



UNIVERSITE D'AIX-MARSEILLE

ECOLE DOCTORALE N°372

DE SCIENCES ÉCONOMIQUES ET DE GESTION

FACULTÉ D'ÉCONOMIE ET DE GESTION

GREQAM-AMSE

Thèse présentée pour obtenir le grade universitaire de docteur

Discipline : Sciences économiques et de gestion

Spécialité : Sciences économiques

ANTOINE BONLEU

Housing Market Regulation and Labor Market Regulation

Soutenue le 04/11/2016 devant le jury :

Bruno VAN DER LINDEN	Université Catholique de Louvain	Rapporteur
Étienne WASMER	SciencesPo Paris	Rapporteur
Yann BRAMOULLÉ	Aix Marseille Université	Examineur
Eva Moreno GALBIS	Aix Marseille Université	Examineur
Bruno DECREUSE	Aix Marseille Université	Directeur de thèse
Tanguy VAN YPERSELE	Aix Marseille Université	Directeur de thèse

L'université d'Aix-Marseille n'entend ni approuver, ni désapprouver les opinions particulières du candidat : ces opinions doivent être considérées comme propres à leur auteur.

Résumé

L'objet de ce travail de thèse est d'expliquer les raisons de la surrégulation des marchés locatifs et des marchés du travail dans les pays d'Europe du sud.

La première contribution s'attache à montrer l'interdépendance sur le marché locatif entre le formalisme procédural à l'œuvre sur ce marché et les réseaux sociaux locaux. Tandis que le formalisme procédural augmente le coût de résolution des conflits juridiques entre propriétaires et locataires, les réseaux sociaux présentent l'avantage de pouvoir régler un conflit sans la justice. Le formalisme procédural est donc un moyen pour les individus locaux appartenant à un réseau social de rendre moins intéressant aux yeux du propriétaire les individus non locaux n'appartenant à aucun réseau. Le formalisme procédural du marché locatif facilite ainsi la recherche de logements pour les locaux au détriment des non locaux.

La deuxième contribution s'attache à expliquer l'importance du soleil sur la demande de régulation du marché locatif. Les pays d'Europe du sud possédant un fort taux d'ensoleillement sont attractifs de par leur douceur de vie. Cette immigration potentielle augmente la tension sur le marché locatif. C'est donc pour réduire celle-ci que les individus d'Europe du sud développent une complémentarité entre capital social local et réglementation. Cette stratégie permet alors d'expliquer un équilibre méditerranéen dans lequel le taux d'ensoleillement est important, le capital social local est fort et le formalisme procédural est élevé. A contrario, l'absence d'attractivité des pays faiblement ensoleillés permet d'expliquer un équilibre anglo-saxon et scandinave dans lequel le taux d'ensoleillement est faible, le capital social local est non développé et le formalisme procédural est faible.

Enfin, la troisième contribution explique l'utilité de la régulation du marché du travail dans un environnement de "second best" par la présence de régulations sur le marché locatif. Lorsque ce dernier est très régulé, les propriétaires sélectionnent les locataires selon leur capacité à payer le loyer. Protéger les contrats à durée indéterminée est donc un moyen de faciliter l'accès au marché locatif car cela permet aux propriétaires de mieux estimer le risque individuel de licenciement. En effet, protéger les emplois oblige les entreprises à être plus sélectives de sorte que la qualité du signal véhiculé par les contrats offerts aux travailleurs augmente. Nous expliquons alors pourquoi les individus sans emploi demandent plus de régulations et de protections en dépit de l'augmentation du chômage et de la part des contrats temporaires.

Mots clés: Régulation du marché du logement; régulation du marché du travail; réseaux sociaux ; capital géographique; frictions et modèle d'appariement.

Abstract

The purpose of this dissertation is to explain over-regulation of rental and labor markets in southern European countries.

The first contribution studies the complementarities between the strength of social networks and the stringency of procedural formalism. While procedural formalism increases the cost of legal dispute resolution between landlords and tenants, social networks allow conflicts to be solved without recourse to justice. Procedural formalism is thus a way to provide a market advantage to local individuals embedded in dense local social networks at the expense of nonlocal agents without access to such networks.

The second contribution deals with the importance of the sun on the demand for regulation in the rental market. Southern European countries with good climate amenities are attractive by their mildness of life. This potential immigration increases the pressure on the rental market. To reduce it, individuals in Southern Europe develop complementarities between social capital and local regulations. This strategy explains a Mediterranean equilibrium characterized by high levels of sunshine, local social capital and procedural formalism. Conversely, the lack of attractiveness of countries with low climate amenities leads to an Anglo-Saxon and Scandinavian equilibrium with opposite features.

The third contribution explains the support for labor market regulation by the presence of regulations on the rental market. Young Europeans experience high unemployment rates, job instability and late emancipation. Meanwhile they do not support reforms weakening protection on long-term contracts. We suggest a possible rationale for such reform distaste. When the rental market is very regulated, landlords screen applicants with regard to their ability to pay the rent. Protecting regular jobs offers a second-best technology to sort workers, thereby increasing the rental market size. We provide a model where non-employed workers demand protected jobs despite unemployment and the share of short-term jobs increase, whereas the individual risk of dismissal stays unaffected.

Keywords: Housing market regulation; employment protection legislation; social networks; climate amenities; social networks; search and matching.

Remerciements

Ce travail de thèse est le fruit d'un long cheminement durant lequel j'ai eu la chance d'être guidé et épaulé. Je tiens donc à remercier l'ensemble des personnes qui ont contribué, de près ou de loin, à la réalisation de mon travail de recherche.

Je souhaite, en premier lieu, adresser toute ma gratitude à mes directeurs de thèse Bruno Decreuse et Tanguy van Ypersele qui ont su par leur aide et leurs conseils faire progresser de façon significative la rédaction de ces trois chapitres. J'ai particulièrement apprécié coécrire mon dernier chapitre de thèse avec eux. Ils ont, en outre, su stimuler et approfondir mes réflexions tout en m'apportant le soutien matériel et financier dont j'avais besoin.

Je tiens à exprimer toute ma reconnaissance à Bruno van der Linden et Etienne Wasmer pour avoir accepté d'être les rapporteurs de cette thèse ainsi qu'à Eva Morenno Galbis et Yann Bramoullé qui ont bien voulu faire partie de mon jury. Leurs précieux conseils donnés lors de ma pré-soutenance ont largement contribué à l'amélioration des différents chapitres de cette thèse. Je remercie également Yann Algan et Yann Bramoullé pour leurs remarques avisées dans leurs rapports de deuxième année qui ont permis de donner un deuxième souffle à ce travail.

Mes pensées se dirigent aussi vers Gilbert Cette, qui a, lors de mon stage de master, fait émerger mon goût pour la recherche économique. Un grand merci à lui et à Guillaume Horny de m'avoir permis de coécrire et publier deux articles de recherche dans des revues à comités de lecture.

J'ai été heureux d'effectuer ma thèse au sein du GREQAM et de l'AMSE qui proposent à l'ensemble de leurs doctorants un environnement dynamique et stimulant. J'ai ainsi pu discuter de mes travaux avec des chercheurs invités au GREQAM. Je remercie donc David Albouy, Jim Albrecht, Yann Algan, Philipp Kircher, Steeve Mongrain et Susan Vroman pour leurs suggestions. Mes travaux se sont également enrichis des cours doctoraux que j'ai pu suivre. A ce titre, je remercie Susan Vroman et Jim Albrecht pour leurs cours passionnants de « search and matching » dispensés à Aix en Provence ainsi que Frédéric Deroïan et Sebastian Bervoets pour leurs cours sur les réseaux sociaux.

Ma reconnaissance va également aux chercheurs et membres du GREQAM (présents ou anciens) que je n'ai pas encore cités et qui m'ont aidé à progresser dans mon travail, lors de discussions informelles et de séminaires internes. Je pense notamment à Pierre-Philippe Combes, Cécilia Garcia Peñalosa, Marc Sangnier, Camille Hemet, Thomas Seegmuler, Nicolas Gravel et Linas Tarasonis.

J'adresse également mes remerciements aux directions du GREQAM et de l'AMSE, pour les fonds qu'elles m'ont accordés pour mes conférences et mon séjour de recherche à l'université d'Edimbourg. Je tiens d'ailleurs à saluer Philipp Kircher pour sa gentillesse et son hospitalité. Je veux aussi remercier l'École Doctorale 372 pour avoir participé au financement de

mes déplacements. J'exprime également toute ma sympathie à l'équipe administrative du GREQAM qui facilite notre travail au quotidien : Bernadette Vouriot, Elizabeth Lhuillier, Isabelle Mauduech, Mathilde Martelli, Agnès Chaussonnaud, Aziza Sikar, Corinne Michaud, Gregory Cornu et Yves Doazan. Enfin, je bénis Didier Pernice et Gérald Chapuis d'avoir sauvé ma thèse d'un crash informatique.

Je souhaite aussi souligner l'importance de Paul Maarek qui a su m'écouter et me remotiver lorsque je doutais. Merci aussi à mes collègues doctorants (présents et anciens). J'ai apprécié pouvoir plaisanter et échanger avec eux dans les couloirs du laboratoire. Ces moments de décompression passés ensemble auront été salutaires. Je pense plus particulièrement à Nicloas Abad, Lise Clain-Chamosset Yvrard, Bilel Sanhaji, Marion Davin, Antoine Leriche, Cyril Dell'Eva, Florent Dubois, François Reynaud, Thomas Chuffart, Rémy Vives, Mathilde Valero, Anastasia Cozarenco et Clémentine Sadania. Ces remerciements seraient incomplets si je ne citais pas mes amis Gilles et Karine. Leur bonne humeur, leur gentillesse, leurs encouragements et leur optimisme sans faille ont été pour moi une vraie bouffée d'oxygène. Merci du fond du cœur.

Mes pensées les plus chères se tournent maintenant vers ma famille qui m'a épaulé depuis le début. Merci à mes parents, mes beaux parents et mon épouse, pour m'avoir soutenu lorsque je doutais. Un immense merci à Anaïs pour m'avoir déchargé d'un grand nombre de tâches afin que je puisse me consacrer pleinement à mon travail de recherche. Merci, ma puce, pour ton amour et ta compréhension. Enfin, merci à Lilou qui par ses ronronnements quotidiens aura rendu mes travaux d'écriture à la maison plus doux.

Avertissement

Les différents chapitres de cette thèse sont issus d'articles de recherche rédigés en anglais et dont la structure est autonome. Ceci y explique la présence des termes "paper" ou "article" ainsi que l'éventuelle répétition de certaines informations.

Notice

The chapters of this dissertation are self-containing research articles. Consequently, terms "paper" and "article" are frequently used. This also explains that some informations are given in multiple places of the thesis.

Table des matières - Table of contents

Introduction générale.....	1
1 Procedural formalism and social networks in the housing market	15
1.1 Introduction	16
1.2 The model.....	19
1.3 Impact of procedural formalism	23
1.4 Wich level of regulation ?	25
1.4.1 Parameterization	26
1.4.2 Baseline results	27
1.4.3 Non-local agents	28
1.4.4 Impact of V	30
1.5 Conclusion	30
1.6 Appendix.....	32
1.6.1 Data	32
1.6.2 Housing market regulation.....	33
1.6.3 Impact of C on the demand for PF.....	34
1.6.4 Accounting for market eviction.....	34
1.6.5 Different values of the conflict resolution cost D^n within social networks	36
2 Sun, regulation and local social networks	37
2.1 Introduction	38
2.2 Empirical evidence	40
2.2.1 Sunshine is an attractive amenity	40
2.2.2 Correlations with sunshine.....	42
2.3 Model	48
2.3.1 Closed country	49
2.3.2 Open country.....	52
2.4 Discussions.....	55
2.4.1 Climate amenity differential and local social networks	55
2.4.2 What about the labor market?	57
2.5 Conclusion	58
2.6 Appendix.....	59
2.6.1 Proof of proposition 2.3	59
2.6.2 Proof of proposition 2.5	60

3 Job protection, housing market regulation and the youth	61
3.1 Introduction	62
3.2 Motivating facts	64
3.2.1 Aggregate evidence	64
3.2.2 Micro evidence	68
3.3 Theory.....	71
3.3.1 Basic model.....	71
3.3.2 Extensions.....	76
3.4 Conclusion	82
3.5 Appendix.....	83
 Conclusion générale	 91
 Bibliographie - Bibliography	 95

Liste des Figures - List of Figures

I.1 Corrélation entre l'indice de formalisme procédural (HMR) et le nombre de jours pour exclure un locataire.....	6
I.2 Evolution du taux de chômage au sens du BIT (2007-2015).....	7
1.1 Social ties and Procedural Formalism.....	17
1.2 Family ties and Procedural Formalism.....	17
1.3 Network size and the social demand for PF.....	27
1.4 Individual default probability and the demand for PF	28
1.5 Proportion of non-local agents and the demand for PF.....	28
1.6 Non-local agents skills and the demand for PF.....	29
1.7 Supply for rentals and the demand for PF	30
1.8 Correlation between PF and number of months to evict a tenant.....	33
1.9 Impact of C on the demand for PF.....	34
1.10 PF and the average utility of local agents	35
1.11 Threshold value δ^m and PF.....	36
1.12 Optimal regulation D^m and D^n	36
2.1 Neighborhood ties and sunshine	45
2.2 Friendship ties and sunshine	46
2.3 Family ties and sunshine	46
2.4 Housing Market Regulation and sunshine	47
2.5 Employment Protection Legislation and sunshine.....	47
2.6 Social networks and the climate amenity differential.....	56
2.7 Foreigners and the climate amenity differential.....	57
3.1 Youth employment and HMR in Europe.....	65
3.2 Youth emancipation and HMR in Europe.....	66
3.3 Share of young employees in temporary employment vs EPL on regular job in OECD countries, 1994-2001.....	67

3.4 The relationship between HMR and EPL 1995-2000	68
3.5 Contract choice and belief on match quality.....	73
3.6 Preferred job protection when workers know their type.....	80
A.2 Estimated parameters of the employment regression for different age groups, case where individuals in education are excluded from the sample	85
A.3 Estimated parameters of the emancipation regression for different age groups, case where individuals in education are excluded from the sample	86
A.4 Estimated parameters of the ltc regression for different age groups, case where individuals in education are excluded from the sample	87
A.5 Estimated parameters of the rent regression for different age groups, case where individuals in education are excluded from the sample	88
A.6 Estimated parameters of the employment regression for different age groups, case where individuals in education are in the sample	89
A.7 Estimated parameters of the emancipation regression for different age groups, case where individuals in education are in the sample	90

Liste des Tables - List of Tables

I.1 Indice de régulation du marché locatif et du marché du travail pour différents pays européens	5
1.1 Parameter values in the baseline calibration.....	27
1.2 Number of months to evict a tenant in Europe	33
2.1 Descriptive statistics	43
2.2 Sun and local social capital	44
2.3 Sun, mobility and the demand for job security	44
2.4 Parameter values	56
3.1 The impacts of EPL and HMR on youth employment, access to LT jobs, emancipation and access to rentals (case where individuals in education are excluded from the sample)	70
A.1 The impacts of EPL and HMR on youth employment and emancipation (case where individuals in education are in the sample)	83

Introduction générale

L'objet de ce travail de thèse est d'expliquer les raisons de la surrégulation des marchés locatifs et des marchés du travail des pays d'Europe du sud. Ce travail se décompose en trois chapitres. Le premier chapitre met en avant l'interdépendance entre réseaux sociaux locaux et régulation du marché locatif. Le deuxième décrit une complémentarité entre l'ensoleillement, les réseaux sociaux locaux et les régulations du marché du travail et du marché locatif. Enfin, le troisième justifie l'utilité de la régulation du marché du travail dans un environnement de "second best" par la présence de forte régulation sur le marché locatif.

Ces objets d'étude sont particulièrement intéressants lorsque l'on sait qu'un jeune cherchant à s'émanciper est directement confronté aux avantages et inconvénients de ces régulations. En effet, celui-ci a deux priorités: trouver un travail et trouver un logement. Or, ces deux objectifs sont particulièrement problématiques pour les jeunes européens alors que le taux de chômage des jeunes âgés entre 15 et 24 ans atteint 24.7% en France, 40.3% en Italie ou encore 48.4% en Espagne¹ et que la part des jeunes âgés de 20 à 29 ans vivant avec leurs parents est de 78% en Italie ou de 69% en Espagne². Ainsi, étudier le fonctionnement du marché du travail et du marché du logement est nécessaire afin d'aider les pouvoirs publics à améliorer l'émancipation des jeunes. Enfin, l'étude conjointe de ces régulations est d'autant plus pertinente que ces deux marchés sont complémentaires. En effet, trouver un logement et trouver un emploi vont souvent de pair car l'obtention d'un nouveau travail peut nécessiter de déménager (Ruppert et Wamser (2012)). De surcroît, leur fonctionnement est parfaitement comparable. Citons Wasmer (2005):

"Un propriétaire qui cherche un locataire est un peu comme un employeur qui tente de recruter un salarié. La différence, bien sûr, est que le salarié fournit un service en échange d'un salaire, alors que le propriétaire fournit un service (la jouissance d'un bien immobilier) en échange d'un revenu. Mais l'analogie est forte : l'employeur comme le propriétaire dispose d'un capital (immobilier ou équipement productif), en partie immobilisé, dont il tire une rente sous réserve de l'utiliser à pleine capacité. L'employeur souhaite interrompre la relation si la valeur du service-travail devient inférieure au salaire versé, tandis que le propriétaire souhaite interrompre la relation si le loyer n'est plus versé ou devient inférieur à ce qu'il obtiendrait en changeant de locataire. Dans les deux cas, existent pour les salariés ou les locataires des coûts de mobilité (professionnelle ou géographique) qui pourraient permettre

¹Données OCDE mai 2016.

²Données Eurostat.

aux employeurs ou aux propriétaires de s'accaparer une part indue de ce service. Il s'agit du mécanisme bien connu de hold-up selon lequel une partie investit de façon irréversible et l'autre capture une partie du retour sur investissement. C'est pour prévenir de tels comportements opportunistes de propriétaires ou d'employeurs que le législateur a édifié un édifice juridique complexe visant à réguler les différents aspects de la relation. C'est ainsi que les loyers, comme les salaires, ne peuvent varier que dans des limites très encadrées, et que la séparation initiée par le propriétaire ou par l'employeur est soumise à des procédures longues, coûteuses et [...] arbitrées en cas de conflit par une tierce partie : juge des prud'hommes dans le cas des relations d'emplois, des juges d'instance, juges de l'exécution et des représentants de l'État et de divers organismes sociaux dans le cas des relations locataires-propriétaires. Enfin, le marché du logement, tout comme celui du travail, est affecté par des asymétries d'information fondamentales. L'une d'entre elles, qui amène à des effets d'aléa moral, porte sur la bonne foi des différents acteurs : les efforts pour payer son loyer, comme ceux consistant à effectuer correctement son travail."

Sur le marché locatif, le bail est strictement encadré. Il doit notamment contenir des informations précises sur les caractéristiques du logement : surface habitable, nombre de pièces, équipements, nature et montant des travaux effectués dans le logement depuis le dernier contrat de location. Il doit aussi informer des dépôts de garanties, du montant du loyer, du mode de règlement, des règles de révision éventuelle, et du montant du dernier loyer acquitté par le précédent locataire. La durée du bail est également strictement réglementée : trois ans lorsque le propriétaire est un particulier, six ans lorsque le propriétaire est une personne morale³ et un an minimum si le propriétaire prévoit de reprendre son logement pour des raisons familiales ou professionnelles. Cependant, le motif de reprise qui justifie cette durée plus courte doit impérativement figurer dans le bail. Des manquements à toutes ces obligations peuvent amener le locataire à se retourner contre le propriétaire⁴.

De même, les contentieux suivent des procédures complexes et coûteuses. En cas de procédure d'expulsion, les propriétaires doivent, dans un premier temps, adresser un commandement à payer par acte d'huissier puis, dans un second temps, si le loyer n'est toujours pas recouvert, saisir le juge. Une copie d'assignation⁵ doit alors être adressée au préfet qui demandera aux services sociaux de réaliser une enquête pour examiner les possibilités de relogement, tandis que l'audience aura lieu dans un délai minimum de deux mois. Le juge du tribunal d'instance doit signifier le résultat de son jugement au locataire par voie d'huissier. Il peut accorder au locataire des délais pour s'acquitter de sa dette ou bien ordonner l'expulsion. Si le jugement refuse tout délai, l'huissier apporte au locataire un commandement de quitter les lieux qui accorde deux mois pour quitter le logement et saisir le juge de l'exécution. S'il est saisi, ce dernier peut, lorsque les conditions sociales de la famille sont complexes, accorder un délai de grâce de trois mois à trois ans pour se reloger. Au-delà du délai, l'huissier se présente au logement

³Définition Wikipédia : En droit, une personne morale est une entité dotée de la personnalité juridique, ce qui lui permet d'être directement titulaire de droits et d'obligations en lieu et place des personnes physiques ou morales qui la composent ou qui l'ont créée (par exemple : entreprises, associations, État et ses subdivisions).

⁴Par exemple, dans un bail signé depuis le 27 mars 2014, en cas d'absence de mention de la surface habitable ou de superficie erronée, le locataire peut intenter une action en diminution de loyer.

⁵L'assignation est un acte d'huissier qui informe le locataire qu'une demande d'expulsion a été transmise au tribunal.

pour demander au locataire de quitter les lieux. Si l'occupant s'oppose à l'expulsion, l'huissier dresse un procès verbal de difficultés et le propriétaire demande à la préfecture l'autorisation d'utiliser la force publique pour réaliser l'expulsion. Le préfet a un délai de deux mois pour répondre. Dans le cas où le préfet refuse d'expulser de force un locataire, le bailleur constate que l'Etat ne respecte pas la loi et se retourne contre lui, en demandant des indemnités compensatrices. Enfin, après l'expulsion, le locataire dispose encore d'un délai d'un mois pour récupérer les affaires laissées dans le logement qui ne peuvent être transportées sans son accord dans un autre lieu. A l'issue de ce délai, le juge de l'exécution, après avoir entendu le locataire et le bailleur, fait notifier par procès verbal une liste des biens restés dans le logement et décide de leur sort. Ainsi, d'après l'étude de Djankov et al (2003) une procédure d'expulsion met environ 226 jours en France.

De façon similaire, sur le marché du travail, les contrats sont strictement encadrés. Le contrat de travail existe dès l'instant où le salarié s'engage à travailler, moyennant rémunération, pour le compte et sous la direction de l'employeur. Il doit être écrit, à moins que l'embauche ne soit faite en contrat à durée indéterminée (CDI) à temps complet, et son exécution entraîne un certain nombre d'obligations. L'employeur est tenu de fournir un travail dans le cadre de l'horaire établie, de verser le salaire correspondant au travail effectué, de respecter les autres éléments essentiels du contrat (qualification et lieu de travail quand il est précisé dans le contrat). Il doit également appliquer et respecter le Code du travail et la convention collective applicable à l'entreprise. Le salarié doit, quant à lui, réaliser le travail demandé conformément aux instructions données, respecter les engagements mentionnés dans le contrat de travail et les clauses du règlement intérieur, et enfin ne pas faire de concurrence déloyale à son employeur.

De même, les procédures de licenciement économique ou pour motif personnel sont strictement réglementées.

Le premier doit être motivé et justifié par des difficultés économiques, des mutations technologiques (acquisition de nouveaux outils entraînant de nouvelles méthodes de travail, informatisation), la cessation d'activité de l'entreprise ou de la réorganisation de l'entreprise nécessaire à la sauvegarde de sa compétitivité (à distinguer de la simple recherche de bénéfices). Les difficultés économiques existent lorsqu'il y a perte d'un marché, un fort endettement ou un déficit important mais pas lorsque l'entreprise subit une légère baisse des ventes. De même, la seule recherche d'économie, alors que la situation économique et financière de l'entreprise est bonne, ne peut justifier un licenciement économique. L'employeur est tenu, lorsque les mutations technologiques sont importantes et rapides, d'établir un plan d'adaptation au bénéfice des salariés. Le licenciement pour motif économique ne peut intervenir que lorsque tous les efforts de formation et d'adaptation ont été réalisés et que le reclassement de l'intéressé ne peut être opéré dans l'entreprise ou dans les établissements du groupe auquel elle appartient. En outre, avant tout licenciement économique collectif, l'employeur doit consulter les représentants du personnel sur les raisons et les conditions des licenciements. Il doit également informer la direction régionale des entreprises, de la concurrence, de la consommation, du travail et de l'emploi, des licenciements envisagés et prononcés, dans des conditions qui varient en fonction du nombre de licenciements envisagés. Le non-respect de ces différentes obligations ouvre droit à indemnisation.

Contrairement au licenciement pour motif d'ordre économique, le licenciement d'ordre personnel repose sur la personne du salarié. Cependant, aucun licenciement ne peut être fondé sur un motif discrim-

inatoire (sexe, religion, opinions politiques et syndicales, appartenance à une race ou une ethnie) ou en violation d'un droit du salarié (droit de grève ou droit de saisir la justice). Pour être valable, la cause du licenciement doit être à la fois réelle et sérieuse, c'est-à-dire suffisamment grave pour rendre inévitable le licenciement. Il doit reposer sur des faits objectifs, vérifiables et non sur une impression ou un jugement subjectif. Tout licenciement peut être contesté devant le conseil de prud'hommes et si un doute subsiste sur les raisons réelles et sérieuses du licenciement, il profite au salarié. Si le juge estime qu'il n'existe pas de cause réelle et sérieuse, il peut proposer la réintégration du salarié dans l'entreprise, avec maintien de ses avantages acquis ou condamner l'employeur à verser au salarié une indemnité au moins égale à six mois de salaire, si l'une ou l'autre des parties refuse la réintégration⁶. Ces sommes viennent en plus des indemnités de licenciement et de préavis. Le juge peut également ordonner le remboursement par l'employeur fautif aux organismes intéressés de tout ou d'une partie des indemnités de chômage versées au salarié licencié, du jour de son licenciement au jour du jugement prononcé, dans la limite de six mois d'indemnités de chômage par salarié intéressé⁷. Enfin, l'employeur qui envisage de licencier un salarié pour motif personnel doit également respecter la procédure légale prévue en matière de licenciement. Les étapes à respecter sont les suivantes : convocation du salarié à un entretien préalable au licenciement, déroulement de l'entretien, envoi d'une lettre de licenciement.

Le fonctionnement du marché du travail et du marché locatif est donc particulièrement encadré en France et plus généralement dans les pays d'Europe du sud. Des indices de régulations construits par Djankov et al (2003) et par Allard (2005), synthétisant respectivement le niveau de complexité des régulations des marchés du logement et du marché du travail, montrent une asymétrie entre les pays d'Europe du nord peu régulés et les pays d'Europe du sud fortement régulés.

⁶Toutefois, si le salarié a moins de deux ans d'ancienneté ou travaille dans une entreprise de moins de onze salariés, le montant de l'indemnité est fixé selon le préjudice subi.

⁷Cette disposition n'est toutefois pas applicable au licenciement d'un salarié de moins de deux ans d'ancienneté dans l'entreprise et au licenciement opéré dans une entreprise employant habituellement moins de 11 salariés.

	Indice de régulation du marché locatif	Indice du degré de protection des emplois
Pays d'Europe du nord		
Belgique	3.17	2.7
Pays-Bas	3	2.4
Allemagne	3.76	2.1
Autriche	3.62	2.5
Danemark	3.6	1.6
Finlande	2.53	2.3
Norvège	3.71	2.7
Suède	3.31	2.7
Royaume-Uni	2.22	1.4
Irlande	3.20	1.3
Pays d'Europe du sud		
Grèce	4.31	3.8
France	3.6	3
Italie	4.24	3.2
Portugal	4.54	3.7
Espagne	4.81	2.3

Table I.1: Indice de régulation du marché locatif et du marché du travail pour différents pays européens. Source Djankov et al (2003) et Allard (2005).

Ainsi, à titre d'exemple, la procédure légale portugaise pour exclure un locataire qui ne paye pas son loyer impose beaucoup plus d'obligations que celle du Royaume-Uni. Contrairement au Royaume-Uni, la loi portugaise exige la présence d'un avocat certifié et que la plainte et le jugement soient légalement justifiés. En outre, au Portugal la réglementation des preuves est tenue et beaucoup plus strictes qu'au Royaume-Uni. Il doit y avoir une trace écrite de l'ensemble des preuves présentes au procès. Pour être recevable, la preuve doit avoir été fournie et vue par le témoin. L'ensemble des questions posées à un témoin doivent être pré-qualifiées par le juge. Enfin contrairement au Royaume-Uni, l'appel, au Portugal, est un deuxième jugement qui reprend l'intégralité des faits et des preuves et suspend totalement l'application du premier jugement. La résultante de ces divergences est qu'un propriétaire britannique mettra beaucoup moins de temps qu'un propriétaire portugais pour exclure un locataire qui ne paye pas son loyer. La durée moyenne pour exclure un locataire au Royaume-Uni est de 115 jours tandis qu'elle est de 330 jours au Portugal. En effet, la durée moyenne pour exclure un locataire augmente avec la complexité des procédures légales.

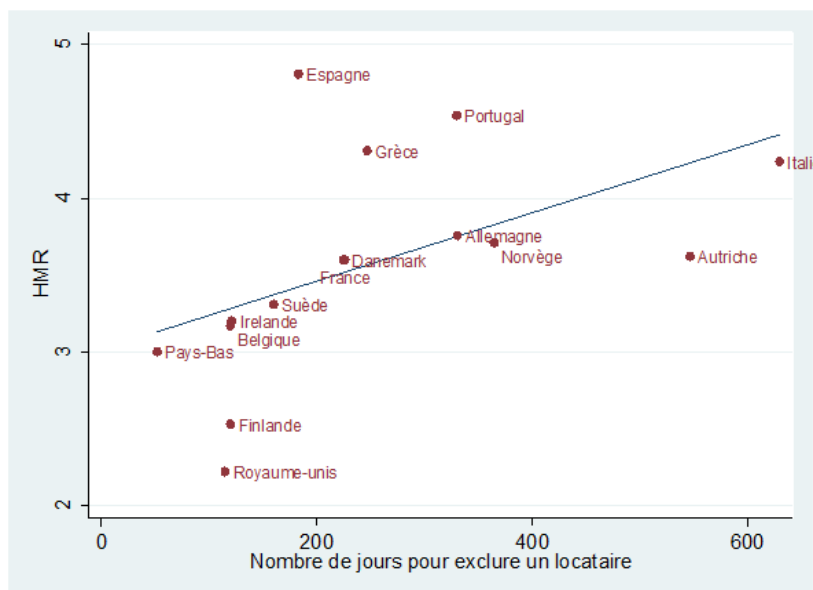


Figure I.1: Corrélation entre l'indice de formalisme procédural (HMR) et le nombre de jours pour exclure un locataire. Source : l'indice HMR est dû à Djankov et al (2003).

Sur le marché du travail, les mêmes types d'exemples et d'asymétries peuvent être illustrés. Des différences existent, entre autre, sur les préavis de licenciement, indemnités de licenciement et le temps de travail obligatoire.

Ainsi, au Royaume-Uni, il n'y a pas de réglementation sur la durée du temps de travail qui est uniquement définie dans le contrat de travail. Aucune indemnité de licenciement n'est prévue dans le cas d'un licenciement pour raisons non économiques et l'Employment Right Act de 1996 prévoit une indemnité uniquement si le salarié a au moins deux années d'ancienneté. Cette indemnité varie en outre selon l'âge du salarié et son ancienneté et ce dans la limite de 380£ maximum pour un salaire hebdomadaire.

En comparaison, en Italie toutes ces règles sont beaucoup plus strictes pour une entreprise. La loi prévoit une indemnité de licenciement pour toute résiliation de contrat de travail et ce, même en cas de licenciement pour motif personnel ou de démission. L'employé a le droit de recevoir de l'employeur une indemnité de départ qui correspond à la partie du salaire mise de côté chaque année et gardée par l'employeur. De même, la durée légale du travail est également plus encadrée qu'au Royaume-Uni puisqu'elle est de 40 heures et d'une durée maximale de 48 heures⁸.

Alors que l'existence de réglementations sur le marché du travail et du logement est nécessaire pour corriger les problèmes d'asymétrie d'information qui peuvent conduire à des problèmes d'aléa moral et de sélection adverse, un excès de régulation sera contre-productif et nuira à l'efficacité du marché. En effet, il y a un consensus chez les économistes ayant étudié les dysfonctionnements de ces marchés (fort

⁸Pour une description complète des différences de législation du marché du travail européen, voir : http://www.institutmontaigne.org/res/files/orderfile/elements_comparatifs_droit_du%20travail_%20et_du%20CDI_1.pdf

taux de chômage depuis les années 1970, hausse des loyers, mal logement et pénurie de logement locatifs) pour dire qu'un excès de régulation exclura de nombreux individus du marché du logement et du marché du travail (Botero et al (2004), Wasmer (2005)). Les jeunes, les femmes et les travailleurs non qualifiés seront notamment exclus du marché du travail tandis que les individus en emploi précaire et/ou sans garantie (caution d'un tiers ou droit aux garanties de loyer impayé mises en place par l'état) seront exclus du marché locatif. De même, l'encadrement des loyers ou des coûts de résolution de conflits élevés entre propriétaire et locataire pourrait réduire la taille du marché locatif (Casas-Arce and Saiz (2010)). En effet, cela serait susceptible de conduire les agents à placer leurs économies sur d'autres actifs plus rentables et plus sûrs que le secteur locatif. La régulation, en rendant plus difficile l'accès au logement et en donnant un pouvoir de négociation plus élevé aux locataires déjà installés, est également accusée de réduire la mobilité des travailleurs et donc de nuire à l'efficacité du marché du travail (Ruppert and Wasmer (2012)). Enfin, les lois sur le marché du travail compliquant ou ralentissant le processus de résiliation de relation contractuelle, diminuent la demande de travail des entreprises. Ainsi, l'observation comparée des chiffres du chômage des différents pays européens (Figure I.2) montre que les pays ayant les niveaux de réglementation les plus faibles sont également ceux qui ont les taux de chômage les plus faibles. En outre, cette observation s'accroît en période de crise. Il aurait pu être légitime de penser l'inverse et de supposer que les pays ayant les niveaux de réglementations les plus élevés soient également les plus protecteurs. Cependant, dans les pays qui n'ont pas réformé, avant la crise, certaines faiblesses du marché du travail (dualisme, faible taux de participation, structure de l'emploi, niveau et structure des compétences de la population active) ont enregistré une dégradation à la fois plus forte et plus durable de la situation de l'emploi. La baisse du taux de chômage a été plus tardive, et cela, indépendamment du niveau observé en entrée de crise.

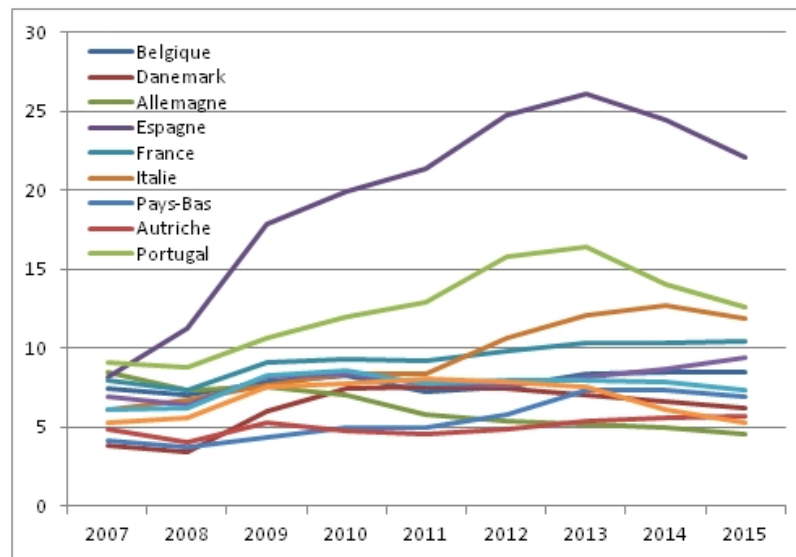


Figure I.2: Evolution du taux de chômage au sens du BIT (2007-2015). Source: Eurostat.

Néanmoins, les réformes visant à assouplir le fonctionnement de ces marchés, et notamment celles sur le marché du travail, ont très souvent rencontré de fortes contestations sociales en Europe. En France, en 2006, après de longues manifestations étudiantes où les facultés ont été occupées, le gouvernement de Dominique de Villepin s'est résolu à retirer son projet de loi sur le Contrat Première Embauche qui devait réduire le coût des procédures administratives lié aux licenciements des emplois occupés par les jeunes travailleurs. De nouveau, en 2016 le projet de loi travail qui tente d'assouplir la régulation du marché du travail a été contesté par une forte mobilisation des syndicats (dépôts pétroliers bloqués, coupure d'électricité et transport ferroviaire perturbé) et l'apparition de nouveaux mouvements de contestation comme Nuit Debout. Il prévoyait notamment de plafonner les indemnités prud'homales en cas de licenciement sans cause réelle et sérieuse, de faciliter les conditions de licenciement économique et de donner le primat à l'accord d'entreprise sur l'accord de branche. Au final, ces mesures n'auraient pu être adoptées sans la double utilisation très contestée de l'article 49.3 qui permet de s'affranchir du vote de l'Assemblée nationale. En Italie, le gouvernement de Matteo Renzi a provoqué l'appel à la grève générale de la part des deux plus grandes confédérations ouvrières italiennes (la CGIL et l'UIL avec respectivement 5.8 millions et 2.2 millions d'adhérents) après avoir fait voter plusieurs réformes visant à assouplir la réglementation du marché du travail. Ces réformes ont notamment modifié l'article 18 du Code du travail. L'obligation de réintégration en cas de licenciement manifestement abusif est remplacée par une obligation d'indemnisation plafonnée⁹. Le job Act italien a également créé une nouvelle forme de contrat à durée indéterminée et à protection croissante. Le licenciement est facilité pendant les trois premières années suivant l'embauche et les indemnités de licenciement sont croissantes avec l'ancienneté du salarié¹⁰. En Espagne, Mariano Rajoy, qui a également effectué des réformes visant à favoriser la flexibilité interne des entreprises et à réduire le coût de licenciement des emplois permanents¹¹, a perdu sa majorité absolue lors des élections législatives du 20 décembre 2015. De même, en Allemagne, le chancelier Schröder, qui a assoupli le régime de licenciement pour les entreprises de moins de 10 salariés, libéralisé l'intérim et décentralisé les négociations collectives de la branche vers les entreprises, n'a pas été réélu.

C'est dans ce contexte de débat public français et européen que s'inscrit le travail de cette thèse. Nous nous attachons donc à répondre aux questions suivantes : pour quelles raisons les individus soutiennent-ils des réglementations qui réduisent le surplus économique ? Pourquoi ces niveaux de régulations sont-ils plus élevés dans les pays d'Europe du sud ?

Nos travaux ne sont pas les premiers à s'intéresser à ces questions et complètent la littérature existante. Djankov et al (2003) expliquent la surrégulation des pays d'Europe du sud et les différences de régulation entre les pays d'Europe du sud et du nord par des différences d'origine légale. Ces auteurs se sont attachés à décrire en détail la procédure judiciaire pour régler les problèmes entre locataires et propriétaires dans 109 pays. Ces descriptions leur ont permis de construire un indicateur de formalisme procédural, indice que nous utiliserons abondamment pour justifier les différentes hypothèses de nos modélisations. Cet indice recouvre sept grands aspects du formalisme judiciaire : le recours ou non à un juge professionnel

⁹ Mais la réintégration reste de mise en cas de licenciement discriminatoire.

¹⁰ Voir Antonin 2014 pour une description détaillée des réformes du marché du travail italien.

¹¹ Voir le rapport de l'OCDE (2014), *The 2012 Labour Market Reform in Spain: a preliminary assessment* pour une vision complète des réformes du marché du travail espagnol.

pour régler le problème, le besoin de preuves écrites plutôt qu'orales à certaines étapes du processus, la nécessité d'une justification juridique pour toutes les actions judiciaires entreprises par chacune des parties du conflit ou les juges, la réglementation des preuves, la nature du contrôle supérieur de la décision de première instance, les formalités d'engagement pendant le conflit (telle que l'utilisation d'un officier de justice durant le processus judiciaire) et enfin le nombre d'actions juridiques indépendantes que la loi exige pour la résolution d'un conflit entre le propriétaire et le locataire. Les auteurs montrent que l'indice est plus élevé lorsque le nombre de jours nécessaires pour qu'un litige soit réglé est important. Ils prouvent également que l'indice de régulation est plus faible dans les pays dont le système judiciaire est assis sur la loi commune que dans les pays pour lesquels il repose sur la loi civile. Cependant, ces différences d'origine légale n'expliquent que 40 % du différentiel de régulation.

David et al (2010) expliquent les disparités de mobilité et de régulation entre les pays d'Europe du nord et les pays d'Europe du sud par une différence de capital social. Ainsi, tandis que les pays d'Europe du nord ont des réseaux sociaux plutôt professionnels ou de club, tel que le Rotary ou le Lyons Club, permettant la mobilité, les individus d'Europe du sud ont des réseaux sociaux locaux du type familial et amical limitant la mobilité des individus. En effet, déménager et partir habiter dans une autre région implique perdre une partie des contacts du réseau social local et diminue le bien-être des individus ayant ce type de réseaux. En outre, les auteurs montrent que la régulation du marché du travail augmente l'investissement en capital social qui renforce l'équilibre décrit ci-dessus.

Dans le même esprit, Alesina et al (2015) proposent le raisonnement suivant : dans un pays où les liens familiaux sont forts, les individus préféreraient vivre près de leur famille et sont donc peu mobiles. Les firmes locales possèdent alors un pouvoir de monopsonne sur cette population aux coûts de mobilité très élevés. Dans ce contexte, un fort niveau de régulation sur le marché du travail vient nuancer le pouvoir de monopole des firmes locales. Les auteurs justifient leur modèle empiriquement et mettent en lumière une corrélation positive entre liens familiaux et régulations sur le marché du travail. Ils montrent premièrement que les liens familiaux sont plus forts dans les pays où les marchés du travail sont davantage régulés et deuxièmement que les individus possédant des liens familiaux forts demandent plus de régulation sur le marché du travail. Ils utilisent pour cela deux bases de données : le World Value Survey (WVS) et l'International Social Survey Program (ISSP). Bases que nous utiliserons également pour construire nos indices de liens familiaux.

Enfin, Decreuse et van Ypersele (2011) montrent, au travers de régressions à effets fixes sur données macroéconomiques, une corrélation positive entre le formalisme procédural sur le marché immobilier et le degré de protection des emplois. La surrégulation du marché du travail dans les pays d'Europe du sud s'explique par la présence de régulations strictes sur le marché immobilier. Lorsque le formalisme procédural à l'œuvre sur le marché immobilier est important, la régulation des contrats de travail facilite l'obtention d'un prêt hypothécaire et réduit le coût d'emprunt. En effet, la banque, en finançant l'achat d'une maison en échange d'un remboursement hypothécaire, doit être en mesure de récupérer l'hypothèque en cas de défaut. Cependant, les systèmes juridiques fortement réglementés ralentissent l'exécution de ces procédures. Ces règlements génèrent alors des coûts qui sont perdus pour la banque. Afin de limiter ces coûts qui peuvent devenir importants si la régulation est forte, les prêteurs deviennent plus attentifs à la sécurité du revenu de l'emprunteur. Dans ce contexte, obtenir un travail avec une forte protection assure

non seulement contre les risques spécifiques du marché du travail mais facilite aussi l'accès au marché immobilier. Une implication clé est que la demande sociale pour des emplois protégés augmente avec le formalisme procédural du marché du logement.

Nous complétons ces explications en nous concentrant sur la régulation du marché locatif mais nous faisons également le lien avec la régulation du marché du travail dans les deuxième et troisième chapitres.

La première contribution s'attache à montrer l'interdépendance sur le marché locatif entre le formalisme procédural et les réseaux sociaux locaux. Tandis que le formalisme procédural sur le marché locatif augmente le coût de résolution de conflit entre un propriétaire et un locataire, les réseaux sociaux présentent l'avantage de pouvoir régler un conflit sans la justice. Le formalisme procédural est donc un moyen pour les individus locaux appartenant à un réseau social de rendre moins intéressant aux yeux du propriétaire les individus non locaux n'appartenant à aucun réseau. Le formalisme procédural du marché locatif facilite ainsi la recherche de logements pour les locaux au détriment des non locaux.

Cette idée est motivée par plusieurs faits stylisés. Au niveau macroéconomique, nous montrons qu'il existe une corrélation positive entre l'indice de formalisme procédural de Djankov et al (2003) et les tailles de réseaux sociaux dans les différents pays européens. Au niveau microéconomique plusieurs études (Bosch et al (2010), Baldini and Federici (2011) et Bouvard et al (2009)) montrent qu'il existe de la discrimination sur les marchés locatifs d'Europe du sud où le formalisme procédural est élevé.

Nous construisons alors un modèle d'appariement qui montre que le formalisme procédural conduit les propriétaires à privilégier les candidats locaux appartenant à leur réseau. Chaque candidat engendre un gain potentiel pour le propriétaire. Ce gain diminue avec le taux de défaut du locataire et le coût de résolution de conflits. Le formalisme procédural augmente le coût de résolution de conflits pour les individus n'appartenant pas au réseau et permet donc aux individus appartenant au réseau de passer devant les candidats sans réseau. Les candidats locaux qui possèdent un réseau social sont confrontés à un arbitrage. D'une part, le formalisme procédural augmente en moyenne leur probabilité d'obtenir un bail. D'autre part, il implique de payer des loyers plus élevés quand l'individu n'appartient pas au réseau social du propriétaire.

La préférence pour le formalisme procédural augmente avec la taille des réseaux sociaux. Le modèle prédit également que la demande de formalisme procédural augmente avec la tension du marché locatif et la proportion d'individus sans réseau.

Dans une dernière partie de ce chapitre, nous calibrons le modèle à partir de l'enquête logement de 2006 et supposons que les individus locaux votent sous le voile de l'ignorance, c'est-à-dire sans connaître leur probabilité de défaut. Cette hypothèse induit une redistribution entre agents locaux qui ont des taux de défaut différents. Le niveau optimal de régulation est profitable aux individus possédant les taux de défaut les plus élevés au détriment de ceux possédant les taux de défaut les plus faibles. Le modèle montre aussi que le soutien politique pour le formalisme procédural est d'autant plus fort que les individus possédant un réseau social ont des taux de défaut élevés. Enfin, le modèle souligne que la demande optimale de formalisme procédural augmente avec les différences de qualifications entre les individus possédant un réseau et ceux n'en possédant pas lorsque la taille des réseaux sociaux est grande mais diminue lorsque celle-ci est faible.

Ce chapitre apporte une réponse complémentaire au papier de Djankov et al (2003) qui explique les

différences de niveaux de régulation entre pays par des différences d'origine légale. En effet, Djankov et al (2003) montrent que les différences d'origine légale expliquent environ 40 % des variations de régulations entre les pays. Nous expliquons la sur-régulation des pays d'Europe du sud par la complémentarité du formalisme procédural et des réseaux sociaux.

Notre analyse diffère sensiblement de celle d'Alesina et al (2015) pour qui la régulation est un moyen de corriger les imperfections du marché pour des individus dotés de liens familiaux forts et donc d'une mobilité faible. Si nous transposions leur argument du marché du travail au marché du logement, nous aurions que le formalisme procédural serait, pour les individus peu mobiles, un moyen de réduire le pouvoir de monopsonne des propriétaires dans un contexte où l'offre de location serait déprimée. Nous gardons l'idée que les personnes ayant des réseaux sociaux et des liens familiaux forts préfèrent la régulation. Cependant nous proposons, à leur différence, que les individus possédant un réseau social demandent cette régulation pour devancer les individus n'en possédant pas.

Dans ce chapitre, le formalisme procédural est donc un moyen de tirer une rente comme dans les articles de Desgranges et Wasmer (2000) et Wasmer (2005). Cependant, la nouveauté réside dans le fait que les individus profitant de la régulation du marché locatif sont ceux possédant un réseau social et non uniquement ceux déjà installés dans les logements.

Enfin, ce chapitre présente un aspect alternatif des réseaux sociaux dans les modèles d'appariement. En effet, dans la littérature existante (Calvo-Armengol and Zenou (2005), Calvo-Armengol et Jackson (2007), Galenianos (2013), Mayer (2011)), les réseaux sociaux sont un moyen d'ouvrir un nouveau canal de réception des offres d'emploi parallèlement aux canaux traditionnels (tel que les centres d'emploi, internet et les journaux). Dans ce chapitre, les réseaux sociaux permettent de gagner des places dans la file d'attente pour recevoir une offre d'emploi ou un logement.

Le deuxième chapitre propose l'idée non-consensuelle que les régulations sont influencées par les aménités climatiques d'un pays ou d'une région. Pour illustrer cette idée, nous nous attachons à expliquer plus particulièrement l'importance de l'ensoleillement sur la demande de régulation du marché locatif. Les pays d'Europe du sud possédant un fort taux d'ensoleillement sont des pays attractifs. L'immigration potentielle augmente la tension sur le marché du logement. C'est donc pour la réduire que les individus d'Europe du sud exploitent une complémentarité entre capital social local et réglementation. Cette stratégie conduit à un équilibre méditerranéen dans lequel le taux d'ensoleillement est important, le capital social local est fort et le formalisme procédural est élevé. A contrario, l'absence d'attractivité des pays faiblement ensoleillés conduit à un équilibre anglo-saxon et scandinave dans lequel le taux d'ensoleillement est faible, le capital social local est non développé, et le formalisme procédural est faible.

Afin de motiver ces explications, nous présentons plusieurs observations empiriques montrant que le soleil est un facteur déterminant. Nous montrons, premièrement, que le soleil est bon pour la santé et joue positivement sur le moral des individus. Nous soulignons, deuxièmement, l'importance du soleil sur la migration. Cependant, l'identification de ce facteur causal des migrations n'est pas évidente car il est difficile de dissocier l'effet du soleil de l'effet de la régulation. Nous étudions donc les flux migratoires pour des sous-populations (étudiants et retraités) moins exposées aux problèmes d'endogénéité. Enfin, nous illustrons aux niveaux micro et macroéconomique différentes corrélations entre l'ensoleillement, le capital social local, la mobilité et les régulations du marché du travail et du marché locatif. A partir

de ces corrélations empiriques qui justifient nos hypothèses, nous proposons un modèle qui permet de conclure que les individus des pays où l'ensoleillement est important choisissent de façon conjointe un fort niveau de capital social et de régulation sur le marché locatif.

Dans ce chapitre, nous endogénéisons la taille du réseau social local en fonction de son coût de formation et de la tension du marché locatif. Cette tension dépend elle-même de la pression migratoire engendrée par le différentiel d'ensoleillement entre les pays d'Europe du nord et ceux d'Europe du sud. Les habitants des pays d'Europe du sud sont confrontés à l'arbitrage suivant : d'une part, le formalisme procédural et les réseaux sociaux augmentent en moyenne leur probabilité d'obtenir un bail. D'autre part, le développement d'un réseau social et du formalisme procédural sont coûteux. Le formalisme procédural implique de payer des loyers plus élevés lorsque les locataires possédant un réseau louent à un propriétaire n'appartenant pas à celui-ci. Les individus choisissent alors de développer le formalisme procédural et les réseaux sociaux si et seulement si cela engendre un niveau d'utilité plus élevé que le laissez-faire. Le modèle prédit que le niveau optimal de formalisme procédural et de réseau social augmente avec les différences d'aménités de climat entre les pays d'Europe du sud et les pays d'Europe du nord tandis que le nombre d'étrangers qui migrent, lui, diminue avec le niveau de formalisme procédural et l'ampleur des réseaux.

Dans une dernière partie, nous discutons des répercussions que peuvent avoir ces résultats sur le marché du travail. Un individu qui investit fortement dans son réseau social local devient par définition peu mobile. Or, cette faible mobilité nécessite de réguler le marché du travail pour réduire le pouvoir de monopsonne des entreprises (Alesina et al (2015)). Ainsi, dans un pays où les réseaux sociaux et le formalisme procédural du marché locatif sont forts, la régulation du marché du travail est nécessaire.

Ce deuxième chapitre s'inscrit au croisement de quatre pans de littérature. Premièrement, il propose une réponse complémentaire à l'ensemble de la littérature cherchant à expliquer les raisons de la présence de régulation sur le marché du travail et du logement (Decreuse et van Ypersele (2011), Alesina et al (2015), Djankov et al (2003)). En effet, nous montrons que le formalisme procédural et les réseaux sociaux locaux constituent des obstacles à l'immigration. En outre, notre approche est originale car elle met l'accent sur les différences d'aménités climatiques. Ce serait donc la géographie plutôt que la culture ou les institutions à l'œuvre sur d'autres marchés qui expliquerait la régulation.

Deuxièmement, ce chapitre complète les articles d'Alesina et al (2015) et David et al (2010) sur la formation des réseaux sociaux. Alors que ces auteurs mettent en avant le rôle de la mobilité géographique, ici encore nous suggérons que les aménités climatiques jouent un rôle clé.

Troisièmement, ce chapitre s'inscrit dans la littérature liant performance économique et aménités climatiques. Albouy et al (2013) mesurent des différences de prix et de salaires entre plusieurs régions du Canada et des Etats-Unis dotés de climats différents. Nous proposons que les régulations puissent être influencées par les aménités climatiques d'un pays. Les différences climatiques pourraient donc être contrebalancées par des différences de flexibilité.

Enfin, quatrièmement, tout un champ de la littérature économique souligne l'importance des caractéristiques géographiques et institutionnelles pour comprendre les différences de croissance entre pays (Rodrik et al (2004), Veisoh, (2010), Arbia (2010)). Nous expliquons que les différences géographiques influencent les institutions.

Dans le troisième et dernier chapitre, nous soutenons que l'aversion des jeunes pour les réformes de la protection de l'emploi (comme en témoignent la popularité du mouvement Nuit debout et la réforme avortée du CPE) est rationnelle dans un contexte où le marché locatif est fortement réglementé. Dans un environnement de "second best", le formalisme procédural engendre une demande sociale de protection de l'emploi pour signaler la capacité des travailleurs à payer leur loyer. En effet, lorsque le marché locatif est très réglementé, les propriétaires ont besoin pour sélectionner les candidats de pouvoir identifier leur risque de défaut. Dans ce but, les propriétaires utilisent les signaux du marché du travail pour déterminer le risque individuel de licenciement. Lorsque les emplois ne sont pas protégés, la sélection dans l'emploi à durée indéterminée est faible et le risque moyen de licenciement est grand. Ainsi, les propriétaires sont réticents à louer leurs logements. Protéger les emplois oblige les entreprises à être plus sélectives de sorte que la qualité du signal véhiculé par les contrats du marché du travail augmente. Nous expliquons alors pourquoi les individus sans emploi peuvent être amenés à demander davantage de régulation et de protection même si celles-ci augmentent le chômage et la part des contrats temporaires.

L'analyse est motivée par plusieurs faits empiriques. Au niveau macroéconomique, nous montrons que dans les pays de l'OCDE le formalisme procédural du marché locatif est corrélé négativement avec l'emploi et l'émancipation des jeunes. Nous illustrons aussi que la part des jeunes employés dans les contrats de court terme est positivement corrélée avec la régulation du marché du travail. Enfin, nous mettons en évidence que le formalisme procédural du marché locatif et la régulation du marché du travail sont positivement corrélées.

Au niveau microéconomique, nous utilisons les données du panel européen des ménages qui couvre la période 1994-2001. Nous expliquons l'emploi individuel, l'accès aux contrats à long terme, l'émancipation et l'accès à la location avec des effets fixes individuels, des caractéristiques individuelles variables dans le temps et des indices de régulation du marché locatif et du marché du travail. Le formalisme procédural du marché locatif réduit fortement l'émancipation et l'accès à la location, mais n'a pas d'impact sur l'emploi. Les réformes des contrats permanents ont des effets importants sur l'emploi et l'accès à des emplois à long terme, alors que leurs effets sur l'émancipation et l'accès à la location sont plus faibles.

Nous proposons d'expliquer les corrélations repérées au niveau agrégé et les effets mis en évidence sur données microéconomiques à l'aide d'un modèle liant marché du travail et marché locatif. Dans ce modèle, la protection des emplois réduit le nombre d'emplois, augmente la part d'individus employés en contrat temporaire et n'a aucun effet sur le risque individuel de licenciement. Cependant, elle peut être désirée par des individus sans emploi. L'hypothèse clé est que les individus diffèrent quant à leur probabilité de succès dans l'emploi. Si les employeurs peuvent observer cette probabilité, ce n'est pas le cas des propriétaires. Comme les employeurs jouent en premier, les propriétaires utilisent le contrat de travail comme un signal sur la fiabilité du candidat à la location. Plus les contrats permanents sont régulés, plus les employeurs sont sélectifs, et donc meilleure est la qualité du signal véhiculé par le fait d'occuper un emploi permanent. La valeur de ce signal augmente lorsque le marché locatif est fortement régulé. C'est ainsi que des jeunes sans emploi peuvent préférer protéger des emplois permanents qu'ils n'ont pas alors même que leurs chances d'y accéder sont réduites.

Les conclusions de ce chapitre sont les mêmes que celles de Decreuse et van Yperesle (2011). Il faut réformer le marché locatif avant de réformer le marché du travail pour que ces dernières soient acceptées

par les individus. Cependant, les explications sont différentes. Dans Decreuse et van Yperesle (2011) la protection de l'emploi réduit le risque individuel de licenciement et le risque de défaut de crédit pour les emprunts immobiliers. Le prix des prêts d'équilibre diminue alors avec la protection de l'emploi. Par conséquent, les individus sans emploi sont enclins à choisir des niveaux de régulation au-dessus du seuil qui maximise l'emploi. Nous conservons l'idée que la sécurité de l'emploi est appréciée lorsque le marché du logement est réglementé. Cependant, les mécanismes économiques sont différents : la protection de l'emploi ne réduit pas la probabilité de perdre son emploi mais véhicule un signal sur la fiabilité du candidat à la location.

Ce chapitre est complémentaire de la littérature liant marché du travail et marché du logement. Ruppert et Wasmer (2012) soutiennent que la régulation du marché du travail a des effets multipliés sur le chômage dans les pays où le marché locatif est très réglementé. Dans notre modèle, le formalisme procédural du marché locatif n'affecte pas directement l'emploi, mais contribue néanmoins à le diminuer par son impact sur la demande de protection de l'emploi.

Enfin, ce chapitre est complémentaire de la littérature cherchant à expliquer la présence de régulation sur les marchés du logement et du travail. Dans ce chapitre, la régulation ne profite pas uniquement aux individus déjà installés dans le logement et l'emploi mais également aux jeunes sans emploi et sans logement. Nous nous inscrivons dans la lignée des travaux expliquant la présence de régulation comme un moyen de corriger les distorsions du marché. La protection de l'emploi est ainsi utilisée pour corriger les problèmes nés de l'information imparfaite à la disposition des propriétaires. Résoudre ces problèmes requiert de détruire des emplois (et en particulier des emplois permanents) pour améliorer les chances d'accès au logement.

Chapter 1

Procedural formalism and social networks in the housing market¹

Abstract Why do some OECD countries have high levels of procedural formalism (PF) in the housing market? We provide an explanation based upon complementarities between the strength of social networks and the stringency of procedural formalism. The interest of social networks is that conflict resolution is independent of the law. When local agents belong to social networks whereas non-local agents do not, PF may facilitate housing search for locals at the expense of non-locals. To illustrate this mechanism we build a search-theoretic model of the housing market. The model emphasizes that the support for PF increases with the size of social networks, the default probability on the rent, the proportion of non-locals, and market tightness.

¹This paper benefited from the comments of participants attending seminars at Aix-Marseille University, the 2013 Jamboree EDGE meeting in Cambridge, the 2014 Theory and Methods in Macroeconomics in Lausanne, the 2014 SaM in Edinburgh, the 2014 SaM in Louvain-la-Neuve, the 2014 AFSE conference in Lyon, the 2014 APET in Seattle and the 2014 EEA-ESEM in Toulouse. I also thank Jim Albrecht, Yann Algan, Yann Bramoullé, Bruno Decreuse, Eva Moreno-Galbis, Susan Vroman, Etienne Wasmer and Tanguy van Ypersele for useful discussions.

1.1 Introduction

The aim of this paper is to explain why some OECD countries support high levels of procedural formalism (PF) on the housing market whereas it generates costs for landlords and tenants. PF constrains the landlord and the tenant to follow several independent procedural actions to resolve any dispute. PF involves time and costs in conflict resolution. Such costs are shared by the two parties through rent setting. However, they reduce the economic surplus associated with a rental. In turn, this surplus loss distorts the allocation of tenants to dwellings: rents increase above the tenants' gains induced by PF, and landlords become choosier.

Then why do we observe political support for legislation that reduces the economic surplus?

We propose an explanation based on the complementarity between the strength of social networks and the stringency of PF. We see PF as a way to give an advantage to local people embedded in dense local social networks, the *connected* agents, at the expense of non-local agents² without access to such networks, the *anonymous* ones. In such a case, PF may facilitate housing search for the local applicants. Indeed, landlords undertake legal action to solve disputes with tenants outside their social network. The cost of dispute resolution then increases with PF. However, if the landlord knows the tenant, the dispute will be solved within the network instead of before a court (see, e.g., Anderson and Francois, 2008): the kin of a defaulting tenant can be used as collateral, the tenant can leave the dwelling without additional cost and return to the parents' home, the landlord may be paid differently and violence may even be used. As a consequence, the cost of conflict resolution does not depend on PF. Thus, if conflict resolution turns out to be more expensive by law than within the social network, then landlords prefer to rent to people within their network. This provides a strong incentive to vote in favor of high levels of PF in the housing market.

Our study is motivated by some stylized facts. At macro level, there is a positive correlation between PF and the size or importance of local social networks. At micro level, there is evidence that non-local agents are discriminated against in the rental market in Southern Europe where PF is strong.

At macro level, countries where local social networks are the most significant are also countries where PF is the highest. Following David et al (2010), we use the European Value Survey (EVS), World Value Survey (WVS) and European Community Household Panel (ECHP) to quantify the scale of social networks. We measure family ties from the EVS and WVS and friendship ties and neighborhood ties from ECHP. Appendix 1.6.1 gives more details on these different measures. PF is measured by the index of Djankov et al (2003). In Figure 1.1, we observe a North-South divide: in Southern Europe (Spain, Portugal, Greece and Italy) there is a higher frequency of contacts with friends and neighbors as well as higher levels of PF. The opposite prevails in Northern Europe. In Figure 1.2, we find the same North-South divide with family ties and PF.

²The set of non-local agents is relatively large. It encompasses foreigners who may extensively rely on their social network though such networks are deprived of landlords. It also corresponds to co-citizens coming from a different region. It may even recover people from the region who are inherently unable to connect with the others.

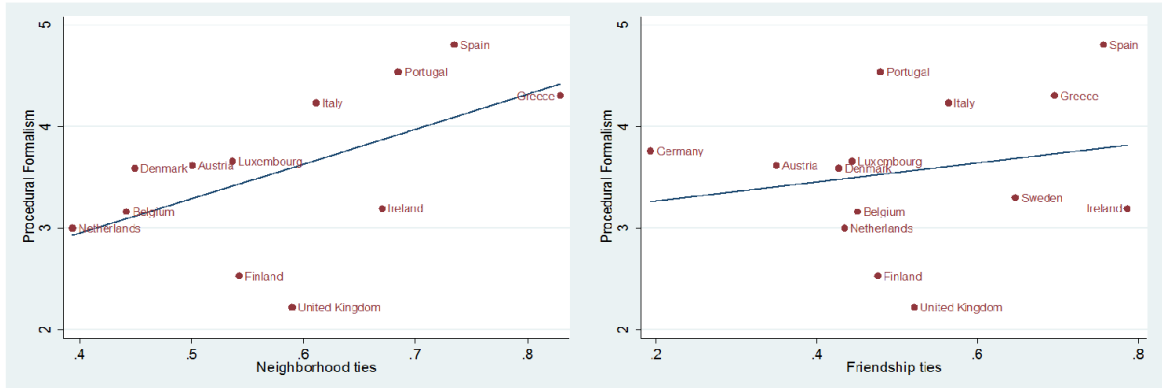


Figure 1.1: Social ties and Procedural Formalism. The figure displays the correlation between two measures of social capital and PF. Data source: ECHP for friendship and neighborhood ties. The PF index is from Djankov et al (2003). The sample period is 1994-2001. See Appendix 1.6.1 for more details.

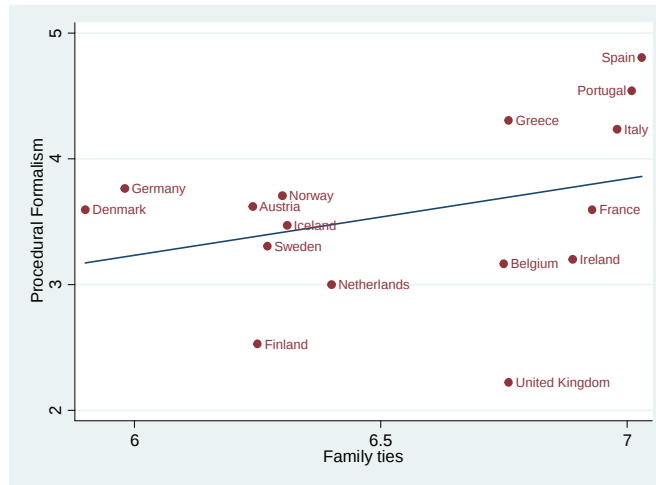


Figure 1.2: Family ties and Procedural Formalism. The figure displays the correlation between a measure of family ties and PF. Data source: EVS and WVS for family ties. The PF index is from Djankov et al (2003). The sample period is 1981-2004. See Appendix 1.6.1 for more details.

At micro level, there is evidence that non-local agents are discriminated against on the rental market in Southern Europe. With a field experiment carried out on the Internet in Spain, Bosch et al. (2010) show that applicants with a Moroccan sounding name are 15 percentage points less likely to be contacted by the property owner than those with a Spanish name. Similarly, Baldini and Federici (2011) show ethnic discrimination in the Italian rental market. Bouvard et al. (2009) argue that people of African descent are over-represented in social housing because they encounter greater difficulties renting in the private rental market. We interpret such results as evidence that landlords prefer to rent their dwelling

to local applicants when the regulation on the rental market is strong.

A high level of PF drives landlords to demand strong guarantees when they do not know the tenant. Wasmer (2005) notes that a landlord in Quebec, where PF is lower than in France, is much less demanding guarantee-wise than a landlord in France. In Quebec, landlords do not demand more than a month of rent in advance, whereas in France landlords require guarantor and a security deposit. An investigation of UFC-Que Choisir, a leading French association defending the interests of consumers, shows that many landlords require documents that the law formally forbids them from demanding. Moreover, 62% of the agencies require at least one prohibited document when they set a rent. The absence of guarantor is also a problem in 28% of cases. It is no surprise that 26.3% of the renters in the French Housing Survey declare that they found their dwelling through their social network.

We proceed in three steps. Section 1.2 develops a model where PF drives landlords to favor local applicants. The framework is a static matching model with an urn-ball matching function.³ Each potential tenant sends one application for one vacant dwelling. A particular landlord may receive several applications and chooses the most profitable one. Therefore, each applicant is ranked according to match surplus. Such surplus decreases with the default probability and the cost of dispute resolution. Potential tenants with a high default probability have a low probability of obtaining the lease. When PF increases, local applicants who belong to the social network of the landlord become more attractive compared with applicants outside the network. It follows that PF increases the probability of obtaining the lease for connected applicants, whereas it decreases the probability for anonymous ones.

In Section 1.3, we study the social demand for PF. Local applicants are confronted with a trade-off. On the one hand, PF increases on average their probability to obtain a lease. On the other hand, PF involves paying higher rents when they are matched outside their social network. The preference for PF increases with the size of social networks. We also show that the political support for PF increases with the proportion of non-local agents, those who necessarily pay the cost associated with it.

In Section 1.4, we calibrate the model on the French 2006 Housing Survey. We there assume that local agents vote under the veil of ignorance, i.e., without knowing their default probability. This is equivalent to probabilistic voting. This vote induces a redistribution between local agents of different default probabilities. The optimal level of PF is profitable to the weakest local applicants at the expense of the best agents. At aggregate level, the support for PF increases with the proportion of non-local agents and the dwelling-to-applicant ratio. The level of PF increases with the skill differential between non-local agents and local agents when the network size is large and decreases with it when the network size is small.

This paper adds to the growing literature on the positive analysis of Housing market regulation (HMR). As explained by Botero et al (2004), the regulation has three explanations: rent-seeking, legal

³Since Wheaton (1990) in the property market and Desgranges and Wasmer (2000) in the rental market, several papers (Mc Breen et al. (2011), Ménard (2009), Wasmer (2005) and Albrecht et al. (2007, 2015) point out similarities between the rental market and the labor market and the relevance of analyzing the rental market with a search-theoretic model. To quote Wasmer (2005) : "Housing and labor markets exhibit many similarities. First, information is imperfect. Tenant quality, like worker quality, is unobserved. Second, separation is costly and time consuming. The laws and regulation typically complicate or slow down the termination process of the contractual relationship and make it more costly for firms and landlords to fire an employee/evict a tenant. And finally, there are rigidities in nominal wages and rents."

origins of the judicial system and market failure.

According to the legal origin argument, regulation of the rental market depends on the fundamental characteristics of the judicial system (Djankov et al, 2003). Common-law judicial systems reduce the need for regulation as they are characterized by the importance of decision-making by juries, independent judges, and the emphasis on judicial discretion as opposed to code in civil law countries. However, these differences explain only about 40% of regulation variation between these countries. Our paper takes a complementary approach based upon the complementarity between the strength of social network and HMR.

The market failure argument analyses HMR as a way of improving welfare in the context of market imperfection. Alesina et al (2015) argue that EPL is a way to reduce firms' monopsony power in the context of low mobility induced by family ties. People with strong family ties like to live near their family and moving away from home is costly. Thus, individuals with strong family ties rationally choose regulated labor markets to avoid moving and limiting the monopsony power of firms. Their argument can be transposed to the rental market. HMR could be seen as a way to reduce the monopsony power of the landlords in a context of depressed rental offers. We adopt a similar view: people with strong family ties/social network rationally demand high levels of regulation. However, we present a different approach where PF enables local people to overcrowd the non-local agents in rental queues.

The rent seeking argument analyses HMR as a way to maximize the welfare of insiders who benefit from more secure leases. When the regulation is strong, landlords have greater difficulties in evicting tenants who fail to pay the rent. This protects insiders at the expense of outsiders. Desgranges and Wasmer (2000) and Wasmer (2005) show that the legislation on the rental market can generate discrimination and some problems between people outside the housing market (outsiders) and people who already rent (insiders). Our paper identifies a different class of insiders: would-be tenants who benefit from a dense social network.

Finally, our paper contributes in presenting another aspect of social networks in search-theoretic models. In our paper, applicants with dense social networks get ahead of other applicants in the rental queue. In the search literature (Calvo-Armengol and Zenou, 2005, Calvo-Armengol and Jackson, 2007, Galenianos, 2013, Mayer, 2011), social networks open a new ticket window or queue. Indeed, in these papers focusing on the labor market, workers have two channels to find a job: a traditional channel (newspapers, work center) and an informal one based on social networks. The firm hires the first worker who shows up, and favoritism is absent from the picture. In place of this, in our paper, there is a single queue for each rental, and belonging to the landlord's social network improves one's ranking in the queue.

1.2 The model

We introduce a search-theoretic model that defines the probability of obtaining a lease for non-local and local applicants according to the level of PF and the size of social network. We choose an urn-ball model because it provides an easy means to ensure that the landlords compare potential tenants. We consider a static economy peopled by M landlords, L local applicants and F non-local ones. We note $F = Tx$ and $L = T(1 - x)$ where T is the number of potential tenants and $x \in [0, 1/2]$. Among the M landlords, V

have a rental. Applicants differ in default probability δ , which is distributed according to the cumulative distribution function H and associated point density function h on the support $[0, \bar{\delta}]$. A defaulting agent does not pay the rent.

Local agents are embedded in local social networks whereas non-local agents are not. Each local agent knows N landlords. The only interest of the social network is that conflict resolution does not depend on law. A landlord evicting a defaulting tenant pays D^n if the pair belongs to the same social network and D^m if not. Significantly, PF only affects D^m .

The probability that a given landlord has an available rental is V/M . As a local agent knows N landlords, the probability that he knows a landlord who has a rental is

$$n = 1 - \left(1 - \frac{V}{M}\right)^N. \quad (1.1)$$

The probability n increases with V and N . Hereafter, we refer to n as the *network size*. With probability n the local agent learns that a landlord in his social network rents a dwellings and applies as a *connected* agent. With complementary probability $1 - n$, this is not the case and the agent applies as an *anonymous* agent. Non-local agents have no social network and always apply as anonymous agents⁴.

The timing is as follows:

1. All potential applicants send an application for one vacant dwelling.
2. Landlords, when facing several applicants, choose the most lucrative one.
3. The rent is the result of a bargaining process between the landlord and the tenant.

The model is solved by backward induction. In stages 2 and 3, we assume that landlords observe the default probability. This probability is typically related to the labor contract, the sector of occupation, and the wage. As already seen in the Introduction, landlords do not hesitate to require such information.

Stage 3: Bargaining step.

A tenant of type $i = n$ is connected, while a tenant of type $i = m$ is anonymous. The rent is R and the opportunity cost of rental is C . A landlord accepting a type- i tenant obtains the expected payoff:

$$\max\{R(1 - \delta) - \delta D^i + \delta C, C\}, \quad (1.2)$$

whereas the tenant's expected gain is:

$$(\alpha - R)(1 - \delta). \quad (1.3)$$

With probability $1 - \delta$, the tenant pays the rent R and enjoys housing consumption α . With probability δ , he defaults on the rent and is evicted. Housing consumption is then normalized to zero. Therefore, a match between a type- i tenant and a landlord generates the following match surplus

$$S^i = (1 - \delta)(\alpha - C) - \delta D^i. \quad (1.4)$$

⁴Here again, non-local agents like immigrants may rely on their social network. But such networks are deprived of landlords. From the perspective of this paper, this is equivalent to having no network.

Both S^n and S^m negatively depend on the default probability δ and on the default cost D^i , i.e.

$$\frac{dS^i}{d\delta} = -(\alpha - C + D^i) < 0, \quad (1.5)$$

$$\frac{dS^i}{dD^i} = -\delta < 0. \quad (1.6)$$

Therefore the economic surplus generated by an anonymous match decreases with PF, whereas the surplus created by a connected match does not. The rent results from Nash bargaining between the landlord and the tenant:

$$\max_R ((\alpha - R)(1 - \delta))^\beta (R(1 - \delta) - \delta D^i + \delta C - C)^{1-\beta}, \quad (1.7)$$

where $\beta \in (0, 1)$ is the bargaining power of tenants. Hence, a landlord and a type- i tenant negotiate the following rent:

$$R^i = \frac{\beta \delta D^i + \beta C(1 - \delta) + (1 - \beta)(1 - \delta)\alpha}{(1 - \delta)}. \quad (1.8)$$

The expected landlord's income is

$$\begin{aligned} Y^i &= C + (1 - \beta)S^i \\ &= C + (1 - \beta)[(1 - \delta)(\alpha - C) - \delta D^i]. \end{aligned} \quad (1.9)$$

The expected income Y^i depends on the match surplus S^i . Hence, Y^i is negatively affected by the default rate δ and by the cost of dispute resolution D^i . At given default probability δ , a landlord prefers a connected match to an anonymous match if and only if $D^n < D^m$. Moreover, if the expected income is lower than the rental opportunity cost C , landlords prefer not to rent. Therefore, we deduce two threshold values of the default probability above which landlords prefer not to rent:

$$\delta^i = \frac{\alpha - C}{\alpha - C + D^i}, \quad i = n, m. \quad (1.10)$$

Then, PF can exclude some tenants from the market, thereby reducing the rental market size. To simplify our analysis, we assume that all agents have a default probability δ below the two threshold values δ^n and δ^m .

Stage 2: Selection

We now compute the probability of getting a lease for a given agent. From the landlords' perspective, each potential tenant is associated to a particular expected gain y that depends on agent's type $i = n, m$ and default probability δ . Namely,

$$y = \begin{cases} y_n(\delta) = C + (1 - \beta)[(1 - \delta)(\alpha - C) - \delta D^n] & \text{if connected} \\ y_m(\delta) = C + (1 - \beta)[(1 - \delta)(\alpha - C) - \delta D^m] & \text{if anonymous} \end{cases}. \quad (1.11)$$

The default probability randomly differs across the population: y is a random variable and its distribution reflects the distribution of δ . To compute its distribution, consider a potential tenant of type i and default probability δ . Landlord's expected income associated to this individual is $y_i(\delta)$. The probability that the landlord receives an application yielding a smaller expected income is

$$\Pr[y \leq y_i(\delta)] = n(1 - x)\Pr[y \leq y_i(\delta) \mid y \text{ connected}] + [1 - n(1 - x)]\Pr[y \leq y_i(\delta) \mid y \text{ anonymous}], \quad (1.12)$$

where $n(1-x)$ is the proportion of connected agents. With probability $n(1-x)$, the agent is compared to a connected one. With the complementary probability, the agent is compared with an anonymous one.

It follows that

$$\Pr[y \leq y_n(\delta)] = n(1-x)(1-H(\delta)) + [1-n(1-x)] \left[1 - H\left(\frac{\delta(\alpha-C+D^n)}{\alpha-C+D^m}\right) \right], \quad (1.13)$$

$$\Pr[y \leq y_m(\delta)] = n(1-x) \left(1 - H\left(\frac{\delta(\alpha-C+D^m)}{\alpha-C+D^n}\right) \right) + (1-n(1-x))(1-H(\delta)). \quad (1.14)$$

Our agent obtains the lease when s/he is associated to the highest expected income for the landlord. Hence,

$$P_i(\delta) = \sum_{t=0}^{T-1} p(t) \Pr[y \leq y_i(\delta)]^t, \quad (1.15)$$

where $p(t)$ is the probability that the landlord is matched with t other potential tenants.

The probability of sending an application to a particular landlord is $1/V$. Therefore, the probability P_i can be written as follows:

$$P_i = \sum_{t=0}^{T-1} \frac{(T-1)!}{t!(T-1-t)!} \left(\frac{1}{V}\right)^t \left(1 - \frac{1}{V}\right)^{T-1-t} \Pr[y \leq y_i(\delta)]^t. \quad (1.16)$$

When V and T tend to infinity, we finally have

$$P_i = \exp\left[-\frac{T}{V} (1 - \Pr[y \leq y_i(\delta)])\right]. \quad (1.17)$$

Both probabilities are negatively affected by the default probability. Indeed,

$$\frac{dP_n}{d\delta} = -\left(n\frac{T(1-x)}{V}h(\delta) + \frac{\alpha-C+D^n}{\alpha-C+D^m}h\left(\frac{\delta(\alpha-C+D^n)}{\alpha-C+D^m}\right)(1-n(1-x))\frac{T}{V}\right)P_n \leq 0, \quad (1.18)$$

$$\frac{dP_m}{d\delta} = -\left(n\frac{T(1-x)}{V}\frac{\alpha-C+D^m}{\alpha-C+D^n}h\left(\frac{\delta(\alpha-C+D^m)}{\alpha-C+D^n}\right) + \frac{T}{V}(1-n(1-x))h(\delta)\right)P_m \leq 0. \quad (1.19)$$

PF changes the ranking of applicants. Indeed, PF has opposite effects on P_n and P_m :

$$\frac{dP_m}{dD^m} = -n\frac{T(1-x)}{V}\frac{\delta}{\alpha-C+D^n}h\left(\frac{\delta(\alpha-C+D^m)}{\alpha-C+D^n}\right)P_m \leq 0, \quad (1.20)$$

$$\frac{dP_n}{dD^m} = \frac{T}{V}(1-n(1-x))\frac{\delta(\alpha-C+D^n)}{(\alpha-C+D^m)^2}h\left(\frac{\delta(\alpha-C+D^n)}{\alpha-C+D^m}\right)P_n \geq 0. \quad (1.21)$$

The impact of PF on the probability P_m is negative for almost all δ and network sizes n . The impact is null only for agents with $\delta = 0$ (they never default), or $\delta = \bar{\delta}$ (all the other agents are preferred to them), or when there is no network $n = 0$. The impact of PF on the probability P_n is strictly positive for all δ and for all network size n differing from 0. Thus, PF increases the chances of getting the lease for connected applicants.

To summarize, PF allows connected applicants to be better ranked in rental queues than anonymous applicants at given default probability. PF affects non-local agents and local agents very differently as a result.

1.3 Impact of procedural formalism

This section studies the expected payoffs of applicants as functions of PF and the size of social network.

A non-local applicant has no social network. Hence, the non-local agents' expected utility is the product of the probability P_m and the match surplus S^m weighted by the bargaining power β :

$$U_f = \beta S^m P_m = \beta [(1 - \delta)(\alpha - C) - \delta D^m] P_m. \quad (1.22)$$

The non local agents' expected utility decreases with the default probability δ . Indeed, as seen before, both the probability P_m and the match surplus S^m decrease with δ .

The previous section establishes that S^m and P_m are negatively affected by the regulation when δ belongs to $(0, \bar{\delta})$ and $n \neq 0$. Otherwise, the impact of the regulation on the expected utility is null. Therefore, the impact of PF on the non-local agents' expected utility is negative or null:

$$\frac{dU_f}{dD^m} = \frac{dS^m}{dD^m} P_m + \frac{dP_m}{dD^m} \beta S^m \leq 0. \quad (1.23)$$

PF has two negative impacts. Firstly, it is more difficult for non-local agents to be selected because they become more costly to evict than connected agents. Secondly, PF decreases the match surplus. The bargained rent is higher to balance the landlords' losses when a tenant fails to pay the rent. The magnitude of such effects increases with the default probability. Non-local applicants with a default probability equal to zero are not affected by the regulation.

A local applicant's expected utility is a little more sophisticated because local applicants are embedded in social networks. With probability $1 - n$, a local applicant is anonymous and has the same expected utility as a non-local applicant. However, with probability n , he is connected and his expected utility is:

$$\begin{aligned} U_l &= (1 - n) P_m \beta [(1 - \delta)(\alpha - C) - \delta D^m] + n P_n \beta [(1 - \delta)(\alpha - C) - \delta D^n] \\ &= (1 - n) \beta S^m P_m + n \beta P_n S^n. \end{aligned} \quad (1.24)$$

PF has an ambiguous impact on U_l :

$$\frac{dU_l}{dD^m} = (1 - n) \beta \left(\frac{dS^m}{dD^m} P_m + \frac{dP_m}{dD^m} S^m \right) + n \beta S^n \frac{dP_n}{dD^m}. \quad (1.25)$$

When the tenant is anonymous, PF has a negative impact on his expected utility. Indeed, the regulation decreases both the match surplus S^m and the probability of obtaining a lease P_m . When the tenant is connected, PF increases his expected utility. Indeed, PF does not impact the match surplus S^n and increases the probability of obtaining a lease P_n .

An increase in PF raises the expected utility of a local applicant when

$$\left| n \beta S^n \frac{dP_n}{dD^m} \right| > \left| (1 - n) \beta \left(\frac{dS^m}{dD^m} P_m + \frac{dP_m}{dD^m} S^m \right) \right|. \quad (1.26)$$

We can deduce the following result.

Proposition 1.1 *PF increases the average probability of getting a lease for local applicants.*

Proof. We know that potential tenants have a default probability between zero and $\bar{\delta}$. Therefore, we can define the average probability of obtaining a lease for non-local and local applicants as follows:

$$\bar{P}_f = \int_0^{\bar{\delta}} P_m h(\delta) d\delta, \quad (1.27)$$

$$\bar{P}_l = n \int_0^{\bar{\delta}} P_n h(\delta) d\delta + (1-n) \int_0^{\bar{\delta}} P_m h(\delta) d\delta. \quad (1.28)$$

Moreover, we know that

$$(1-x)\bar{P}_l + x\bar{P}_f = \text{constant}, \quad (1.29)$$

because the number of applications is fixed. Furthermore, we know that $dP_m/dD^m \leq 0$. We can deduce from equation (1.27) that $d\bar{P}_f/dD^m \leq 0$. Finally, from this latter statement and equation (1.29) we can deduce that $d\bar{P}_l/dD^m \geq 0$. ■

Thus agents are confronted by a trade-off between the probability of obtaining a lease and the rent. On the one hand, PF decreases the match surplus when the tenant is anonymously matched ($dS^m/dD^m < 0$). On the other hand, Proposition 1.1 tells that, on average, PF increases the probability of obtaining a lease.

The average local applicant's expected utility $\bar{U}_l$ is defined by

$$\bar{U}_l = \int_0^{\bar{\delta}} U_l h(\delta) d\delta. \quad (1.30)$$

We can deduce the following result.

Proposition 1.2 *There exist n_1 and n_2 , $n_1 \leq n_2$, such that*

- i) if $n \leq n_1$, then $d\bar{U}_l/dD^m < 0$ for all $D^m \geq 0$;*
- ii) if $n \geq n_2$, then $d\bar{U}_l/dD^m > 0$ for all $D^m \geq 0$.*

Proof. i) As $d\bar{U}_l/dD^m$ is continuous in n and $\lim_{n \rightarrow 0} d\bar{U}_l/dD^m < 0$ for all $D^m \geq 0$, there exists n_1 such that for $n < n_1$ we have

$$\left| (1-n)\beta \int_0^{\bar{\delta}} \left(-\delta P_m + \frac{dP_m}{dD^m} S^m \right) h(\delta) d\delta \right| > \left| n\beta \int_0^{\bar{\delta}} S^n \frac{dP_n}{dD^m} h(\delta) d\delta \right|. \quad (1.31)$$

ii) As $d\bar{U}_l/dD^m$ is continuous in n and $\lim_{n \rightarrow 1} d\bar{U}_l/dD^m > 0$ for all $D^m \geq 0$, there exists n_2 such that for $n > n_2$ we have

$$\left| (1-n)\beta \int_0^{\bar{\delta}} \left(-\delta P_m + \frac{dP_m}{dD^m} S^m \right) h(\delta) d\delta \right| < \left| n\beta \int_0^{\bar{\delta}} S^n \frac{dP_n}{dD^m} h(\delta) d\delta \right|. \quad (1.32)$$

■

When the size of social networks is small, local agents do not want to regulate the rental market (part i). Indeed, PF has little impact on the probability of obtaining a lease, but strongly decreases the match

surplus. Conversely, if the size of social network is large, local agents want to regulate the market (part ii). Asking for high level of PF enables the local applicants to considerably increase their probability of getting a lease with little impact on match surplus.

Proposition 1.2 does not tell what happens when n belongs to the interval (n_1, n_2) . Indeed, the social network has two different effects on $d\bar{U}_l/dD^m$ of which the total effect is ambiguous and depends on the properties of the distribution of y . To show this, consider the following cross derivative:

$$\begin{aligned} \frac{d^2 \bar{U}_l}{dD^m dn} = & \overbrace{-\beta \int_0^{\bar{\delta}} \left(-\delta P_m + \frac{dP_m}{dD^m} S^m \right) h(\delta) d\delta + \beta \int_0^{\bar{\delta}} S^n \frac{dP_n}{dD^m} h(\delta) d\delta}^{A>0} \\ & + \underbrace{(1-n) \beta \int_0^{\bar{\delta}} \left(-\delta \frac{dP_m}{dn} + \frac{d^2 P_m}{dD^m dn} S^m \right) h(\delta) d\delta + n\beta \int_0^{\bar{\delta}} S^n \frac{d^2 P_n}{dD^m dn} h(\delta) d\delta}_B. \end{aligned} \quad (1.33)$$

This cross derivative is the sum of two effects. Effect A is the direct marginal impact of the network size n on the marginal return to PF $d\bar{U}_l/dD^m$. Increasing n raises the probability of being considered a connected applicant and, accordingly, reduces the probability of being considered as an anonymous applicant. The resulting impact is positive. Effect B is the indirect marginal impact of n on $d\bar{U}_l/dD^m$. It is due to the induced change in the marginal gains $S^n dP_n/dD^m$ and $S^m dP_m/dD^m$ derived from PF. Effect B is ambiguous because the rise of n may have opposite effects on dP_n/dD^m and dP_m/dD^m . Namely,

$$\begin{aligned} \frac{d^2 P_n}{dD^m dn} = & \frac{T}{V} \frac{\delta (\alpha - C + D^n)}{(\alpha - C + D^m)^2} h \left(\frac{\delta (\alpha - C + D^n)}{\alpha - C + D^m} \right) P_n \\ & \times \left(-(1-x) + (1-n(1-x)) \frac{L}{V} \left(H \left(\frac{\delta (\alpha - C + D^n)}{\alpha - C + D^m} \right) - H(\delta) \right) \right) \leq 0, \end{aligned} \quad (1.34)$$

whereas

$$\begin{aligned} \frac{d^2 P_m}{dD^m dn} = & \frac{T(1-x)}{V} \frac{\delta}{\alpha - c + D^n} h \left(\frac{\delta (\alpha - C + D^m)}{\alpha - C + D^n} \right) P_m \\ & \times \left(-1 - n \frac{L}{V} \left(H(\delta) - H \left(\frac{\delta (\alpha - C + D^m)}{\alpha - C + D^n} \right) \right) \right) \end{aligned} \quad (1.35)$$

cannot be signed.

To highlight the different mechanisms seen above, the following section calibrates our model on French data. The objective is to determine the level of PF that maximizes the local agents' well-being.

1.4 Which level of regulation?

The present concern is the positive analysis of PF. It always has a negative impact on non-local agents. However, non-local agents are less numerous than local agents and, in any case, do not vote. Therefore, we focus on local agents. The objective is to determine how the social network size n and the distribution

function $\Pr[\mathbf{y} \leq \mathbf{y}_i(\delta)]$ shape the preferred level of PF. We assume that local agents vote under the veil of ignorance, i.e. without knowing their default probability. The default probability is then revealed when the landlord and the potential tenant meet on the rental market. This assumption is equivalent to probabilistic voting when the weight attributed to foreigners is zero and the weight for the different local agents is equal to their demographic size. Moreover, the vote under the veil of ignorance catches the cohesion among local agents.

We calibrate the model on the French 2006 Housing Survey. We then find D^m maximizing the average expected utility of local applicants $\bar{U}_l$, as given by equation (1.30).

1.4.1 Parameterization

We normalize housing consumption α to 1 without loss of generality. To set C , we suppose that if the market were without friction, C would be close to α . Thus we simulate the model with three values of $C = 0.25, 0.5$ and 0.75 . We present in the main text the results with C equal to 0.5 whereas the results with C equal to 0.25 and 0.75 lie in Appendix 1.6.3. The choice of β does not matter (see equation 1.26). Thus, we set $\beta = 0.5$. The random variable δ is uniformly distributed. We leave n free between 0 and 1, in order to see the impact of the social network on the demand for PF.

From the Housing Survey we find there are in France 31,300,000 dwellings, 9,140,000 local tenants L and 1,435,000 non-local tenants F . We set $M = 31,300,000$. The local tenants are tenants of French nationality and the non-local agents are all the others. In line with the model, we assume that non-local agents do not know any landlord.

We also find that there are 2,000,000 vacant dwellings. The number of rentals V in our model solves:

$$V \exp \left[-\frac{10,575,000}{V} \right] = 2,000,000. \quad (1.36)$$

The probability that a landlord receives an application is $1/V$. However, as there are T potential tenants, the probability of a landlord not receiving any application is $(1 - 1/V)^T$. When T and V are sufficiently large, this probability is $\exp(-T/V)$. Then, given that there are 2,000,000 vacant dwellings and 10,575,000 tenants in the French rental market, we can deduce from (1.36) that $V = 7,783,000$. To study the impact of market tightness on the demand for PF, we also set V to 10,575,000 so that $V = L$ and to 12,575,000 to cover a case where $V > L$.

From Djankov et al (2003), we have information to estimate the cost of conflict resolution. Appendix 1.6.2 shows a positive correlation between their PF index and the number of days required to evict a tenant who does not pay the rent. Therefore, we can estimate the cost of conflict resolution as the product of the opportunity cost of housing C by the number of months necessary to evict a tenant who does not pay the rent, nb_{months} . Thus $D^m = C \times nb_{months}$, where $nb_{months} \leq 32$, as the maximum number of months observed in Europe is 32. By principle, D^n does not depend on the law. Arbitrarily, we set a low cost D^n in the countries where the social network is large because people have strong family/friendship ties. Hence, D^n is the product of the opportunity cost C by nb_{min} , the minimum number of months necessary for tenant eviction⁵. Thus $D^n = C \times nb_{min}$. Appendix 1.6.5 shows calibrations with different values of D^n .

⁵See Table 1.2 in Appendix 1.6.2.

Finally, given the possible values of parameters α , C and D^m , δ belongs to $[0, 0.01]$. Indeed according to the threshold value δ^m (see equation (1.10)), $\delta \leq \frac{1-0.75}{1-0.75+0.75 \times 32} \simeq 0.01$.

L	F	V	α	C	β	n	D^m	D^n	δ
9140	1435	7783	1	0.5	0.5	$[0, 1]$	$[0, 16.5]$	1	$[0, 0.01]$

Table 1.1: Parameter values in the baseline calibration

1.4.2 Baseline results

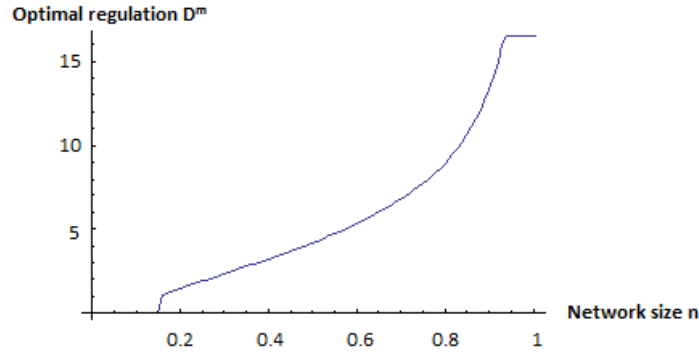


Figure 1.3: Network size and the social demand for PF.

The curve depicts the arg max of equation (1.30) for each value of n . Parameter values are given by Table 1.1.

Figure 1.3 shows the baseline results. The preferred level of PF increases with the size of social networks. Local people use PF to increase their probability of obtaining a lease. When the social network is small (less than 0.16) local agents set PF to 0. When $n > 0.16$, local agents set a level of regulation larger than $D^n = 1$ and the social preference for PF grows with n . When n is sufficiently large, local agents choose the maximum level of PF.

In this reasoning, all people stay in the market. Appendix 1.6.4 examines the complementary case where PF becomes so large that the least stable agents are forced to exit the rental market.

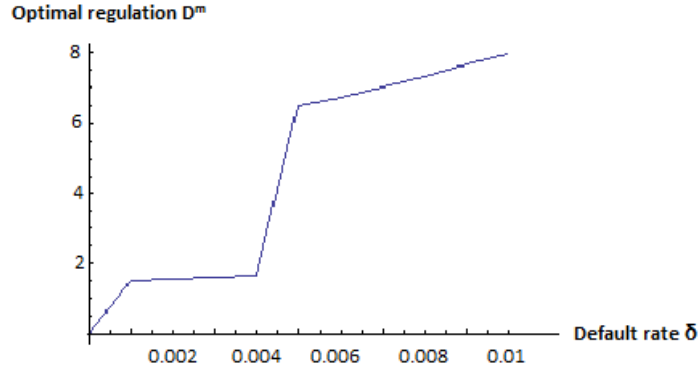


Figure 1.4: Individual default probability and the demand for PF. The curve depicts the arg max of equation (1.24). Parameter values are given by Table 1.1 when $n = 0.16$.

The vote under the veil of ignorance redistributes welfare between local agents of different default probabilities. To visualize such redistribution we compute the individual utility U_i for different values of δ . Figure 1.4 depicts the results. The desired level of D^m increases with the default probability. Of course, local agents with $\delta = 0$ are not concerned by the regulation. They are sure to obtain a lease anyway. All the other local agents can benefit from PF at the expense of non-local agents. However, the cost of regulation decreases across δ , and this why high default local agents have a stronger preference for regulation.

1.4.3 Non-local agents

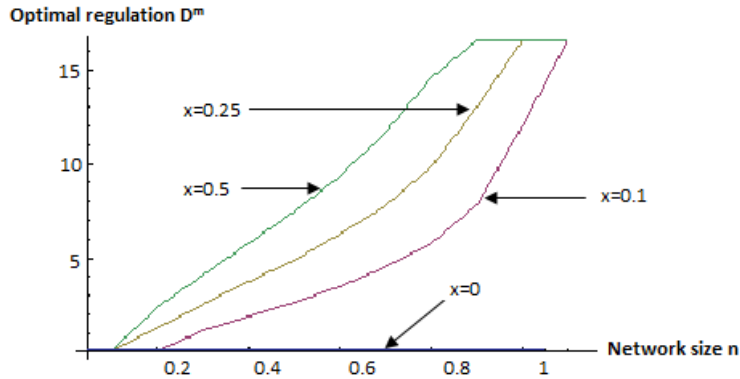


Figure 1.5: Proportion of non-local agents and the demand for PF. The curves depict the arg max of equation (1.30). Parameter values are given by Table 1.1 with $F = Tx$, $L = T(1 - x)$ and $T = 10575$.

Figure 1.5 depicts the positive impact of the proportion of non-local agents on the social preference

for regulation. Without non-local agents, local agents set the level of PF to 0 for all network sizes. This is expected: local agents reject an institution that deteriorates the economic surplus when they have to bear the full cost of such deterioration.

So far, non-locals and local agents have the same distribution of δ . This implicitly supposes that non-local and local agents have the same skills. However non-local agents could be on average more or less skilled than local agents. To account for skill differences, we modify our model. We denote by G the distribution of the default probability δ among non-local agents. The support of this distribution is $[\underline{\delta}, \bar{\delta}]$, $0 \leq \underline{\delta} < \bar{\delta} \leq 1$. Manipulating $\underline{\delta}$ and $\bar{\delta}$ allows us to consider simple cases where the non-local agents are more skilled than the local ones ($\bar{\delta} < \bar{\delta}$) or, conversely, less skilled ($\underline{\delta} > 0$).

The probabilities $\Pr[y \leq y_n(\delta)]$ and $\Pr[y \leq y_m(\delta)]$ previously described by equations (1.13) and (1.14) become

$$\Pr[y \leq y_n(\delta)] = (1-x) \left(n(1-H(\delta)) + (1-n) \left(1 - H\left(\frac{\delta(\alpha - C + D^n)}{\alpha - C + D^m}\right) \right) \right) + x \left(1 - G\left(\frac{\delta(\alpha - C + D^n)}{\alpha - C + D^m}\right) \right), \quad (1.37)$$

$$\Pr[y \leq y_m(\delta)] = (1-x) \left(n \left(1 - H\left(\frac{\delta(\alpha - C + D^m)}{\alpha - C + D^n}\right) \right) + (1-n)(1-H(\delta)) \right) + x(1-G(\delta)), \quad (1.38)$$

We simulate two cases that we compare to the baseline results. Firstly, we simulate a case where the non-local agents are on average less skilled than local agents⁶. Then, the support of G is $[0.005, 0.01]$. Secondly, we simulate a case where the non-local agents are on average more skilled than local agents. Then the support of G is $[0, 0.005]$.

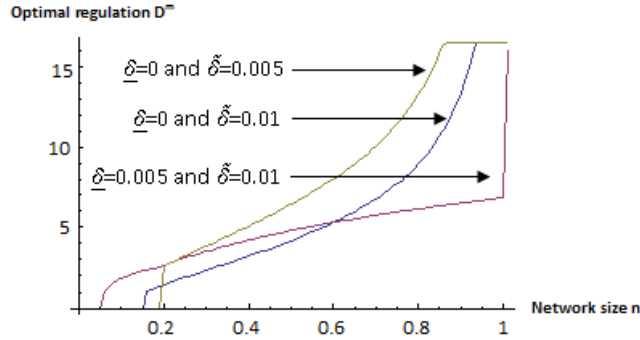


Figure 1.6: Non-local agents' skills and the demand for PF. The curves depict the arg max of equation (1.30), where the functions $G(y^n)$ and $G(y^m)$ are replaced by (1.37) and (1.38). Parameter values are given by Table 1.1.

⁶Non-local agents are composed of very different profiles of individuals. For instance, mobile workers have higher skills (Amior, 2015), whereas immigrants may have lower skills, though the question is subtle (see Dustman et al, 2013, who show that upon arrival immigrants tend to downgrade towards occupations that do not correspond to their skills).

Figure 1.6 shows that the political support for PF increases with the skills of non-local agents when the network size is large, whereas it decreases with them when the network size is small. Intuitively, it is tempting to raise PF when non-local agents are better skilled in order to reduce their market advantage. However, this strategy reveals fruitful provided local social networks are sufficiently developed.

1.4.4 Impact of V

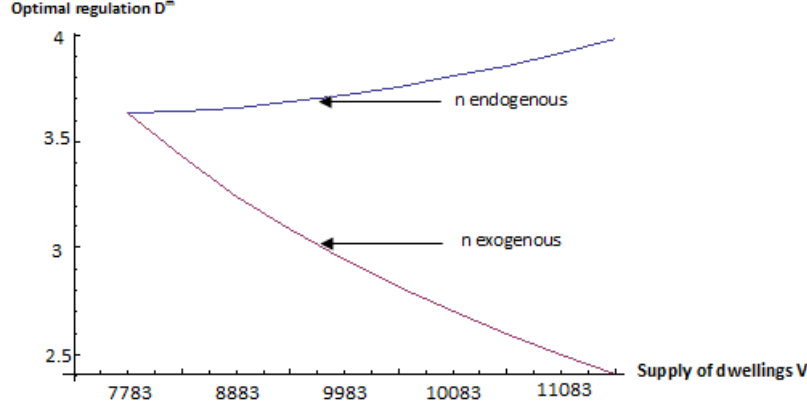


Figure 1.7: Supply for rentals and the demand for PF. The curves depict the arg max of equation (1.30). Parameter values are given by Table 1.1 with $n = 0.43$ when n is exogenous and with $M = 31300$ and $N = 1$ when n is endogenous.

Figure 1.7 depicts the impact of V on the social preference for regulation under two scenarios. In the first scenario, n is exogenous because we neglect the impact of V on the size of the social network. In the second scenario, n is endogenous because we account for such an impact as predicted by equation (1.1). When n is endogenous, the rise in V increases the level of PF desired by local agents, whereas it decreases it when n is exogenous. In this latter case, the rise in V increases market tightness and this reduces competition for rentals. Local agents then set a lower level of PF to increase match surplus. When n is endogenous, the probability that local agents know at least one of the landlords with an available dwelling increases with V , i.e., $dn/dV > 0$. Therefore local agents have a larger probability of being matched within their social network. This raises the return to PF.

To summarize, the model emphasizes that the support for regulation should increase with the size of social networks, the default probability, the proportion of foreigners and the market tightness.

1.5 Conclusion

This paper addresses a central question in public policy: why, in some countries, do we observe political support for regulations that reduce economic surpluses? We focus on procedural formalism in the rental market. Our explanation is based on the complementarity between the strength of social networks and

the stringency of housing market regulation. The interest of the social network is that conflict resolution does not depend on law. When local people belong to dense local social networks whereas non-local agents do not, procedural formalism facilitates housing search for the local applicants at the expense of non-local agents.

Our study is motivated by some stylized facts. There is a positive correlation between a typical measure of procedural formalism in the rental market and local social capital. Moreover, there is evidence that non-local agents are discriminated against on the rental market in Southern Europe where the housing market is heavily regulated. We build a search-theoretic model where procedural formalism enables the connected applicants to be better ranked than the other applicants. We show that local applicants have every interest in the regulation on the rental market being reinforced if their social network is sufficiently developed. Hence, local agents can use the regulation to increase their welfare. In a second step, we show that the optimal level of regulation increases with the social network size, with market tightness and with the proportion of non-local agents on the rental market.

The present paper could be extended in various directions. First of all, in our paper, the supply of dwellings is perfectly inelastic. It would however be interesting to endogenize it. Secondly, we could extend our reasoning to the labor market. Indeed, Decreuse and van Ypersele (2011) show that housing market regulation and employment protection legislation are positively correlated, and Kramarz and Nordström Skans (2011) show that strong social ties are an important determinant of where young workers find their first job. Finally, we would like to extend this model to two countries.

1.6 Appendix

1.6.1 Data

The *friendship ties* and *neighborhood ties* variables are obtained from ECHP as in David et al (2010). The sample period is 1994-2001 except Finland (1996-2001), Sweden (1997-2001), Austria (1995-2001) and Luxembourg (1994). In the ECHP, individuals are asked about i) the frequency of relationships with neighbors, ii) the frequency of contacts with friends and relatives outside the household. We transform answers into a daily frequency to simplify the exposition. Indeed, the answers are as follows: 1. On most days; 2. Once or twice a week; 3. Once or twice a month; 4. Less often than once a month; 5. Never. On this basis, David et al (2010) built the following index measure as used in Figure 1.1:

$$Z_{i,t} = I[X_{i,t} = 1] + I[X_{i,t} = 2] \frac{2}{7} + I[X_{i,t} = 3] \frac{2}{30} + I[X_{i,t} = 4] \frac{1}{60} + I[X_{i,t} = 5] 0 \quad (1.39)$$

where $Z_{i,t}$ is the index value for individual i at time t and $X_{i,t}$ the answer to the question. $I[.]$ is an indicator function that takes value 1 if the expression in brackets is true and 0 if it is not.

The *family ties* variable is obtained from the EVS and WVS survey. The index is computed from five questions:

i) *Teach independence*: the question informs about the cultural importance of the family: "Would you consider important to teach your children to leave your home?". The answer to the question is yes, coded 1, or no, coded 0⁷.

ii) *Living with parents*: the question asks whether the individual lives with his/her parents. The answer to the question is yes, coded 1, or no, coded 0.

iii) *Family important*: respondents indicate the importance of the family in their life. The answer can take values from 1 to 4, with 1 being very important and 4 not important at all.

iv) *Parents' responsibility*: the respondents inform if they agree with one of the following two statements (taking the value of 1 and 2 respectively): 1) It is the parents' duty to do their best for their children even at the expense of their own well being, 2) Parents have a life on their own.

v) *Obedience*: the question assesses if obedience is an important quality for children. The answer to the question is yes, coded 1, or no, coded 0.

We recode all questions so that a higher number implies a stronger attachment to the family. The *family ties* index is the sum of these five variables.

⁷Van de Velde (2008) and Reher (1998) explain that when family ties are strong in a country, young people, by their education and their culture, become independent later than young people in countries where family ties are weak.

1.6.2 Housing market regulation

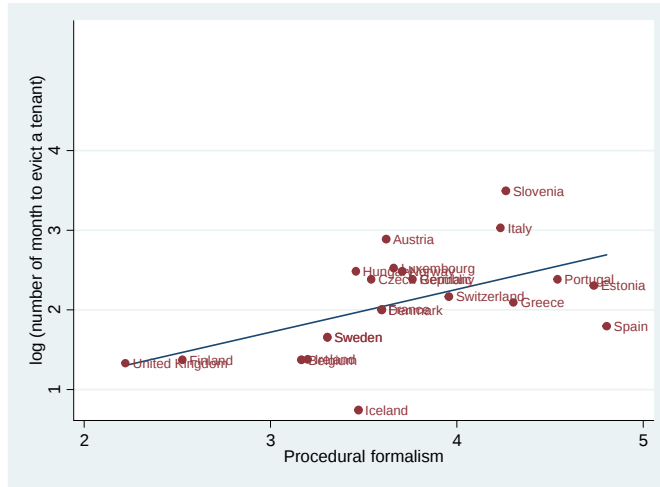


Figure 1.8: Correlation between PF and number of months to evict a tenant. Data source: Djankov et al (2003)

Country	Number of days to evict a tenant	Number of months to evict a tenant
Iceland	64	2.1053
United Kingdom	115	3.7829
Belgium	120	3.9474
Finland	120	3.9474
Ireland	121	3.9803
Sweden	160	5.2632
Spain	183	6.0197
Denmark	225	7.4013
France	226	7.4342
Greece	247	8.1250
Switzerland	266	8.7500
Estonia	305	10.0329
Czech Republic	330	10.8553
Portugal	330	10.8553
Germany	331	10.8882
Hungary	365	12.0066
Norway	365	12.0066
Luxembourg	380	12.5000
Austria	547	17.9924
Italy	630	20.7232
Slovenia	1003	32.9934

Table 1.2: Number of months to evict a tenant in Europe. Data source: Djankov et al (2003)

1.6.3 Impact of C on the demand for PF

We examine the sensitivity of D^m to changes in C , the opportunity cost of renting. This parameter is not the most exciting one in our analysis, which is why it has been relegated to this Appendix. We have $D^m = C \times nb_{months}$, where $nb_{months} \leq 32$, as the maximum number of months observed in Europe is 32. We also have $D^n = C \times nb_{min}$, where $nb_{min} = 2$. Then, we can compute the maximum value $\bar{D}^m$ that local agents can choose and the maximum value of $\bar{D}^n$. When C is equal to 0.25, this gives $\bar{D}^m = 8$ and $\bar{D}^n = 0.5$; when $C = 0.75$ then $\bar{D}^m = 24$ and $\bar{D}^n = 1.5$. Thus C changes the scale of the demand for PF.

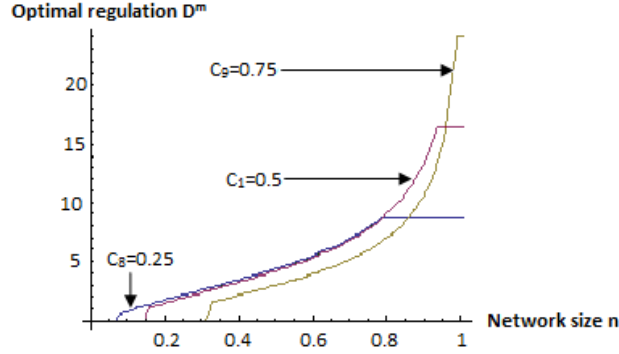


Figure 1.9: Impact of C on the demand for PF. The curves depict the arg max of equation (1.30). Parameter values are given by Table 1.1.

Figure 1.9 shows that the political support for PF tends to decrease with the opportunity cost of renting C . When C is large, the economic surplus associated with a rental is small. Deteriorating it with PF has major implications for rents.

1.6.4 Accounting for market eviction

So far, we have neglected the fact that the regulation can expel some agents from the market. To account for this phenomenon, we modify our model.

Local applicants with default probability $\delta > \delta^n$ and non-local applicants with default probability $\delta > \delta^m$ are excluded of the market. This affects the number of potential tenants according to

$$T = LH \left(\frac{\alpha - C}{\alpha - C + D^n} \right) + FH \left(\frac{\alpha - C}{\alpha - C + D^m} \right). \quad (1.40)$$

It also modifies the proportion of connected agents:

$$n(1 - x) = n \frac{LH \left(\frac{\alpha - C}{\alpha - C + D^n} \right)}{LH \left(\frac{\alpha - C}{\alpha - C + D^n} \right) + FH \left(\frac{\alpha - C}{\alpha - C + D^m} \right)}, \quad (1.41)$$

and, accordingly, the probability $\Pr[y \leq y_i(\delta)]$.

The probabilities P_m and P_n become

$$P_n = e^{-\frac{LH\left(\frac{\alpha-C}{\alpha-C+D^n}\right)+FH\left(\frac{\alpha-C}{\alpha-C+D^m}\right)}{V} \left(1 - \left(\left(1 - n \frac{LH\left(\frac{\alpha-C}{\alpha-C+D^n}\right)}{LH\left(\frac{\alpha-C}{\alpha-C+D^n}\right)+FH\left(\frac{\alpha-C}{\alpha-C+D^m}\right)} \right) \left(1 - H\left(\frac{\delta(\alpha-C+D^n)}{\alpha-C+D^m}\right) \right) \right) \right) \quad (1.42)$$

and

$$P_m = e^{-\frac{LH\left(\frac{\alpha-C}{\alpha-C+D^n}\right)+FH\left(\frac{\alpha-C}{\alpha-C+D^m}\right)}{V} \left(1 - \left(n \frac{LH\left(\frac{\alpha-C}{\alpha-C+D^n}\right)}{LH\left(\frac{\alpha-C}{\alpha-C+D^n}\right)+FH\left(\frac{\alpha-C}{\alpha-C+D^m}\right)} \left(1 - H\left(\frac{\delta(\alpha-C+D^m)}{\alpha-C+D^n}\right) \right) + \left(1 - n \frac{LH\left(\frac{\alpha-C}{\alpha-C+D^n}\right)}{LH\left(\frac{\alpha-C}{\alpha-C+D^n}\right)+FH\left(\frac{\alpha-C}{\alpha-C+D^m}\right)} \right) (1 - H(\delta)) \right) \right) \quad (1.43)$$

Moreover we know that $\delta^n > \delta^m$ if and only if $D^m > D^n$. The mean expected utility of a local agent becomes:

$$\bar{U}_l = \int_0^{\delta^m} ((1-n) \beta S^m P_m + n \beta P_n S^n) h(\delta) d\delta. \quad (1.44)$$

We calibrate this model with the baseline parameter values, where we let D^m be free. We set n to 0.99 to maximize the demand for PF.

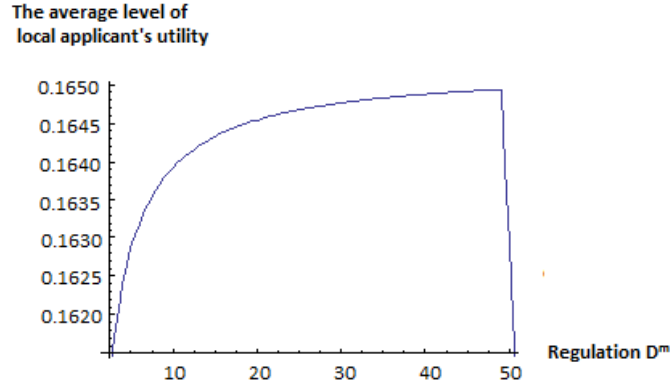


Figure 1.10: PF and the average utility of local agents.

Parameter values are given by Table 1 with $n = 0.99$.

Figure 1.10 shows that the average utility increases with PF up to the point where PF starts evicting the weakest local agents, those with the highest δ . Thus local agents, who are under the veil of ignorance, never vote for a level of PF above this threshold value. Given $\delta^m = \frac{1-0.5}{1-0.5+D^m}$ and $\delta \in [0, 0.01]$, some local agents can be evicted from the rental market when $D^m \geq 51$. Indeed, $\frac{1-0.5}{1-0.5+51} < 0.01$.

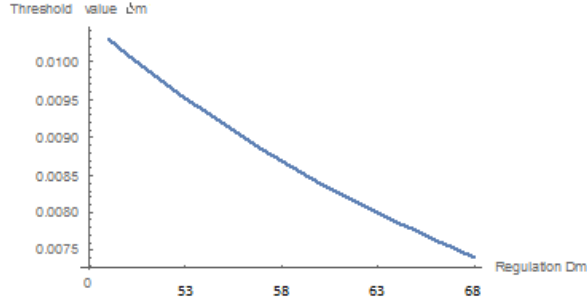


Figure 1.11: Threshold value δ^m and PF. The curves depict different values of equation (1.10) where $\alpha = 1$, $\beta = 0.5$ and $D^m \in [48; 68]$.

1.6.5 Different values of the conflict resolution cost D^n within social networks

We claim that social network is an alternative way to solve disputes between landlords and tenants. However, it is not necessarily a cheap one. To clarify this point, we here simulate the model with different values of D^n .

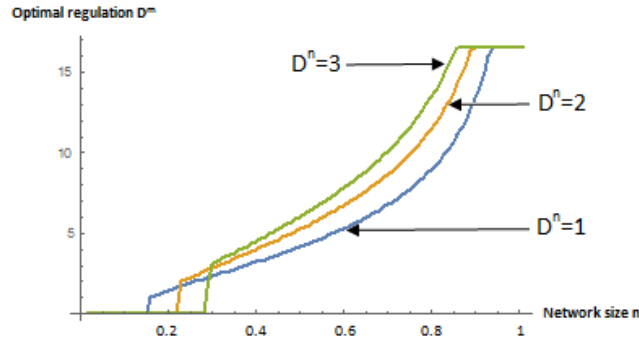


Figure 1.12: Optimal regulation D^m and D^n . The curves depict the arg max of equation (1.30). Parameter values are given by Table 1.1.

Figure 1.12 shows that when the cost of conflict resolution D^n is large, the support for PF starts for higher sizes of social networks than when D^n is low. Moreover, the optimal level of D^m increases with D^n .

Chapter 2

Sun, regulation and local social networks¹

Abstract The aim of this paper is to explain over-regulation and local social capital as barriers to immigration. The interest of social networks is that conflict resolution is independent of the law. Hence, if local individuals develop local social capital and regulation, foreigners without social networks are disadvantaged and can less easily migrate. We develop a two-country search-theoretic model where we endogenize the choice of procedural formalism (PF) and the network size. This model features two different equilibria: a Mediterranean equilibrium with PF and dense local social network and a Scandinavian and Anglo-Saxon equilibrium without PF and local social networks.

¹This work has benefited from comments by Yann Bramoullé, Bruno Decreuse, Tanguy van Ypersele and Etienne Wasmer.

2.1 Introduction

The aim of this paper is to explain over-regulation and local social capital as barriers to immigration. Regions or countries richly endowed in geographic amenities tend to attract foreign people. Though the process may create wealth for all, it also fosters competition for scarce resources. One way to mitigate the problem for local people is to promote market regulation and induced procedural formalism in judicial conflicts, while investing in local social networks. Procedural formalism lengthens trial duration and makes their outcome more uncertain. Those who are well inserted in a local social network trade and exchange within this network. This allows them to avoid going to courts and solve their disputes within the network. Meanwhile foreigners cannot use this possibility and disputes involving them always end in courts. This reduces their competitive position, thereby lowering incentive to migrate and reducing the market pressure on scarce resources.

We illustrate this idea in a particular case, i.e., procedural formalism in the rental market, and in a particular geographical area, i.e., Europe. The rental market offers a good application to our general idea because space is limited and rents constitute a substantial share of household income (typically 30% in France). Though a relatively small continent, Europe is characterized by climate and rental market regulation heterogeneity. Mediterranean countries enjoy more sun and regulate more the rental market. Immigration in such countries should be large because the sunshine capital is attractive (see, e.g., Rodríguez-Pose and Ketterer, 2012 or Michaelides, 2009). Such immigration would increase the demand for dwellings in the rental market tightness, leading to higher prices and lower probability of finding a rental for all. To reduce such potential immigration from countries where climate amenities are low, individuals living in countries with high climate amenities erect barriers to entry involving procedural formalism and social capital.

We proceed in three steps. In Section 2.2, we present empirical evidence motivating our analysis. Firstly, we explain that the sunshine influences the well-being and the migratory behaviors of individuals. The statistical identification of sunshine effects is not obvious because it is difficult to separate such effects from those of the regulation. We start by exposing medical arguments whereby sunshine is good for health. We then study migratory flows for sub-populations less exposed to endogeneity problems. We especially focus on retirees and student who are free from constraints on the rental and labor markets. Secondly, we show that typical measures of sunshine, local social capital and regulation are positively correlated. Lastly, we use micro data from the World Value Survey and the European Community Household Panel and show that social capital and family ties are both more developed in mediterranean countries than in the rest of Europe.

In Section 2.3, we develop a two-country model where procedural formalism drives landlords to favor local applicants who benefit from extended local social networks. We then study the social demand for procedural formalism and social networks due to the migratory pressure generated by the amenity differential between countries. The framework involves coordination frictions. Individuals apply for a dwelling, whereas landlords may receive several applications and choose the best one. When setting procedural formalism, individuals leaving in the southern country are confronted to the following trade-off. On the one hand, procedural formalism and social networks increase their probability of getting a

lease at the expense of foreigners. On the other hand, developing a social network is costly and procedural formalism involves paying higher rents out of social networks. When the increase in probability of getting a lease is sufficiently large compared with the costs of procedural formalism in terms of rents and the cost of social network formation, then the southern country chooses to regulate its rental market and individuals invest in their social network.

In Section 2.4, we calibrate the model and show that the optimal level of social network increases with the climate amenity differential between the northern and the southern countries. Moreover, the comparison between the *laissez-faire* equilibrium and the regulated equilibrium highlights that the number of foreigners decreases with regulation.

Put in the grand perspective of the role of the State and the market in modern societies, our paper predicts that openness to the rest of the world does not necessarily lead to the end of the family and other local arrangements as ways to provide the basic needs to individuals. Instead, openness may well promote market regulation and foster investment in local social networks. In turn, this may explain why emancipation values fail to spread in southern European countries.

This paper belongs to the growing strand of literature on the positive analysis of market regulation. This literature aims at understanding the degree of regulation of various markets in different countries. Decreuse and van Ypersele (2011) argue that the social demand for job protection increases with procedural formalism in the housing market. Alesina et al (2015) demonstrate that individuals with strong family ties rationally choose regulated labor markets to avoid moving and limiting the monopsony power of firms. Closer to this paper, Bonleu (2015) highlights that individuals with strong social networks prefer regulated rental markets. We present a complementary approach where procedural formalism and local social networks form barriers to immigration.

Though focusing on the rental market, the arguments of this paper easily extend to the labor market. On the (disputable) ground that jobs can be considered as a fixed resource, employment protection legislation can repulse employers from hiring foreigners, thereby improving labor market prospects for local workers. The two sets of regulation can also be seen as complementary. Procedural formalism in the rental market reduces worker mobility. Following Alesina et al (2015), this lack of mobility provides employers with market power. Labor regulation is then a way to mitigate such market power. These different mechanisms lead to a Mediterranean equilibrium with high climate amenities, large local social capital, low mobility and strong regulation on the rental and labor markets. A contrario, the northern countries with low climate amenities are not attractive to southern Europeans². Therefore individuals do not promote procedural formalism and do not need to invest in local social networks.

Our paper also renews the analysis of local social ties. There is an established literature stressing the complementarity between investment in local social ties, including friends and family, and lack of geographical mobility (see, e.g., David et al, 2010, and Alesina et al, 2015). Individuals with local social capital are less mobile. Though our model does not say much about worker mobility, we highlight the role played by climate amenities in these reasoning.

²A survey realized by Eurobarometers in 2011 has interrogated European on the different barriers in EU countries preventing Europeans to studying and working in another EU country. Portuguese claim that the difficulty in terms of climate and lifestyle in northern Europe are barriers to live there.

There is body of literature linking climate amenities and economic performance. In a hedonic general-equilibrium framework, Albouy et al (2013) measure the willingness to pay of Canadians and Americans for climate amenities. In this setting, households and firms in areas with less advantageous amenities are compensated by more advantageous local prices. Typically, households in areas with lower quality of life are compensated through higher nominal wages or lower costs of living. In this spirit, we show that the climate amenity differential can be balanced by a regulation differential in the rental market.

Lastly, there is a considerable literature assessing the importance of geography and institutions to explain differences in long-term growth between countries. The institutional theory (Acemoglu et al, 2001) attributes economic growth to the legal and economic institutions already established within a country, whereas the geographic theory (Sachs, 2001) asserts that geography is the dominant factor behind growth. These theories have motivated a body of papers studying the relative role of each set of factors (see, e.g., Rodrik et al, 2004, Veisheh, 2010, Arbia, 2010). Though our purpose is more modest, we highlight a market situation where institutions are strongly determined by the geography and, in turn, affect the performance of the rental market.

2.2 Empirical evidence

This section presents empirical evidence motivating our analysis. We first discuss the sunshine attractiveness. Then we show various correlations between sunshine, social capital, mobility, employment protection legislation and housing market regulation.

2.2.1 Sunshine is an attractive amenity

The aim of this subsection is to prove that sunshine influences the well-being and the migratory behaviors of individuals. However, the sunshine's effect is difficult to isolate from other characteristics like the legislation and the economic environment. Indeed, the analysis may suffer problems of endogeneity and missing variables. For example, in our theory migratory behaviors and rental market regulation are necessarily correlated. We first document medical arguments according to which sunshine is good for health. Secondly, we study heliotropism on two subsamples where problems of endogeneity and missing variables are less significant. We thus study the sunshine effect on migration behaviors within France because the regulation is fixed at national level and there is a strong north / south divide in terms of geographic amenities. We finally study the migration behaviors of students and retirees in northern Europe because these persons are not submitted to constraints specific to the labor and rental markets. Indeed, students can find a room on the university campus and Huete and Mantecon (2012) show that retirees who migrate to southern Europe are mostly owners.

Sunshine is good for health.—Several medical papers show that sunshine is vital for health (see, e.g., Vyssoki et al, 2014, and Saraff and Shaw, 2015). Exposure of the skin to solar ultraviolet B radiation is the major source of vitamin D; in addition sunshine could reduce the suicide probability. A survey carried out by Eurobarometers in 2011 in 15 European countries shows that the weather is a substantial factor for people's well-being. Respondents in seven countries (Denmark, the Czech Republic, France, Portugal,

the Netherlands, the younger group in Estonia and the higher social status group, education, and rural group in the UK) claim that snow, bad weather and the darkness of winter days influence well-being negatively and that the absence of light causes depression in Denmark. Finally, a survey carried out by Uswitch in Great Britain examines claims that the UK and Ireland are the worst places in Europe to live, whereas Spain and France are the best. Here again, one of the determinant factors is the sunshine. With, respectively, an average of 1500 and 1400 hours of sunshine per year the Great Britain and Ireland are countries where the hours of sunshine are the lowest, while with respectively 2600 and 2000 hours of sunshine per year, Spain and France are countries where the hours of sunshine are the larger. As a result, more than one in ten Britons say they are seriously considering emigrating³.

Heliotropism in France.—Baccaïni (2007) uses data from the 1990s and argues that the western and southern France are attractive. The net migration in these regions is positive, whereas it is negative in the northern France and Ile de France. The most attractive region is Languedoc-Roussillon while Ile de France is the most repulsive one. The migration from northern to southern and western France is mainly due to the attractiveness of the climate and the attractiveness of an idyllic rural way of life and does not depend on socioeconomic characteristics. Indeed, in Languedoc-Roussillon, the unemployment is strong and the wage of managers and entrepreneurs are low when compared to Ile de France.

Heliotropism for retirees and student.—A large literature (Casado-Diaz, 2012, 2004 and 2001, Benson and O'Reilly, 2009, Huete and Mantecon, 2012, Bell and Ward, 2000, Rodriguez, 2001, Truly, 2002, Williams et al, 2000) on lifestyle migration shows a preference of northern Europeans to live in southern Europe and enjoy the mild of Mediterranean climate. However, they only come to live permanently in southern Europe when retired, i.e., when they escape the barriers to entry in the rental and labor markets. Furthermore, Spain, France, Italy and Portugal are respectively the first, the second, the fifth and the eight host countries of Erasmus students (Campus France, 2011). Baldoni et al (2003) who study intra-European migration from the 1950s to 1990s, show that the number of northern Europeans in southern Europe has sizably increased. In Spain, from 1993 to 2001, the German presence increased by 190%. The growth of British residents was slightly less spectacular, but still took place at a very high rate. In eight years, Britons have increased by 85%. This phenomenon also exists in France where Britons and Germans have considerably expanded. Britons have increased by 150% and Germans by 140%. Furthermore the authors note that Italy is the country that attracts the largest spectrum of Europeans and that there is a preponderance of Britons living in Greece and Portugal.

To conclude, the behavior of students and retirees reveal strong heliotropism, whereas the behavior of other people is more ambiguous with respect to such climate amenities. These individuals are exposed to the various constraints set on the labor and rental markets, suggesting that the regulation could well be a barrier to migration.

³See the Guardian for see details about this survey: <https://www.theguardian.com/money/2011/sep/29/uk-worst-quality-of-life-europe>

2.2.2 Correlations with sunshine

In this subsection we document a nexus of correlations justifying the mechanisms described in our model, namely there are strong complementarities between sunshine, the size of local social networks and the magnitude of procedural formalism in the rental market. Furthermore, we describe also correlations justifying our explanations in the last section, i.e., local social networks and procedural formalism are associated to lack of mobility and strongly protected jobs⁴.

Microeconomic evidence.—At the micro level, we show that southern Europeans have stronger social networks, are less mobile and support stronger levels of regulation than northern Europeans. As for sunshine, we use the average time of sunshine per year as given by the website climatedata.eu⁵. There are 18 European countries: Austria, France, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Switzerland, the United Kingdom, Germany, Belgium, Denmark, Finland, Norway, Iceland, Sweden and Luxembourg. The sunshine variable is a dummy variable equal to 1 if the individual lives in a country where the hours of sunshine are higher than 2000 hours per year. The sunny countries are France, Greece, Italy, Portugal and Spain.

The mobility variable is obtained from the European Community Household Panel (hereafter ECHP) and takes the value 1 if the individual has moved from another area in the two years before the survey. The job security variable is obtained from the World Values Survey (hereafter WVS) and takes the value 1 if the respondent claims that it is important to have good job security.

We measure the size of social networks from a wide range of indicators. On the one hand, we follow David et al (2010) and use the *friendship ties* and *neighborhood ties* variables in the ECHP. Individuals are asked about i) the frequency of relationships with neighbors, ii) the frequency of contacts with friends and relatives outside the household. The answers are as follows: 1. On most days; 2. Once or twice a week; 3. Once or twice a month; 4. Less often than once a month; 5. Never. As David et al (2010), we consider the following index:

$$Z_{i,t} = I[X_{i,t} = 1] + I[X_{i,t} = 2] \frac{2}{7} + I[X_{i,t} = 3] \frac{2}{30} + I[X_{i,t} = 4] \frac{1}{60} + I[X_{i,t} = 5] 0, \quad (2.1)$$

where $Z_{i,t}$ is the index value for individual i at time t , $X_{i,t}$ is the answer to the question and answers have been transformed to daily frequency. $I[\cdot]$ is an indicator function that takes value 1 if the expression in brackets is true and 0 if it is not. On the other hand, we also measure the strength of family ties from a wide range of indicator in the WVS as in Alesina et al (2013). We use four measures:

i) *Teach independence*: the question informs about the cultural importance of the family: "Would you consider important to teach your children to leave your home?". The answer to the question is yes,

⁴At micro level, David et al (2010) use the ECHP and show that agents with strong local social capital are less mobile. Alesina et al (2013) use the WVS and find that individuals who inherit stronger family ties are less mobile and support more stringent labor market regulations. At macro level, Rupert and Wasmer (2012) show that the housing market regulation is negatively correlated with mobility rates in a cross-section of European countries. Decreuse and van Ypersele (2012) show a positive correlation between employment protection legislation and housing market regulation. Finally, Bonleu (2015) shows a positive correlation between procedural formalism in the rental market and measures of local social capital.

⁵The average number of hours of sunshine is computed for each capital city. We make an exception for France where there is a very large sunshine differential between the northern part and the southern parts of country. Thus we use the average hours of sunshine in Lyon.

coded 1, or no, coded 0.

ii) *Living with parents*: the question asks whether the individual lives with his/her parents. The answer to the question is yes, coded 1, or no, coded 0.

iii) *Family important*: respondents indicate the importance of the family in their life. The answer can take values from 1 to 4, with 1 being very important and 4 not important at all.

iv) *Parents' responsibility*: the respondents inform if they agree with one of the following two statements (taking the value of 1 and 2 respectively): 1) It is the parents' duty to do their best for their children even at the expense of their own well being, 2) Parents have a life on their own.

We recode the last two questions so that a higher number implies a stronger attachment to the family.

Table 2.1 provides descriptive statistics for the different variables.

	mean	s.d
Sunny country	0.37	0.48
Teach independence	0.46	0.5
Living with parents	0.2	0.4
Family important	3.82	0.47
Parents responsibility	1.78	0.41
Neighborhood ties	0.57	0.41
Friendship ties	0.51	0.4
Mobility	0.14	0.34
Job security	0.59	0.49

Table 2.1: Descriptive statistics

We run the following OLS or probit (depending on the nature of the left-hand side variable) regressions:

$$Y_i = \alpha_0 + \alpha_1 \text{Sunny_country} + \alpha_2 X_i + \delta_t + \varepsilon_i, \quad (2.2)$$

where X_i are individual controls. When using the ECHP, we control for age group (-18, 18 to 30, 31 to 60, 60+), education, income and a gender dummy. When using the WVS, we control for age, education, income, a gender dummy and religious denomination. Lastly, δ_t is a year fixed effect.

	(1) Teach independence	(2) Living with parents	(3) Family important	(4) Parents responsibility	(5) Neighborhood ties	(6) Friendship ties
Estimation	Probit	Probit	OLS	OLS	OLS	OLS
Sunny country	−0.216*** (−33.43)	0.075*** (22.59)	0.0271*** (4.68)	0.0809*** (15.045)	0.096*** (30.06)	0.007* (2.36)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.06	0.33	0.03	0.02	0.02	0.03
Observations	27706	13282	27813	25269	71466	80640

Table 2.2: Sun and local social capital. t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects are reported for probit estimation. Columns (1)-(4): Regressions control for age, education, income, a gender dummy and religious denomination. Source: WVS. Column (5)-(6): Regressions control for age category (-18, 18 to 30, 31 to 60, 60+), education, income and a gender dummy. Source: ECHP.

Table 2.2 shows that individuals living in a southern country have stronger family ties and local social capital than individuals living in a northern country. The probability that parents teach independence to their children decreases by 21% when the individual lives in a country with strong climate amenities. Moreover, the probability of living with parents is increased by 7% in such circumstances.

	(1) Mobility	(2) Job security
Estimation	Probit	Probit
Sunny country	−0.085*** (−11.86)	0.066*** (7.12)
Year fixed effect	Yes	Yes
R^2	0.03	0.02
Observations	15118	13170

Table 2.3: Sun, mobility and the demand for job security. t statistics in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Marginal effects are reported for probit estimation. (1): Regressions control for age category (-18, 18 to 30, 31 to 60, 60+), education, income and a gender dummy. Source: ECHP. (2): Regressions control for age, education, income and a gender dummy.

Table 2.3 shows that individuals who live in a sunny country are less mobile and want more secure jobs. Living in a country with strong climate amenities decreases the probability of being mobile by 9% and increases the probability of asking job protection by 7%.

Macroeconomic evidence.—At macro level, we plot the number of average hours of sunshine by country as provided by climatedata.eu against the variables measuring the size of local social networks, procedural formalism in the rental market and an index of job protection. The social networks variables are the family ties, neighborhood ties and friendship ties indices. They are computed from David et al (2010)

and are averaged by country. The job protection index is provided by Allard (2005). It covers a variety of regulations affecting workers' dismissals like procedural requirements, notice and severance pay requirements, regulations to the use of temporary work and short-term contracts, penalties for unfair dismissals and specific regulations applying to collective dismissals. The procedural formalism index is provided by Djankov et al (2003). This is a composite index based on the difficulty to evict a tenant, reflecting the complexity and the length of the procedure at various stages (pretrial, process of trial, execution of the court decision).

Figures 2.1 to 2.3 show a positive correlation between sunshine and the social networks variables.

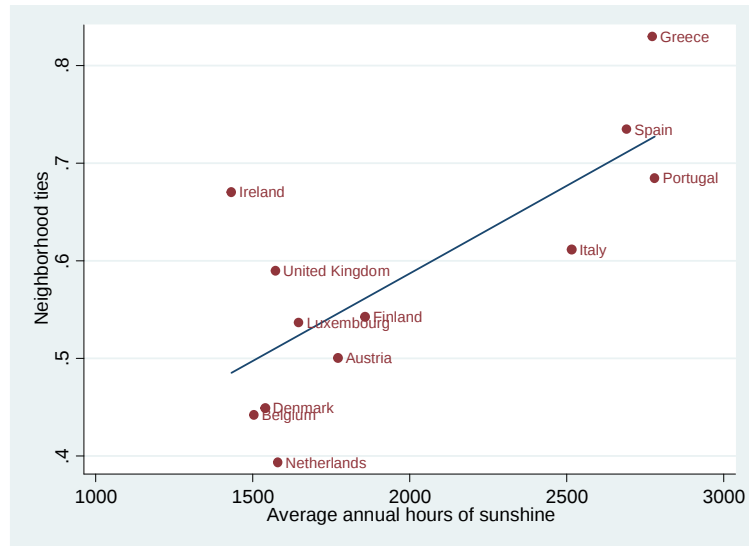


Figure 2.1: Neighborhood ties and sunshine: the figure displays the correlation between two measures of social capital by country and average time of sunshine. Data base: ECHP. The average time of sunshine is given by the website climatedata.eu. The sample period is 1994-2001.

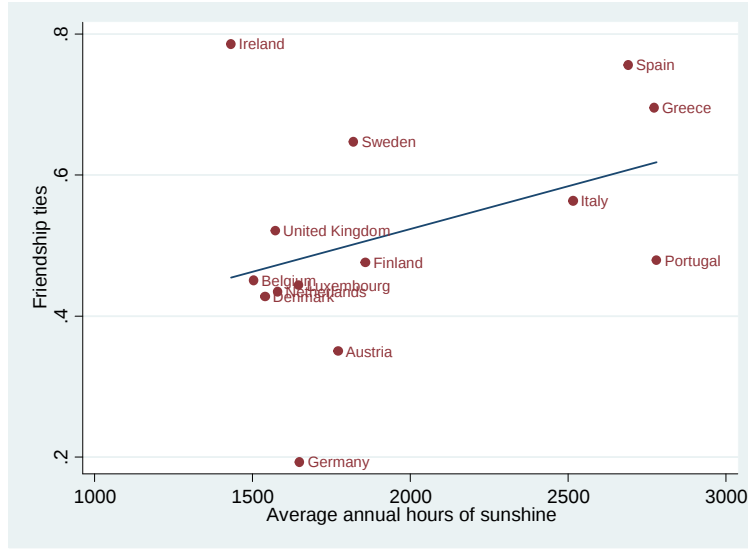


Figure 2.2: Friendship ties and sunshine. The figure displays the correlation in the cross-section of countries between a measure of social capital and the average time of sunshine. Source: ECHP. The average time of sunshine is given by the website climatedata.eu. The sample period is 1994-2001.

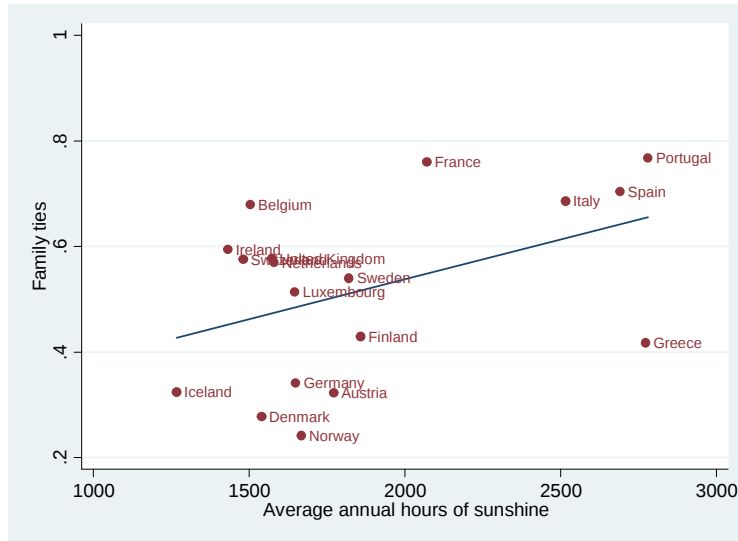


Figure 2.3: Family ties and sunshine. The figure displays the correlation in a cross-section of countries between a measure of family ties and the average time of sunshine. Data base: EVS and WVS for family ties. The average time of sunshine is given by the website climatedata.eu. The sample period is 1981-2004.

Meanwhile Figures 2.4 and 2.5 feature a positive correlation between sunshine and the measures of regulation in the rental and labor markets.

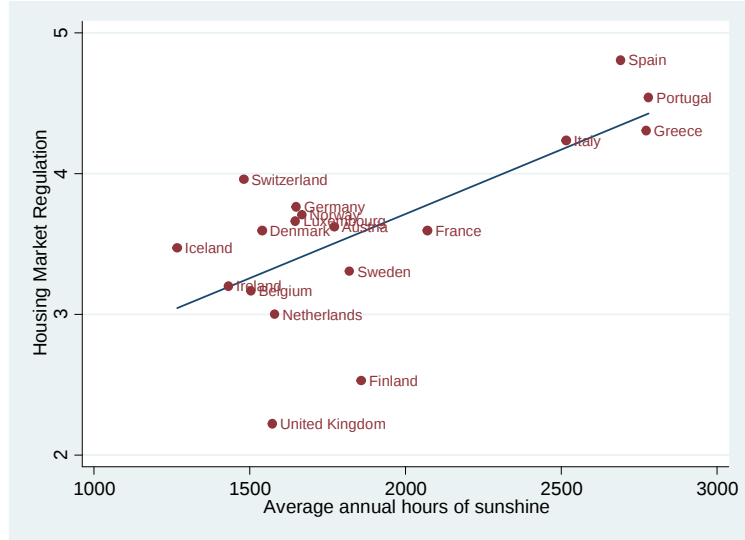


Figure 2.4: Housing Market Regulation and sunshine. The average time of sunshine is given by the website climatedata.eu. The procedural formalism index is provided by Djankov et al (2003).

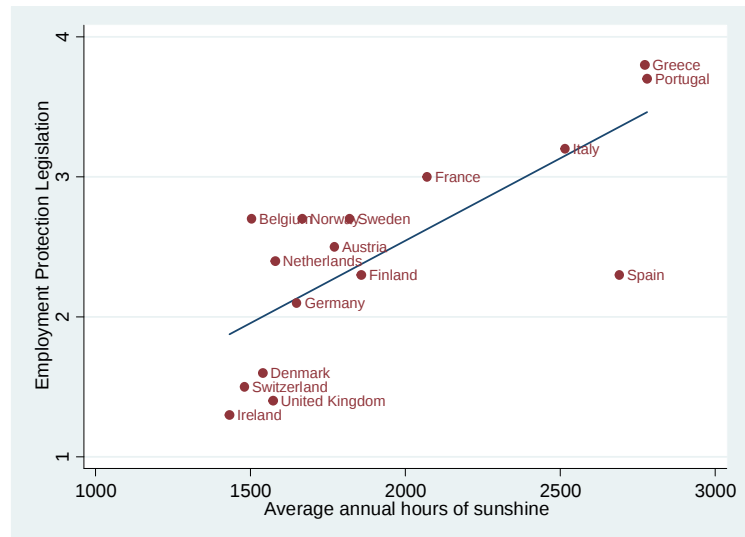


Figure 2.5: Employment Protection Legislation and Sunshine. The job protection index is provided by Allard (2005). The average time of sunshine is given by the website climatedata.eu.

2.3 Model

We develop a theory where southern countries are characterized by a Mediterranean equilibrium with procedural formalism (PF) and local social networks, whereas northern countries feature a Scandinavian and Anglo-Saxon equilibrium without regulation and local social networks.

There are two symmetric countries peopled by homogenous individuals and differing in climate amenities. In each country there are M landlords and T potential tenants. Among the M landlords, only V have a vacant dwelling. The matching side of the model obeys the so-called urn-ball matching technology associated to coordination frictions. Each potential tenant sends one application to a vacant dwelling. Applicants are connected when they belong to the social network of the landlord, whereas they are anonymous in the opposite case. The probability of being connected increases with the size of social networks.

A given landlord may receive several applications and chooses the most profitable one. Therefore, applicants are ranked according to match surplus. Such a surplus decreases with the cost of dispute resolution. With PF, connected applicants become more attractive compared to anonymous applicants. Indeed, the dispute can be solved within the social network and does not involve going to court. It follows that PF increases the probability of obtaining the lease for connected applicants, whereas it decreases the probability for anonymous ones. In other words, belonging to a large social network increases the gain derived from PF.

If a potential tenant knows N landlords, the probability that he knows a landlord with a vacancy is

$$n = 1 - \left(1 - \frac{V}{M}\right)^N. \quad (2.3)$$

The probability n increases with V and N . Hereafter, we refer to n as the *network size*. With probability n the agent learns that a landlord in his social network rents a dwellings and applies as a connected agent. With complementary probability $1 - n$, this is not the case and the agent applies as an anonymous agent. The only interest of the social network is that conflict resolution does not depend on law. A landlord evicting a defaulting tenant pays D^n if the pair belongs to the same social network and D^m if not. Significantly, PF only affects D^m .

All applicants have default probability δ and defaulting agents do not pay the rent. As all potential tenants have the same default probability, the only interest of PF is that $D^n < D^m$, which ensures that landlord prefer connected agents. To simplify, we assume there are only two possible levels of regulation $D^m = 0$ and $D^m = D^n + \varepsilon > D^n$.

Individuals enjoy climate amenities only if they have a rental. Hence, an individual who has a rental in the southern country obtains the utility a_s , while an individual who has a rental in the northern country has utility a_n . We normalize a_s to one while $a_n \in [0, 1)$.

Lastly, network building is costly. To obtain the probability n , the potential tenant has to pay $C_n = n^2/s$ where $s > 0$ is a scale parameter of the cost function.

We solve the model in two configurations. We first examine the closed economy case without migration. There we show that there is no social demand for procedural formalism in the rental market and for building local social networks. We then turn to the open economy case where individuals can migrate

between countries. This may generate both procedural formalism and local social networks.

2.3.1 Closed country

We first study the case where countries are not open to each other so that individuals cannot migrate. The timing of the model is as follows:

1. The magnitude of regulation D^m is chosen.
2. Each individual chooses how much to invest in local social networks.
3. All individuals send one application to one vacant dwelling.
4. Landlords select one applicant (if any).
5. The rent is bargained between the landlord and the tenant.
6. Tenants pay the rent with probability $1 - \delta$.

The model is solved by backward induction.

Bargaining step.—With probability $1 - \delta$, the tenant pays the rent R and enjoys housing consumption a_j . With probability δ , he defaults on the rent and is evicted. Housing consumption is then normalized to zero. A tenant of type $i = n$ is connected, while a tenant of type $i = m$ is anonymous. The opportunity cost of rental is C . A landlord accepting a type- i tenant obtains the expected payoff

$$R(1 - \delta) - \delta D^i + \delta C, \quad (2.4)$$

and if he refuses, he gets the opportunity cost C . The tenant obtains the expected payoff:

$$(a_j - R)(1 - \delta). \quad (2.5)$$

A match between a type- i tenant and a landlord generates the following match surplus

$$S_j^i = (1 - \delta)(a_j - C) - \delta D^i. \quad (2.6)$$

The surplus generated by an anonymous match depends on PF, whereas the surplus created by a connected match does not. The rent results from Nash bargaining between the landlord and the tenant:

$$\max_R ((a_j - R)(1 - \delta))^\beta (R(1 - \delta) - \delta D^i + \delta C - C)^{1-\beta}, \quad (2.7)$$

where $\beta \in [0, 1]$ is the bargaining power of tenants. The resulting rent is :

$$R_j^i = \frac{\beta \delta D^i + \beta C(1 - \delta) + (1 - \beta)(1 - \delta)a_j}{(1 - \delta)}. \quad (2.8)$$

The expected landlord's income is

$$\begin{aligned} Y_j^i &= C + (1 - \beta) S_j^i \\ &= C + (1 - \beta) [(1 - \delta)(a_j - C) - \delta D^i]. \end{aligned} \quad (2.9)$$

The expected income Y_j^i depends positively on the match surplus S_j^i . Hence, Y_j^i is negatively affected by the default probability δ and by the cost of dispute resolution D^i . Moreover, if the expected income is lower than the rental opportunity cost C , landlords prefer not to rent. To simplify the analysis, we suppose that δ is lower than the threshold δ_j above which landlords prefer not to rent:

$$\delta_j = \frac{a_j - C}{a_j - C + D^m}, \quad (2.10)$$

as $D^m > D^n$.

Selection step and optimal level of social network.—We compute the probability of getting a lease for an agent and his optimal level of social network according to the magnitude of resolution D^m . We proceed to this computation under the assumption that there is a symmetric equilibrium where all agents choose the same network size.

We start with the case of a regulated rental market. Then $D^m = D^n + \varepsilon$ and, from the landlords' perspective, a connected tenant is always better than an anonymous tenant, i.e., $Y_j^n > Y_j^m$. Hence, a connected agent gets the lease if selected by the landlord among the t other connected tenants who are also also matched with him. Therefore, when all other agents have a network of size n , the probability of getting a lease for a connected tenant matched with a landlord is

$$P_n = \sum_{t=0}^{T-1} \Pr(X=t) \sum_{t_n=0}^t \Pr(Z=t_n | X=t) \frac{1}{t_n+1}, \quad (2.11)$$

where $\Pr(X=t)$ is the probability that the landlord is matched with t other potential tenants, $\Pr(Z=t_n | X=t)$ is the probability that the landlord is matched with t_n connected potential tenants among the t potential tenants matched with him, and $1/(t_n+1)$ is the probability of being selected by the landlord among the t_n+1 connected potential tenants matched with him. The probability P_n can be written as follows

$$P_n = \sum_{t=0}^{T-1} \frac{(T-1)!}{t!(T-1-t)!} \left(\frac{1}{V}\right)^t \left(1 - \frac{1}{V}\right)^{T-1-t} \sum_{t_n=0}^t \frac{(t)!}{t_n!(t-t_n)!} \left(\frac{Tn}{T}\right)^{t_n} \left(1 - \frac{Tn}{T}\right)^{t-t_n} \frac{1}{t_n+1}, \quad (2.12)$$

where $1/V$ is the probability of sending an application to one particular landlord and Tn/T is the probability that the applicant belongs to the social network of the landlord.

Similarly, an anonymous tenant gets the lease if there is no connected tenant matched with the landlord and if he is selected by the landlord among the t other anonymous tenants also matched with him. Therefore the probability of getting a lease for an anonymous tenant matched with a landlord is

$$P_m = \sum_{t=0}^{T-1} \Pr(X=t) \Pr(Z=0 | X=t) \frac{1}{t+1} \quad (2.13)$$

$$= \sum_{t=0}^{T-1} \frac{(T-1)!}{t!(T-1-t)!} \left(\frac{1}{V}\right)^t \left(1 - \frac{1}{V}\right)^{T-1-t} \frac{(t)!}{0!(t-0)!} (n)^0 (1-n)^t \frac{1}{t+1}. \quad (2.14)$$

We assume a large number of tenants and landlords. When V and T become arbitrarily large, we have

$$P_n = \frac{\theta}{n} (1 - e^{-\frac{n}{\theta}}) \text{ and } P_m = \frac{\theta}{(1-n)} (e^{-\frac{n}{\theta}} - e^{-\frac{1}{\theta}}). \quad (2.15)$$

where $\theta = V/T$ is the market tightness.

The probabilities P_n and P_m are negatively affected by the network size n :

$$\frac{dP_n}{dn} = \frac{\theta}{n^2} \left[e^{-\frac{n}{\theta}} \left(1 + \frac{n}{\theta} \right) - 1 \right] < 0 \quad (2.16)$$

$$\frac{dP_m}{dn} = \frac{\theta}{(1-n)^2} e^{-\frac{1}{\theta}} \left[e^{-\frac{n-1}{\theta}} \left(1 + \frac{n-1}{\theta} \right) - 1 \right] < 0 \quad (2.17)$$

This illustrates the negative externality generated by the formation of social networks. The average network size decreases both the probability of getting a lease when connected (because competition increases within the typical network) and the probability of getting a lease when anonymous (because the landlord is more likely to receive applications from connected applicants).

Nevertheless, investing in the network may be individually rational as the probability of getting a lease for a potential tenant with network size n_i is $n_i P_n + (1 - n_i) P_m$, which is increasing in the own network size but decreasing in the network size of the other applicants. The corresponding utility is

$$U_j^{reg} = \beta (n_i S_j^n P_n + (1 - n_i) S_j^m P_m) - C_n. \quad (2.18)$$

The equilibrium level of investment in social network is the result of a non cooperative game played by potential tenants whose payoffs are their expected utility.

Note also that, in symmetric equilibrium where $n_i = n$, the probability of obtaining a rental is given by

$$n P_n + (1 - n) P_m = \theta (1 - e^{-\frac{1}{\theta}}), \quad (2.19)$$

which is independent of the equilibrium level of social network. This is due to the fact that all agents are identical. Therefore what is won, in terms of rental probability, by agents when connected is just lost when anonymous.

Proposition 2.1 *Assume $D^m > D^n$. When the country regulates the rental market, the equilibrium investment in social network is strictly positive.*

Proof. The best reply n_i of a potential tenant to n is such that

$$dU_j^{reg}/dn_i = \underbrace{\beta (S_j^n P_n - S_j^m P_m)}_{A>0} - \frac{2n_i}{s} = 0, \quad (2.20)$$

which is equivalent to

$$n_i = \beta (S_j^n P_n - S_j^m P_m) \frac{s}{2}.$$

The symmetric equilibrium solves this equation for $n_i = n$. The best reply is a decreasing function of n as

$$\frac{dA}{dn} = \beta S_j^n \left(\frac{\theta}{n^2} (e^{-\frac{n}{\theta}} (1 + \frac{n}{\theta}) - 1) \right) - \beta S_j^m \left(\frac{\theta}{(1-n)^2} e^{-\frac{1}{\theta}} (e^{-\frac{n-1}{\theta}} (1 + \frac{n-1}{\theta}) - 1) \right) < 0. \quad (2.21)$$

Therefore, the level of social network maximizing the expected utility of the potential tenant is strictly positive as $\beta (S_j^n P_n - S_j^m P_m) \frac{s}{2} > 0$ when $n = 0$. ■

We then consider the case of an unregulated rental market. If $D^m = 0$, individuals have no interest in developing their local social network because the cost of conflict resolution within the social network exceeds the judicial cost. Hence, landlords are indifferent between all applicants and the probability of getting a lease for a potential tenant matched with a landlord is

$$\begin{aligned} P &= \sum_{t=0}^{T-1} \Pr(X=t) \frac{1}{t+1} \\ &= \sum_{t=0}^{T-1} \frac{(T-1)!}{t!(T-1-t)!} \left(\frac{1}{V}\right)^t \left(1 - \frac{1}{V}\right)^{T-1-t} \frac{1}{t+1}. \end{aligned} \quad (2.22)$$

When V and T become arbitrarily large, we have

$$P = \theta \left(1 - e^{-\frac{1}{\theta}}\right). \quad (2.23)$$

The probability P is negatively affected by the number of potential tenants T :

$$\frac{dP}{dT} = -\frac{V}{T^2} \left(1 - e^{-\frac{1}{\theta}}\right) + \frac{1}{T} e^{-\frac{1}{\theta}} < 0.$$

The applicant's expected utility is the product of the probability P by the match surplus $S_j = (1 - \delta)(a_j - C)$ weighted by the bargaining power β , i.e.,

$$U_j^{unreg} = \beta S_j P. \quad (2.24)$$

Regulation choice.— We can now characterize the subgame perfect equilibrium of this multistage game. There is a sole player in the first stage maximizing the expected welfare of a potential tenant.

Proposition 2.2 *In a closed economy, in equilibrium there is no regulation of the rental market and no investment in social network: $D^m = n^* = 0$.*

Proof. According to Proposition 2.1, we have to compare the expected utility of a potential tenant with regulation and a positive investment in social network with the expected utility of the same potential tenant without regulation and without social network. Equation (2.19) shows us that the probability of housing is unaffected by the level of social network, whereas the regulation destroys social surplus, therefore the potential tenant is better off without regulation. ■

2.3.2 Open country

In this subsection, we suppose that agents can migrate between the two countries. A potential tenant locates where the expected utility is the highest. Hereafter, the individuals living in their native country are the local individuals and the individuals who migrate are the foreigners. Hence, if F_{south} is the number of individual who migrate in the southern country and F_{north} is the number of individuals who migrate in the northern one, then the potential number of tenants in the southern country is $T_{south} = T - F_{north} + F_{south}$, while in the northern country we have $T_{north} = T - F_{south} + F_{north}$. Moreover, we assume that only local individuals can have a social network.

We only consider "symmetric equilibria", i.e., in each country all local agents make the same investment. Thus, the numbers of potential connected tenants and anonymous tenants in the southern country are, respectively, $T_j^n = n_j (T - F_{-j})$ and $T_j^m = (1 - n_j) (T - F_{-j}) + F_j$ with $j = north$ or *south*.

We suppose that migration decisions are made after the regulation has been chosen and individuals have invested in local social networks. The timing is as follows:

1. The magnitude of regulation D^m is chosen.
2. Each individual chooses how much to invest in local social networks.
3. Potential tenant choose residential country. It depends on climate amenities, market tightness and regulation.
4. All individuals send one application to one vacant dwelling.
5. Landlords select one applicant (if any).
6. The rent is bargained between the landlord and the tenant.
7. Tenants pay the rent with probability $1 - \delta$.

The model is solved by backward induction.

Bargaining and selection steps.—The bargaining and selection steps are similar to the closed economy case. Therefore, the probabilities of getting a lease are

$$P_j^n = \frac{V}{T_j^n} \left(1 - e^{-\frac{T_j^n}{V}} \right) \text{ and } P_j^m = \frac{V}{T_j^m} \left(e^{-\frac{T_j^n}{V}} - e^{-\frac{T_j}{V}} \right), \quad (2.25)$$

if the market is regulated and

$$P_j = \frac{V}{T_j} \left(1 - e^{-\frac{T_j}{V}} \right), \quad (2.26)$$

if not.

Hence, the probability of getting a lease for a local individual that invests n_i is given by $n_i P_j^n + (1 - n_i) P_j^m$ and that of a foreigner by P_j^m if the rental market is regulated and P_j if not. Thus, the utility levels expected by a local individual and a foreigner are

$$U_j^{local} = \beta (n_i S_j^n P_j^n + (1 - n_i) S_j^m P_j^m) - C_n, \quad (2.27)$$

$$U_j^{foreigner} = \beta S_j^m P_j^m, \quad (2.28)$$

if the rental market is regulated and

$$U_j = \beta S_j P_j, \quad (2.29)$$

if not.

Furthermore, as above, the probabilities P_j^n , P_j^m and P_j decrease with the market tightness. However, in contrast with the closed economy case, the probability of getting a lease for a local individual when all local agents have the same social network size, $n_j P_j^n + (1 - n_j) P_j^m$ is a function of n_j as long as $F_j > 0$. The existence of foreigners implies that forming social networks can be beneficial to all local agents.

Migration step.—When the countries are closed and the rental markets are unregulated, individuals living in the southern country have a higher utility than individuals living in the northern one. Indeed,

$$U_{south} = \beta S_{south} P > U_{north} = \beta S_{north} P, \quad (2.30)$$

because $a_s > a_n$.

As P_j^n , P_j^m and P_j decrease with the number of potential tenants, migration affects the probability of getting a lease in both countries. Therefore, with open countries, the number of migrants balances the climate amenity differential. In equilibrium, none wants to change country.

Proposition 2.3 *i) With symmetric countries only differing in climate amenities, migration is exclusively North-South, i.e., $F_{south} \geq 0$ and $F_{north} = 0$.*

ii) The number of migrants decreases with PF and the size of social networks in the southern country.

The proof is in the appendix. The intuition goes as follows. If the two countries regulate the rental market, migration takes place from north to south up to the point where the gain incurred by the immigrants due to better climate amenities are compensated by the decline in probability of getting a lease. If only the northern country regulates its rental market, then none in the southern country has incentive to migrate as both the climate amenity and the probability of getting a lease are lower in the northern country. Lastly, if only the southern country regulates, no individual in the south wants to migrate because optimal regulation guarantees that the expected utility of a local agent is larger than the expected utility of a foreigner, whereas foreigners, by equilibrium reasoning, have the same utility as local individuals in the northern country. Hence, we can summarize that the migration is exclusively North-South. Furthermore, the number of migrants decreases with PF and social networks because PF and social network both decrease the probability of getting a lease and the rental surplus of foreigners.

Optimal size of social networks.—The optimal size of social networks is individually chosen by the local agents taking migration as given. In line with Proposition 2.2, accounting for migration only affects the number of potential tenants in the northern country (which decreases) and the number of anonymous tenants in the southern country (which increases). Hence, we can deduce the following result with the same reasoning as in the closed economy case.

Proposition 2.4 *When a country does not regulate, the equilibrium size of social network is zero, whereas when it regulates and $D^m > D^n$, the optimal size of social network is strictly positive.*

Regulation choice.—PF is decided non cooperatively by the two countries whose payoffs are the expected utility of a local potential tenant. This first stage of the game is played taking the following steps of the game into account.

Proposition 2.5 *In the open economy case, two types of "symmetric" equilibria emerge, an equilibrium with regulation and social network in the southern country and no regulation and no social network in the northern country and another equilibrium without regulation and social network in both countries.*

*(i) The equilibrium with social network and regulation occurs when the cost of conflict resolution within the network and the scale parameter of the cost of network formation are sufficiently low, i.e., $D^n < \frac{(1-\delta)(a_s-C)(n^*P_{south}^n-P)+(1-n^*)P_{south}^mS^m}{\delta n^*P_{south}^n}$ and $s > n^{*2}/(U_{south}(n^*, F_{south}^{**}) - U_{south}(F_{south}^*))$.*

(ii) *The other equilibrium arises when this set of conditions is not fulfilled.*

The proof is in the appendix.

The intuition goes as follows: it is a dominant strategy for the northern country not to regulate as it never hosts immigrants, whereas the regulation and its ensuing costs in terms of social network building and decreased surplus only make sense when they can increase the probability of lease. We saw that as long as there is no immigrant in a country the probability to get a lease is independent of the equilibrium investment in social network. Therefore, equilibria (i) and (ii) are the only possible ones. The south attracts immigrants and regulation may be welfare improving if it sufficiently increases the probability of getting a lease. This is the case when D^n is small enough, i.e. the destruction of the surplus is not too important and when s is large enough, i.e. the cost of building the social network is not too high.

To summarize, the climate amenity differential may generate two different equilibria: a Mediterranean equilibrium with PF and social networks in the southern country and a Scandinavian and Anglo-Saxon equilibrium without regulation and social networks in the northern country. Individuals in the northern country have no interest in regulating the rental market because the migration pressure is nonexistent. Meanwhile, PF and social networks help to mitigate the negative impact of migration for individuals in the southern country.

2.4 Discussions

We discuss the role played by the climate amenity differential and highlight the potential labor market implications of our theory.

2.4.1 Climate amenity differential and local social networks

The aim of this subsection is to emphasize that the optimal size of social network increases with the climate amenity differential. We already know that the climate amenity differential drives the country with the best climate amenities to regulate the rental market and invest in local social networks. We also know that the number of migrants from north to south increases with the climate amenity differential. Therefore, Proposition 2.4 implies that the optimal size of social network increases with the climate amenity differential.

This theoretical prediction is interesting because it rationalizes the set of correlations shown in Section 2.2 whereby individuals leaving in southern Europe tend to invest more in their local social network. According to our model, this is a natural reaction of individuals in an environment where the rental market is very regulated and the best way to get a lease is to overcrowd the unconnected applicants by applying for a rental within the social network.

To illustrate this result, we follow Bonleu (2015) and calibrate the model on the French 2006 Housing Survey. The parameters of the calibration are given by Table 2.4.

Parameters	T	V	α	C	β	n	D^m	D^n	δ	a_n	a_s
Baseline	9140	7783	1	0.5	0.5	$[0, 1]$	1.1	1	0.005	$[1, 0.7]$	1

Table 2.4: Parameter values

Figure 2.6 shows the size of social networks in the southern country as a function of the amenity differential. As long as the differential is too small, individuals have no incentive to regulate the rental market and, therefore, do not invest in their local social network. When the amenity differential gets sufficiently large, the migration pressure becomes strong and individuals react by increasing procedural formalism and investing in their local social network.

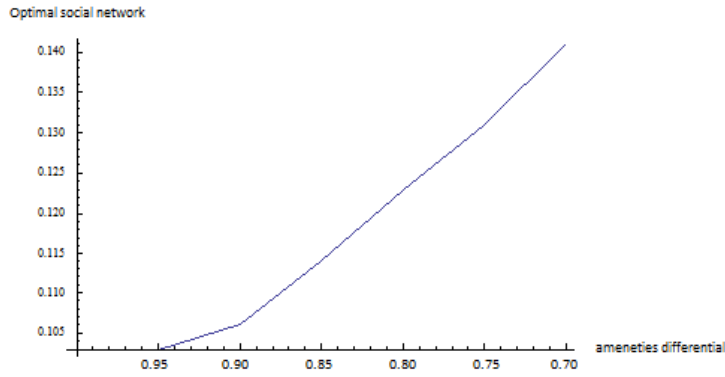


Figure 2.6: Social networks and the climate amenity differential. It shows the size of social networks in the southern country as a function of the amenity differential. Parameter values are given by Table 2.4.

Figure 2.7 emphasizes the implications for migration. It compares the laissez-faire case with the equilibrium allocation. In both cases, the number of migrants increases with the climate amenity differential. However, setting procedural formalism and investing in local social network discourages some of the potential migrants.

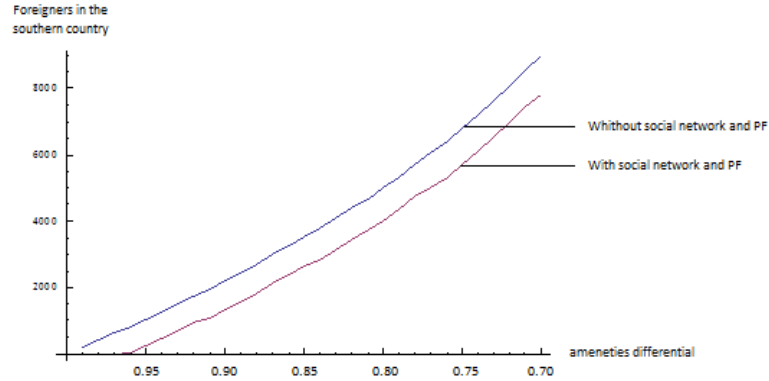


Figure 2.7: Foreigners and the climate amenity differential. It emphasizes the implications for migration. It compares the laissez-faire case with the equilibrium allocation. Parameter values are given by Table 2.4.

2.4.2 What about the labor market?

The aim of this subsection is to discuss the impact of regulation and local social networks on the labor market equilibrium. Firstly, we argue that the climate amenity differential can also generate a social demand for job protection. Secondly, we explain that there is a strong complementarity between the labor and rental markets.

Good climate amenities attract individuals from the north to the south. This not only deteriorates the search prospects for would be renters in the south, but also reduces the odds of finding jobs. This phenomenon arises when job creation is weakly elastic so that the number of available jobs does not react to the workforce size. Then individuals can protect their access to jobs by regulating the labor market, just like they protect their access to rentals by regulating the rental market. Protecting jobs by increasing the cost of litigation reduces the incentive to hire unconnected applicants. Employers then prefer to recruit workers belonging to their social network because the cost of conflict resolution, though potentially large, become actually cheaper than in front of a court.

Moreover, individuals in a regulated rental market may well ask regulation on the labor market. David et al (2010) show that individuals with high social capital have low mobility and that job protection reinforces the accumulation of local social capital further reducing worker mobility. Elaborating on this relationship between family ties and worker mobility, Alesina et al (2015) argue that individuals with strong family ties rationally choose to regulate the labor market in order to reduce firms' monopsony power. In our theory, workers benefiting from good climate amenities have incentive to regulate the rental market. This may reduce their mobility, generating the kind of market power put forward by Alesina et al. In turn, such individuals should be willing to reduce employers' market power through labor market regulation.

Overall, these mechanisms lead to a broader Mediterranean equilibrium characterized by high climate

amenities, large local social capital, low mobility and strong regulation on the rental and labor markets. A contrario, northern countries would know a Scandinavian and Anglo-saxon equilibrium characterized by low climate amenities, small local social capital, high mobility and low regulation on the rental and labor markets.

2.5 Conclusion

This paper addresses a central question: What is the origin of market regulation and local social capital? We argue that countries benefiting from good climate amenities tend to regulate more and their citizens invest more in local social capital. Such countries are attractive, which provides migration incentive and fosters competition for scarce resources. In turn individuals react by increasing market regulation and associated procedural formalism in case of judicial dispute. Meanwhile they invest more in their local social networks.

This general idea is developed in the case of a particular market, the rental market, and in a particular geographic area, Europe. We first provide a set stylized facts emphasizing attractiveness to southern Europe and the fact that southern European countries are characterized by a more regulated rental market and extensive use of local social ties. We then propose and solve a search-theoretic model featuring two symmetric countries with a climate amenity differential, matching frictions on the rental market, choice of network formation and, ultimately, choice of procedural formalism in the rental market. This model highlights an equilibrium configuration where the southern country regulates its market whereas its people invest in local social networks to avoid the judicial cost of litigation. Meanwhile the northern country does not regulate its rental market and northern citizens have no incentive to invest in their local social network.

Our analysis could be extended in two directions. Firstly, we would like to introduce individual heterogeneity within countries to study the various incentives to adopt market regulation and build local social networks. Secondly, we would like to model the joint determination of the rental and labor market regulations.

2.6 Appendix

2.6.1 Proof of Proposition 2.3

The northern country (hereafter North) and the southern country (hereafter South) simultaneously choose whether to regulate their rental market. Therefore, there are four cases to study: both North and South regulate, North does not regulate and South regulates, North regulates and South does not, and both North and South do not regulate. In any case, migration, if existing, is exclusively from North to South.

If both North and South are unregulated we have

$$P_{south} = \frac{V}{T - F_{north} + F_{south}} \left(1 - e^{-\frac{T - F_{north} + F_{south}}{V}} \right), \quad (2.31)$$

$$P_{north} = \frac{V}{T - F_{south} + F_{north}} \left(1 - e^{-\frac{T - F_{south} + F_{north}}{V}} \right). \quad (2.32)$$

Hence, $U_{south} = \beta S_{south} P_{south}$ and $U_{north} = \beta S_{north} P_{north}$. Before opening to migration, we have $U_{south} > U_{north}$. Moreover $dU_{south}/dF_{north} > 0$ and $dU_{north}/dF_{north} < 0$, therefore none migrates to North. Indeed, $\beta S_{south} P_{south} > \beta S_{north} P_{north}$. However, we have $dU_{south}/dF_{south} < 0$ and $dU_{north}/dF_{south} > 0$. Therefore, on the one hand, $\lim_{F_{south} \rightarrow 0} U_{south} > \lim_{F_{south} \rightarrow 0} U_{north}$ as $S_{south} > S_{north}$. On the other hand $\lim_{F_{south} \rightarrow T} U_{south} = \beta S_{south} V / (2T) \left(1 - e^{-\frac{2T}{V}} \right)$ and $\lim_{F_{south} \rightarrow T} U_{north} = \beta S_{north}$. Hence, if $\ln(a_s - C) - \ln(a_n - C) < \ln(1) - \ln(P_{south})$ there exist $F_{south}^* \in [0, T)$ such that $U_{south}(F_{south}^*) = U_{north}(F_{south}^*)$. On the contrary, if $\ln(a_s - C) - \ln(a_n - C) > \ln(1) - \ln(P_{south})$, then $F_{south}^* = T$ and $U_{north}(F_{south}^* = T) < U_{south}(F_{south}^* = T)$.

If North regulates and South does not regulate, a foreigner in North has a probability of getting a lease P_{north}^m and corresponding expected utility $U_{north}^{foreigner} = \beta S_{north}^m P_{north}^m$. We know that $\beta S_{north}^m P_{north}^m < \beta S_{north} P_{north}$ because $P_{north}^m < P_{north}$ and $S_{north}^m < S_{north}$ as $D^m = D^n + \varepsilon > 0$. Moreover, as we have seen in the previous case, $\beta S_{north} P_{north} < \beta S_{south} P_{south}$. Then, $\beta S_{south} P_{south} > \beta S_{north}^m P_{north}^m$ and none migrates to North. Hence, we have $F_{north}^* = 0$ and $n P_{north}^n(F_{north}^* = 0) + (1 - n) P_{north}^m(F_{north}^* = 0) = P_{north}$ as in the previous case. Moreover, as in the previous case, the rental surplus in South is larger than the rental surplus in North. Indeed, $S_{south} > S_{north}^m$ and $S_{south} > S_{north}^n$. Thus, applying the same reasoning as in the previous case implies there exists $F_{south}^* \in [0, T)$ such that $U_{south}(F_{south}^*) = U_{north}^{local}(F_{south}^*)$.

If South regulates and North either regulates or does not do it, then individuals in South regulate the rental market if and only if $\beta S_{south} P_{south} < \beta (n S_{south}^n P_{south}^n + (1 - n) S_{south}^m P_{south}^m) - C_n$. As individuals with expected utility $\beta S_{south} P_{south}$ have no interest in migrating, individuals who would have the utility $\beta (n S_{south}^n P_{south}^n + (1 - n) S_{south}^m P_{south}^m) - C_n$ have also no incentive to migrate because they would have $\beta (n S_{south}^n P_{south}^n + (1 - n) S_{south}^m P_{south}^m) - C_n > \beta S_{south} P_{south} > \beta S_{north} P_{north} > \beta S_{north}^m P_{north}^m$. Lastly, if local individuals in South choose to regulate the rental market, then foreigners in South obtain expected utility $\beta S_{south}^m P_{south}^m$ instead of $\beta S_{south} P_{south}$. Moreover, as $P_{south} > P_{south}^m$ and $S_{south} > S_{south}^m$ because $D^m = D^n + \varepsilon > 0$, we can deduce that foreigners obtain $\beta S_{south}^m P_{south}^m < \beta S_{south} P_{south}$. Then, social networks and PF decrease North-South migration when the South is unregulated. Hence, when South is regulated, the level of North-South migration is given by F_{south}^{**} and depends on optimal levels of social networks and PF such that $0 \leq F_{south}^{**} < F_{south}^*$.

2.6.2 Proof of Proposition 2.5

The first point to note is that it is a dominant strategy for the northern country not to regulate. To see this, note that the northern country never hosts immigrants in equilibrium as stated by Proposition 2.3. The absence of immigration means that the probability of getting a lease is independent of the network size, which means that building social networks is a pure loss as it is costly and destroys match surpluses. Proposition 2.4 states that in a country regulating its rental market, there is a strictly positive investment in social network. Therefore, not regulating the rental market in the north is a dominant strategy.

Equilibrium (i) occurs when the southern country is better off with regulation when the northern country does not regulate. Payoff in the south is given by

$$U_{south}^{local}(n^*, F_{south}^{**}) = n^* S_{south}^n \frac{V}{T n^*} \left(1 - e^{-\frac{T n^*}{V}}\right) + (1 - n^*) S_{south}^m \frac{V}{F_{south}^{**} + T(1 - n^*)} \left(e^{-\frac{T n^*}{V}} - e^{-\frac{F_{south}^{**} + T}{V}}\right) - C_n, \quad (2.33)$$

if the rental market is regulated and, otherwise,

$$U_{south}(F_{south}^*) = S_{south} \frac{V}{F_{south}^* + T} \left(1 - e^{-\frac{F_{south}^* + T}{V}}\right). \quad (2.34)$$

Regulation is an equilibrium if and only if $U_{south}^{local}(n^*, F_{south}^{**}) - U_{south}(F_{south}^*) > 0$, i.e, if and only if

$$s > \frac{n^{*2}}{(U_{sud}(n^*, F_{south}^{**}) - U_{sud}(F_{south}^*))} \quad (2.35)$$

and

$$0 < n^* S_{south}^n \frac{V}{T n^*} \left(1 - e^{-\frac{T n^*}{V}}\right) + (1 - n^*) S_{south}^m \frac{V}{F_{south}^{**} + T(1 - n^*)} \left(e^{-\frac{T n^*}{V}} - e^{-\frac{F_{south}^{**} + T}{V}}\right) - S_{south} \frac{V}{F_{south}^* + T} \left(1 - e^{-\frac{F_{south}^* + T}{V}}\right), \quad (2.36)$$

which implies that

$$D^n < \frac{(1 - \delta)(a_s - C)(n^* P_{south}^n - P) + (1 - n^*) P_{south}^m S^m}{\delta n^* P_{south}^n}. \quad (2.37)$$

Chapter 3

Job protection, housing market regulation and the youth¹

Abstract Young Europeans experience high unemployment rates, job instability and late emancipation. Meanwhile they do not support reforms weakening protection on long-term contracts. In this paper, we suggest a possible rationale for such reform distaste. When the rental market is very regulated, landlords screen applicants with regard to their ability to pay the rent. Protecting regular jobs offers a second-best technology to sort workers, thereby increasing the rental market size. We provide a model where non-employed workers demand protected jobs despite unemployment and the share of short-term jobs increase, whereas rents, wages and the individual risk of dismissal are unaffected.

¹This chapter is the result of a joint work with Bruno Decreuse and Tanguy van Ypersele. Moreover, this paper benefited from the comments of participants to the SaM conference in Amsterdam. We thank Bruno van der Linden for his careful reading and suggestions. We also thank the Conseil Régional Provence Alpes Côte d’Azur et la Chaire Transitions Démographiques, transitions Economiques for financial support.

3.1 Introduction

Young Europeans struggle to find jobs, are over-represented in temporary employment and leave the parental home remarkably late. It is consensual to blame labor and housing market institutions as being responsible for these outcomes. The housing market regulation (HMR) has been accused of reducing the rental market size, thereby contributing to hamper worker mobility. Employment protection legislation (EPL) is viewed as detrimental to labor market entrants by depleting the supply of vacancies and closing access to long-term jobs. However, the actual role played by each set of institutions is still under debate. Moreover, the support for labor market reforms is very tenuous. At best, the youth do not seem interested in such reforms; at worst they demonstrate against them as in 2006 and 2016 in France.

Distrust vis-à-vis pro-market reforms may be rooted in the cultural or legal traits of Continental European countries.² In this paper, we argue that the youth distaste for reforms of job protection can also be rational in a context where the rental market is heavily regulated. The key idea is as follows: HMR generates a social demand for job protection as a second-best technology to signal workers' ability to pay the rent. When the rental market is very regulated, landlords need to screen applicants on the basis of the expected risk of rent default. In this goal, landlords use labor market signals to figure out the individual risk of dismissal. When permanent jobs are not protected, selection in long-term employment is low and the mean risk of dismissal is large. Thus landlords are reluctant to rent their dwellings. Protecting jobs forces firms to be more selective so that the quality of the signal vehicled by labor market contracts increases.

We proceed in two steps. Section 3.2 presents a set of facts motivating our analysis. We use aggregate and micro data from the European Community Household Panel. The country-specific time-varying sets of regulation are due to Kahn (2007) for EPL and Djankov et al (2003) for HMR. In the cross-section of OECD countries, HMR is negatively correlated with youth employment and emancipation, the share of young employees in short-term contracts is positively correlated with EPL; lastly HMR and EPL are positively correlated.

At micro level, we explain individual employment, access to long-term contracts, emancipation and access to rentals with individual fixed effects, country-specific time-varying characteristics and the indices of EPL and HMR. HMR is negatively associated with emancipation and access to rentals but seems uncorrelated with employment, whereas reforms of permanent contracts are strongly negatively correlated with employment and access to long-term jobs, whereas the correlation is weaker with emancipation and access to rentals.

Section 3.3 offers a model of the housing and labor markets for young workers predicting these correlations at aggregate level and consistent with the effects at micro level. In this model, job protection reduces the odds of employment, increases the share of employees in short-term contracts and does not affect the individual risk of dismissal. Still, nonemployed (young) workers can be in favor of job protection and the social demand for job protection increases with HMR.

Firms offer short-term and long-term contracts, whereas landlords select applicants. Firms and land-

²Botero et al (2004) put forward the role of the legal origins of the judicial system, French origins being more prone to regulating markets. Algan and Cahuc (2006) highlight machismo and the dominant religion. Algan and Cahuc (2009) examine the role of civic attitudes. Alesina et al (2015) focus on family values.

lords are confronted to a similar problem: assessing the ability of applicants to perform the job tasks or pay the rent. However, employers play first. By offering a long-term job instead of a short-term one, firms provide a signal to landlords. The value of this signal increases with the protection of long-term contracts. In countries where the rental market is not very regulated, landlords do not need to screen applicants who can easily be evicted in case of rent default. It follows that the social demand for job protection is low. The opposite situation prevails in countries where the rental market is heavily regulated. There the social demand for EPL is large.

Using job protection as a screening technology is a second-best response to landlords' informational problem. This technology makes sense because the risk of rent default is positively correlated with the risk of dismissal. There is evidence showing that households are more likely to default on the rent or on the mortgage reimbursement when unemployed (see, e.g., Eichholtz, 1995, Deng et al, 1996, Serrano-Diaz, 2005, Nivière, 2006, Gerardi et al, 2015). Meanwhile regular jobs last much longer on average than short-term jobs. In the case of youth, labor contracts are the only exploitable signals for landlords. For instance, there is no clean history of rent payments and landlord cannot contact previous landlords to know the applicants better.

This paper calls for reforms of the housing market to reduce the social demand for EPL. This is only after such reforms have been made that job protection can be reduced. Decreuse and van Ypersele (2011) make a complementary point. In their model, job protection reduces the individual risk of dismissal and individuals contract loans with lenders to buy housing units. The equilibrium price of loans decreases with job protection. Therefore nonemployed persons are inclined to set the legislation above the threshold maximizing employment. Our paper shares the view that job security is highly valued when the housing market is regulated. However, the economic mechanism differs: job protection does not reduce the chance of losing one's job; instead it reveals the individual risk. The labor market block of our model borrows from Pries and Rogerson (2005) and Cahuc et al (2016) where each match is associated to a specific risk of dissolution. Selection into labor contracts generates composition effects responsible for the decreasing relationship between job protection and job loss probability. In an extension of our model, we account for these two complementary views of job destruction and job protection. They strengthen each other and contribute to increasing the demand for job protection.

The paper is complementary to the literature on the links between the housing and labor markets. This literature makes the general claim that factors limiting worker mobility have side effects on employment. For instance the Oswald hypothesis posits that unemployment increases with housing ownership because owners are less mobile than renters and cannot easily respond to income or employment shocks by moving to an alternative location. Closer to us Rupert and Wasmer (2012) argue that labor market institutions such as EPL or unemployment compensation have strong effects on unemployment in countries where the rental market is very regulated. In our basic model, HMR does not directly affect employment but decreases it through its impact on the demand for job protection. In an extension, we focus on an extreme situation where occupying a job always involves moving to a new dwelling. Despite firms take into account the effect of the labor contract on the rental probability, selection into employment is too low. Protecting LT jobs make firms more selective, which may improve employment and emancipation.

The paper relates to the literature on the positive analysis of job protection. In their analysis of

the regulation of labor, Botero et al (2004) distinguish market failure correction and rent-seeking arguments. Our paper belongs to the former strand of arguments. Most models of job protection feature a potentially nonmonotonic relationship between employment and the strictness of job protection. Having zero protection is an option, but cases where the employment-maximizer level of protection is strictly positive cannot be excluded. This optimal level of protection then depends on the nature of labor market distortions (see Blanchard and Tirole, 2008, for a complete discussion involving EPL and unemployment insurance). In our approach, job protection is used to correct a lemon issue in the housing market. Fixing this problem destroys jobs, but the level of job protection maximizes some sort of social welfare function.

According to the rent-seeking argument, job protection benefits the majority of insiders who already hold regular jobs and is detrimental to outsiders (see, e.g., Saint-Paul, 2001). This literature makes important points but does not help us to understand the wide support for job protection that goes well above the set of installed workers. Our model abstracts from such insiders because already established workers who have found a dwelling do not derive additional benefits from job protection. In an extension, we show two groups of workers prefer strongly protected jobs: individuals with a large probability of success and those with a low probability of success. The former want to belong to a small elite club with large access to the housing market, whereas the latter want to be accompanied in short-term contracts by as many workers as possible to avoid stigmatization.

The consideration of alternative risks and market situations may also contribute to explaining the social demand for job protection as a screening technology. These risks must be correlated with the probability of being successful in an ongoing relationship, and the market situations must involve a screening phase taking place after the labor contract has been attributed. In a final extension to the basic model, we discuss such risks and markets, like the risk of damage to the dwelling due to the tenant's behavior, the risk of mortgage default for lenders, or the risk of marriage dissolution. In each case the strength of regulation motivates screening and the induced demand for protected jobs.

3.2 Motivating facts

This section presents two sets of facts. We first describe a nexus of aggregate correlations in the cross-section of OECD countries between an index of housing market regulation (HMR), an index of Employment Protection Legislation (EPL), youth employment, youth emancipation, and youth share of employees in short-term jobs. We then turn to micro evidence with the European Community Household Panel (ECHP) and measure the effects of HMR and EPL on the individual probability of employment, access to long-term jobs, emancipation and access to rentals.

3.2.1 Aggregate evidence

At aggregate level, youth employment and emancipation are negatively correlated with HMR, the share of employed youth in temporary employment is positively correlated with EPL on regular contracts and HMR and EPL are positively correlated.

Figure 3.1 confronts the youth employment rate to a measure of HMR. The computation of the youth employment rate is the ratio of employees to total population among the 16-35 in ECHP over the period

1994-2001. The measure of HMR is the index of procedural formalism built by Djankov et al (2003). In the 2003 paper, the index was only available for a year. Balas et al (2009) extend the coverage and the index is available on a yearly basis between 1950 and 2000 for forty developed and developing countries. They focus on the eviction of a tenant who does not pay the rent. The index is built from several sub-indices that describe the exact procedure used by litigants and courts: the required degree of professionalism of lawyers and judges, the preeminence of written versus oral presentation at each stage of the procedure, the need for legal justification in the complaint and in the judgment, the rules of evidence, the appeal procedure, engagement formalities that must be observed before a party is legally bound by the court proceedings, and the number of independent procedural actions.

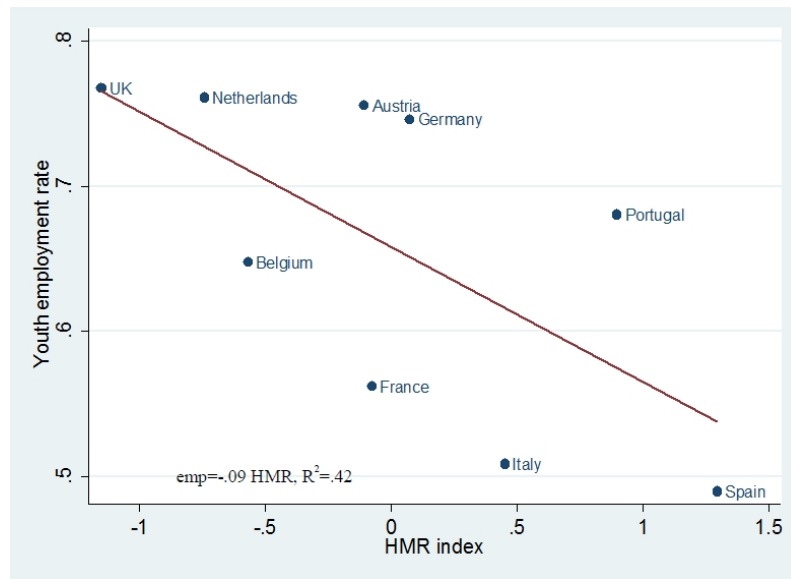


Figure 3.1: Youth employment and HMR in Europe. Youth employment is the ratio of employees to total population among the 16-35 in ECHP over the period 1994-2001. HMR is the degree of procedural formalism due to Balas et al (2009). The variable has been averaged over seven years and centered around its period mean.

Figure 3.1, though based on a small number of countries, suggests that the employment rate is negatively correlated with the HMR index. Young workers struggle to find jobs in countries where the rental market is very regulated. The relationship linking the two variables implies the raw elasticity of youth employment with respect to the HMR index is slightly lower than one.

Figure 3.2 depicts the proportion of emancipated youth against the HMR index. The youth emancipation rate measures the percentage of individual, aged between 16-35 years in ECHP, who do not live with parents. The OLS line is strictly decreasing, suggesting that young persons living in countries where the rental market is very regulated quit the family home very late. Quantitatively, the raw elasticity of youth emancipation to HMR is unitary.

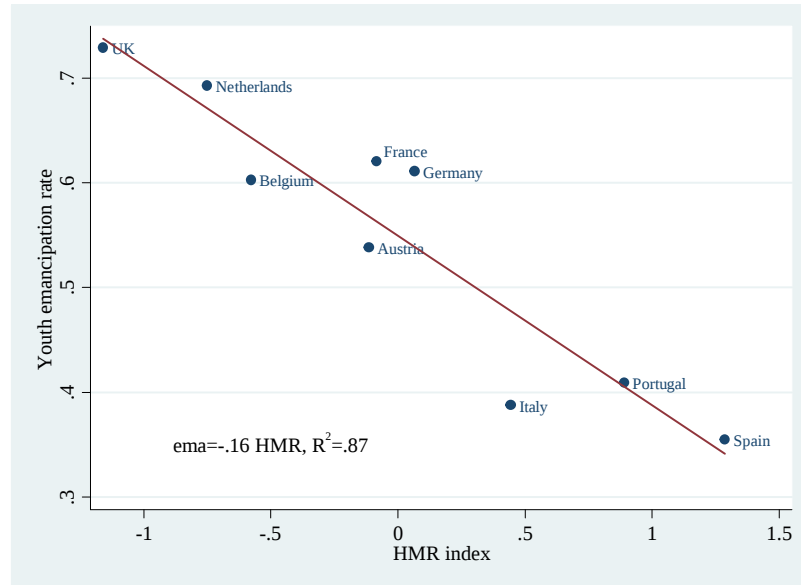


Figure 3.2: Youth emancipation and HMR in Europe. The youth emancipation rate measures the percentage of individual, aged between 16-35 years in ECHP, who do not live with parents. HMR is the degree of procedural formalism due to Balas et al (2009). The variable has been averaged over seven years and centered around its period mean.

Figure 3.3 shows the proportion of young employees in a temporary job over total youth employment against the OECD strictness index of EPL on regular employment. The share of 15-24 employees in a temporary job are given by OECD. The Figure 3.3 displays a positive correlation: young workers are more likely in short-term jobs in countries that strongly protect long-term jobs.

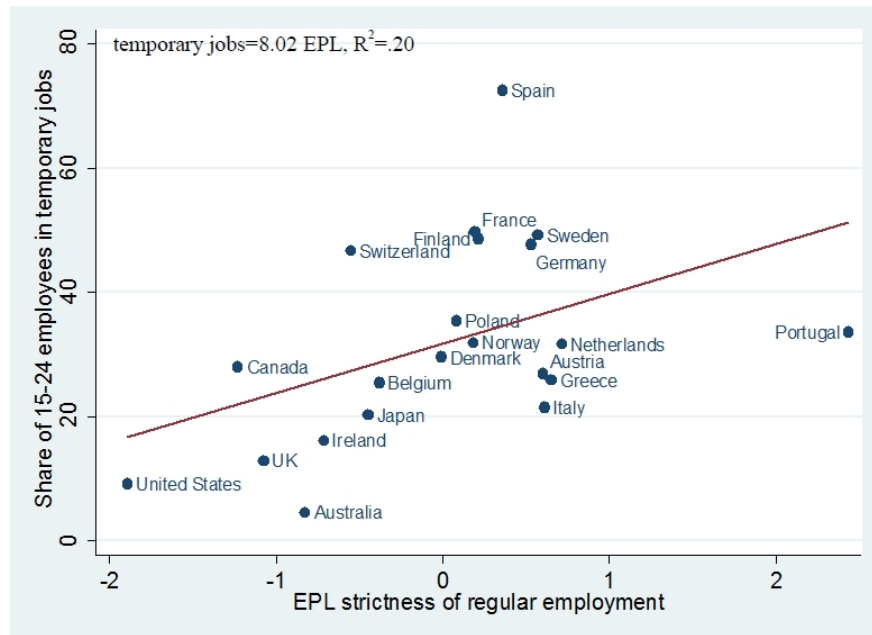


Figure 3.3: Share of young employees in temporary employment vs EPL on regular jobs in OECD countries, 1994-2001. The share of young employees is computed from OECD data and averaged over seven years. The EPL variable has been averaged over seven years and centered around its period mean.

Figure 3.4 is taken from Decreuse and van Ypersele (2011). It plots an index of EPL strictness due to Allard (2005) against the HMR index for OECD countries. The two variables are strongly positively correlated. Decreuse and van Ypersele show this correlation is robust to the consideration of country fixed effects.

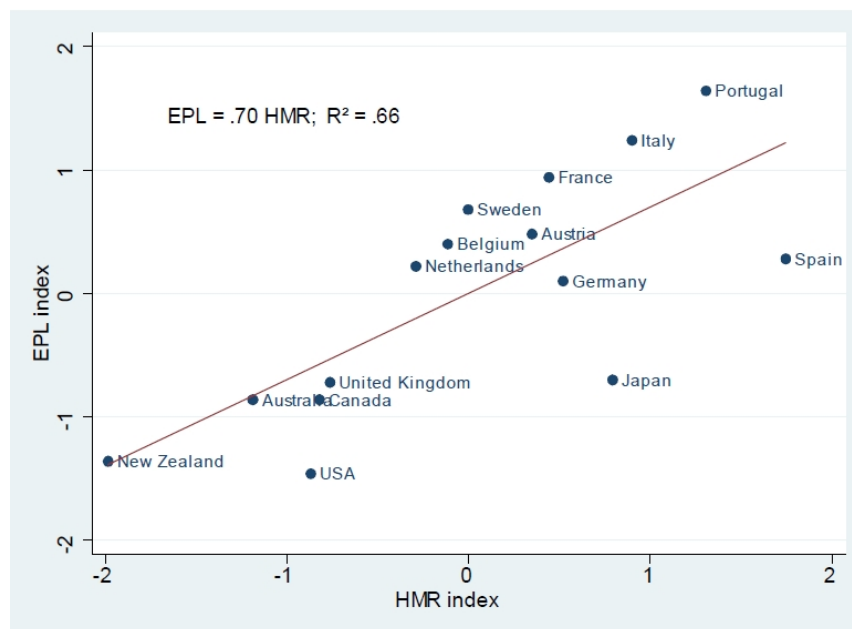


Figure 3.4: The relationship between HMR and EPL, 1995-2000. The two variables have been averaged over five years and centered around their period means. Source: Decreuse and van Ypersele (2011).

3.2.2 Micro evidence

To go beyond the partial correlations reported above, we turn to micro data and follow Kahn (2010) who evaluates the impacts of labor contract reforms on employment with the ECHP. This allows us to check which correlation is robust to the consideration of country fixed effects and to the consideration of regulations in alternative markets. The identification strategy exploits the heterogeneous timing of reforms in Europe during the 1990s. The ECHP follows different households over one to eight years between 1994 and 2001. As individuals are observed several times, we can account for all time-invariant characteristics by including individual fixed effects. Given the country of residence belongs to such characteristics, individual fixed effects also contain country-specific cultural biases.

Kahn shows that reforms facilitating temporary contracts do not affect employment and increase the probability of having a temporary contract conditional on employment. By contrast, reforms of permanent contracts have stronger effects on employment. These results are robust to a number of control variables but do not resist the introduction of country-specific trends. Having this limit in mind, we adapt Kahn's approach to (i) the simultaneous consideration of EPL and HMR reforms and (ii) the modelling of both employment and emancipation.

Kahn registers changes in country-specific laws affecting dismissals for regular jobs and the use of temporary employment. He builds two reform variables, one for long-term (LT) contracts and the other one for short-term (ST) jobs. In both cases, the variable starts from 0 and does not change in the absence of reform, one is subtracted when the reform implies stricter protection, and one is added when

the reform softens protection. There are fourteen episodes of reforms, with eight liberalizing the use of temporary employment, one restricting it, three reducing protection for LT jobs, and two increasing it.

We complete the dataset by including the HMR index. The remaining sample includes Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain and the UK³. There is substantial heterogeneity between countries. However, the index does not vary much within countries. Most of identification relies on four main changes that occurred in three countries: France, Italy and the UK. There also more minor changes, for a total of 11 episodes of modifications.

Kahn considers all individuals in the ECHP as well as a subsample of young workers below 25. We focus on a slightly different group of workers, the 16-35 population who exited the schooling system. The choice of the age span is suggested by the data: the mean age of emancipation varies across countries and reaches 31 in Italy. The share of emancipated individuals stabilizes at 35, which justifies our choice. We exclude individuals who are in education for endogeneity concerns. As this choice is arbitrary, we report in the Appendix estimates for different samples: all young individuals including people in education, and different age groups. The results are qualitatively similar.

For individual i as of year t , the employment probability and the individual probability of being in a LT contract conditional on employment are

$$\text{emp}_{it} = \alpha_i + \beta_t + x'_{it}\gamma + \delta_{LT}\text{reform}_{j(i)t}^{LT} + \delta_{ST}\text{reform}_{j(i)t}^{ST} + \delta_{HMR}\text{HMR}_{j(i)t} + \varepsilon_{it}, \quad (3.1)$$

$$\text{ltc}_{it} = a_i + b_t + x'_{it}c + d_{LT}\text{reform}_{j(i)t}^{LT} + d_{ST}\text{reform}_{j(i)t}^{ST} + d_{HMR}\text{HMR}_{j(i)t} + e_{it}, \quad (3.2)$$

where $\text{emp}=1$ when the individual is employed and 0 otherwise and $\text{ltc}=1$ when the individual is in a LT job and 0 when in a ST job. Parameters α_i and a_i are individual fixed effects, β_t and b_t are time dummies common to all individuals, x_{it} is a vector of individual characteristics and possibly time-varying characteristics, and the three reform variables have been described previously. Lastly, we consider the contemporaneous impact of the HMR index but also its delayed effect by including the 3-year lagged index. The differences with Kahn are the consideration of HMR and the 16-35 population excluding individuals in education.

In the spirit of the employment and contract type equations, we also model the individual probability of emancipation (ema) and the individual probability of renting (rent) conditional on being emancipated:

$$\text{ema}_{it} = \alpha_i + \beta_t + x'_{it}\gamma + \delta_{LT}\text{reform}_{j(i)t}^{LT} + \delta_{ST}\text{reform}_{j(i)t}^{ST} + \delta_{HMR}\text{HMR}_{j(i)t} + \varepsilon_{it}, \quad (3.3)$$

$$\text{rent}_{it} = a_i + b_t + x'_{it}c + d_{LT}\text{reform}_{j(i)t}^{LT} + d_{ST}\text{reform}_{j(i)t}^{ST} + d_{HMR}\text{HMR}_{j(i)t} + e_{it}. \quad (3.4)$$

The emancipation regression is a reduced form. It does not take into account individual income or labor contract though these variables certainly affect the access to the housing market and vary over time. However, they are likely endogenous. For instance, the firm may offer a LT contract to facilitate access to rentals (we develop this argument in section 3.3.2). Therefore these variables are replaced by their determinants.

³There are other countries in the ECHP, i.e., Austria, Greece, Finland, Ireland, Luxembourg and Sweden, but one of the two reform variables or the HMR index are not available for such countries.

	a	b	c	d
dependent variable	emp	ltc	ema	rent
reform ^{LT}	0.0659*** (5.62)	0.0950*** (7.42)	0.0207*** (3.78)	0.0052 (0.62)
reform ST	0.0061 (1.02)	-0.0136* (-1.78)	-0.0043 (-1.12)	-0.0042 (-0.39)
HMR _t	-0.0067 (-0.27)	0.0092 (0.29)	-0.0437*** (-3.6)	-0.1250*** (-4.67)
HMR _{t-3}	0.0487 (0.89)	-0.0271 (-0.30)	-0.1626*** (-6.44)	-0.4022*** (-4.08)
within R ²	0.0188	0.0427	0.0847	0.048
N	175,387	87,067	175,487	120,100

Table 3.1: The impacts of EPL and HMR on youth employment, access to LT jobs, emancipation and access to rentals. Significance thresholds: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The t statistics are between parentheses. All regressions include individual fixed effects, time effects / age, and time-varying individual-specific controls (a dummy equal to one when the individual is a woman and aged 16-25, another dummy equal to one when the individual is 16-25, and the interaction of the latter variable with a country-specific dummy). Each observation is weighted using the ECHP sampling weights. Standard errors are clustered at the country-year level.

Table 3.1 shows the results. Column a shows that the typical reform of permanent contracts increases the employment probability by 7 percentage points, whereas column b shows that it raises the share of LT contracts in overall employment by 10 points. By contrast, reforms of temporary contracts have smaller effects on employment, and tend to increase the share of ST contracts in overall youth employment. Changes in contemporaneous or lagged HMR have no impacts on youth employment outcomes: neither the employment probability nor the access to LT contracts seem affected by HMR.

Columns c and d highlight the spectacular negative impacts of HMR on emancipation and access to the rental market. This impact is more pronounced for the lagged regressor than for the contemporaneous one. Decreasing the French mean value of the index over the sample to the UK one would be associated to an increase in emancipation by 15 percentage points. Of course, such a shock is enormous and unseen at country level during the sample period. Meanwhile, labor contract reforms are weakly associated to these variables, if any. Reforms of ST contracts are never statistically significant, whereas reforms of LT contracts only have a positive and significant impact on emancipation.

Our results can be summarized as follows. When we account for individual fixed effects, reforms of LT contracts are strongly positively associated with youth employment and LT employment, whereas they are much less correlated with youth emancipation. Meanwhile, HMR is strongly negatively correlated with youth emancipation and access to rentals, whereas it is uncorrelated with youth employment. Table A1 shows these results qualitatively hold when the youth population accounts for individuals in education, though HMR seems more negatively correlated with youth employment. The panel of Figures A2 to A7 displays the different estimated parameters and their 95% confidence intervals for different age groups

(Figures A2 to A5), and when individuals in education are included in the sample (Figures A6 and A7). We progressively increase the lowest age or decrease the largest age defining the youth population. These figures do not alter the general findings reported here. However they suggest there is additional heterogeneity between age groups of young individuals. Lastly, like Kahn (2010), the results are not robust to country-specific trends. This result is not surprising given the small numbers of years and reform episodes. However, it forbids a causal interpretation the different parameters.

The purpose of the rest of the paper is to make sense of such aggregate correlations and micro-based facts. In the next section we present a model where job protection can be seen as a second-best technology transmitting labor market signals to landlords who face a lemon problem. The value of such signals increases with the rental market regulation, which explains why the society has strong preference for job protection despite its side effects on ST employment and overall youth employment.

3.3 Theory

We develop a model of the labor and housing markets for young workers. We first expose the basic model and then turn to various extensions.

3.3.1 Basic model

We consider a static economy peopled by identical individuals. All individuals start unemployed and live with their parents. The model has two blocks. In the labor market block, workers and firms meet and the worker-firm pair receives an initial signal on the match quality. The worker is then hired in a short-term or long-term contract based on this signal and on the stringency of EPL. In the housing market, landlords observe workers' contracts and screen them on the basis of expected job security. Then the match quality is revealed and the worker stays in the job or goes back to unemployment. In case of job loss, tenants default on the rent and landlords incur a loss due to the length of litigation and eviction procedures. The proportion that is lost is exogenous, and measures the degree of HMR.

We proceed in four steps. We first specify the model agenda and then successively present the labor market and rental market blocks. After discussing the comparative statics properties of equilibrium, we finally turn to the study of optimal job protection.

Timing.—In a first stage, individuals search for jobs. Firms choose whether they offer a long-term contract (LT) or a short-term one (ST). In a second stage, workers search for a dwelling and landlords screen them according to their contract type. In a third stage, match quality is revealed, and some jobs turn nonprofitable. Only those who stay employed pay the rent and enjoy housing consumption.

To simplify, wages and rents are exogenous. This assumption can be justified as representing additional rigidities at work in the housing and labor markets. More interestingly, it abstracts from any second-order effect of job protection on prices, so that the social demand for EPL, if any, cannot be attributed to such disputable effects. For instance, Leonardi and Pica (2013) exploit the 1990 Italian reform that introduced unjust dismissal costs for firms below 15 employees. They find that the slight average wage reduction induced by the reform hides highly heterogenous effects. In a similar spirit, Casas-Arce and Saiz (2010)

argue that procedural formalism in the rental market has heterogenous effects on rents by redistributing income from movers to stayers.

Labor market. There is a continuum of firms. Each firm corresponds to a single job slot, which can be active or inactive. Turning active costs $c > 0$. Vacant jobs and unemployed workers meet according to a matching technology. Let θ be the ratio of vacant jobs to unemployed workers. The probability of meeting a firm is $m(\theta)$, whereas the probability of contacting a worker is $m(\theta)/\theta$, with $m(\theta) = 0$, $m(\infty) = 1$, $m' > 0$, $m'' < 0$, and $m'(0) = 1$. The strict concavity implies that $m(\theta)/\theta$ is strictly decreasing, while the Inada-type condition ensures that $\lim_{\theta \rightarrow 0} m(\theta)/\theta = 1$ by l'Hôpital's rule.

Right after meeting, the firm-worker pair receives a signal on match quality. The match is good with probability P and bad with complementary probability $1 - P$. The probability P is uniformly distributed on $[0, 1]$. Firms make two decisions: whether to hire the worker or not, and, conditional on hiring, which contract they offer. The contract type is indexed by $i = ST, LT$. Contracts differ in two ways: on the one hand, they are associated to different costs of dismissal. The firing cost $t_i \geq 0$ is a pure loss to the pair and $t_{LT} = t \geq t_{ST} = 0$. On the other hand, contracts differ in training opportunity: only the workers hired in a LT contract can receive training. Workers in a bad match are dismissed in all circumstances, while workers in a good match produce y_L when untrained, and $y_H > y_L$ when trained. We assume the following parametric restrictions hold $y_H - w > y_L - w > 0$ and $w > 1$. Moreover, we denote $\Delta y \equiv y_H - y_L$ the output differential between good and bad matches.

The trade-off is the following: a LT contract is more costly than a ST contract because the firm has to pay a cost in case of separation. However, offering a LT contract is advantageous because trained workers can be more productive. This advantage can be exploited when the match is good. Thus the value of offering a LT contract increases with the signal on match quality.

The assumption whereby LT jobs are more productive than ST ones ensures firms have incentive to offer LT jobs. Note, however, that workers in temporary jobs are less likely to receive training (see, e.g., Booth et al, 2002). More generally costly commitment favors match-specific investments, which this assumption broadly captures.

Let π_{LT} and π_{ST} denote the profits associated with a LT and a ST contracts. We have

$$\pi_{LT} = P(y_H - w) + (1 - P)(0 - t), \quad (3.5)$$

$$\pi_{ST} = P(y_L - w). \quad (3.6)$$

The worker obtains a LT contract when

$$P \geq P_{LT} = \frac{t}{\Delta y + t},$$

and a ST contract when

$$P_{LT} > P \geq 0. \quad (3.7)$$

Figure 3.5 represents the choice made by the firm as a function of the initial belief P on match quality. This belief is on the horizontal axis, whereas the expected profit lies on the vertical axis. The expected profit associated to a ST contract starts from 0 when the job is surely of low quality and the worker is fired with certainty. Then it increases to $y_L - w$ when $P = 1$. The expected profit associated to a LT

contract starts negative because $t \geq 0$. Then it crosses the horizontal line for some P , crosses π_{ST} in P_{LT} and reaches $y_H - w$ when $P = 1$. Thus the firm gives a ST contract when $P \in [0, P_{LT})$ and a LT contract when $P \geq P_{LT}$. When $t = 0$, $P_{LT} = 0$ and all workers are hired in a LT contract; when t is arbitrarily large, P_{LT} tends to 1 and all workers are hired in a ST contract.

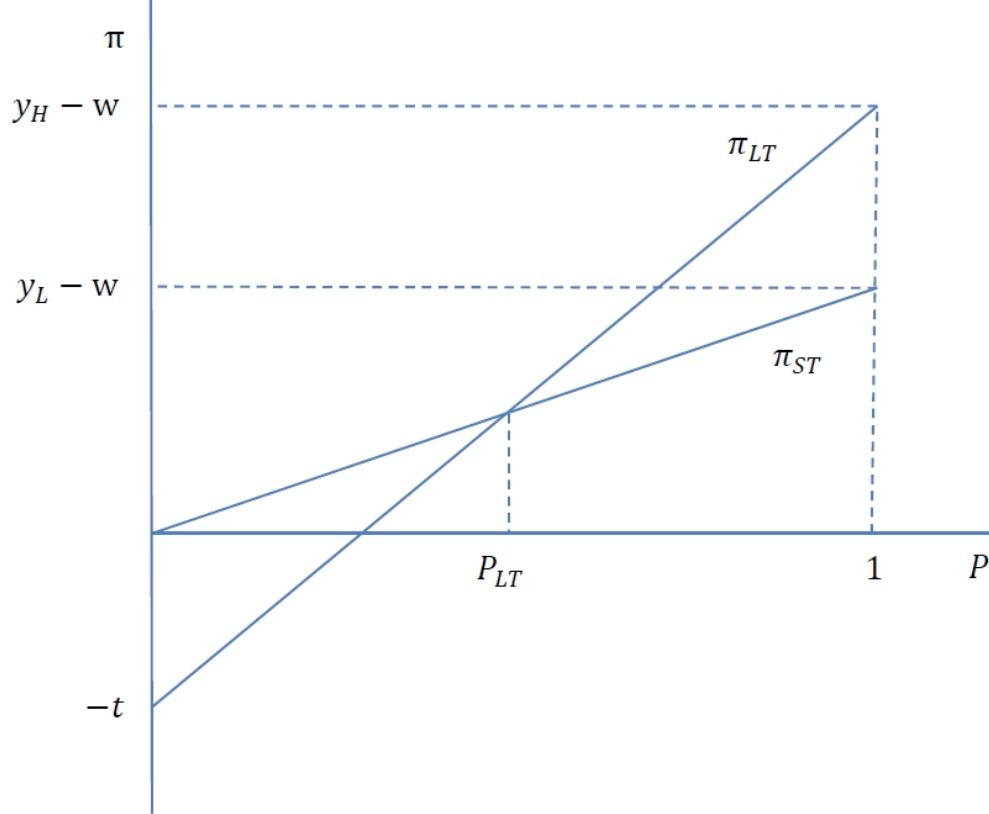


Figure 3.5: Contract choice and belief on match quality.

The number of active jobs responds to a free-entry condition. This implies that

$$c = \frac{m(\theta^*)}{\theta^*} \int_0^1 \max\{\pi_{LT}, \pi_{ST}, 0\} dP. \quad (3.8)$$

Accounting for the two belief thresholds detailed above, we have

$$\begin{aligned} c &= \frac{m(\theta^*)}{\theta^*} \left\{ \int_0^{P_{LT}} \pi_{ST} dP + \int_{P_{LT}}^1 \pi_{LT} dP \right\} \\ &= \frac{m(\theta^*)}{\theta^*} \left\{ \Delta y \frac{1 - P_{LT}}{2} + (y_L - w) \frac{1}{2} \right\}. \end{aligned} \quad (3.9)$$

Rental market.—Once they have a job offer, which happens with probability $m(\theta^*)$, all workers search for a dwelling. We consider the simple case where each worker meets one and only one landlord. The expected income derived from renting to a type- i tenant is $(1 - \delta_i) + (1 - \alpha)\delta_i = 1 - \alpha\delta_i$, where the rent

is normalized to unity, δ_i is the expected default probability and $1 - \alpha \in [0, 1]$ is the value of the dwelling with a defaulting tenant. Parameter α is a measure of HMR. Procedural formalism weakens property rights and landlords cannot recoup the full value of the dwelling in case of rent default. When $\alpha = 0$, the expected income of the landlord is equal to one and does not depend on the default probability.

To screen applicants, landlords observe the employment contract. The contract type reveals an average match quality on the labor market which is $(1 + P_{LT})/2$ for LT contract and $P_{LT}/2$ for ST contract. The corresponding default probabilities δ_{LT} and δ_{ST} are:

$$\delta_{LT} = \mathbb{E}[1 - P \mid P \geq P_{LT}] = 1 - \frac{1 + P_{LT}}{2}, \quad (3.10)$$

$$\delta_{ST} = \mathbb{E}[1 - P \mid P < P_{LT}] = 1 - \frac{P_{LT}}{2}. \quad (3.11)$$

These default probabilities are such that $1/2 \leq \delta_{LT} < \delta_{ST} \leq 1$.

Each landlord has an opportunity cost of renting k , which is distributed according to the cumulative distribution function H . Landlords compare this opportunity cost to the expected income derived from renting $1 - \alpha\delta_i \in [1/2, 1]$. Therefore we suppose that the support of the cdf H is $[1/2, 1]$. Moreover, this function has a continuous density $h \equiv H'$. Landlords expect that workers in ST jobs are more likely to be dismissed and, therefore, to default on the rent. Importantly, the reason is not that LT contracts protect workers against the risk of dismissal. Instead, the contract type reveals the match-specific risk of dissolution.

The probability μ_i of obtaining a rental varies with the contract type $i = ST, LT$. Indeed, we have $\mu_i = H(1 - \alpha\delta_i)$. The probability decreases with the parameter of regulation α and the default probability δ_i . As $\delta_{LT} < \delta_{ST}$, we have $\mu_{LT} > \mu_{ST}$ when $\alpha > 0$ and workers with a LT contract are more likely to find a dwelling than workers with a ST contract.

Comparative statics.—We now discuss the impacts of the different regulation parameters on model outcomes. In this goal, let $e_{LT} = m(\theta^*) \Pr[P \geq P_{LT}] \mathbb{E}[P \mid P \geq P_{LT}]$ be LT employment, $e_{ST} = m(\theta^*) \Pr[P < P_{LT}] \mathbb{E}[P \mid P < P_{LT}]$ be ST employment and $e = e_{ST} + e_{LT}$ be overall employment. Similarly, the fraction of emancipated workers is $q = e_{ST}\mu_{ST} + e_{LT}\mu_{LT}$.

Taking into account the values of δ_{LT} , δ_{ST} , μ_{LT} and μ_{ST} , we have

$$\begin{aligned} e_{LT} &= m(\theta^*) \frac{1 - P_{LT}^2}{2}, \\ e_{ST} &= m(\theta^*) \frac{P_{LT}^2}{2}, \\ e &= \frac{m(\theta^*)}{2}. \end{aligned}$$

The meeting probability $m(\theta^*)$ strictly decreases with t . An increase in the dismissal cost is equivalent to an increase in expected labor costs. Job profitability decreases and firms create fewer vacancies as a result. The dismissal cost affects the threshold belief on match quality as follows:

$$\frac{dP_{LT}}{dt} = \frac{y_H - y_L}{(y_H + t - y_L)^2} > 0.$$

When the cost of dismissal t increases, firms substitute ST jobs to LT ones. Therefore the threshold P_{LT}

goes up.

It follows that $de_{LT}/dt < 0$, whereas de_{ST}/dt has an ambiguous sign. LT employment necessarily decreases because the contact probability $m(\theta^*)$ goes down and firms become reluctant to offer LT contracts. The impact on ST employment is less clear-cut because firms have stronger incentive to hire workers in a ST contract. As $e = m(\theta^*)/2$, overall employment decreases with t .

As for the emancipation probability q , we have

$$\begin{aligned} q &= m(\theta^*) [(1 - P_{LT})(1 - \delta_{LT})\mu_{LT} + P_{LT}(1 - \delta_{ST})\mu_{ST}] \\ &= \frac{m(\theta^*)}{2} [(1 - P_{LT}^2)H(1 - \alpha/2 + \alpha P_{LT}/2) + P_{LT}^2H(1 - \alpha + \alpha P_{LT}/2)]. \end{aligned} \quad (3.12)$$

Emancipation results from the conjunction of three events: finding a job, keeping the job and finding a rental. HMR has a negative impact on emancipation. The second line separates the emancipation probability into two components: the employment probability $e = m(\theta^*)/2$ and the average probability $\bar{\mu} \equiv (1 - P_{LT}^2)H(1 - \alpha/2 + \alpha P_{LT}/2) + P_{LT}^2H(1 - \alpha + \alpha P_{LT}/2)$ of obtaining a lease. Whether the individual has a LT or a ST contract, α reduces the likelihood that the landlord selects any worker. Therefore both probabilities μ_{LT} and μ_{ST} decrease with parameter α and so $\bar{\mu}$ decreases with α .

Optimal job protection.—We now argue there may be positive demand for protected jobs despite employment and the share of ST jobs increase with the firing cost t . We suppose that consumption and emancipation are complementary goods. In this model capital owners receive a constant return. Moreover landlords' and workers' well-beings are perfectly aligned. Therefore, the cost of dismissal maximizes the expected utility of a typical worker before the signal P is known, i.e., under the veil of ignorance. Therefore the optimal job protection parameter solves

$$t^* \in \arg \max_{t \geq 0} \{q(w - 1) = e(t)\bar{\mu}(t, \alpha)(w - 1)\}. \quad (*)$$

As $w - 1$ does not depend on t , solving $(*)$ is equivalent to maximizing the emancipation probability.

Employment decreases with t . Thus $t = 0$ is the employment-maximizer level of job protection and $e_{\max}$ is the corresponding employment level. In the absence of rental market regulation, i.e., $\alpha = 0$, the optimal dismissal cost is $t^* = 0$. To see this, let us write the emancipation probability as follows: $q = e\mu_{ST} + e_{LT}(\mu_{LT} - \mu_{ST})$. When $\alpha = 0$, landlords are as likely to rent to workers in ST and LT contracts, i.e., $\mu_{LT} = \mu_{ST} = H(1) = 1$. Maximizing the emancipation probability is then equivalent to maximizing employment.

When $\alpha > 0$, landlords must take into account the default probability because they lose part of the dwelling's value in case of default. Suppose $t = 0$, then all workers are hired in a LT contract. It follows that the emancipation probability is $q = e_{\max}H(1 - \alpha/2)$. As α increases, the probability of being accepted by the landlord goes down, reaching its minimum when $\alpha = 1$. In this latter case, the probability is $H(1/2) = 0$. The unconditional mean of the default probability is too low for landlords who suffer the risk of losing their dwelling in case of default. Therefore they do not rent and the rental market collapses.

Setting $t^* > 0$ is optimal when $\alpha = 1$. This leads firms to select a subset of workers in LT contracts. The belief threshold P_{LT} is strictly positive and the mean default probability δ_{LT} among such workers

is larger than $1/2$. It follows that there is a mass of landlords who are willing to rent their dwellings to workers in LT contracts. Meanwhile, all workers in ST contracts are forced to coreside with parents.

By continuity, the optimal cost of dismissal for LT jobs is strictly positive when α is sufficiently large. In an interior solution to problem (*), the optimal cost of dismissal solves the following first-order condition

$$\frac{e'(t^*)}{e(t^*)} + \frac{\bar{\mu}_t(t^*, \alpha)}{\bar{\mu}(t^*, \alpha)} = 0. \quad (3.13)$$

The first term accounts for the negative marginal impact of job protection on employment. The second term shows the marginal impact of job protection on the average probability of obtaining a lease. This term must be positive to balance the employment effect.

The second term is

$$\bar{\mu}_t(t^*, \alpha) = \underbrace{-2P_{LT} \frac{dP_{LT}}{dt} (\mu_{LT} - \mu_{ST})}_{A < 0} + \underbrace{(1 - P_{LT}^2) \frac{dH(1 - \alpha/2 + \alpha P_{LT}/2)}{dt}}_{B > 0} + \underbrace{P_{LT}^2 \frac{dH(1 - \alpha + \alpha P_{LT}/2)}{dt}}_{C > 0}.$$

It is composed of three effects, A , B and C . According to A , increasing the cost of dismissal reduces the pool of LT workers who benefit from a better access to rentals. Therefore this effect contributes to reducing the average probability of having a lease. According to B and C , the increase in cost of dismissal raises the probability of obtaining a rental for both ST and LT workers. This phenomenon is due to composition effects in both groups. The marginal workers who quit the group of LT workers have the lowest belief on match quality in this group, but the largest one in the group of ST workers. Therefore the mean expected risk of default decreases in both groups. These effects explain why protecting jobs may be interesting for nonemployed workers despite the negative impact of job protection on employment opportunities.

HMR promotes the social demand for job protection. The value of screening increases with the regulation parameter α . In heavily regulated rental markets, young workers are in favor of a legislation that reduces the supply of vacancies, increases unemployment and raises the proportion of ST employment despite the legislation does not affect the individual risk of job loss. The reason is HMR creates a need for a technology helping landlords to screen heterogenous applicants on the basis of their ability to pay the rent.

To conclude, the model equilibrium generically replicates the nexus of aggregate and micro facts discussed in section 3.2. In particular, emancipation and employment are negatively correlated with HMR as in Figures 3.1 and 3.2, the proportion of ST jobs increases with job protection as in Figure 3.3, and HMR and job protection are positively correlated as in Figure 3.4. Meanwhile, as in Table 3.1, HMR does not directly affect labor market outcomes and reduces youth emancipation, whereas job protection on regular jobs reduces youth employment and increases the share of youth employees in temporary jobs.

3.3.2 Extensions

In this section we study three extensions to the basic model. We start with the consideration of effects of job protection on individual dismissal as Decreuse and van Ypersele (2011). Therefore job protection both increases selection into LT jobs and reduces the individual job loss probability. These two complementary

views of job destruction and job protection strengthen each other and contribute to increasing the demand for job protection. We then consider the case where reducing worker mobility increases unemployment. We focus on an extreme situation where occupying a job always involves moving to a new dwelling. Despite firms take into account the effect of the labor contract on the rental probability, selection into employment is too low. Protecting LT jobs make firms more selective, which may improve employment and emancipation. Lastly, we revisit the insider-outsider theory of job protection. We let the probability of success P ex-ante differ in the population. We show two groups of workers prefer strongly protected jobs: individuals with a large probability of success and those with a low probability of success. The former want to belong to a small elite club with large access to the housing market, whereas the latter want to be accompanied in short-term contracts by as many workers as possible to avoid stigmatization.

Job protection and the risk of dismissal.—In the basic model, the individual risk of dismissal is not affected by EPL. The average risk of dismissal among LT workers decreases with job protection for pure composition effects as in Pries and Rogerson (2005) and Cahuc et al (2016). There is another strand of literature based on Mortensen and Pissarides (1994) where employed workers are submitted to idiosyncratic productivity shocks and job protection reduces the individual probability of dismissal. We now account for both types of effects, i.e., composition and individual effects.

With probability $1 - P$ the firm incurs an operative loss $-\pi$, where π is drawn from the cdf G on the support $(0, \infty)$. Workers occupying a ST job are always dismissed in such a case, whereas workers in a LT contract are dismissed when $\pi > t$. The threshold belief P_{LT} solves $P_{LT}(y_L - w) = P_{LT}(y_H - w) - (1 - P_{LT})f(t)$, where $f(t) = -\int_0^t \pi dG(\pi) - [1 - G(t)]t$. This gives $P_{LT} = f(t)/(\Delta y + f(t))$. The free-entry condition still implies

$$c = \frac{m(\theta^*)}{\theta^*} \left\{ \Delta y \frac{1 - P_{LT}}{2} + (y_L - w) \frac{1}{2} \right\},$$

whereas ST, LT and overall employment are

$$\begin{aligned} e_{LT} &= \frac{m(\theta^*)}{2} [1 - P_{LT}^2 + (1 - P_{LT})^2 G(t)], \\ e_{ST} &= \frac{m(\theta^*)}{2} P_{LT}^2, \\ e &= \frac{m(\theta^*)}{2} [1 + (1 - P_{LT})^2 G(t)]. \end{aligned}$$

Like the basic model, the cost of dismissal distorts the allocation of ST and LT contracts. Therefore this cost reduces the supply of vacancies and increases the share of ST contracts. However, now it also reduces the individual job loss probability for workers with a LT contract. Therefore the overall effect of t on employment is ambiguous.

Landlords make their decision on the basis of the following average default probabilities: $\delta_{LT} = (1 - P_{LT})[1 - G(t)]/2 < 1/2$ and $\delta_{ST} = 1 - P_{LT}/2$. The cost of dismissal still induces risk selection into ST and LT employment, which decreases both default probabilities. Moreover it further decreases the average LT workers' default probability by reducing the individual risk of dismissal.

The emancipation probability is

$$q = \frac{m(\theta^*)}{2} \{ H(1 - \alpha\delta_{LT}) + P_{LT}^2 (H(1 - \alpha\delta_{ST}) - H(1 - \alpha\delta_{LT})) + H(1 - \alpha\delta_{LT})(1 - P_{LT})^2 G(t) \}.$$

When $\alpha = 0$, the emancipation probability is $q = eH(1)$. Therefore the optimal cost of dismissal maximizes employment. When $\alpha = 1$, people have two reasons to set job protection above the employment-maximizer parameter. On the one hand, job protection improves screening like in the basic model. The transmission of high-quality signals to landlords improves the access to rentals and makes emancipation easier. On the other hand, the cost of dismissal reduces the individual default risk of workers in LT contracts. This further increases their chance of obtaining a rental. This latter effect is similar to Decreuse and van Ypersele (2011) who study the impact of job protection on mortgage prices.

HMR increases the return to job security through two complementary effects: improved screening reduces the magnitude of landlords' asymmetric information problem and decreased individual risk of job loss lowers the correlated risk of rent default.

HMR, employment and workers' mobility.—In the basic model, the only effect of HMR on employment is due to the correlated demand for EPL. This is in line with the micro evidence reported in section 3.2, Table 3.1. However, Table A1 in the Appendix shows that HMR is negatively associated to youth employment when we consider a different sample of individuals. We now follow Rupert and Wasmer (2012) and introduce a direct effect of HMR on employment due to its negative impact on worker mobility. Accounting for this effect modifies the reasoning because, now, facilitating the access to rentals can also increase employment. We show that EPL is still needed as a firm discipline device to make them more selective and improve the access to rentals.

To consider an extreme case, suppose that occupying a job requires moving from the family home to an alternative location. Therefore employment and emancipation coincide. Once a worker is met, the firm chooses the contract type accounting for the chance of having a rental. Offering a ST contract gives $P(y_L - w)H(1 - \alpha\delta_{ST})$, whereas offering a LT contract gives $P(y_H - w)H(1 - \alpha\delta_{LT}) - (1 - P)t$.

The free-entry condition implies

$$c = \frac{m(\theta)}{\theta} \left\{ \int_0^{P_{LT}} H(1 - \alpha\delta_{ST})P(y_L - w)dP + \int_{P_{LT}}^1 [H(1 - \alpha\delta_{LT})P(y_H - w) - t(1 - P)]dP \right\} \quad (3.14)$$

and the threshold belief is

$$P_{LT} = \frac{t}{(y_H - w)H(1 - \alpha\delta_{LT}) - (y_L - w)H(1 - \alpha\delta_{ST}) + t}, \quad (3.15)$$

Firms take as given the group-specific mean default probability used by landlords to decide whether to accept a potential tenant or not. However, such default probabilities depend on firms' policies to offer ST and LT contracts. In equilibrium the selection threshold solves the following fixed-point problem:

$$P_{LT} = \frac{t}{(y_H - w)H(1 - \alpha/2 + \alpha P_{LT}/2) - (y_L - w)H(1 - \alpha + \alpha P_{LT}/2) + t}. \quad (3.16)$$

When $\alpha = 0$, the probability of having a rental is equal to one for both groups of workers. Thus $P_{LT} = t/(\Delta y + t)$ as in the basic model. When $\alpha > 0$, the right-hand side of equation (3.16) is affected by P_{LT} in two opposite ways. Both mean default probabilities decrease with P_{LT} , which implies that both ST and LT workers are more likely to find a rental. The negative impact of P_{LT} on δ_{LT} is a stabilizer effect: an increase in P_{LT} raises LT workers' probability of obtaining a rental, which provides firms with

incentive to offer LT contracts. Conversely, the negative impact of P_{LT} on δ_{ST} is a multiplier effect: increasing P_{LT} reduces firms' incentive to offer LT contracts.

Given the stabilizer and multiplier effects depend on the density H' of the opportunity cost distribution, it is possible to conceive cases where the former effect dominates the latter one and vice versa. There may be multiple equilibria. In high-selection equilibria, few workers are hired in LT contracts and they easily find rentals, whereas the large pool of workers hired in ST contracts benefit from a moderate access to rentals. In low-selection equilibria, more workers are hired in LT contracts and they face more difficulties to find dwellings than in high-selection equilibria. Moreover, the smaller number of workers hired in ST contracts struggle to find rentals.

In equilibrium, firms under-select workers in LT jobs. One way to see this consists in maximizing firms' expected profits with respect to P_{LT} while accounting for its effects on the signals received by landlords. We obtain

$$\begin{aligned}
 P_{LT} &= \frac{t}{(y_H - w)H(1 - \alpha/2 + \alpha P_{LT}/2) - (y_L - w)H(1 - \alpha + \alpha P_{LT}/2) + t} \\
 &\quad - \alpha \frac{\frac{d\delta_{ST}}{dP_{LT}} h(1 - \alpha\delta_{ST}) \int_0^{P_{LT}} P(y_L - w)dP + \frac{d\delta_{LT}}{dP_{LT}} \int_{P_{LT}}^1 h(1 - \alpha\delta_{LT})P(y_H - w)dP}{(y_H - w)H(1 - \alpha/2 + \alpha P_{LT}/2) - (y_L - w)H(1 - \alpha + \alpha P_{LT}/2) + t} \\
 &> \frac{t}{(y_H - w)H(1 - \alpha/2 + \alpha P_{LT}/2) - (y_L - w)H(1 - \alpha + \alpha P_{LT}/2) + t},
 \end{aligned}$$

because $d\delta_i/dP_{LT} < 0$ for $i = ST, LT$.

The first line of the right-hand side corresponds to the hiring threshold that firms set in the decentralized allocation. The second line accounts for the signal transmitted to landlords. Given P_{LT} decreases both group-specific rent default probabilities, the resulting threshold is larger than in equilibrium. The situation is typical of the prisoner's dilemma. It is in the collective interest of firms to restrict the supply of LT contracts so as to transmit high-quality signals to landlords. At private level, each firm has incentive to deviate from this strategy to make sure that the worker will find a rental and the job will be occupied. In equilibrium firms offer too many LT contracts, operating profits are too low and too few vacancies are supplied.

The optimal cost of dismissal still maximizes the emancipation probability, which is here equivalent to maximizing employment. Like the basic model, HMR promotes job protection because firms are insufficiently selective. We illustrate this statement by confronting two extreme cases. In the absence of HMR, landlords accept all potential tenants and the cost of dismissal reduces employment. Therefore the optimal cost is $t^* = 0$. Conversely, when $\alpha = 1$, having $t = 0$ implies that $P_{LT} = 0$. Firms do not select workers and the mean default probabilities are $\delta_{LT} = 1/2$ and $\delta_{ST} = 0$. Thus $\mu_{LT} = \mu_{ST} = 0$ and employment and emancipation are equal to 0. Thus $t^* > 0$.

In this extended model, employment and emancipation coincide. Therefore optimal job protection actually maximizes employment. In the more general case where only a share of job offers require moving to an alternative location, there is still a trade-off between employment and access to rentals as in the basic model.

Insider-outsider theory of job protection.—Saint-Paul (2001) describes the insider-outsider theory of labor market institutions. This theory posits that existing institutions maximize the well-being of the

majority of workers installed in LT jobs. In the basic model, we study the preferences of a typical individual under the veil of ignorance. However, it is obvious that the ex-ante risks of losing future jobs and defaulting on future rents differ in the youth population. We now consider the preferences of heterogenous individuals in terms of such risks. This leads us to distinguish two groups of persons who prefer strongly protected jobs: young workers with high and low risks of being dismissed.

Let $u_i = m(\theta^*)H(1 - \alpha\delta_i)/2$ be the normalized utility when the worker can obtain a type- i contract, $i = ST, LT$. The utility U of a type- P worker depends on the belief threshold according to:

$$U = \begin{cases} Pu_{LT}(w-1) & \text{if } P \leq P_{LT} \\ Pu_{ST}(w-1) & \text{if } P > P_{LT} \end{cases}$$

When $\alpha > 0$, we have $\delta_{LT} < \delta_{ST}$. Therefore $u_{LT} > u_{ST}$ and all workers prefer LT contracts to benefit from better access to rentals. The function U jumps upward when the type P crosses the threshold P_{LT} .

The variable P_{LT} is monotonically increasing in t . Thus it is equivalent to analyze preferences vis-à-vis t or P_{LT} . We focus on P_{LT} with $t = \frac{P_{LT}}{1-P_{LT}}\Delta y$. For ease, we suppose that the functions u_{ST} and u_{LT} are single-peaked, taking their maximum in P_{ST}^+ and P_{LT}^+ , respectively. The corresponding costs of dismissals are t_{ST}^+ and t_{LT}^+ , with $t_{ST}^+ = \frac{P_{ST}^+}{1-P_{ST}^+}\Delta y$ and $t_{LT}^+ = \frac{P_{LT}^+}{1-P_{LT}^+}\Delta y$. Whether P_{ST}^+ is larger or lower than P_{LT}^+ depends on the monotonicity of the ratio $h(x)/H(x)$ with respect to x .

Let $\bar{P}$ be the worker's type such that the person is indifferent between t_{ST}^+ and t_{LT}^+ . Since $H(1 - \alpha\delta_{LT}) > H(1 - \alpha\delta_{ST})$, this limit type is such that $\bar{P} < \min\{P_{LT}^+, P_{ST}^+\}$.

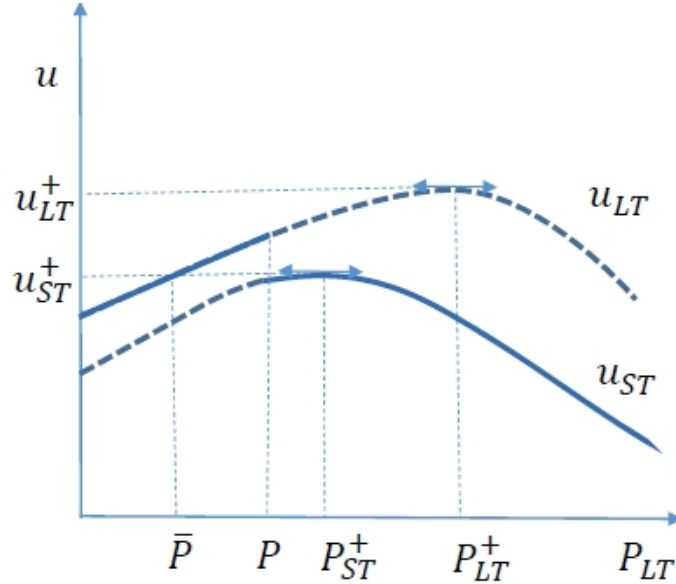


Figure 3.6: Preferred job protection when workers know their type. The normalized utility functions u_{ST} and u_{LT} , normalized utility maximizers P_{ST}^+ and P_{LT}^+ , and the limit type $\bar{P}$ are defined in the text. The bold line shows the normalized utility of a type P worker when P_{LT} changes.

Figure 3.6 depicts the normalized utility functions u_{LT} and u_{ST} when the threshold belief P_{LT} varies.

Large- P individuals, i.e., with $P \geq P_{LT}^+$, prefer the level of job protection maximizing the normalized utility associated to LT contracts. Such individuals are sure to become LT workers and incline for high selection into this group, thereby ensuring that landlords are willing to offer them a rental. The level of protection is only limited by its negative impact on job openings.

At the other bound of the type spectrum, low- P individuals, i.e., $P \leq \bar{P}$, prefer the level of job protection maximizing the normalized utility associated to ST contracts. This level can be substantially large for reasons symmetric to large- P individuals. Low- P individuals are sure to become ST workers. Therefore they want to be mixed with a pool of high types, which obtains when LT jobs are very selective.

Lastly, medium- P individuals, i.e., with $\bar{P} < P < P_{LT}^+$, want to become LT workers. Therefore they prefer the largest cost of dismissal that is compatible with their selection into the pool of LT workers, which implies $P_{LT} = P$.

Two conclusions can be drawn. First, large- P individuals and low- P individuals have similar interests for job protection. Both want the entry into LT jobs to be selective so that the mean default probabilities associated to their group are high. Second, the group of workers less attached to job protection is less homogenous. Each worker of this group wants a LT contract, but also wants to exclude lower P individuals belonging to the same group from LT jobs.

Alternative risks and markets.—Our arguments can actually be applied to alternative risks and markets. These risks must be correlated with the probability of long-term success in an employment relationship, whereas the market situation must involve a screening problem taking place after the labor contract choice. Consider first another risk specific to the rental market: the risk of damage to the dwelling due to tenant's negligence. Workers who lose their jobs do not necessarily damage the dwelling as a reaction to the job loss. However, the characteristics associated to being successful in a LT employment relationship may be correlated with the characteristics associated to caring a home. In such a situation, the labor contract vehicles a signal on the risk of damage. If housing regulation increases the loss incurred by the landlord in case of damage, then the value of the labor contract signal increases with job protection.

The market for properties offers a similar situation where the lender must assess the borrower's ability to repay the debt. The costs of litigation vary a lot across countries and frequently amount to significant proportions of property values. Lenders typically use the labor contract to screen potential borrowers. Here again, the value of this signal increases with the strictness of job protection. We do not insist on this case because the youth do not have a large access to the market for properties.

The marriage market provides another example where job protection is particularly useful to screen potential life partners. The divorce regulation increases the cost of divorce by reducing the utility obtained by each divorcee. Thus marriage candidates must assess the risk of divorce prior to accepting marriage proposals. The labor contract offers a signal on one's ability to maintain a solid marriage. There is evidence suggesting that the loss of a job increases the risk of marriage dissolution for purely informational reasons—and not for economic motives. Doiron and Mendolia (2011) study the rate of divorce following an involuntary job loss. Redundancies have much smaller impacts than dismissals and ends of temporary jobs. This is in line with the idea that the latter motives convey a signal on future earnings and marriage quality. Charles and Stevens (2004) show there is an increase in the probability of divorce following a

spouse's job displacement but no change in divorce probability after a spousal disability. As they explain, this difference casts doubt on a purely pecuniary motivation for divorce following earnings shocks, since both types of shocks exhibit similar long-run economic consequences.

3.4 Conclusion

In many European countries, young workers are over-exposed to unemployment and job instability and quit the family home remarkably late. Meanwhile long-term jobs are very protected and the rental market is heavily regulated. Despite this situation calls for reforms of labor contracts, young workers are not willing to reduce protection of long-term jobs they do not hold. This paper provides a rationale to the lack of youth support for reforms of job protection. When the rental market is heavily regulated, protecting long-term contracts provides a screening technology improving access to the housing market. The risks of rent default and job dismissal are inherent to individuals and positively correlated. Employers who offer a long-term contract transmit a signal to landlords about the worker's type. The quality of this signal increases with the strictness of job protection.

Our paper calls for reforms of the housing market. Ideally one would like to reduce the level of procedural formalism in case of disputes between landlords and tenants. However, it is hardly feasible to modify it independently from the rest of the judicial system. Therefore the most important reform consists of insuring landlords against the rent default. The cost of such insurance can be large in terms of moral hazard effects. A key benefit consists of weakening the political support for job protection, thereby opening the door to labor market reforms.

We focus on a particular set of regulations of the housing market, namely procedural formalism in case of disputes between landlords and tenants. Housing market institutions are less well known and measured than labor ones. There are other types of regulation that we abstract from and that may have different effects on the housing and labor markets as well as on the social demand for job protection. We plan to study these alternative sets of regulation in future work.

3.5 Appendix

We study the robustness of the econometric results presented in section 3.2. We first reproduce Table 3.1 with a different sample including individuals in education. We then consider different age intervals defining the youth population.

Table A1 reproduces columns a and c of Table 3.1 when the youth population includes all individuals in education. Columns b and d are not reproduced because they are unchanged. Table A1 confirms the results displayed by Table 3.1. On the one hand, labor market reforms do not affect emancipation and the access to rentals, whereas HMR strongly reduces rental opportunities. On the other hand, reforms of LT contracts increase the youth employment probability. The effect is quantitatively smaller than in Table 3.1, which is not surprising given many individuals in education do not stop schooling following a change in labor market conditions. The main difference with Table 3.1 is that HMR now reduces the employment probability (column a). This finding helps to motivate the second extension we propose in section 3.3.2.

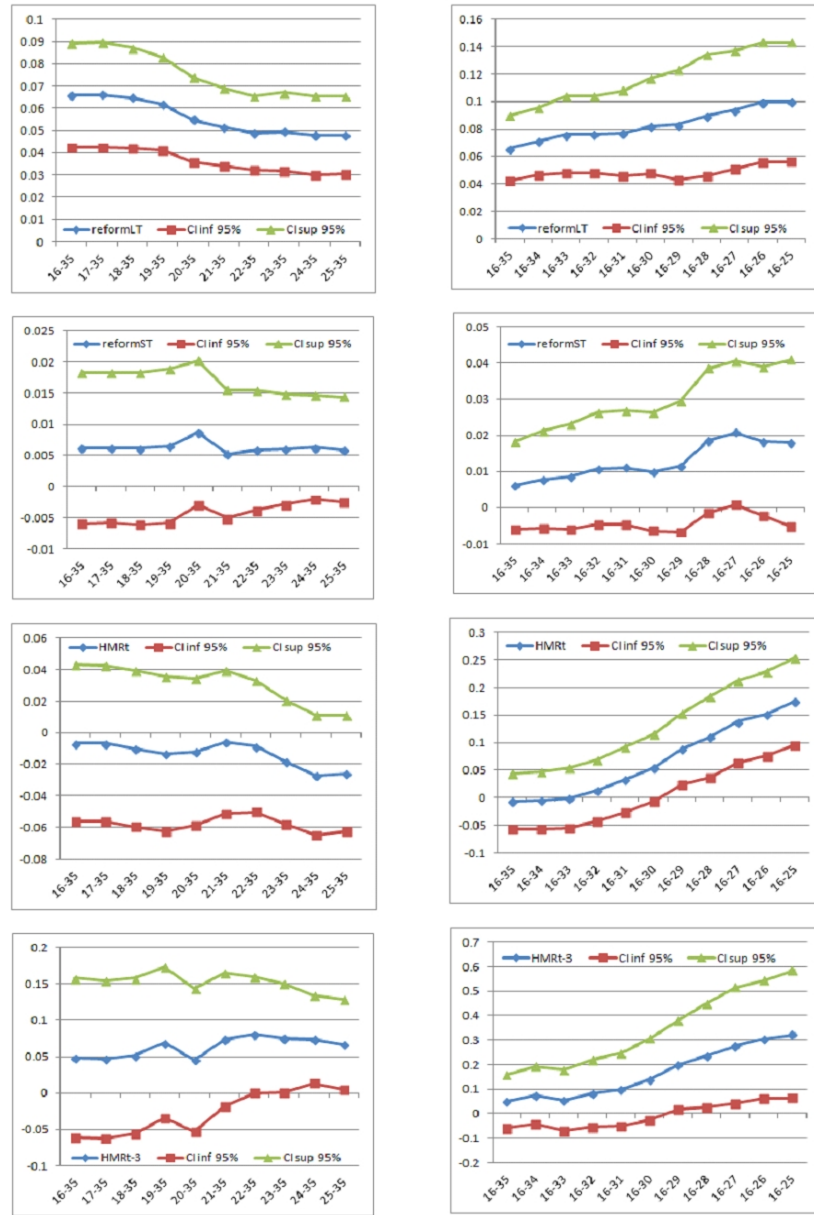
	a	b
dependent variable	emp	ema
reform ^{LT}	0.0452*** (3.50)	0.0018 (0.33)
reform ST	0.0052 (0.73)	-0.0033 (-0.70)
HMR _t	-0.0694** (-2.15)	-0.0299* (-1.82)
HMR _{t-3}	-0.0199 (-0.44)	-0.1211*** (-6.09)
within R ²	0.078	0.098
N	214,532	214,884

Table A1: The impacts of EPL and HMR on youth employment and emancipation. Significance thresholds: * p<0.1, ** p<0.05, *** p<0.01. The t statistics are between parentheses. All regressions include individual fixed effects, time effects / age, and time-varying individual-specific controls (a dummy equal to one when the individual has a higher education, a dummy equal to one when the individual has an intermediary education, a dummy equal to one when the individual is a woman and has a higher education, a dummy equal to one when the individual is a woman and has a intermediary education, the interaction of intermediary education dummy with a country-specific dummy, the interaction of higher education dummy with a country-specific dummy, a dummy equal to one when the individual is a woman and aged 16-25, another dummy equal to one when the individual is 16-25, and the interaction of the latter variable with a country-specific dummy). Each observation is weighted using the ECHP sampling weights. Standard errors are clustered at the country-year level.

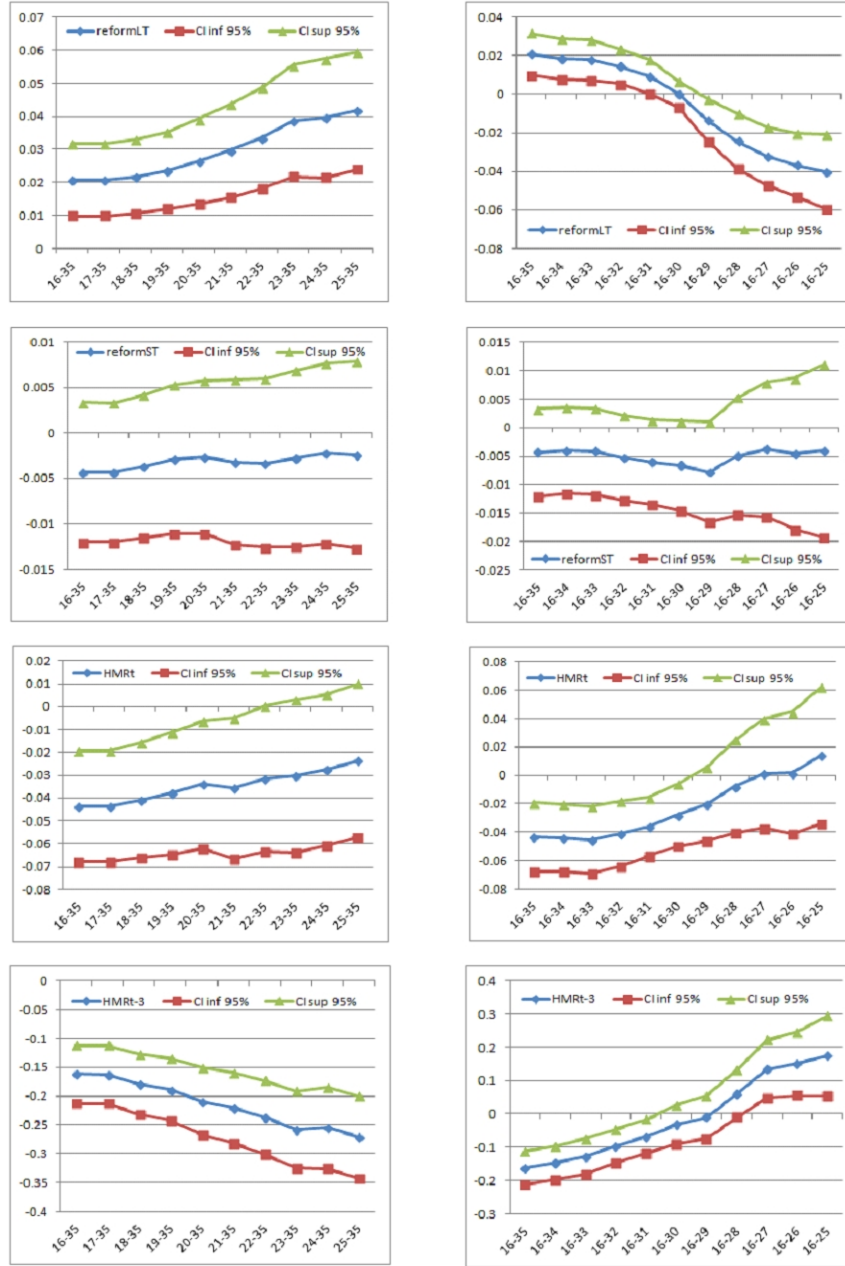
The panels of Figures A2 to A7 show the effects of the age span on the key parameter estimates. Each panel is associated to a specific dependent variable (emp, ltc, ema, rent), a particular definition

of the youth population (including individuals in education or not including them), and a particular modification of the age interval (increasing lower bound or decreasing upper bound). Overall these figures show that the general findings reported in section 3.2 hold for these different subpopulations. In particular, reforms of ST contracts are not correlated with employment and emancipation, reforms of LT contracts are more correlated with employment than emancipation and HMR is more correlated with emancipation than employment. To deep into details, Figure A2 shows that reforms of LT contracts are more associated with the employment of younger workers, but Figures A6 suggest this is partly due to selection in education. Figures A3 and A7 reveal that reforms of LT contracts may have heterogenous effects on the emancipation probability of the different age groups (positive for older workers and negative for younger ones), though the overall effect is nil.

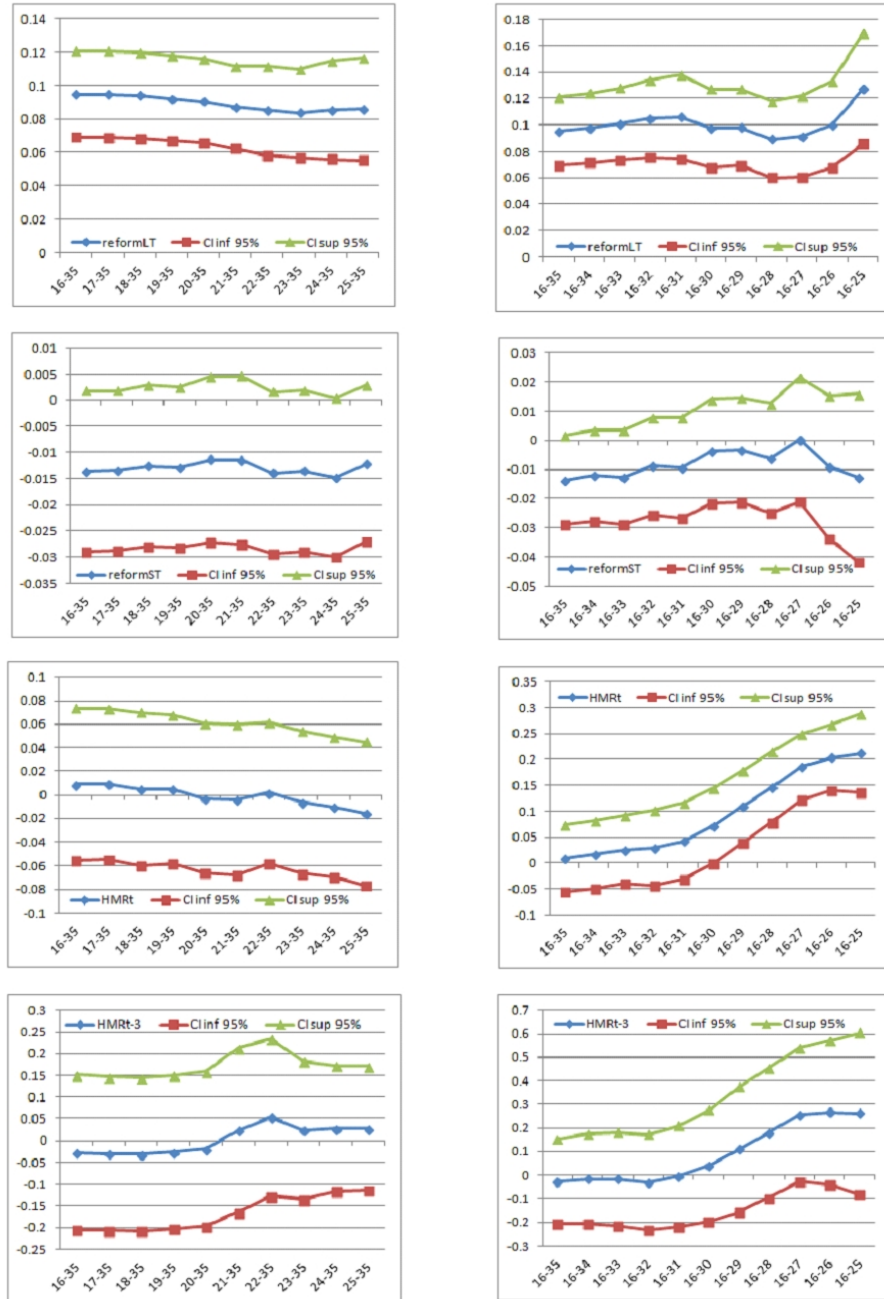
Figures A2: Estimated parameters of the employment regression for different age groups, case where individuals in education are excluded from the sample



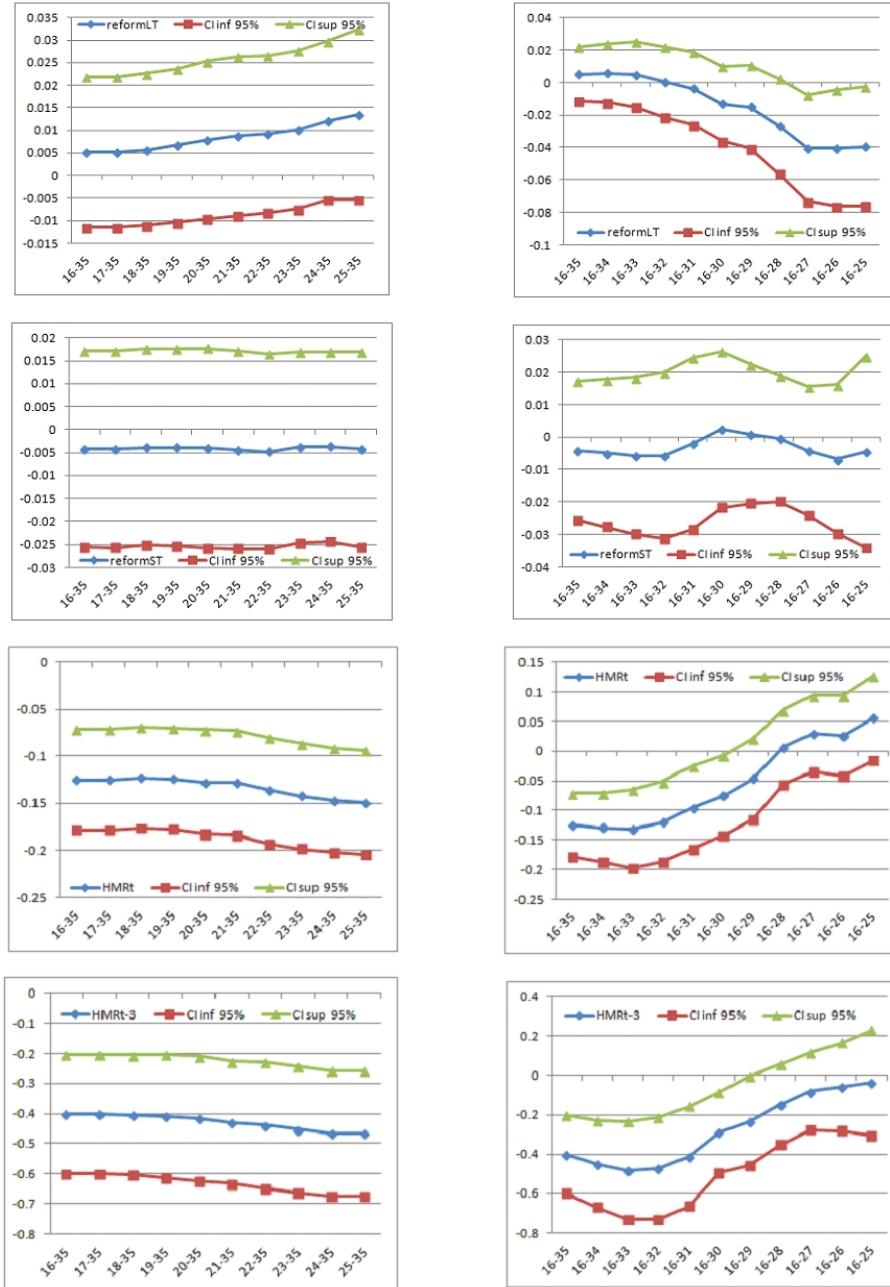
Figures A3: Estimated parameters of the emancipation regression for different age groups, case where individuals in education are excluded from the sample



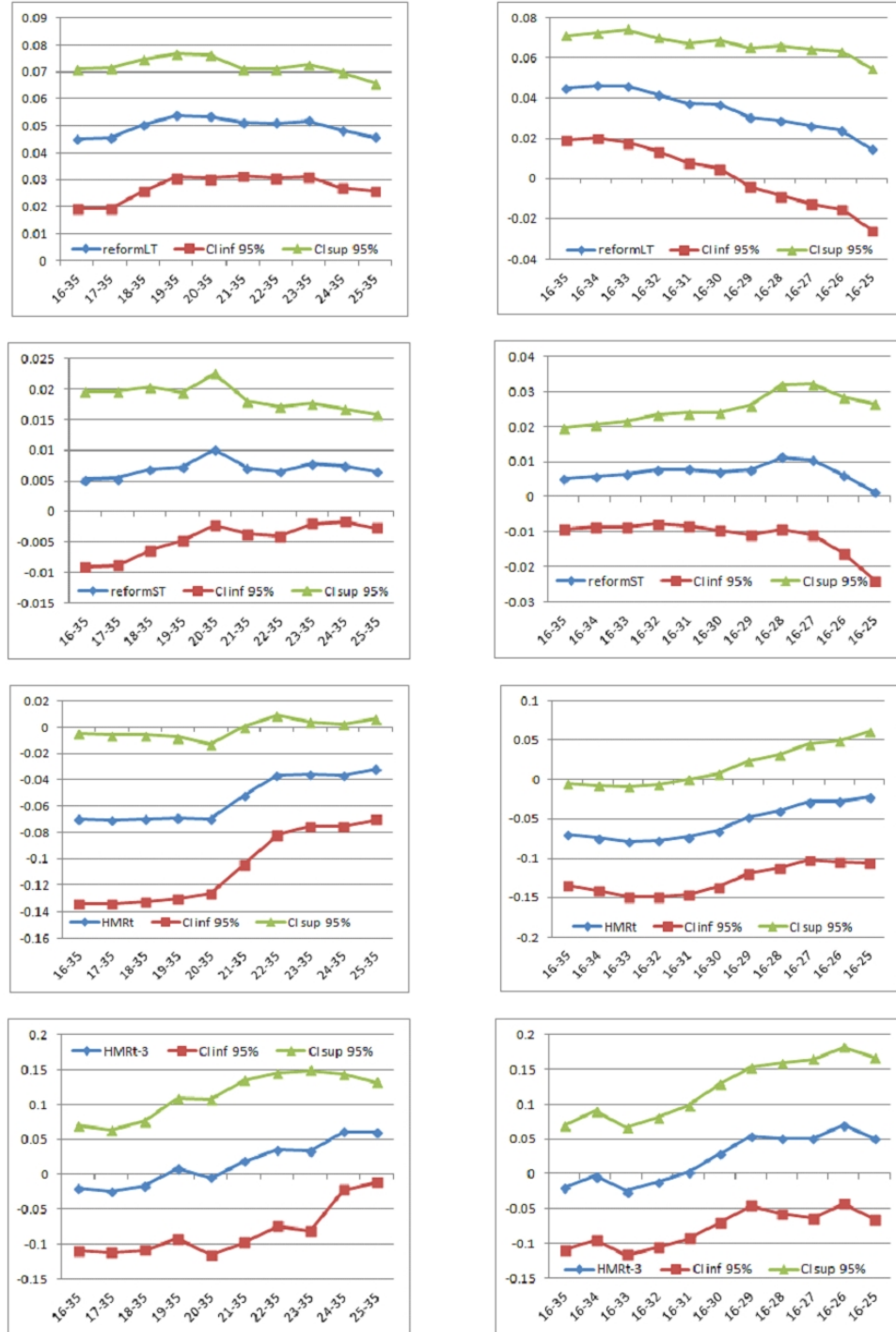
Figures A4: Estimated parameters of the ltc regression for different age groups, case where individuals in education are excluded from the sample



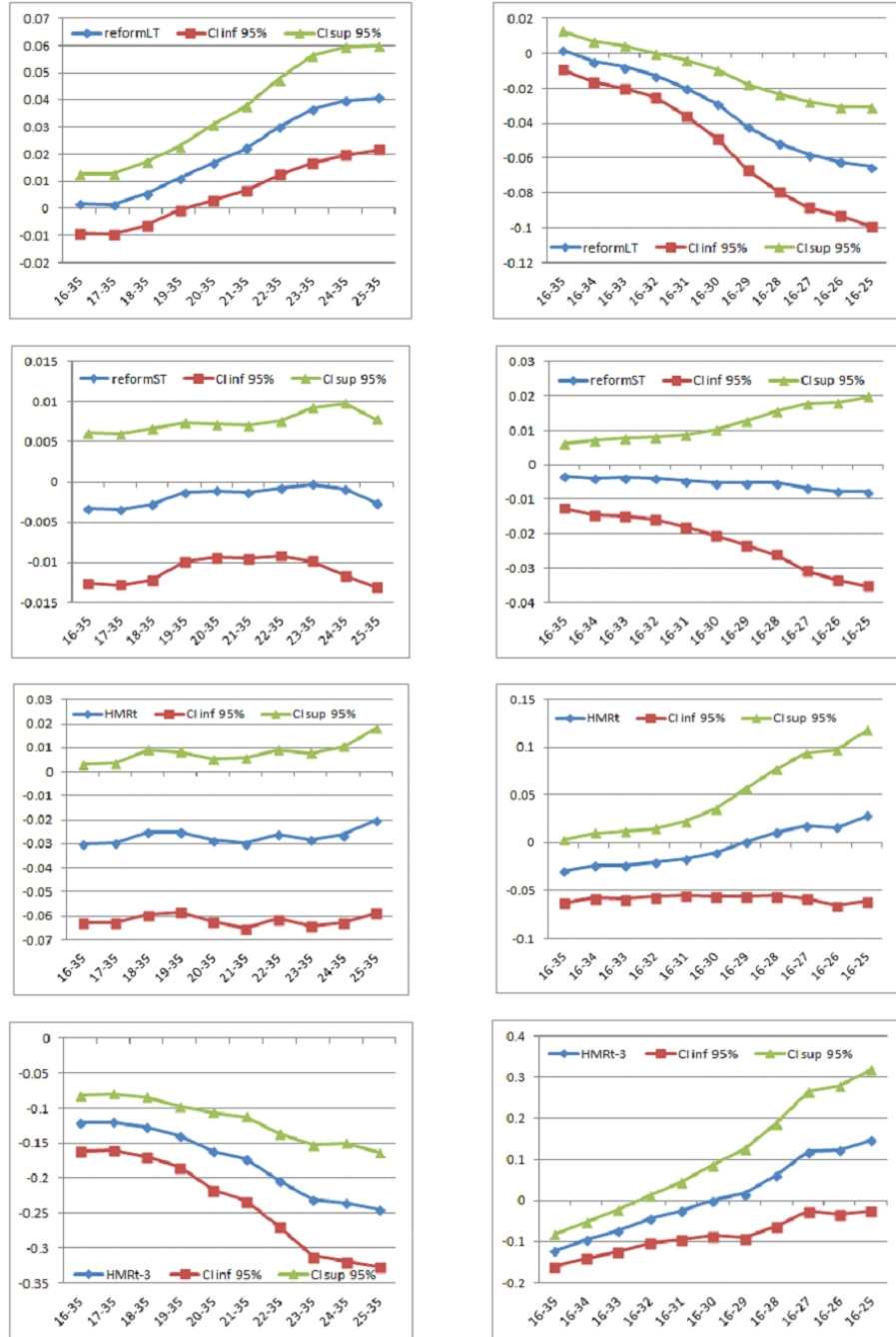
Figures A5: Estimated parameters of the rent regression for different age groups, case where individuals in education are excluded from the sample



Figures A6: Estimated parameters of the employment regression for different age groups, case where individuals in education are in the sample



Figures A7: Estimated parameters of the emancipation regression for different age groups, case where individuals in education are in the sample



Conclusion générale

Les régulations du marché du travail et du marché du logement en France et en Europe sont des sujets polémiques. Afin d'éclaircir les débats sur ces sujets, nous proposons, avec ce travail de thèse, d'expliquer les raisons de la sur-régulation des marchés locatifs et des marchés du travail dans les pays d'Europe du sud. Nous nous sommes plus particulièrement intéressés à répondre aux questions suivantes :

- Pour quelles raisons les individus soutiennent-ils des réglementations qui réduisent le surplus économique ?
- Pourquoi ces niveaux de régulations sont-ils plus élevés dans les pays d'Europe du sud ?

Notre idée principale est que les régulations des économies méditerranéennes qui peuvent à première vue paraître inefficaces constituent en fait des réponses optimales et endogènes à l'existence de capital social et d'imperfection de marché.

Nos arguments sont déclinés en trois chapitres qui suivent chacun la même méthodologie. Premièrement, nous justifions nos réponses et nos hypothèses par des faits empiriques. Deuxièmement, nous construisons un modèle théorique qui illustre et explique les mécanismes économiques en jeu.

Le premier chapitre met en avant l'interdépendance entre réseaux sociaux locaux et régulation du marché locatif. Tandis que le formalisme procédural sur le marché locatif augmente le coût de résolution des conflits entre propriétaires et locataires, les réseaux sociaux présentent l'avantage de pouvoir régler un conflit sans la justice. Le formalisme procédural est donc un moyen pour les individus locaux appartenant à un réseau social de rendre moins intéressant aux yeux du propriétaire les individus non locaux n'appartenant à aucun réseau. Le formalisme procédural du marché locatif facilite ainsi la recherche de logements pour les locaux au détriment des non locaux.

Notre étude est motivée par plusieurs faits stylisés. Au niveau macroéconomique, nous montrons une corrélation positive entre l'indice de formalisme procédural de Djankov et al (2003) et les tailles de réseaux sociaux dans les différents pays européens. Au niveau microéconomique, plusieurs études (Bosch et al. (2010), Baldini and Federici (2011) et Bouvard et al (2009)) montrent qu'il existe de la discrimination sur les marchés locatifs d'Europe du sud où le formalisme procédural est élevé.

Nous construisons un modèle théorique basé sur l'existence de frictions d'appariement où le formalisme procédural permet aux candidats possédant un réseau d'être mieux classés que les autres candidats dans la liste d'attente. Par conséquent, les agents locaux possédant un réseau peuvent utiliser la réglementation pour accroître leur bien-être. Le modèle prédit que le niveau optimal de régulation du point de vue de ces individus augmente avec la taille du réseau social, la tension du marché locatif et la proportion d'individus sans réseau.

Le deuxième chapitre décrit une nouvelle complémentarité entre ensoleillement, taille des réseaux sociaux locaux et régulations du marché du travail et du marché locatif. Les pays d'Europe du sud possédant un fort taux d'ensoleillement sont des pays attractifs de par leur douceur de vie. Cette immigration potentielle augmente la tension sur le marché du logement. C'est donc pour réduire celle-ci que les individus d'Europe du sud exploitent la complémentarité entre capital social local et réglementation.

Notre étude est motivée par plusieurs faits stylisés. Les individus des pays d'Europe du sud demandent plus de régulation sur le marché du travail, sont moins mobiles et ont des réseaux sociaux locaux plus forts que les individus des pays d'Europe du nord.

Nous construisons un modèle théorique où taille des réseaux relationnels et degré de formalisme procédural sont endogènes. Le formalisme procédural permet aux individus possédant un réseau d'être préférés aux individus n'en possédant pas. La différence d'aménité climatique entre les pays d'Europe du sud et les pays d'Europe du nord conduit le modèle à prédire deux types d'équilibre : un équilibre méditerranéen où le formalisme procédural et les réseaux sociaux locaux sont très développés et un équilibre scandinave et anglo-saxon où le formalisme procédural est faible et les individus investissent peu dans la constitution de réseaux sociaux locaux. Le formalisme procédural associé aux réseaux sociaux locaux constitue une barrière à l'entrée qui protège les individus des pays d'Europe du sud des impacts négatifs sur le marché locatif d'une potentielle immigration. La taille optimale des réseaux sociaux dans les pays du sud augmente avec les différences d'aménités climatiques entre le nord et le sud.

Dans une dernière partie nous suggérons que les équilibres du marché locatif influencent l'équilibre du marché du travail. En effet, les individus des pays d'Europe du sud qui choisissent les réseaux sociaux locaux et le formalisme procédural sur le marché locatif deviennent peu mobiles. Or cette immobilité les conduit à vouloir de la régulation sur le marché du travail pour réduire le pouvoir de monopsonne des entreprises.

Enfin, le troisième chapitre justifie l'absence de soutien des jeunes français pour les réformes de la protection de l'emploi en dépit du fait que les régulations du marché du travail augmentent le chômage et diminuent la proportion d'embauche faite en contrat à durée indéterminée. Nous expliquons l'utilité de la régulation du marché du travail dans un environnement de "second best" par la présence de fortes régulations sur le marché locatif.

Nous justifions nos réponses empiriquement et montrons que le formalisme procédural du marché locatif réduit fortement l'émancipation et l'accès à la location, mais n'a pas d'impact sur l'emploi. Les réformes des contrats permanents ont des effets importants sur l'emploi et sur l'accès à des emplois en durée indéterminée, alors que leurs effets sur l'émancipation et l'accès à la location sont plus faibles.

Nous proposons un modèle liant marché du travail et marché locatif cohérent avec les corrélations macroscopiques et les effets microéconomiques discutés précédemment. Dans ce modèle, la protection des emplois réduit le nombre d'emplois, augmente la part d'individus employés en contrat à durée déterminée et n'affecte pas le risque individuel de licenciement. Les firmes offrent des emplois à durée déterminée et indéterminée tandis que les propriétaires sélectionnent les locataires selon les signaux véhiculés par ces contrats. La valeur du signal augmente avec la protection de ces contrats et plus particulièrement avec celle des contrats à durée indéterminée.

L'enseignement majeur de ces trois travaux est que la régulation optimale d'un marché dépend de

l'état des marchés qui l'entourent ainsi que de son environnement social, culturel et géographique. Ainsi, aucune mesure de politique économique ne devrait être prise avec la volonté de calquer un modèle en place dans un autre pays.

En complément des pistes de recherche présentées en conclusion de chaque chapitre, plusieurs projets de recherche sont envisagés dans le prolongement de cette thèse.

Il serait intéressant de trouver des données de long terme sur le capital social afin d'étudier leur co-dynamique avec les mouvements migratoires. Ces derniers pourraient nous permettre d'améliorer notre compréhension de la formation du capital social dans les différents pays européens.

Il serait également instructif d'ouvrir les boîtes noires que sont les indices de régulation du marché du travail et du marché locatif. En effet ces indices résument un grand nombre de règles qui peuvent être très hétérogènes. Tandis que certaines protègent réellement les locataires ou les travailleurs des problèmes d'asymétries d'informations ou d'aléas moraux, d'autres sont au contraire un moyen pour certaines personnes de tirer des rentes. Affiner notre analyse nous permettrait d'améliorer nos suggestions de réformes économiques.

Enfin, nous pourrions tester la complémentarité entre les réseaux sociaux et la régulation sur des échelles territoriales plus fines, par exemple à l'échelle d'une région. A titre illustratif, à l'île de Ré où la pression foncière est importante, un grand projet de logements sociaux a été lancé pour assurer aux rétais de pouvoir se loger sur l'île. Alors que 70 % des rétais sont éligibles à de tels logements, on peut s'interroger sur l'impact d'une telle politique quant à l'espace foncier disponible pour les non-rétais qui souhaiteraient s'établir sur l'île et les mécanismes d'attribution des logements. De manière plus générale, étudier les plans d'urbanisme de zones territoriales où les aménités géographiques sont favorables pourrait permettre de mettre en lumière des mécanismes économiques particuliers à ces zones et proches de ceux expliqués dans le chapitre deux.

Bibliographie - Bibliography

- [1] Acemoglu, D., Johnson, S. and Robinson, J.A., 2011. "The Colonial Origins of Comparative Development: An Empirical Investigation", *American Economic Review*, 91,1370.
- [2] Albouy, D., Leibovici, F. and Warman, C., 2013. "Quality of Life, Firm Productivity, and the Value of Amenities across Canadian Cities", *Canadian Journal of Economics*, 46, 379-411.
- [3] Albouy, D., Graf, W., Kellogg, R. and Wolff, H., 2016. "Climate Amenities, Climate Change, and American Quality of Life", *Journal of the Association of Environmental and Resource Economists*, 3, 205-246.
- [4] Albrecht, J., Gautier, P. and Vroman, S., 2016. "Directed Search in the Housing Market", *Review of Economic Dynamics*, 19, 218-231.
- [5] Albrecht, J., Anderson, A., Smith, E. and Vroman, S., 2007. "Opportunistic Matching in the Housing Market", *International Economic Review*, 48, 641–664.
- [6] Alesina, A., Algan, Y., Cahuc, P. and Giuliano, P., 2015. "Family Values and the Regulation of Labor", *Journal of the European Economic Association* 13, 599-630.
- [7] Algan, Y. and Cahuc, P., 2006. "Job protection: the macho hypothesis", *Oxford Review of Economic Policy*, 22, 390-410.
- [8] Algan, Y. and Cahuc, P., 2009. "Civic virtue and labor market institutions", *American Economic Journal: Macroeconomics*, 1, 111-145.
- [9] Allard, G., 2005. "Measuring job security over time: in search of a historical indicator for EPL (Employment Protection Legislation)", *Instituto de Empresa Working*, 05-17.
- [10] Arbia, G., Battistib, M. and Di Vaio, G. , 2010. "Institutions and geography: Empirical test of spatial growth models for European regions", *Economic Modelling*, 27, 12–21.
- [11] Amior, M., 2015. "Why are Higher Skilled Workers More Mobile Geographically? The Role of the Job Surplus", *CEP Discussion Paper*, 1338.
- [12] Anderson, S. and Francois, P., 2008. "Informal institutions: theory and evidence from a Kenyan slum", *Institutions and Economic Growth*, 7, 611.

- [13] Andrews, D., Caldera-Sánchez, A. and Johansson, A., 2011. "Housing Markets and Structural Policies in the OECD", OECD Economics Department Working Papers, 836.
- [14] Balas, A., La Porta, R., Lopez-de-Silanes, F. and Shleifer, A., 2009. "The divergence of legal procedures", *American Economic Journal: Economic Policy*, 1, 138-162.
- [15] Baccaïni, B., 2007. "Les flux migratoires interrégionaux en France depuis cinquante ans", *Population*, 62, 143-160.
- [16] Baldini, M. and Federici, M., 2011. "Ethnic discrimination in the Italian rental housing market", *Journal of Housing Economics*, 20, 1-14.
- [17] Baldoni, E., Recchi, E., Tambini, D., Favell, A., Williams, D. and Surak, K., 2003. "Intra-EU Migration: A Socio-demographic Overview". PIONEUR Working paper 3.
- [18] Benson, M. and O'Reilly K., 2009. "Migration and the search for a better way of life: a critical exploration of lifestyle migration", *The Sociological Review*, 57, 608-625.
- [19] Blanchard, O. and Tirole, J., 2008. "The joint design of unemployment compensation and employment protection: a first pass", *Journal of the European Economic Association*, 6, 45-77.
- [20] Bonleu, A., 2015. "Procedural Formalism and Social Networks in the Housing Market", AMSE Working papers, 1529.
- [21] Booth, A.L., Francesconi, M., Frank, J., 2002. "Temporary jobs: stepping stones or dead ends?", *Economic Journal*, 112, F189-F213.
- [22] Bosch, M., Carnero, M.A. and Farré L., 2010. "Information and discrimination in the rental Housing Market: Evidence from a Field Experiment", *Regional Science and Urban Economics*, 40, 11-19.
- [23] Botero, J., Djankov, S., La Porta, R. and Lopez-De-Silanes, F., 2004. "The regulation of labor", *Quarterly Journal of Economics*, 119, 1339-1382.
- [24] Bouvard, L., Combes P., Decreuse, B., Laouénan, M., Schmutz, B. and Trannoy, A., 2009 : "Géographie du chômage des personnes d'origine africaine : pourquoi une si faible mobilité résidentielle ?", *Revue Française d'Economie*, 3, 56-106.
- [25] Cahuc, P., Charlot, O. and Malherbet, F., 2016. "Explaining the spread of temporary jobs and its impact on labor turnover", *International Economic Review*, 57, 533-572.
- [26] Calvo-Armengol, C. and Zenou, Y., 2005. "Job matching, social network and word-of-mouth communication", *Journal of Urban Economics*, 57, 500-522.
- [27] Calvo-Armengol, C. and Jackson, M., 2007. "Networks in labor markets: wage and employment dynamics and inequality", *Journal of Economic Theory*, 132, 27-46.
- [28] Casado-Diaz, M., Kaiser, C. and Warnes, A. M., 2004. "Northern European retired residents in nine southern European areas: characteristics motivations and adjustment", *Ageing and Society*, 24, 353-381.

- [29] Casado-Diaz, M., 2012. "Exploring the geographies of lifestyle mobility: current and future fields of enquiry", *The Routledge Handbook of Tourism Geographies*, 120-125.
- [30] Casas-Arce, P. and Saiz, A., 2010. "Owning versus renting: do courts matter?", *Journal of Law and Economics*, 53, 137-165.
- [31] Charles, K. and Stephens, M., 2004. "Job displacement, disability and divorce", *Journal of Labor Economics*, 22, 489-522.
- [32] Cuerpo, C., Kalantaryan, S. and Pontuch, P., 2014. "Rental market regulation in the European Union", *European Economy-Economic Paper*, 515.
- [33] David, Q., Janiak, A. and Wasmer, E., 2010. "Local social capital and geographical mobility", *Journal of Urban Economics*, 68, 191-204.
- [34] Decreuse B. and van Ypersele, T., 2011. "Housing market regulation and the social demand for job protection", *Journal of Public Economics*, 95, 1397-1409.
- [35] Deng, Y., Quigley, J.M., Van Order, R. and Mac, F., 1996. "Mortgage default and low downpayment loans: the costs of public subsidy", *Regional Science Urban Economics*, 26, 263-285.
- [36] Desgranges, G. and Wasmer, E., 2000. "Appariements sur le marché du logement", *Annales d'Economie et de Statistique*, 58, 253-287.
- [37] Djankov, S., La Porta, R., Lopez-De-Silanes, F. and Shleifer, F., 2003. "Courts", *Quarterly Journal of Economics*, 118, 453-517.
- [38] Doiron, D.J. and Mendolia, S., 2011. "The Impact of Job Loss on Family Dissolution", *Journal of Population Economics*, 25, 367-398.
- [39] Dustmann, C., Frattini, T. and Preston, I.P., 2013. "The Effect of Immigration along the Distribution of Wages", *Review of Economic Studies*, 80, 145-173.
- [40] Eichholtz, P.M.A., 1995. "Regional economic stability and mortgage default risk in the Netherlands", *Real Estate Economics*, 23, 421-439.
- [41] Galenianos, M., 2013. "Hiring through referrals", Mimeo.
- [42] Gerardi, K., Herkenhoff, K.F., Ohanian, L.E., Willen, P.S., 2015. "Can't pay or won't pay? Unemployment, negative equity, and strategic default", NBER Working Paper, 21630.
- [43] Huete, R. and Mantecón, A., 2012. "Residential tourism or lifestyle migration. Social problems linked to the non-definition of the situation", *Controversies in Tourism*, 160-173.
- [44] Kahn, L., 2010. "Employment protection reforms, employment and the incidence of temporary jobs in Europe: 1996-2001", *Labour Economics*, 17, 1-15.
- [45] King, R., Williams, A.M., Warnes, T. and Patterson, G., 2000. "Tourism and international retirement migration: new forms of an old relationship in Southern Europe", *Tourism Geographies*, 2, 5-27.

- [46] Kramarz, F. and Nordström Skans, S., 2014. "When strong ties are strong Networks and youth labor market entry", *Review of Economic Studies*, 81, 1164-1200.
- [47] Lazear, E., 1990. "Job Security Provisions and Employment", *Quarterly Journal of Economics* 105, 699-726.
- [48] Leonardi, M. and Pica, G., 2013. "Who pays for it? The heterogeneous wage effects of employment protection legislation", *Economic Journal*, 123, 1236-1278.
- [49] Nivière, D., 2006. "Les ménages ayant des difficultés à payer leur loyer", *Etudes et Résultats*, 534.
- [50] Menard, S., 2009. "The Social Housing and Rental Housing Markets in an Equilibrium Rent Search Model", *Annales d'Economie et de Statistique*, 95-96, 183-199.
- [51] Ménard, S., 2012. "Should we tax vacant dwellings? A search equilibrium model applied to the rental housing market," *Economics Letters*, 117, 88-90.
- [52] Michaelides, M., 2009. "The effect of local ties, wages, and housing costs on migration decisions", MPRA Paper 20379.
- [53] Mc Breen, J., Goffette-Nagot, J. and Jensen, P., 2010. "Information and search on the housing market: An agent-based model", *Economics and Mathematical Systems*, 645, 153-164.
- [54] Pries, M. and Rogerson, R., 2005. "Hiring policies, labor market institutions, and labor market flows", *Journal of Political Economy*, 113, 811-839.
- [55] Reher, D.S., 1998. "Family ties in Western Europe: Persistent Contrasts", *Population and Development Review*, 24, 203-234.
- [56] Rodríguez-Pose, A. and Ketterer, T. D., 2012. "Do local amenities affect the appeal of regions in Europe for migrants?", *Journal of Regional Science*, 52, 535-561.
- [57] Rodrik, D., Subramanian, A. and Trebbi, F., 2004. "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development", *Journal of Economic Growth*, 9, 131-165.
- [58] Rupert, P. and Wasmer, E., 2012. "Housing and the Labour Market : Time to Move and Aggregate Unemployment", *Journal of Monetary Economics*, 59, 24-36.
- [59] Sachs, J. D., 2001. "Tropical Underdevelopment", NBER Working Paper, 8119.
- [60] Saint-Paul G., 2001. "Political economy of the labour market", Oxford and New York: Oxford University Press.
- [61] Saraff, V. and Shaw, N., 2015. "Sunshine and vitamin D", *Archives Disease Child*, 2014-307214.
- [62] Serrano-Diaz, L., 2005b. "Income volatility and residential mortgage delinquency across the EU", *Journal of Housing Economics*, 14, 153-177.
- [63] Veiseh, N., 2010. "Reconciling Acemoglu and Sachs: geography, institutions and technology". *Journal of International Affairs* , 64, 205-220.

- [64] Vyssoki, B., Kapusta, N., Praschak-Rieder, N., Dorffner, G. and Willeit, M., 2014. "Direct effect of sunshine on suicide", *JAMA Psychiatry*, 71,1231-1237.
- [65] Van De Velde, C., 2008. "Devenir adulte. Sociologie comparée de la jeunesse en Europe", Paris, Institut d'études politiques, thèse pour le doctorat de sociologie.
- [66] Wasmer, E., 2005. "Housing Market Discrimination, Housing Regulations and Intermediaries", Discussion Paper prepared for the Annual Meeting of the American Economic Association, Philadelphia.
- [67] Wheaton, W.C, 1990. "Vacancy, search, and prices in a housing market matching model", *Journal of Political Economy*, 98, 1270-1292.