

Qui bénéficie de la flexibilité à la marge sur le marché du travail en France?

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Introduction

► Définitions

- **Flexibilité à la marge**: réduction progressive de la protection de l'emploi associée aux nouveaux CDD sans pour autant réformer les lois protégeant les CDI existants
- Conduit à une forte segmentation du marché du travail entre CDD et CDI: mobilité réduite entre les deux contrats
- Affecte davantage les jeunes recherchant leur premier emploi et les individus moins insérés sur le marché du travail (femmes et demandeurs d'emploi)

Introduction

- ▶ Faits Stylisés

- ▶ Les CDD ont-ils facilité l'intégration des travailleurs les moins qualifiés?
- ▶ Flexibilisation de la protection de l'emploi permanent: quels effets? Qui en bénéficierait?

Contribution de ce papier

► Revue de la littérature

- Développer un modèle d'équilibre partiel du marché du travail avec frictions:
 - Employeurs et demandeurs d'emploi sont différents quant à leur productivité et leurs compétences - Modèle d'agents hétérogènes
 - Le pourcentage de CDD est endogène et le résultat d'un équilibre
 - Les travailleurs continuent leur recherche d'emploi (*on-the-job search*)
 - L'investissement sur la formation spécifique est endogène et le résultat d'un équilibre

- Les paramètres du modèle sont estimés structurellement avec les données du panel DADS par la méthode des moments simulés

Modèle

Modèle: Travailleurs et Employeurs

- ▶ Les agents sont neutres face au risque, et veulent maximiser la totalité de l'utilité ou des profits (avec un taux d'escompte égal à r)
- ▶ Les travailleurs sont différents quant à leurs compétences x
- ▶ Les employeurs sont différents quant à leur productivité y
- ▶ Les caractéristiques x et y sont observables et permanentes
- ▶ Les travailleurs sont employés ou au chômage, mais ils sont toujours à la recherche d'un emploi

Modèle: Les institutions

- ▶ Allocation chômage b
- ▶ Deux contrats: CDD et CDI
- ▶ Les contrats se terminent aux taux exogènes δ^{CDD} et δ^{CDI}
- ▶ Les CDD peuvent être convertis en CDI avec probabilité $1 - \mu$ quand ils sont détruits
- ▶ Protection de l'emploi:
 1. Indemnité de fin de contrat: t^{CDD} and t^{CDI}
 2. Coût additionnel de licenciement pour les CDI: τ
- ▶ Contributions pour la sécurité sociale: ν^{CDD} and ν^{CDI}

Modèle: Rencontres, appariement et choix du contrat

- ▶ Les rencontres sur le marché du travail se font aux taux exogènes: λ^C , λ^{CDD} , λ^{CDI}
- ▶ Si l'appariement se concrétise, chaque emploi produit: $\theta^B f(x, y)$ ou $\theta^H f(x, y)$
- ▶ Coût d'investissement sur la formation spécifique: ξ
- ▶ Condition pour l'appariement: $\max_C S(x, y, C) \geq 0$
- ▶ Un contrat se caractérise par: $C \in \{CDD, CDI\} \times \{H, B\}$.
- ▶ Transformation en CDI:
 - ▶ D'un CDD avec formation: $S(x, y, CDI, H) + \xi \geq 0$
 - ▶ D'un CDD sans formation: $\max_{C \in CDI \times \{H, B\}} S(x, y, C) \geq 0$

Modèle: Formation des salaires

▶ *Enchère séquentielle*

- ▶ Salaires déterminés comme dans Cahuc, Postel-Vinay et Robin (2006)
- ▶ Quand l'employé reçoit une autre offre d'emploi, son employeur actuel peut proposer une contre-offre pour éviter que le salarié ne soit débauché
- ▶ CDD converti en CDI: salaire négocié comme si l'employé était au chômage
- ▶ Les salaires sont déterminés différemment pour les employés qui restent et les employés qui changent d'entreprise

Estimation

Estimation Structurelle: hypothèses paramétriques

- ▶ x et y suivent une distribution Bêta, dénotée $I_x(\alpha_0^x, \alpha_1^x)$ et $I_y(\alpha_0^y, \alpha_1^y)$, limitée à l'intervalle $[0, 1]$
- ▶ La fonction de production est de type CES (Constant Elasticity of Substitution): $f(x, y) = \theta \left(0.5x^\rho + 0.5y^\rho \right)^{1/\rho}$

Estimation Structurelle: la méthode

► L'algorithme numérique

► Vecteur de paramètres à estimer:

$$\Theta = \{\alpha_0^x, \alpha_1^x, \alpha_0^y, \alpha_1^y, \delta^{CDD}, \delta^{CDI}, \mu, b, t^{CDD}, t^{CDI}, \tau, \theta^H, \theta^B, \rho, \xi, \beta, \lambda^C, \lambda^{CDD}, \lambda^{CDI}\}$$

► Les paramètres sont estimés de façon à minimiser la distance entre les moments empiriques et les moments simulés par le modèle (*indirect inference*)

► La fonction objectif:

$$\hat{\Theta} = \arg \min_{\Theta} \left(\hat{m}(\Theta_0) - \hat{m}_S(\Theta) \right)' \hat{W}^{-1} \left(\hat{m}(\Theta_0) - \hat{m}_S(\Theta) \right)$$

► La matrice des poids \hat{W} est une estimation de la matrice de variance-covariance des moments empiriques $\hat{m}(\Theta_0)$.

Estimation Structurelle: les données

▶ Choix de l'échantillon

- ▶ DADS Panel de 2005 à 2007
- ▶ Données agrégées ACOSS
- ▶ *European Survey of Working Conditions* (ESWC)

Estimation Structurelle: les moments

► Stratégie d'identification

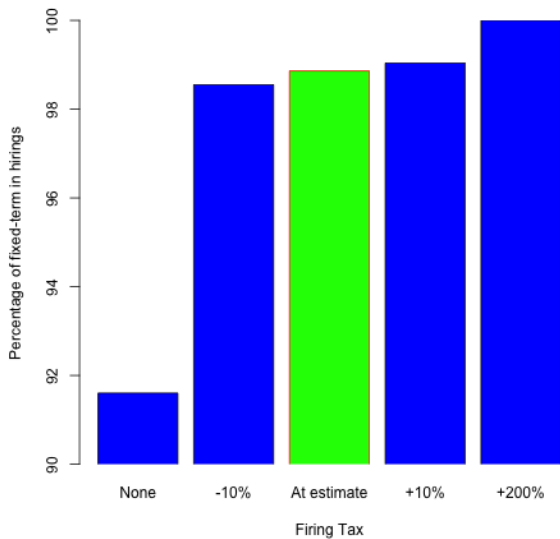
- δ^{CDD} , δ^{CDI} , μ , λ^C , λ^{CDD} et λ^{CDI} : Taux de transition
- b : Moyenne des salaires en provenance du chômage, moyenne des salaires les plus bas
- t^{CDD} , t^{CDI} et τ : moyenne et variance des salaires en CDD et CDI, pourcentage moyen de CDD au sein de chaque entreprise, sur le total des entrées et des emplois
- β : moyenne et variance de la différence salariale après une renégociation et un changement d'employeur
- θ^H et θ^B : pourcentage de salariés en CDD et CDI qui ont reçu une formation spécifique
- ξ : moyenne et variance de la différence salariale après une conversion de CDD en CDI avec la même entreprise

Résultats

Estimation des paramètres

λ^U	λ^F	λ^P	δ^F	δ^P	μ
0.2426	0.2240	0.5408	0.2363	0.0414	0.1142
ρ	θ^L	θ^H	τ	b	ξ
0.3102	5.6573	6.0363	0.6650	1.9804	4.0474
α_0^x	α_1^x	α_0^y	α_1^y	β	
4.0604	4.8048	3.0800	4.4080	0.9723	

Effet du coût additionnel de licenciement sur les CDI I



Effet du coût additionnel de licenciement sur les CDI II

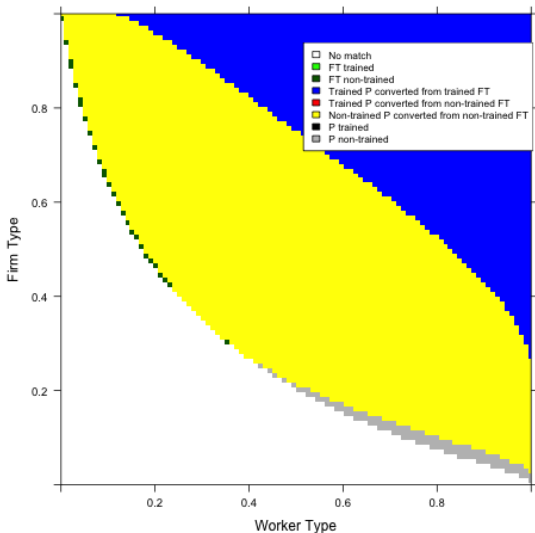


Figure: τ at estimated value

Effet du coût additionnel de licenciement sur les CDI II

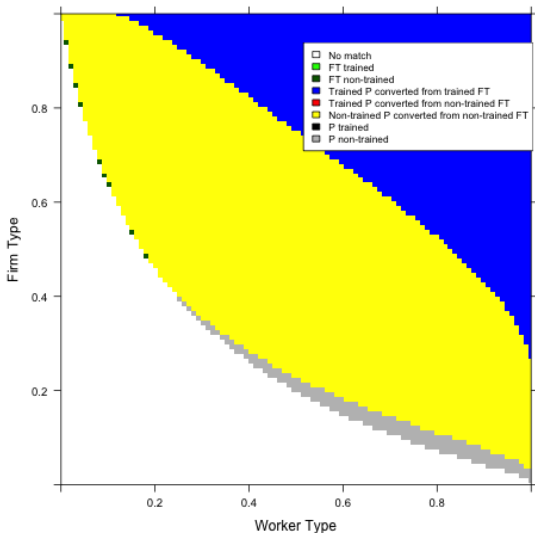
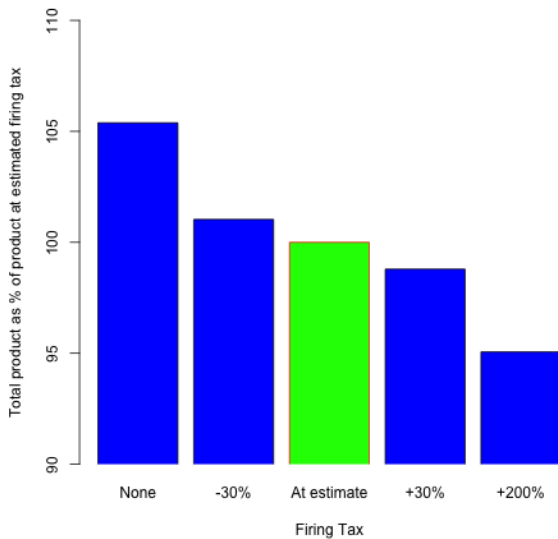


Figure: Decrease by 50%

Effet du coût additionnel de licenciement sur les CDI III



Taxer les CDD

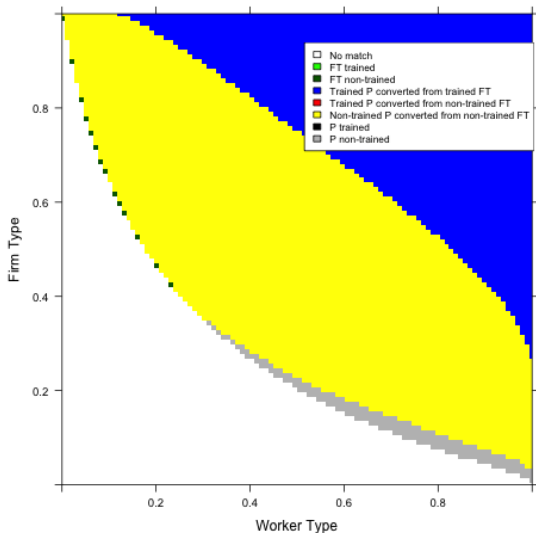


Figure: $\nu^F = 0.01$

Taxer les CDD

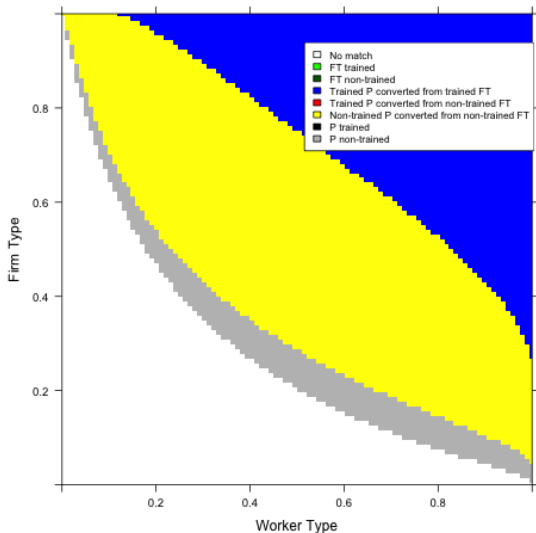


Figure: $\nu^F = 0.05$

Taxer les CDD

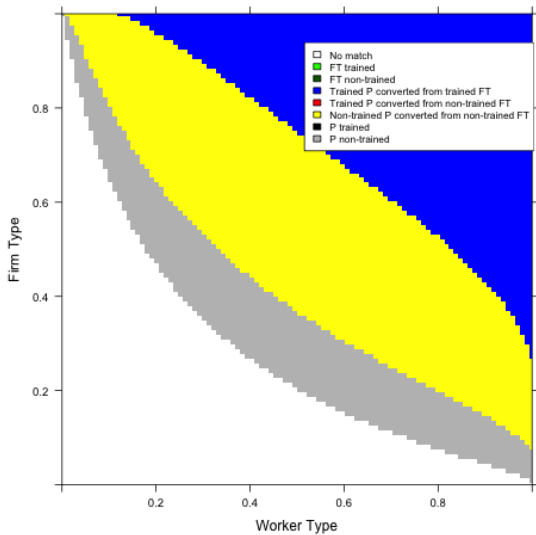
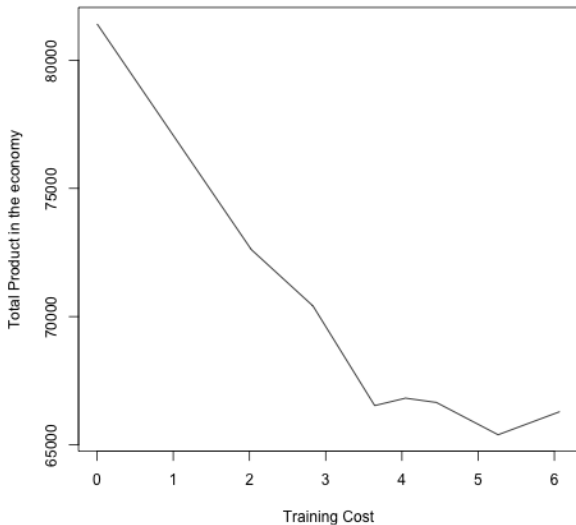


Figure: $\nu^F = 0.1$

Réduction du coût d'investissement sur la formation spécifique



Conclusion

- ▶ Les CDD n'augmentent pas les chances de contact avec d'autres employeurs
- ▶ Le coût additionnel de licenciement sur les CDI représente $\approx 4\%$ du produit de l'appariement
- ▶ Réduire le coût additionnel de licenciement sur les CDI de 10% diminue le taux des embauches en CDD de 1/2 point de pourcentage.
- ▶ Qui peut en bénéficier? Les individus avec des compétences élevées
- ▶ Taxer les CDD semble plus efficace
- ▶ La réduction du coût d'investissement sur la formation spécifique pourrait permettre des gains de productivité totale plus élevés

Annexes

French legislation on fixed-term contracts I

▶ back

- ▶ Cases in which fixed-term contracts can be used:
 - ▶ Substitution of another worker
 - ▶ Fill a vacancy until another worker is hired for the job under an open-ended contract
 - ▶ Fill a vacancy for a position that will disappear
 - ▶ Seasonal jobs
 - ▶ For the concretisation of specific projects or objectives within the firm
 - ▶ Particular cases admitted by collective agreement at the firm or industry level
 - ▶ When admitted by law to favour the employment of specific groups of the population
 - ▶ To hire workers above 57 years old who have been unemployed for more than 3 months

French legislation on fixed-term contracts II

▶ back

- ▶ Duration of the fixed-term contract:
 - ▶ Should be specified in the written contract
 - ▶ When left unspecified, the contract is understood to expire when the project is concluded, the objective is reached, the substituted worker returns or the motive for the contract disappears
 - ▶ In any case, fixed-term contract can never last more than the maximum duration allowed by law
 - ▶ Maximum duration allowed depends on the motive for the contract: between 9 and 24 months

French legislation on fixed-term contracts III

▶ back

- ▶ Can firms hire again on a fixed-term contract?
 - ▶ Firms cannot hire again on a fixed-term contract **for the same position**, until a minimum period has passed
 - ▶ This applies to any worker, even someone who has never worked for the firm before
 - ▶ Minimum waiting period:
 - ▶ If the previous fixed-term contract lasted ≥ 14 days: 1/3 of its total duration
 - ▶ If the previous fixed-term contract lasted < 14 days: 1/2 of its total duration
 - ▶ There are many exceptions to this rule. For example: replacement of the same worker who is away again or for longer, seasonal jobs, for the particular cases allowed by law to promote the employment of certain groups
 - ▶ Nothing prevents the firm from hiring under a fixed-term contract **for other positions**

French legislation on fixed-term contracts IV

▶ back

- ▶ Is there a probationary period on fixed-term contracts?
 - ▶ The contract can specify a probationary period, but it is not compulsory
 - ▶ Maximum duration of the probationary period:
 - ▶ If the fixed-term contract is for ≤ 6 months: 1 day per week, maximum 2 weeks
 - ▶ If the fixed-term contract is for > 6 months: 1 month
 - ▶ If the worker is dismissed during the probationary period, the firm must still give advanced notice:
 - ▶ If contract is for < 8 days: 24 hours
 - ▶ If contract is for ≥ 8 days and < 1 month: 48 hours
 - ▶ If contract is for ≥ 1 month: 2 weeks
 - ▶ If contract is for ≥ 3 months: 1 month

French legislation on fixed-term contracts V

▶ back

- ▶ Fixed-term workers rights:
 - ▶ Same as workers on open-ended contracts
 - ▶ By law, firms cannot discriminate regarding:
 - ▶ Wage: must be the same than open-ended workers with equivalent qualifications for the same position
 - ▶ Access to on-the-job training and other firm-provided formation

French legislation on fixed-term contracts VI

▶ back

- ▶ Can a fixed-term worker be dismissed before the expiry date of the contract?
 - ▶ Only in a very limited number of circumstances, equivalent to dismissing a worker on an open-ended contract:
 - ▶ If worker leaves voluntarily
 - ▶ By mutual agreement of worker and employer (with higher severance payment)
 - ▶ For disciplinary reasons (must be proved in court)
 - ▶ Bankruptcy or major economical problems of the firm are not considered valid justifications to dismiss workers. Firm will still be sued and in debt towards workers
 - ▶ Worker should be paid the total amount of wages expected for the duration of the contract until expiry date

French legislation on fixed-term contracts VII

▶ back

- ▶ What happens at the expiry date of the contract?
 - ▶ Worker can be promoted to open-ended contract
 - ▶ If not, worker should receive an indemnity of at least 10% the total amount earned during the fixed-term appointment
 - ▶ Alternatively, if fixed-term workers were given preferential access to on-the-job training and other formation provided by the firm, indemnification is reduced to 6%
 - ▶ Exceptions:
 - ▶ Seasonal jobs
 - ▶ Young workers still in education, hired for summer jobs
 - ▶ Apprenticeship fixed-term contracts
 - ▶ Workers hired under the law to promote the employment of specific groups
 - ▶ If an open-ended contract was offered

French legislation on open-ended contracts I

▶ back

- ▶ There are three ways an open-ended contract can be terminated:

1. Worker quits voluntarily
2. Mutual agreement over a severance package
3. Dismissal

In the last two cases, the worker is entitled to receive unemployment benefits

- ▶ Dismissal must be for one of two reasons:
 1. Disciplinary reasons or inability of the worker
 2. Economical reasons
- ▶ Whenever the worker considers his dismissal to be unjustified, the worker can appeal against the firm in court

French legislation on open-ended contracts II

▶ back

- ▶ Dismissal for disciplinary reasons or inability of the worker requires the firm to:
 1. Open the procedure within 2 months of the worker's fault
 2. Formally meet the worker to expose the motives and give the worker an opportunity to justify himself
 3. The worker must be notified at least 5 days in advance for the meeting
 4. The worker cannot be represented by a third party, but may be legally assisted during the meeting

- ▶ With the dismissal, the worker is entitled to receive:
 1. Compensation for damages (even if disciplinary dismissal)
 2. Compensation for unused holidays
 3. Compensation for advance notice

French legislation on open-ended contracts III

▶ back

- ▶ Dismissal for economical reasons may be justified if:
 1. Proved economical difficulties for a long period: firm incurring losses
 2. Technological changes within the firm that justify the job destruction
 3. Reorganisation of the firm to preserve its levels of competitiveness
 4. Closure of the firm

- ▶ The exact procedure depends on the size of the employer and whether the dismissal is collective or individual, but similar to dismissal for disciplinary reasons or inability of the worker

French legislation on open-ended contracts IV

▶ back

- ▶ When appealing against the firm in court, the dismissal may be considered:
 1. **Irregular** - if the firm did not follow one of the required procedures, e.g. advance notice, etc.
 2. **Unjustified** - if the worker is dismissed for any other reason than the ones admitted by law
 3. **Void** - in cases of discrimination or when a particularly protected worker is dismissed, e.g. pregnant woman, victim of a work accident, etc.

- ▶ If ruled in favour of the worker, the court may sentence the firm to:
 1. Pay an indemnity to the worker for further damages (on top of regular dismissal compensations)
 2. Re-instate the worker in previous job

French legislation on open-ended contracts V

▶ back

- ▶ Open-ended contracts may comprise a probationary period, although it is not compulsory
- ▶ The probationary period may be renewed once
- ▶ The maximum duration of the probationary period, including the eventual renewal, depends on the occupation:
 - ▶ 4 months for workers and employees
 - ▶ 6 months for technicians and middle-level management
 - ▶ 8 months for upper-level management
- ▶ To dismiss a worker during the probationary period, the firm must give the same advance notice as in the probationary period of fixed-term contracts

Related Literature

▶ back

- ▶ Impact of fixed-term contracts

Cahuc and Postel-Vinay (2002); Blanchard and Landier (2002); Alba Ramirez (1991); De la Rica (2004); Booth, Francesconi and Frank (2002); Blanchard and Landier (2002); Garcia-Perez, Marinescu and Vall-Castello (2013); ...

- ▶ Choice between open-ended and fixed-term contracts

Cahuc, Charlot and Malherbert (2012); Bertron and Garibaldi (2012); Caggese and Cuñat (2008); Tealdi (2012)

- ▶ Equilibrium search and assortative matching

Lise, Meghir and Robin (2013); Bagger and Lentz (2014); Shimer and Smith (2000)

- ▶ Wage Dispersion and Wage Dynamics

Postel-Vinay and Robin (2002); Cahuc, Postel-Vinay and Robin (2006)

Cahuc, Postel-Vinay and Robin (2006)

▶ back

- ▶ Outside firm makes an offer to the employed worker and current firm can **counter-offer**
- ▶ Outcome:
 - ▶ Worker chooses the firm with whom he generates the highest surplus
 - ▶ If moving to outside firm, wage will be such that worker receives the whole surplus at previous job and a fraction β of the additional value generated at new firm
 - ▶ If staying at the current firm, wage will increase such that worker receives the whole surplus she would have generated at the outside firm and a fraction β of the additional value generated at current firm
 - ▶ Model can generate wage cuts upon moving to better match and wage increase within jobs

What are fixed-term contracts?

- ▶ Legislation

- ▶ Law determines vaguely situations in which it can be used
- ▶ **Maximum duration**, including renewals, specified by law
- ▶ At the end of the contract, the firm can either:
 - ▶ Upgrade the worker to an open-ended contract
 - ▶ Terminate the employment contract
- ▶ If the contract ends, the worker receives an indemnification, but **no risk of legal sanction to the firm**
- ▶ Fixed-term contract cannot be easily terminated before its expiry date
- ▶ The firm cannot hire anyone for the same position, under another fixed-term contract, for a certain period of time

- ▶ back

Why are open-ended contracts so costly?

▶ Legislation

▶ Two costs associated to dismissal:

1. **Transfer from the firm to the worker:** advance notification, severance payments and other monetary compensations if imposed by court
2. **Red-tape cost:** legal expenses in case of a trial and financial penalties (fines) imposed by ruling judge

▶ back

Why are open-ended contracts so costly?

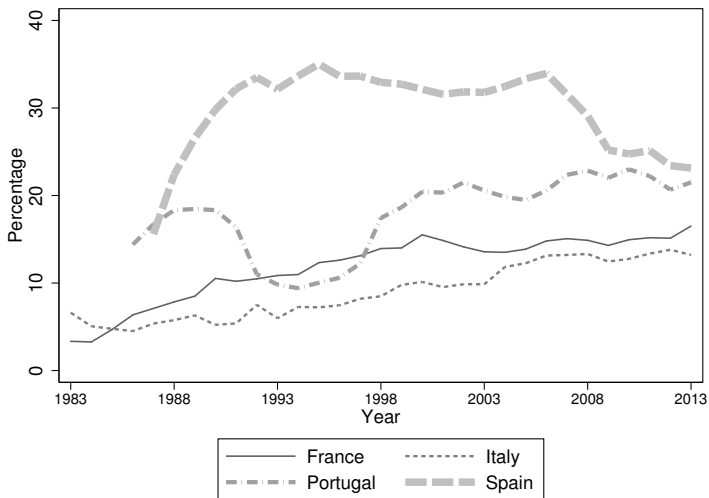
- ▶ Legislation

- ▶ **Transfer component** is equivalent in fixed-term and open-ended contracts
- ▶ **Red-tape component** is a significant burden in open-ended contracts (OECD 2004):
 - ▶ In France 25,3% of the layoffs were brought to court in 2001. This contrasts with 0.8% in the UK in 2002/2003 and 0.03% in the USA in 2002
 - ▶ 75% of all heard cases are won by workers
 - ▶ Average length of the procedure is 1 year

- ▶ back

% fixed-term in total employment

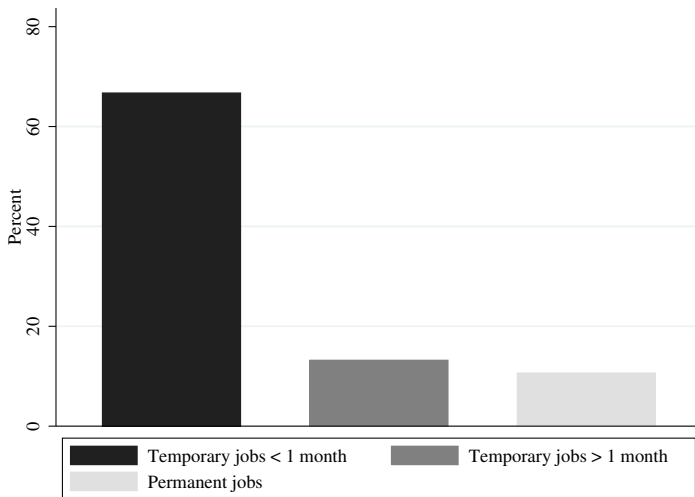
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Source: OECDStat

% fixed-term in new hires

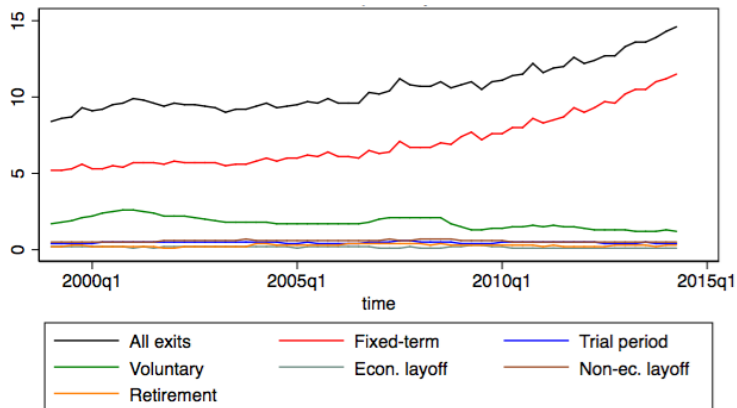
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Source: *DARES*, French Ministry of Labor

Exit rates from employment

► back



Source: *DARES*, French Ministry of Labor

Quarterly transition probabilities

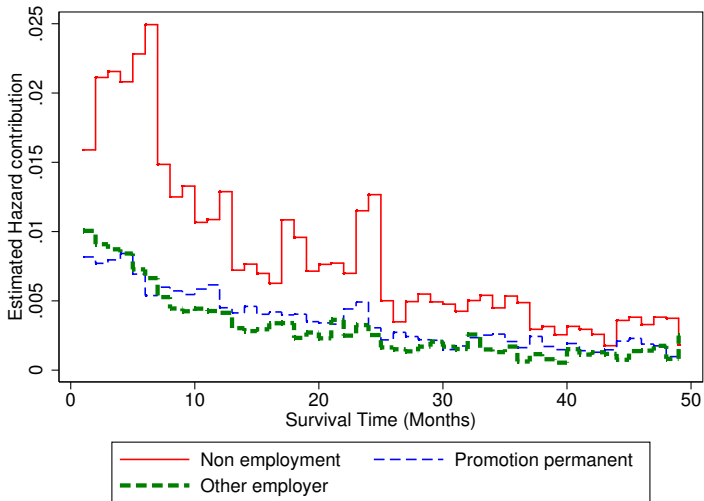
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	OLF (t)	U (t)	FT (t)		P (t)	
			Same firm	New firm	Same firm	New firm
OLF (t-1)	96.36%	2.05%		0.78%		0.8%
U (t-1)	16.49%	66.41%		11.16%		5.94%
FT (t-1)	7.14%	9.92%	70.96%	4.8%	5.23%	1.95%
P (t-1)	1.53%	0.73%	0.13%	0.24%	96.26%	1.1%

Source: *Enquête Emploi*, micro data French Labor Force Survey, 2005-2010

Hazard rates in a fixed-term contract for different status

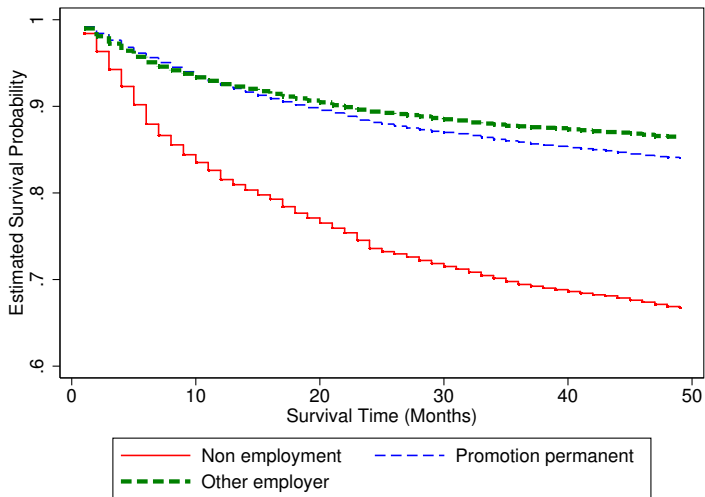
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Source: *Enquête Emploi*, micro data French Labor Force Survey, 2005-2010

Survival rates in a fixed-term contract for different status

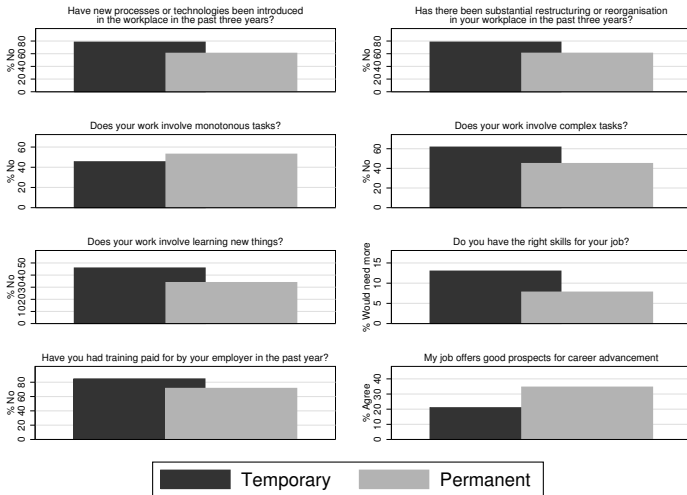
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Source: *Enquête Emploi*, micro data French Labor Force Survey, 2005-2010

Working conditions in fixed-term vs. permanent contracts

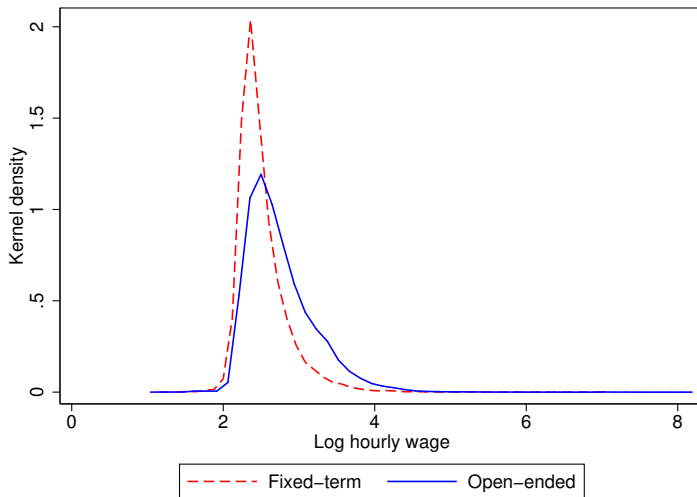
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Source: European Survey of Working Conditions, 5th wave, 2010

Wage distributions: all male workers

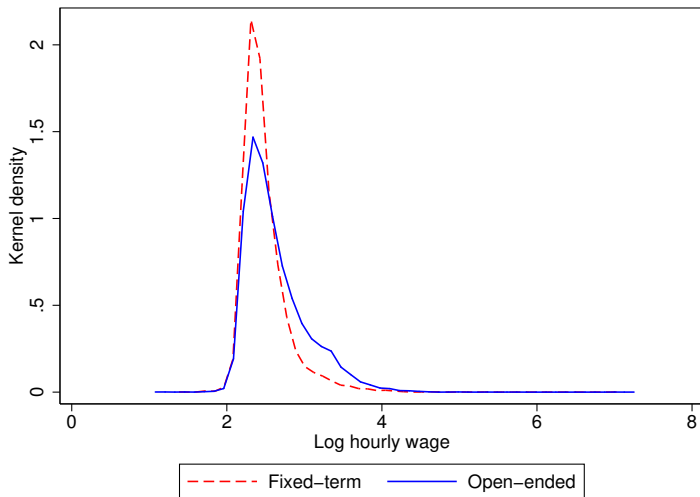
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Source: *DADS*, French Matched Employer-Employee panel data set, 2005-2010

Wage distributions: newly hired male workers

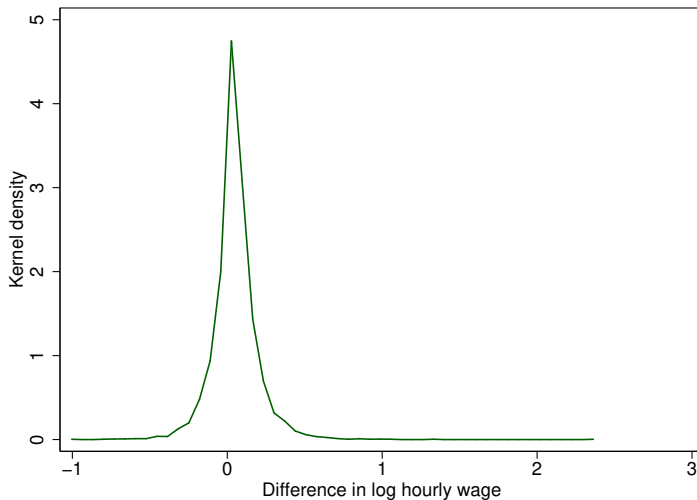
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Source: *DADS*, French Matched Employer-Employee panel data set, 2005-2010

Wage growth after conversion

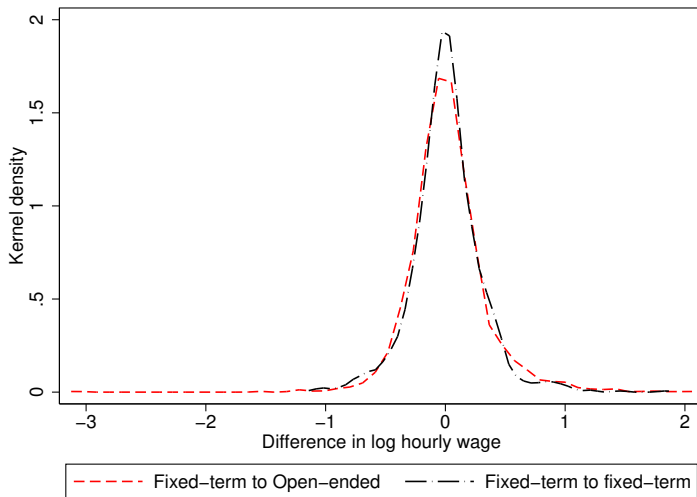
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Source: *DADS*, French Matched Employer-Employee panel data set, 2005-2010

Wage growth after job-to-job movement

► back



Source: *DADS*, French Matched Employer-Employee panel data set, 2005-2010

DADS: Sample selection

▶ back

- ▶ Male workers aged between 25 and 50 years old
- ▶ Observations with complete information about spell start and end date, earnings, contract type and employment status
- ▶ Full-time employment spells
- ▶ Excludes apprenticeships and internships
- ▶ Excludes jobs in the extra-territorial and domestic sectors
- ▶ Further exclusions:
 - ▶ If the number of hours worked per day is > 16 on average
 - ▶ If the number of hours worked per year is < 260 or > 4160
 - ▶ If the log hourly wage is $< 1/2$ the log of the institutional minimum wage

Estimation protocol

▶ back

- ▶ For an initial set of parameters Θ , the fixed-point of the surplus equation is computed by value function iteration for every possible contract $c \in \{F, P\} \times \{H, L\}$ and a discretised grid of worker and firm types (100×100 grid points)
- ▶ Value of each potential surplus in equilibrium used to simulate panel of workers' histories
- ▶ Moments are calculated with the simulated data and the distance between each simulated and data moment is computed and aggregated in the objective function
- ▶ Objective function is minimised using an algorithm that combines Parallel Tempering (PT) and Monte Carlo Markov Chains (MCMC) methods: Baragatti, Grimaud and Pommeret (2013)

BGP Algorithm I

▶ back

▶ MCMC methods:

- ▶ At every iteration, the parameters are disturbed and the value of the objective function is compared with previous iterations
- ▶ Depending on how the objective function evolves, the algorithm adjusts how much each parameter should be disturbed, and in which direction, for the following iteration
- ▶ If the process iterates long enough, between each iteration, the parameters are updated by drawing from a stationary distribution that should be very close to the actual distribution of the structural parameters
- ▶ The stationary distribution is equivalent to the Simulated Method of Moments estimator's distribution

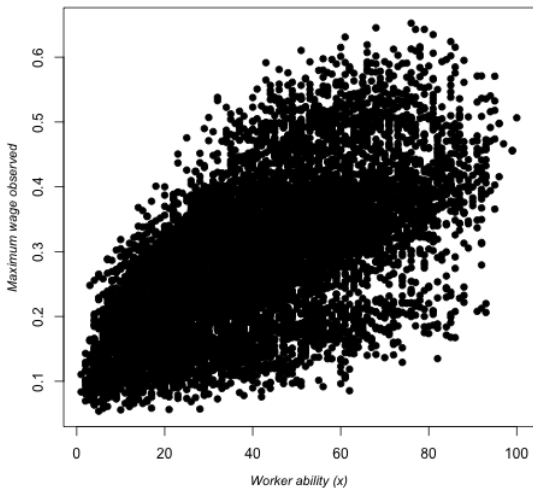
BGP Algorithm II

▶ back

- ▶ Combination of MCMC with PT methods:
 - ▶ Several Markov Chains run in parallel
 - ▶ Each chain has a different order
 - ▶ Chains of higher order have a high tolerance level (parameters are disturbed by large values) and move over the entire parameter space
 - ▶ Chains of lower order have a low tolerance level (parameters are disturbed by small values) and focus on giving a precise estimate within certain bounds
 - ▶ The algorithm swaps the chains order if one of the lower order chains finds a local minimum with lower value of the objective function
 - ▶ Ensures that solution found is a global minimum of the objective function

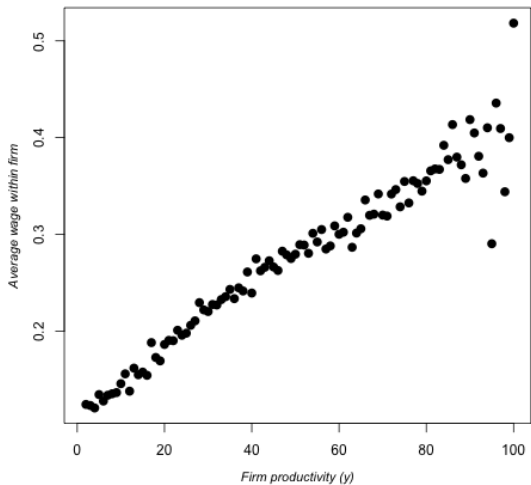
Correlation between worker ability and maximum wage ever received in simulated data

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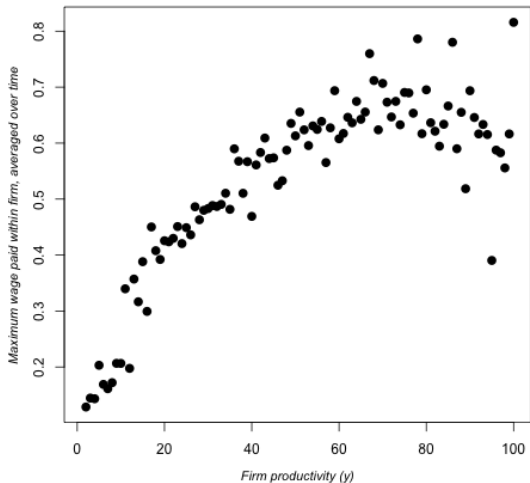
Correlation between firm productivity and average wage paid in simulated data

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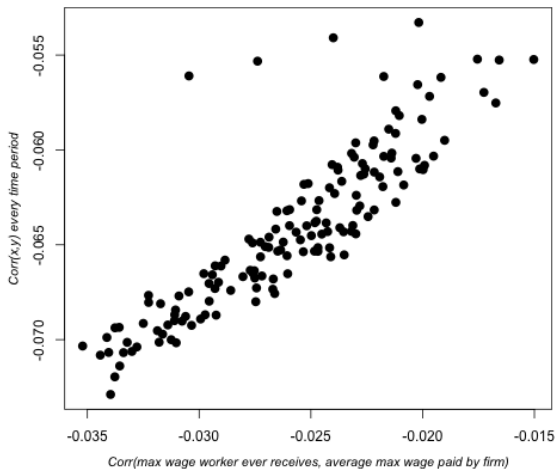
Correlation between firm productivity and maximum wage paid in simulated data

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Correlation between $\text{corr}(x, y)$ and $\text{corr}(w_{max}, \bar{w}_f)$ in simulated data

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Minimisation of the objective function

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