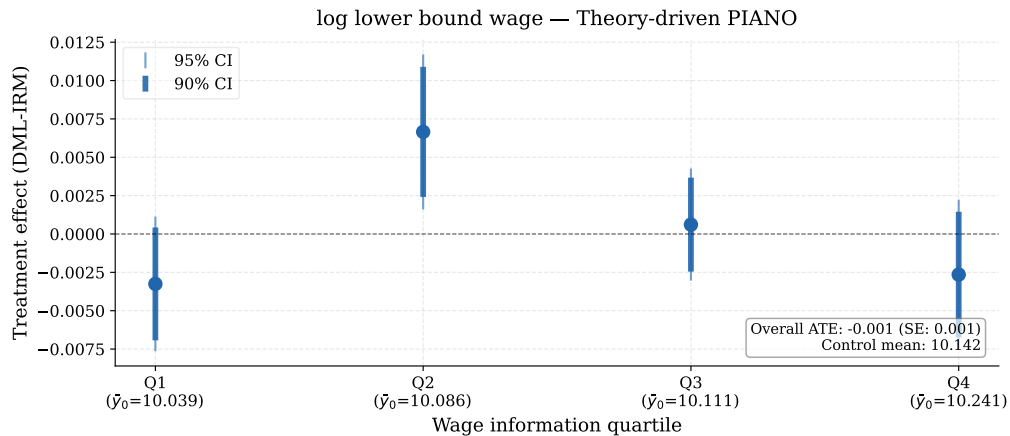
How to get a counterfactual wage?

- ▶ **Strategy 1: First wage** typed before the widget — *a priori* cleaner counterfactual, smaller sample (22k ads / 11k estab.)
- ▶ **Strategy 2: Historical wage** (most recent posted in the market, pre-RCT, inflation adj.) — larger sample, noisier proxy (63k ads / 17k estab.)

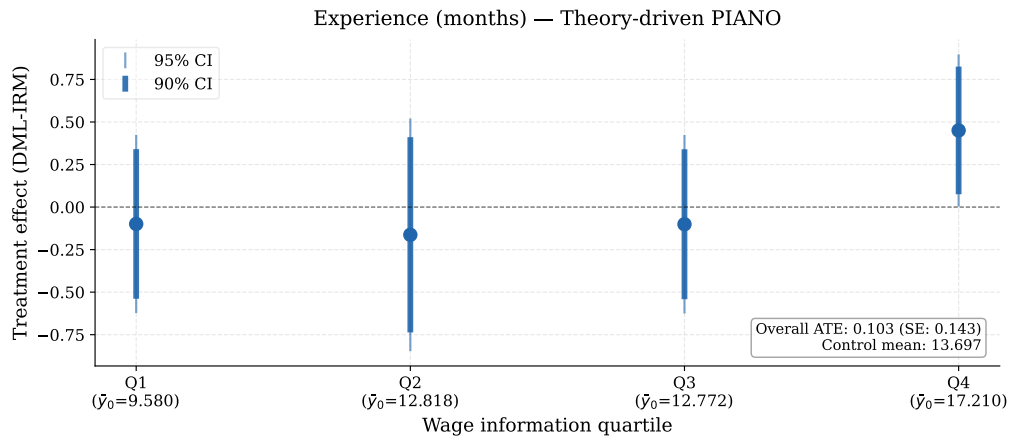
Interaction with the widget



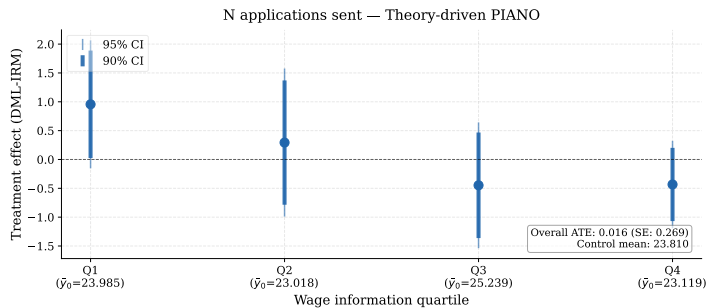
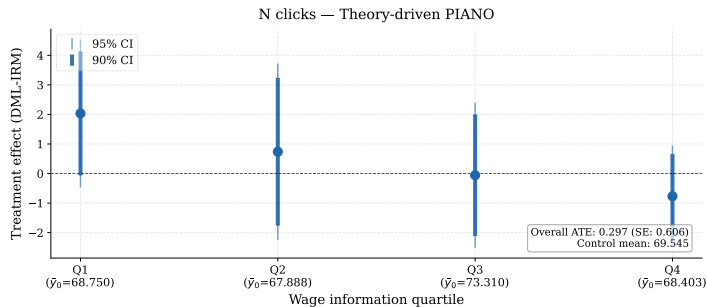
Posted wage



Experience required



Clicks and apps



Takeaways

- ▶ Employers react to information provided on the distribution of posted wages
- ▶ Should they? Under which assumptions?
- ▶ To explore the determinants of employers' reactions: companion projects!
 - ▶ In partnership with AMS (Austrian PES): Surveying firms with a higher probability of posting jobs about the distribution of wages in their markets and investigate how this changes their beliefs (RCT + survey + admin data)
 - ▶ In partnership with France Travail: follow up with employers that have posted a job but did not get many applications after 2 weeks/1 month
- ▶ Other interesting papers/projects:
 - ▶ *Wage Surging: An Analysis of Firms' Search during Hiring Difficulties*, by Zoe Cullen, Mitch Hoffman and Felix Koenig
 - ▶ *What's My Employee Worth? The Effects of Salary Benchmarking*, by Zoe Cullen, Shengwu Li and Ricardo Perez-Truglia

Outline

Does pushing relevant job vacancies help?

How do job seekers react to job ad information?

Helping firms know their markets

Experimental evidence on firms' preferences for skills

Lowering sourcing costs for Public Employment Service caseworkers

To what extent do firms actually care about (signals of) skills?

joint with Ghazala Azmat, Luc Behaghel, Yagan Hazard, and Joyce Sultan

- ▶ Studies show that skill mismatch is not so important to explain unemployment
 - ▶ Is it that employers in tight occupations do not care so much about skills?
 - ▶ Or that they have trouble finding signals for skills in résumés?
- ▶ Large-scale correspondence study in France (2021-24): 6,668 applications to 1,743 jobs in six occupations with high tightness.

Four main “profiles” of candidates:

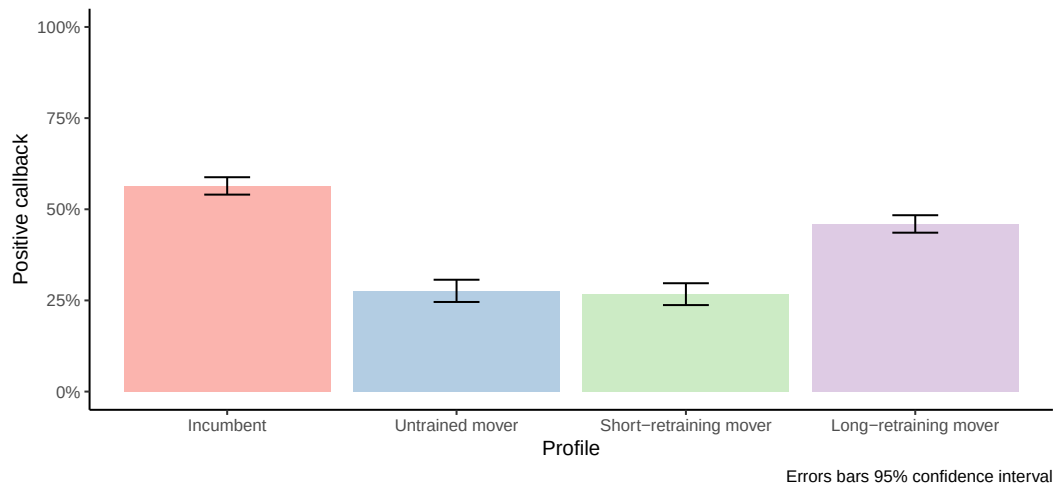
1. **Incumbent**: initial training and experience in the position advertised.
 2. Movers with initial training and experience in a neighbouring (less tight) occupation
 - ▶ **Untrained mover**: no retraining
 - ▶ **Short-retraining mover**: a few days of retraining
 - ▶ **Long-retraining mover**: several months of retraining
- ▶ Leverage geographical variations in tightness within each occupation to explore heterogeneity of differentials in callback with respect to tightness

Destination and origin occupations

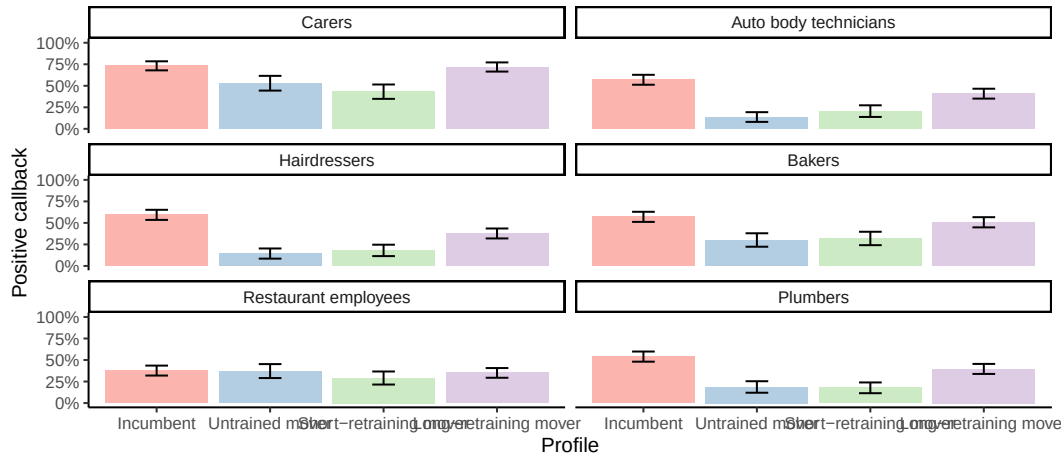
- ▶ Criteria for target occupations: low to middle skilled; high tightness overall, with high geographical variability.
- ▶ Matching with neighbouring source occupations with lower tightness: occupational distance measured from task content and observed transitions.

Targeted occupation	Neighbour
Restaurant employees (G1603)	Commercial employee w. multiple specialties (D1507)
Hairdressers (D1202)	Cleaning and sanitation worker (K2204)
Carers (J1501)	Cleaning and sanitation worker (K2204)
Bakers (D1102)	Shelf stocking and self-service (D1507)
Auto body technicians (I1606)	Electronic assembly and wiring (H2605)
Plumbers (F1603)	Maintenance of green spaces (A1203)

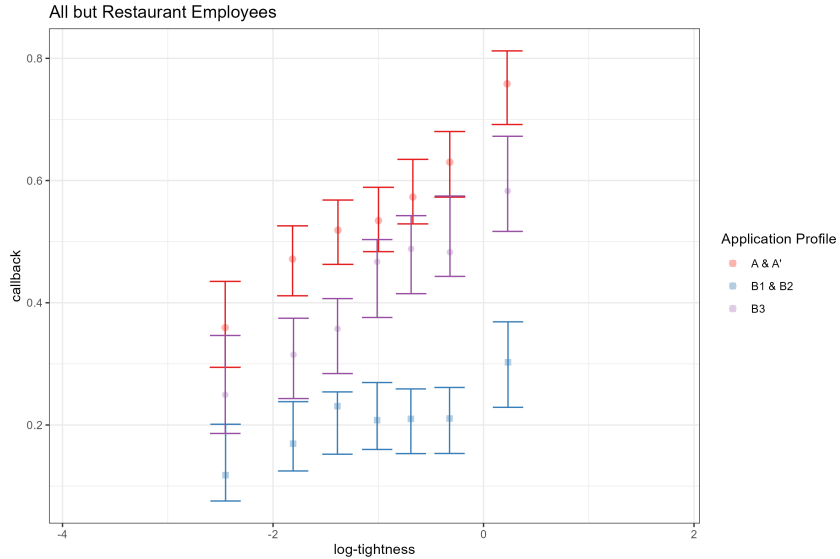
Callback rates



Callback rates by occupation



Heterogeneity of callback rates by tightness



Taking stock

- ▶ Employers in tight markets give a large callback premium to workers with the adequate experience/education, but do not entirely discard all other applicants
- ▶ Labour markets lack a credible device to signal skills, beyond costly training and experience
- ▶ Related projects/papers:
 - ▶ *Training Specificity and Occupational Mobility: Evidence from German Apprenticeships* by Dita Eckardt
 - ▶ *What Works for the Unemployed? Evidence From Quasi-Random Caseworker Assignments* by Anders Humlum, Jakob Munch, and Mette Rasmussen

Outline

Does pushing relevant job vacancies help?

How do job seekers react to job ad information?

Helping firms know their markets

Experimental evidence on firms' preferences for skills

Lowering sourcing costs for Public Employment Service caseworkers

Deploying AI to help recruiters: Motivation

joint with Jeremias Klaeui

- ▶ Job seeker inattention may cause hiring firms to receive too few applications
- ▶ Wrong perceptions about jobs could lead to too many/unsuitable applications
- ▶ Employment services take on more active roles; e.g., French PES offers to:
 1. **Source applications** (caseworkers browse CV bank)
 2. **Screen applications** (caseworkers filter out unsuitable candidates)
- ▶ Sourcing applications is costly: need to check interest and availability manually
- ▶ Can technology designed to reduce the costs of information acquisition about potential candidates help improve hiring?

Experiment

- ▶ Baseline services for firms asking for them (“preselection”)
 - ▶ Screening applications received to a job ad
 - ▶ Sourcing from the CV bank
- ▶ Intervention on ads in preselection:
 - ▶ SMS chatbot to assist caseworkers in the sourcing process
- ▶ Experimental design
 - ▶ Experiment in 3 French regions
 - ▶ Randomisation at the establishment level among all firms with 1+ job posting since 2019
 - ▶ A caseworker will have treated and non-treated establishments in their portfolio
- ▶ Staggered roll-out
 - ▶ **Sep 12 2024:** Pilot deployment in a subset of employment agencies
 - ▶ **Nov 21 2024:** Deployed in the first batch of employment offices, 50/50 treatment
 - ▶ **Dec 12 2024:** Deployed in the second batch of employment offices
 - ▶ **Feb 6 2025:** Switch to 75/25: Within-control redraw and assign half of firms to treatment
- ▶ Stratification: Deciles of predicted hiring probability

Vacancy posting

Figure: Screenshot: vacancy posting in caseworkers' digital portal

APPLICATION DUNE ENVIRONNE x NOUVELLES OFFRES | PORTEFE x +

Accueil | Etablissement | Offres et candidatures | Recherches | Plans d'Actions | Activités & Pilotage Etab.

✓ Cette offre d'emploi ne comporte aucune donnée personnelle du recruteur susceptible d'être diffusée.

Rechercher des offres et rapprocher : Détail de l'offre 184BMCW

Récapitulatif de l'offre

Descriptif de l'offre | Suivi des candidatures | Gestion de l'offre | Journal de l'offre

Description Score

Emploi proposé

ROME (Fusion) : **K1202**

Appellation ROME : **Éducateur / Éducatrice de jeunes enfants** [Voir les 4 savoirs et savoir-faire renseignés](#)

Intitulé personnalisé : **Éducateur / Éducatrice de jeunes enfants -Réfèrent technique H/F**

Nombre de postes initial : **1**

Nombre de postes restants : **1**

Autre(s) compétence(s) :

Savoir-être professionnel(s) :

Descriptif du poste

Vos principales missions seront les suivantes :

Encadrement/ management d'équipe (4 personnes) :

- participer à l'élaboration du projet d'établissement et êtes chargé(e) de son application ;
- accompagner et coordonner de l'activité des professionnel (le)s chargé(e)s de l'encadrement des enfants, encadrement d'une équipe de 4 personnes.

l'encadrement des enfants, encadrement d'une équipe de 4 personnes ;

- mener des projets avec son équipe, en collaboration avec les autres micros crèches ;
- gérer les plannings de l'équipe, gestion des congés ;
- participer aux entretiens de recrutement
- travailler avec une équipe pluridisciplinaire : Psychologue, EJE, réfèrent santé..
- 7h de temps administratif par semaine

Accompagnement des enfants et de leurs familles :

- Accueillir et informer les familles

Retour à la liste des résultats | Accéder à la liste des profils pour cette offre | Effectuer la mise en contact

Candidate list: control

Figure: Screenshot: control vacancy view, candidate list in caseworkers' digital portal

Retour à l'offre

Offre N°184BMCW - Éducateur / Éducatrice de jeunes enfants -Réfèrent technique H/F

64 - Serres-Castet

Candidats correspondant à l'offre

Recherche via les Aires de mobilité

Recherche par Mots clés

Recherche par ROME ou domaine

Ces candidats ont déclaré rechercher ce poste et possèdent tout ou partie des critères/compétences indiqués par le recruteur.

Type de profils

☒ Tous les profils (98)
☐ Tous les inscrits (60)
☐ Inscrits du bassin (0)
☐ Inscrits de l'agence (0)

DISPONIBILITÉ
LIEU DE RECHERCHE DU CANDIDAT
MÉTHODE DE RECRUTEMENT
ÉLIGIBILITÉ
DATE DE MISE À JOUR DU PROFIL
MÉTIERS EN TENSION

Critères de l'offre :

CDI

35H / semaine

2100 € mensuel

Expérience de 3 ans

Bac+3, Bac+4 ou équivalents (exigé)

Bac+3, Bac+4 ou équivalents (exigé)

Compétences de l'offre :

Accompagner l'enfant dans l'apprentissage des gestes de la vie quotidienne et des règles de vie en collectivité

Aménager le lieu de vie, d'accueil des enfants et vérifier la sécurité des équipements

Concevoir un projet éducatif

Organiser et animer des activités ludiques et d'éveil

98 profils pour ces critères

EXPORT EXCEL

Candidate list: control II

Figure: Screenshot: control vacancy view, candidate list in caseworkers' digital portal

 Éducateur / Éducatrice de jeunes enfants	64 - Morlaàs	CV	 Comparatif de compétences	100 %	>
 Éducateur / Éducatrice de jeunes enfants	65 - Gez	Aucun CV	 Comparatif de compétences	100 %	>
 Éducateur / Éducatrice de jeunes enfants	64 - Gelos	CV	 Comparatif de compétences	100 %	>
 Éducateur / Éducatrice de jeunes enfants	64 - Cescou	CV	 Comparatif de compétences	100 %	>

Candidate list: Treatment

Figure: Screenshot: treated vacancy view, candidate list in caseworkers' digital portal

[← Retour à l'offre](#)

 **Offre N°190DMPV - Auxiliaire de vie (H/F)**
45 - Saint-Jean-De-Braye

NOUVEAU

[Préqualification de candidats](#) [Candidats correspondant à l'offre](#) [Recherche via les Aires de mobilité](#) [Recherche par Mots clés](#) [Recherche par ROME ou domaine](#)

Retrouvez ici une liste de candidats que vous pouvez préqualifier par SMS pour vérifier certains prérequis de l'offre.

Type de profils ? : ☒ Tous les profils (463) ☐ Inscrits (304) ☐ Inscrits du bassin (0) ☐ Inscrits de l'agence (0)

État de la préqualification ? : ☒ Tous les profils (463) ☐ Profils avec préqualification (0) ☐ En cours (0) ☐ Terminée - tous les prérequis validés (0)

☐ Terminée - prérequis validés partiellement (0) ☐ Terminée - aucun prérequis validé (0) ☐ Sans réponse (0) ☐ Profils préqualifiables

Candidats correspondant à l'offre (463)

Choisissez l'action que vous souhaitez réaliser :

[Préqualifier](#) [Mettre en contact](#)

☐ Sélection des 50 premiers candidats préqualifiables de la liste de résultats

☐	Melissa Auxiliaire de vie	45 - Saint-Jean-de-Braye	Aucun CV	100 %	>
☐	Virginie Auxiliaire de vie	45 - Saint-Jean-de-Braye	Aucun CV	100 %	>

Send SMS

Figure: Screenshot: content of the enquiry

LANCER LA PRÉQUALIFICATION

FERMER

1 candidat sélectionné pour la préqualification par SMS

Sélectionnez les prérequis à valider pour cette offre

☒ Intérêt

☐ Salaire

☐ Disponibilité

☐ Expérience

☐ Mobilité

☐ Missions

☐ Horaires

PRÉVISUALISER

SMS conversation example

Bonjour ZACHARIE, je suis l'assistant virtuel du conseiller France Travail MIRAMAS qui vous propose un poste de Serveur / Serveuse de restaurant (H/F) (lieu: Miramas; réf: 180JQSD) et souhaite confirmer avec vous quelques informations. Toute réponse ou absence de réponse n'aura aucune conséquence sur votre inscription à France Travail ou sur vos allocations. Êtes-vous intéressé(e) par cette offre ? Envoyez STOP pour ne plus recevoir ce type de sollicitation par SMS.

C'est qui ?

Je suis l'assistant virtuel du conseiller France Travail. Je suis là pour vous aider à valider votre qualification pour l'offre d'emploi de Serveur / Serveuse de restaurant à Miramas. Êtes-vous intéressé(e) par cette offre ?

Oui

Parfait, merci pour votre intérêt. Pouvez-vous me confirmer que vous êtes mobile pour vous rendre sur le lieu de travail à Miramas ?

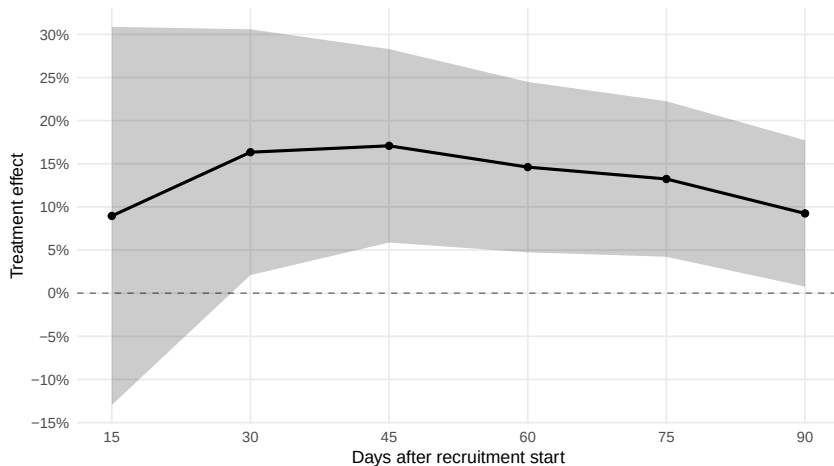
Oui

Merci pour votre réponse. Enfin, l'offre implique certaines tâches comme l'accueil des clients, la prise de commandes, le dressage et le débarrassage des tables, ainsi que l'entretien et le nettoyage de la salle, des douches et des toilettes. Êtes-vous d'accord avec ces tâches ?

Qu'est ce que le dressage ?

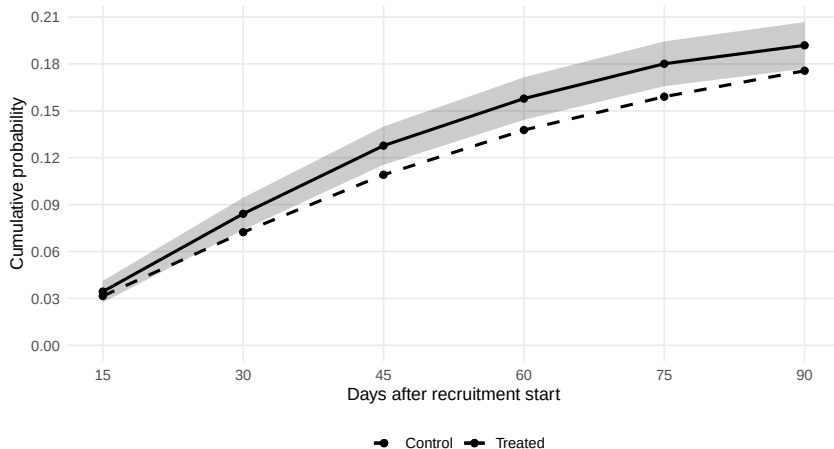
Le dressage de table dans le contexte de la restauration fait référence à la préparation et à la mise en place de la table avant l'arrivée des clients. Cela inclut la disposition des couverts, des verres, des serviettes, etc. Êtes-vous d'accord avec ces tâches ?

Effect on hires from platform



Notes: Results from horizon-specific linear regressions. Outcome: binary indicator of hire from platform for the job posting. One observation is one job posting. Subexperiment denotes an indicator variable whether the preselection process for the vacancy started after Feb 6 2025 when the treatment share was increased from 50 to 75%. The outcome is averaged at the establishment $\times$ subexperiment level and the standard errors are adjusted following Bugni et al. (2018).

Hiring gains



Notes: Results from horizon-specific linear regressions. Outcome: binary indicator of hire from platform for the job posting. One observation is one job posting. Subexperiment denotes an indicator variable whether the preselection process for the vacancy started after Feb 6 2025 when the treatment share was increased from 50 to 75%. The outcome is averaged at the establishment $\times$ subexperiment level and the standard errors are adjusted following Bugni et al. (2018).

Channels and taking stock

- ▶ Findings
 - ▶ Increase in hires comes both from sourced and screened candidates
 - ▶ Better screening of candidates that apply on their own
 - ▶ This points to positive spillovers within job ads: time saved on sourcing may be used to do a better job at screening
 - ▶ Suggestive evidence for positive spillovers across job ads
 - ▶ Positive spillovers on platform: treatment effect likely underestimated
- ▶ Further considerations:
 - ▶ A micro-example of AI complementing human work
 - ▶ Extracting information during the screening process is costly: time/effort helps

Where this is all going

- ▶ Ongoing (more preliminary), joint with Marion Brouard and Mitia Oberti
 - ▶ Enrich the information set of applicants' skills when employers screen candidates
 - ▶ Incentivised résumé rating
 - ▶ RCT in partnership with France Travail
- ▶ The bigger picture
 - ▶ Gather evidence about how information imperfections affect the different stages
 - ▶ Assess the impact of interventions
 - ▶ Consolidate the theoretical framework to put all this together
 - ▶ Decompose the contributions of the different kinds of imperfections to unemployment/mismatch

More formally

- ▶ $R(i, j)$: number of clicks by job seeker i on vacancy j
- ▶ $P(i, j) = \text{sign}(R(i, j))$: whether job seeker i clicked on vacancy j
- ▶ X matrix of user types; Y matrix of vacancy types

$$\min_{X, Y} \mathcal{L} = \sum_{i, j} C(i, j) (P(i, j) - X(i, \cdot) Y'(\cdot, j)) + \lambda (\|X\|^2 + \|Y\|^2)$$

- ▶ where confidence is $C = 1 + \alpha R^3$
- ▶ Matching score: $\mathcal{M}(i, j) = X(i, \cdot) Y'(\cdot, j)$ allows to rank all vacancies for a given worker
- ▶ Recommend the highest ranked vacancies for a given user

» Back

Recommended ads vs. ads viewed spontaneously (Control workers)

Compare average distance btw reference municipality/occupation and clicked/applied/hiring/recommended vacancy

	Spontaneous activity			Recommendations
	clicks	app	emp	all
Geo Dist (km)	50.5	47.0	23.4	46.7
Occ (same 4 digits)	0.110	0.133	0.111	0.077
Popularity	12.4	13.0	12.3	9.9
Days since publication	12.5	12.6	9.9	18.5

Popularity: # clicks received by the vacancy during the first 30 days after publication from control users

» Back