

Employment effects of regulatory thresholds for French and German companies

Panu Poutvaara, Marcus Drometer, Romuald Méango, Till Nikolka, Daniel Leithold, Katrin Oesingmann, Sabine Rumscheidt, Daniela Wech



Employment effects of regulatory thresholds for French and German companies

A study commissioned by the French Senate

Authors:

Prof. Panu Poutvaara, Ph.D.

Dr. Marcus Drometer

Romuald Méango, Ph.D.

Dr. Till Nikolka

Daniel Leithold

Katrin Oesingmann

Sabine Rumscheidt

Daniela Wech

November 2017

ifo INSTITUTE

Leibniz Institute for Economic Research
at the University of Munich

ifo Center for International Institutional Comparisons and Migration Research

Bibliografische Information der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese Publikation
in der Deutschen Nationalbibliografie; detaillierte bibliografische
Daten sind im Internet über
<http://dnb.d-nb.de>
abrufbar

ISBN 978-3-95942-032-7

Alle Rechte, insbesondere das der Übersetzung in fremde Sprachen, vorbehalten.
Ohne ausdrückliche Genehmigung des Verlags ist es auch nicht gestattet, dieses
Buch oder Teile daraus auf photomechanischem Wege (Photokopie, Mikrokopie)
oder auf andere Art zu vervielfältigen.

© ifo Institut, München 2017

Druck: ifo Institut, München

ifo Institut im Internet:
<http://www.cesifo-group.de>

Content

Content.....	I
Summary.....	1
Introduction.....	2
Part A: Description of regulatory thresholds	3
1. Firm organisation and internal social dialogue	3
1.1. Workplace representation	3
1.2. Health and safety representation	4
1.3. Financial participation	5
2. Lay-off conditions	5
2.1. General regulation.....	5
2.2. Protection from mass lay-offs.....	6
2.3. Protection of employees with representative functions	6
2.4. Maternity protection	6
3. Professional training (continuing education and training for adults and people in work)	6
4. Hiring of disabled persons.....	8
4.1. Obligation to hire disabled persons	8
4.2. Penalties in case of violation against obligation	8
5. Payroll charges	8
6. Calculation of regulatory thresholds	9
6.1. Reference period	10
6.2. Definition of one employee.....	10
6.3. Counting of employees depending on type of employment.....	11
Part B: Analysis of regulatory threshold effects	12
7. The distribution of firms around the regulatory thresholds.....	12
8. Regulatory thresholds as impediments to employment growth	13
Part C: A qualitative evaluation of reforms and their potential effects.....	18
Conclusions	21
Appendix A	23
Appendix B.....	42

List of figures

Figure A 1:	Regulatory thresholds in France and Germany	11
Figure B 1:	Distribution of firms according to their total number of employees in France 2013 (A) and Germany 2010 (B)	15
Figure B 2:	Estimated probability of increase in employment according to firm size in the manufacturing sector in France and Germany	16
Figure B 3:	Estimated probability of increase in assets among firms not growing in employment in the manufacturing sector in France	17

List of tables

Appendix A:.....	23	
Table A 1.1:	Workplace representation in France and Germany..... 23	
Table A 1.2:	Health and safety representation in France and Germany	26
Table A 1.3:	Financial participation in France and Germany	28
Table A 2:	Lay-off conditions	29
Table A 3:	Continuing vocational training in France and Germany	32
Table A 4:	Hiring of disabled persons.....	36
Table A 5.1.a:	Social contributions in Germany, effective 1.1.2015 (Basis: Gross earnings).....	38
Table A 5.1.b:	Social contributions for mini-jobs in Germany, effective 1.1.2015	39
Table A 5.2:	Comparison of social contributions in France (Paris Ile-de-France) and Germany as of 1.1.2015.....	40
Appendix B:.....	42	
Table B 1:	Estimation results for the probability of firm growth in the manufacturing sector between 2004 and 2010 among firms with less than 100 employees in 2004. Reported are estimated coefficients for pooled ordinary least squared model as well as fixed effects model.....	43
Table B 2:	Estimation results for the probability of asset growth among French firms not growing in employment. Pooled ordinary least squares and fixed effects estimation	44
Table B 3:	Estimated probability of employment and asset growth around the 50 employee threshold according to the model specifications in Table B1 and B2	45

Employment effects of regulatory thresholds for French and German companies

Summary

Regulatory thresholds have been established to promote a number of social goals, such as employee participation in firms' governance, protection of employees from unjustified dismissals and hiring of disabled persons. This study presents a comparative analysis of regulatory thresholds (*seuils sociaux*) applicable to firms in France and in Germany. Comparison with Germany is of special interest to France, given that both French and German social models emphasise employee participation in firms' governance. Yet, the German economy has grown clearly faster in recent years, and a lot of attention has been paid to German manufacturing firms, especially to small and medium-sized companies (*Mittelstand*). A central question that this report tackles is whether regulations applicable to firms exceeding certain thresholds appear to stop French firms from growing above the thresholds.

The first part of the report specifies how the obligations that the firms face depend on the number of employees. Several thresholds apply to firms in both countries. In France, the main regulations become effective when a firm hires the 50th employee. The first part of the report also explains how regulatory thresholds are calculated in France and Germany.

In our empirical analysis on small and medium-sized manufacturing firms in the second part of the report, we find evidence for distorting effects on the firm size distribution only in France. French firms are increasingly concentrated below the regulatory thresholds of 10, 20, and 50 employees. We evaluate in particular the effects of the 50-employee-threshold on employment growth at the firm level. Just below the size of 50 employees firms are less likely to hire new workers. Moreover, these firms increase their investment in capital as a factor of production. This indicates a substitution of workers with capital in order to avoid the increasing marginal costs of employment.

When it comes to different reform proposals in the third part, increasing the thresholds permanently would encourage firm growth in the range between the current and the new threshold. In the longer term, a new distortion would be established at the new threshold. On the other hand, a temporary lifting of new regulatory burdens for the firms exceeding a threshold would encourage firms to rely increasingly on hiring temporary new workers, to be able to return below the threshold once the period of temporary alleviation is over. As for additional social

contributions above a threshold, the best approach would be to eliminate them, or to replace them by payroll costs collected from all firms according to the same rules, independently of the number of employees. The most efficient way to reduce other distortions at the threshold would be to estimate the costs that such regulations impose on firms, and then offer firms that exceed that threshold a reduction in payroll tax when the threshold is crossed. It would not be necessary to compensate the threshold effects fully. Already a partial compensation would help to reduce the distortions, the more important the reduction the higher the rate of compensation.

Introduction

This study presents a comparative analysis of regulatory thresholds (*seuils sociaux*) applicable to firms in France and in Germany. The first part of the report (Part A) specifies how the obligations that the firms face depend on the number of employees. It also explains how regulatory thresholds are calculated in France and Germany. The second part (Part B) of the report presents an analysis of the effects of regulatory thresholds on French and German firms, with a special focus on their effects on employment. The third part (Part C) of the report builds on the analysis presented in the second part. It evaluates five reform proposals that are aimed at increasing employment in French firms.

Comparison with Germany is of special interest to France, given that both French and German social models emphasise employee participation in firms' governance. Yet, the German economy has grown clearly faster in recent years, and a lot of attention has been paid to German manufacturing firms, especially to small and medium-sized companies (*Mittelstand*). A central question that this report tackles is whether regulations applicable to firms exceeding certain thresholds appear to stop French firms from growing above the thresholds. To do this, we compare the size distribution of firms in France and Germany, with a special focus on size distribution in the vicinity of regulatory thresholds. A peak in the number of firms below a threshold, coupled with a drop in the number of firms once the threshold is reached, testifies of a negative employment effect of the threshold. If the size distribution develops smoothly, on the other hand, the regulatory threshold does not appear to depress employment.

Our empirical analysis shows that regulatory thresholds clearly depress employment in France, especially as concerns the threshold effects of hiring the 50th employee. There are no corresponding distortions in German firms' size distribution. There are some regulations for which it is efficient that they apply only above a certain threshold in terms of the number of employees. Part C and the conclusion discuss alternative ways to reduce distortions that such regulations induce.

Part A: Description of regulatory thresholds

1. Firm organisation and internal social dialogue

Both French and German social models emphasise employee participation in firms' governance. This is guaranteed by different levels of representation: workplace representation, health and safety representation and as well financial participation of employees. For example, works councils play an important role in both countries. France also requires companies with more than 50 employees to provide a profit-sharing scheme. In Germany, such schemes are not compulsory but employee share ownership is encouraged.

1.1. Workplace representation

The representation of the workforce in France is ensured by two separate elected bodies, the employee delegates and the works council which have different legal rights and duties. For firms with more than ten employees there is an obligation to conduct the election of employee delegates (*Délégués du personnel*). For firms with 50 or more employees there is an obligation to establish a works council (*Comité d'entreprise*). In contrast to Germany, where works councils are not mandatory, in France both bodies of representation are obligatory. But, unlike in Germany, the works councils have no codetermination rights. Usually the employee delegates and the works council are separate institutions, but the same persons can be elected to both. In companies with less than 200 employees the employer can decide that the two bodies should be combined in one institution. When a company has 50 or more employees, the unions that are representative have the right to nominate a trade union delegate (*Délégué syndical*). Board-level representation (*Administrateurs représentant les salariés*) becomes obligatory in all companies with 10,000 or more employees worldwide or 5,000 in France (see Table A1.1 in the Appendix).¹

According to the German Works Constitution Act, works councils members “shall be elected in all firms that normally have five or more permanent employees with voting rights, including three who are eligible. The same shall apply to joint establishments of several companies.” Permanent employees are all employees working for that establishment on the basis of a work contract (including fixed-term and part-time workers, mini-jobbers, and employees on sick or maternal leave) who are over 18. Employees under 18 years of age and trainees under 25 years of age can elect their

¹ Code du travail (2015); Code de Commerce (2015); European Trade Union Institute (2014), Worker Participation and Garicano, L., LeLarge, C., Van Reenen, J. (2013), Firm Size Distortions and the Productivity Distribution: Evidence from France, [NBER Working Paper No. 18841](#).

own youth and trainees' delegation. This applies as well to firms with 5 or more employees. But there is no obligation to form a works council/youth delegation in Germany. The works council has a right of codetermination concerning several social matters (working hours, breaks, the form of payment of remuneration, etc.).¹ Board-level representation comes into force for corporate companies (limited companies, stock companies) where employee representatives have a right to seat on the supervisory board of larger companies – one-third of seats in companies with 500 to 2,000 employees, half the seats in companies with more than 2,000 employees (see Table A1.1 in the Appendix).²

1.2. Health and safety representation

In France, there is the obligation to establish a separate committee on health, safety and working conditions (*Comité d'hygiène, de sécurité et des conditions de travail*) which deals with health, safety issues, and working conditions for firms with 50 or more employees. The health and safety committee is chaired by the employer (or a representative) and the employee representatives whose number rises with the number of employees in the workplace. In industrial firms with 200 or more employees and in all other firms with 500 or more employees there is an obligation to appoint a nurse (*Infirmier*) (see Table A1.2 in the Appendix).³

In Germany the employer has to appoint occupational physicians and occupational safety specialists who shall support him in occupational safety and health as well as accident prevention matters in every firm. Moreover, the employer shall set up an occupational safety and health committee in establishments with more than twenty workers. This committee shall have the following members: the employer or an appointed representative, two members of the works council appointed by the works council, occupational physicians, occupational safety specialists, and safety officers. The occupational safety and health committee shall have the task of discussing concerns relating to occupational safety and health and to accident prevention. The committee shall meet at least once every three months (see Table A1.2 in the Appendix).⁴

¹ For more details see German Works Constitution Act, Section 87: Right of co-determination.

² German Works Constitution Act and Act on Co-determination in: Federal Ministry of Labour and Social Affairs (2013), Co-determination 2013.

³ Code du travail (2015); European Trade Union Institute (2014), Worker Participation.

⁴ German Act on Occupational Physicians, Safety Engineers and Other Occupational Safety Specialists (1973).

1.3. Financial participation

In France, companies with 50 employees or more are required by law to offer a profit-sharing scheme to their employees (*Participation des salariés aux résultats de l'entreprise*). Companies must establish a deferred profit-sharing fund (RSP), the level of which is calculated on the basis of a profit-sharing formula.¹

In Germany, there is no legal obligation for profit sharing schemes to be offered to the employees. In 2009 a new law on promoting employee share ownership (*Mitarbeiterkapitalbeteiligungsgesetz*) came into force. It consists mainly of tax amendments for firms offering share ownership to their employees; hence there is no obligation to do so (see Table A1.3 in the Appendix).²

2. Lay-off conditions

2.1. General regulation

In France, the general regulations protecting employees from unjustified dismissals apply to all firms irrespective of the number of employees.³ If two or more employees are to be dismissed for economic reasons in France, the works council has to be informed. Dismissed employees benefit from a re-employment priority, which means that they have to be re-employed within a time period of one year if there is a vacancy in the firm. In Germany, the Employment Protection Act which is supposed to protect employees from unjustified dismissals generally applies to firms with more than ten employees (see Table A2 in the Appendix).⁴ Employees can be dismissed with a basic notice period of 4 weeks on the 15th of a month or at the end of a month. There are exceptions to this rule for firms with less than 20 employees. In France, there is no general legal basic notice period. Workers having been employed for a longer time period benefit from a longer notice period in both countries. In Germany, the notice period increases to a larger extent with job tenure than in France. Both in France and in Germany, an entitlement to a severance pay is conditional to the dismissal for reasons lying beyond the responsibility of the employee. In Germany, the usual amount of the severance pay is higher than in France (0.5 monthly salaries per year of employment compared to 0.2 in France).

¹ Code du travail (2015); European Trade Union Institute (2014), Worker Participation.

² Bundesministerium für Arbeit und Soziales (2013), Mitarbeiter Kapital Beteiligung - Modelle und Förderwege.

³ Code du travail (2015) and Quitter son emploi (2015).

⁴ Bundesministerium für Arbeit und Soziales (2015), Kündigungsschutz.

2.2. Protection from mass lay-offs

In France, mass lay-offs have to be reported to the administrative authority and a plan to safeguard employment has to be established if at least ten employees are to be dismissed within a time period of 30 days in a firm with 50 or more employees. In Germany, mass lay-offs have to be reported to the employment agency if certain thresholds with regard to the size of the staff and the number of employees which is to be dismissed are exceeded. Dismissals become effective one month after the reporting; during this time, alternative employment possibilities are supposed to be found. In France, the plan to safeguard employment is quite extensive and must also include training activities for employees. This implies that the regulations with regard to the protection from mass lay-offs are stricter in France than in Germany.

2.3. Protection of employees with representative functions

Both in France and in Germany, employers are usually not allowed to dismiss employees with representative functions. In France, the definition of employees with representative functions is broader than in Germany. In France, staff representatives, members of the works council, union representatives and representatives in the committee on health, safety and working conditions are included, whereas in Germany, only staff representatives and members of the works council are included. Overall, the conditions under which employees with representative functions can be dismissed are quite similar between the two countries.

2.4. Maternity protection

The regulations with regard to maternity protection are also quite similar in France and Germany.¹ In both countries, lay-offs are only possible under very strict conditions during pregnancy. In contrast to Germany, however, lay-offs are not allowed at all during maternity leave in France.

3. Professional training (continuing education and training for adults and people in work)

According to the OECD, employers in France contribute a bit more than 40% to professional training, while central government and regional governments finance around 50%. Around 40% of public expenditure benefits public-sector workers. The

¹ Bundesministerium der Justiz und für Verbraucherschutz (2015), Mutterschutzgesetz (2015).

unemployment agency and households each contribute around 4%, whereas households in Germany contribute up to 35% for professional training.¹

In France, adult professional training in the private sector is mostly financed by a mandatory social contribution of firms imposed on the wage bill. Companies contribute to the financing of professional training via payroll taxes depending on their firm size and the wage bill. Since the 2014 reform of social contributions the levy amounts to 1% of payroll for firms with more than ten employees and to 0.55% for those with fewer than ten employees. The joint bodies of approved collectors (*Organismes paritaires collectionneurs agréés, OPCAs*) collect the training levy. This contribution is for different training schemes that employees can access under certain conditions. There are three ways in which employees can access continuing vocational training: at their employer's initiative, under a training plan drawn up by the employer; at their own initiative, using one of the forms of training leave available like the individual training leave, but only with their employer's agreement (see Table A3.2 in the Appendix).²

In Germany, there are no federal laws for mandatory contributions of firms to finance vocational trainings via federal funds like in France. Provisions integrating vocational training are included in the collective agreements, in social security legislation (Book III of the Social Code) and in the work constitution act (Section 96 – 98, Promotion and implementation of vocational training). Professional trainings related to the workplace are usually paid by the employer; under the collective agreement of the chemicals and metalworking industries for example the employer has to pay necessary (due to changes in the workplace) and appropriate (to enable the promotion of an employee) trainings.

In twelve German federal states employees have the right to take one week each year of paid additional leave for an “educational leave” (*Bildungsurlaub*) for professional training they will pay by themselves. Moreover there are possibilities for employees to take part in vocational training facilitated and financially supported by the government, the so-called “support of vocational qualification and skills development of employed workers”. The government supports and finances training for special target groups: unqualified workers; employees in small and medium-sized companies, and employees with low annual income (see Table A3.1 in the Appendix).³

¹ OECD (2015), OECD Economic Surveys: France, OECD Publishing, Paris and Cahuc, P., M. Ferracci and A. Zylberberg (2011), “Formation professionnelle – pour en finir avec les réformes inabouties”, Institut Montaigne, Paris.

² OECD (2015), The main vocational training measures in France, OECD Economic Surveys: France, OECD Publishing, Paris, p. 85.

³ German Federal Ministry of Labour and Social Affairs (2012), Support for continuing vocational education and training.

4. Hiring of disabled persons

4.1. Obligation to hire disabled persons

Both in France and in Germany, the number of disabled persons firms are obliged to hire depends on the size of the staff. In firms employing at least 20 workers, disabled persons must account for at least 6% of the staff in France and at least 5% of the staff in Germany.¹ In France, firms are also considered as fulfilling their obligation to hire disabled persons if they implement alternative measures, for example, if they have subcontracts or supply contracts with firms employing disabled persons (see Table A4 in the Appendix).² In Germany, firms do not have the possibility to implement alternative measures instead of hiring disabled persons.

4.2. Penalties in case of violation against obligation

In case of a violation against their obligation, employers in France have to pay a contribution to the association for the professional integration of disabled persons (*Agefiph*) per missing disabled person per year. Similarly, employers in Germany have to pay a countervailing charge per missing disabled person per year.³ In Germany, the amount of the countervailing charge depends on both the size of the staff and the extent to which the number of hired disabled persons falls below the legal obligation. In France, however, the amount of the contribution only depends on the number of employees. The amount of the contribution corresponding to the countervailing charge is much higher in France (between Euro 3,812 and Euro 5,718) than in Germany (between Euro 115 and Euro 290).

5. Payroll charges

There have been some changes in social contributions with the Responsibility Pact (last reductions effective 01.01.2015), but still the French system of social contributions includes special contributions an employer in Germany does not have to pay. For example the following social contributions do not exist in Germany: contributions for housing, transport, apprenticeship, vocational training, construction and higher rates for managers/executives. Contributions for apprenticeship/training are subject to the collective agreements in Germany. Moreover the French system

¹ Code du travail (2015); Bundesministerium für Arbeit und Soziales (2015), Beschäftigung schwerbehinderter Menschen.

² *Emploi et handicap: travail en milieu ordinaire* (2015).

³ Bundesministerium der Justiz und für Verbraucherschutz (2015), Sozialgesetzbuch (SGB) Neuntes Buch (IX) - Rehabilitation und Teilhabe behinderter Menschen.

demands for higher contributions depending on the number of employees, the monthly/annual payroll of one employee or the number of managers/executives levying firms with more employees with higher contribution rates. Thresholds for higher or extra contribution rates concerning firm size are: from 10 / from 20 / from 250 employees. This leads to overall higher contribution rates in France for the employer than in Germany (see Table A5.2 in the Appendix).¹

In Germany the same rates of social contributions apply to every employer, regardless of the number of employees or total pay roll of a firm (except the contribution to finance sick leave for employees of smaller companies which works like an insurance). The following contributions apply to both the employer and employee and with almost the same amount (see Table A5.1. in the Appendix): health insurance, compulsory long term care insurance, old age pension, unemployment insurance. The employer has to pay additional contributions: contributions to finance sick pay (only firms < 30 employees), maternity and insolvency pay and the accident insurance. In total, an employer pays between 20 to 24% social contributions on gross wages, the employee about 20%.² Special treatment applies to the so called “mini-jobs” where employers face higher social contributions at about 31% (see Table A 5.1.A and A5.1.B in the Appendix).³

Our calculations in Table A5.2 in the appendix show the following: In Germany the employer and the employee are facing almost the same contribution rates at about 20% for each party. In France, the employee pays about 14% contributions and therefore much less than in Germany. The employer pays at least 40% contributions in firms with less than ten employees, with no executive and wages up to a special amount (see Table 5.2 / example of employee up to Euro 3,170 wage/month). Firms with more than 20 employees, with executives and with higher paid employees pay higher contributions.

6. Calculation of regulatory thresholds

The way of calculating regulatory thresholds that are relevant for determining whether certain regulations apply to firms differs significantly between Germany and France. In France, there is a uniform way of calculating the size of the staff of a firm

¹ CCI Paris Ile-de-France, Les charges sociales au 1er janvier 2015.

² Deutsche Sozialversicherung (2015); Gesetz über den Ausgleich der Arbeitgeberaufwendungen für Entgeltfortzahlung (2012); DAK (2015), Umlage- und Erstattungssätze.

³ Minijob-Zentrale (2015), Sozialversicherungsbeiträge 2015; Federal Ministry of Labour and Social Affairs (2013), [450 Euro mini jobs/marginal employment](#).

which is defined in the Code du Travail.¹ In Germany, however, different methods are applied for calculating regulatory thresholds.² There are three dimensions relevant for defining regulatory thresholds: the reference period, the definition of one employee and the counting of employees depending on the type of employment. There are differences with regard to each dimension in the two countries, which will be explained in the following.

6.1. Reference period

The reference period which is considered for counting the number of employees is always the same in France. It is a period of 12 months (usually from the 1st of January until the 31st of December) during which the number of employees is counted as follows: a worker who was employed during the total 12 months is counted as one employee and workers who were not employed during the total 12 months are counted proportionally. So, for example, if a worker was employed for only six months, he is counted as 0.5 employees. Workers replacing employees who are absent or on maternity/ paternity leave are not counted. In Germany, the reference period is not defined in a uniform way. In many cases, employees that are usually employed in a firm are taken into account. But in other cases, the yearly average number of employees is rather taken into account. However, when deciding whether the regulations in the Employment Protection Act apply to a firm or not, the relevant reference period is the number of employees at the time of dismissal.

6.2. Definition of one employee

The second dimension which is different in France and Germany is the definition of one employee. In France, one employee is always defined according to the working time, whereas in Germany, one employee is either defined per head or according to the working time. The concept of defining the number of employees according to the working time also differs between the two countries. In France, part-time workers are taken into account as follows: their working time is considered as a proportion of the legal or usual working time. In Germany, however, the working time is not considered exactly proportionally, but in steps: employees working up to (including) 20 hours per week are counted as 0.5 employees, employees working up to (including) 30 hours per week are counted as 0.75 employees and employees working more than 30 hours per week are counted as full employees.

¹ Code du travail (2015); Comment calculer les effectifs d'une entreprise?, (2015); Garicano, L., C. LeLarge and J. Van Reenen, (2013), Firm Size Distortions and the Productivity Distribution: Evidence from France, [NBER Working Paper No. 18841](#).

² Koller, L., C. Schnabel und J. Wagner (2007), Friedrich-Alexander-Universität Erlangen-Nürnberg, [Diskussionspapier No. 49](#).

6.3. Counting of employees depending on type of employment

The counting of employees depending on the type of employment is also regulated very differently in the two countries. In France, the number of apprentices, interns and trainees is never taken into account when calculating regulatory thresholds. In Germany, however, the counting of apprentices is not uniform, in some cases, they are included, in other cases not.¹

Figure A1: Regulatory thresholds in France and Germany

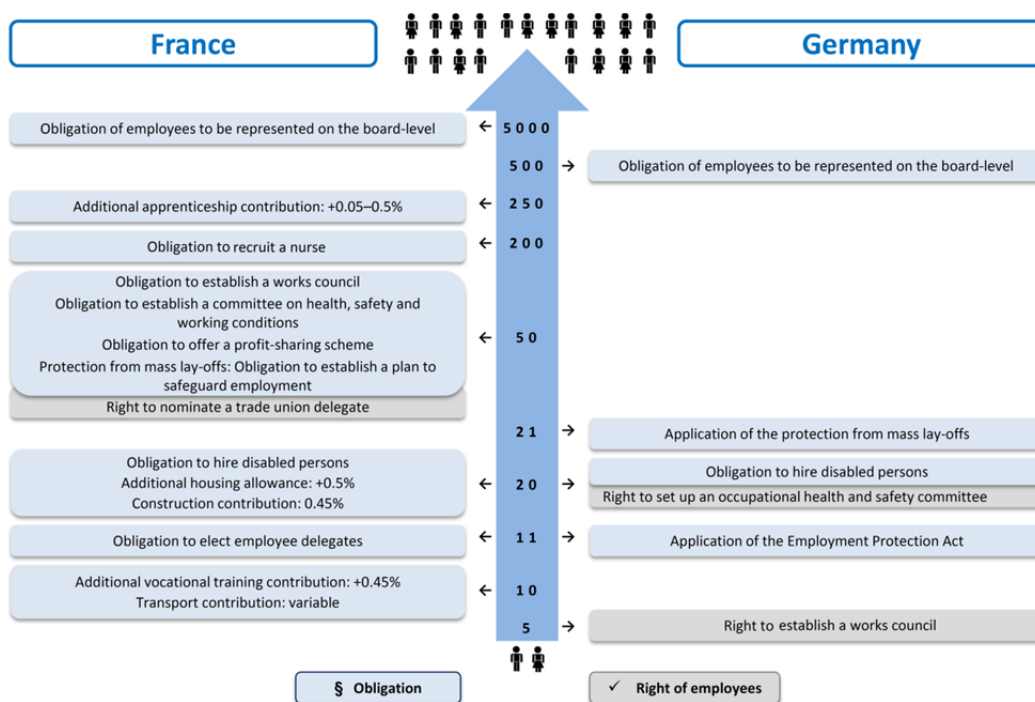


Figure A1 gives an overview of regulatory thresholds in France and Germany. It compares the different thresholds applying to firms in both countries. In France, the main regulations become effective when a firm hires the 50th employee: it is now subject to obligations with regard to firm organisation and internal social dialogue as well as dismissal protection.

¹ The counting of temporary agency workers is also not uniform in Germany.

Part B: Analysis of regulatory threshold effects

Referring to the legal framework described for France and Germany under A), this section empirically investigates the effects of firm-size-contingent regulatory requirements. Previous literature has described possible resulting distortionary effects of these measures on the allocation of resources and thus on productive capacity in the economy.¹

The literature concludes that such measures impose additional direct or indirect costs on the regulated firms and are comparable with an implicit tax on firm size.

The following analysis is restricted to the manufacturing sector. This restriction allows us as much as possible to base our results on a homogenous sample of firms, at the same time covering an important part of the economy, in terms of employment, production and innovative capacity.²

7. The distribution of firms around the regulatory thresholds

The empirical analysis is based on two comprehensive firm level datasets for France and Germany. For France we draw on AMADEUS data provided by Bureau van Dijk and covering the period from 2004 to 2013. For Germany we use the IAB establishment history panel from 2004 to 2010. The data allows us to study separately periods before and after the 2007/2008 financial crisis in both countries. The data reveals that in both countries employment growth in both samples of firms was negatively affected by the financial crisis 2007/2008. In contrast to Germany, French employment rates have not fully recovered since then; it is also reported in the most recent OECD employment outlook (2014).³

Figure B1 illustrates the distribution of firms according to the number of employees in the manufacturing sector in France (2013) and Germany (2010). According to a report on small and medium companies by the OECD (2002),⁴ companies with less than 100

¹ Garicano et al. (2013) study the situation in France between 2002 and 2007, Schivardi and Torrini (2008) analyse the impact of regulatory thresholds in Italy. See Schivardi, F. and R. Torrini (2008), Estimating the effect of hiring restrictions on firm size through size contingent differences in regulations, *Labour Economics*, 15, 482-511 and Garicano, L., C. LeLarge, J. Van Reenen (2013), Firm size distortions and the productivity distribution: Evidence from France, [NBER WP 18841](#).

² The Economist Aug 30th 2011, "Why is it important to make things?" gives an overview on the economic importance of manufacturing. For data on the sector in France and Germany see http://stats.oecd.org/viewhtml.aspx?datasetcode=ALFS_EMP&lang=en.

³ OECD (2014), *Employment Outlook 2014*, OECD Publishing, Paris.

⁴ OECD (2002), *Small and Medium Enterprise Outlook 2002*, OECD Publishing, Paris.

employees employ about 40% of the workforce in the manufacturing sector in France and about 30% in Germany. In both countries they account for more than 96% of all firms in this sector.

The distributions are reported separately for firms with less than 15 employees, firms between 15 and 39, and firms between 40 and 100 employees. None of the three distributions for German firms shows any peculiar pattern. The density declines smoothly with increasing firm size. For France, all three distributions exhibit a concentration of firms below the thresholds described in Part A. The number of firms drops sharply at the firm size of 10, 20 and 50 employees. Firms with more than ten employees face increased social contribution rates. The employer contribution to professional training increases from 0.55 to 1% and a variable transport contribution is introduced. Above ten employees firms additionally have to assign employee delegates. Firms with more than 20 employees face a further increase in the housing allowance and an extra construction contribution. Moreover, they are obliged to hire at least 5% disabled personnel. The relative shift of distributional mass compared to the German universe of small and medium firms in the manufacturing sector is most pronounced at the 50 employee threshold. Above this threshold in France stricter lay-off rules apply and maintaining a works council is legally required. Moreover, a committee on health, safety and working conditions has to be established. Apparently, the explicit and implicit costs of these measures prevent firms from hiring new employees and crossing the threshold in the first place.

Among companies in France between 40 and 100 employees, 38% are concentrated below the 50-employees threshold, whereas for Germany these firms only represent 31% of the corresponding distributional mass. **The share of firms with 48 and 49 employees in France is 1.8 times the corresponding share of firms in Germany.** Crossing this threshold clearly seems to impose additional costs on French firms inducing distortions to firm size distribution. The main focus of the subsequent analysis will be on the effects of these costs in terms of inefficiencies in the allocation of resources and impediments to firm growth.

8. Regulatory thresholds as impediments to employment growth

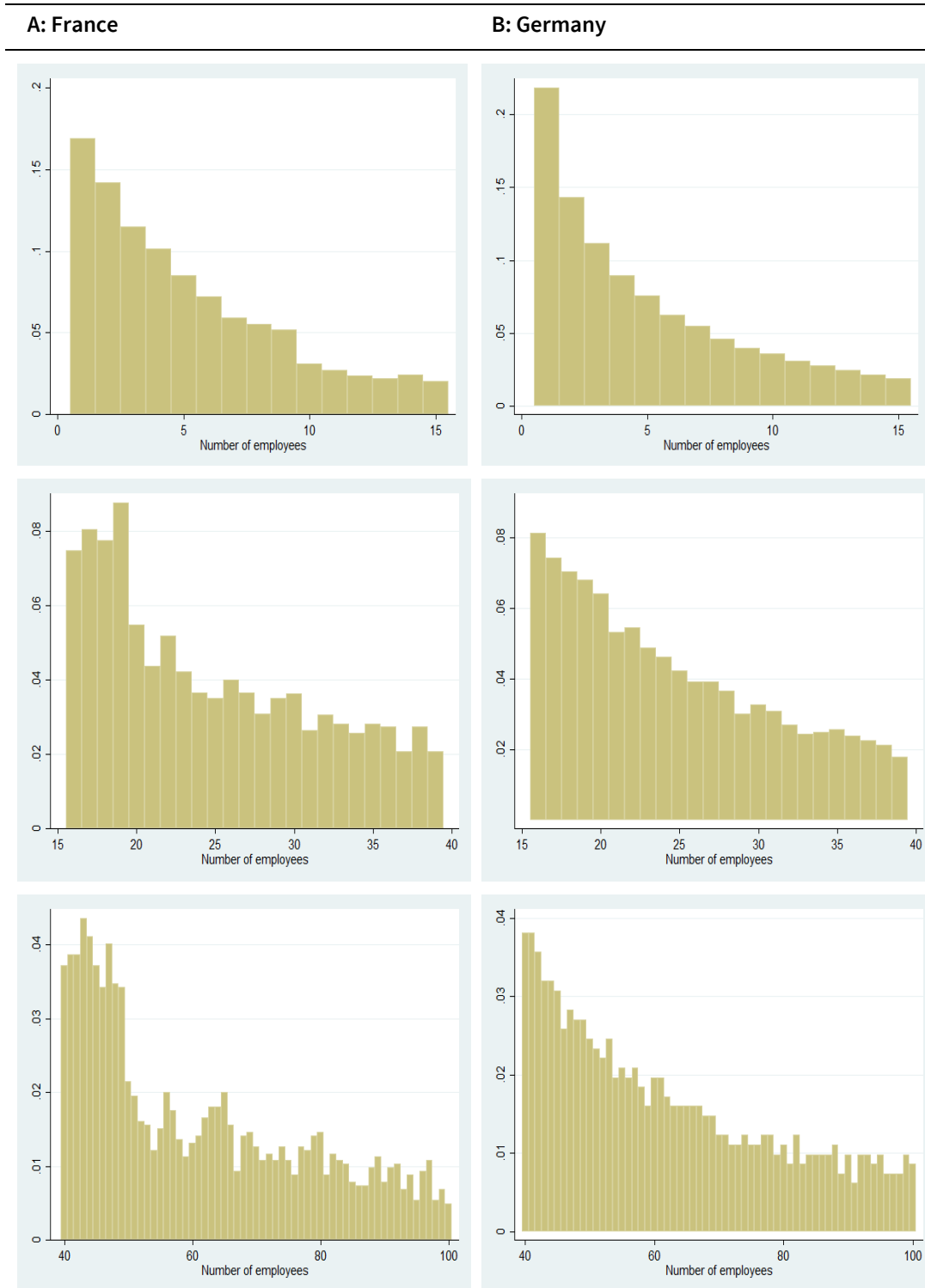
To quantify the costs associated with size contingent regulations described in Part B we are first going to study firm growth rates around the threshold of 50 employees, above which several regulatory requirements come into effect in France. We compare results between France and Germany.

Part B: Analysis of regulatory threshold effects

Estimated employment growth effects can then shed light on the implicit costs of the regulatory measures on firm- as well as aggregate level. In Part C we will evaluate reform models with the goal to reduce potential distortions and to boost employment.

Figure B2 reports estimated employment growth in the sample of firms in the manufacturing sector between 2004 and 2010. For each year in this period we estimate the probability that a firm has grown in terms of employment compared to the year before. We restrict our attention to firms having initially less than 100 employees in 2004.

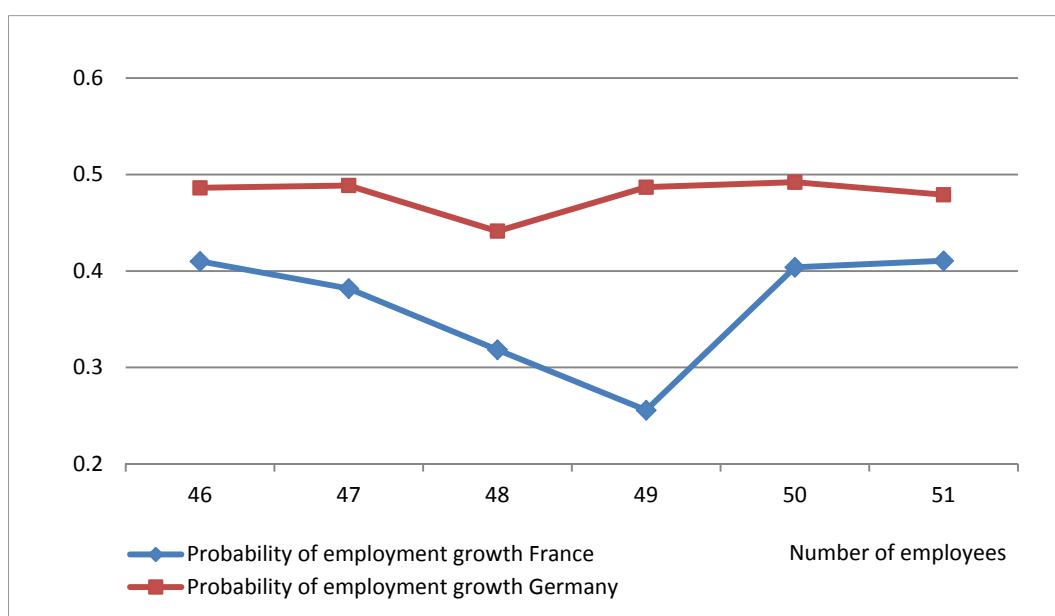
Figure B1: Distribution of firms according to their total number of employees in France 2013 (A) and Germany 2010 (B)



Note: The vertical axis in Figure 1 refers to the fraction of firms in the illustrated interval with certain number of employees. Thus, amongst firms hiring between 0 and 15 employees, around 17% only have one employee.

We relate observed growth among these firms to whether they are below or above the regulatory threshold in the year before. Additionally, we account for other variation in the data like overall firm size, age of the firm, the sector it operates in, and general business cycle effects to exclude spurious correlation unrelated to the threshold effect we want to measure. A description on how the estimated probabilities are calculated can be found in the Appendix.

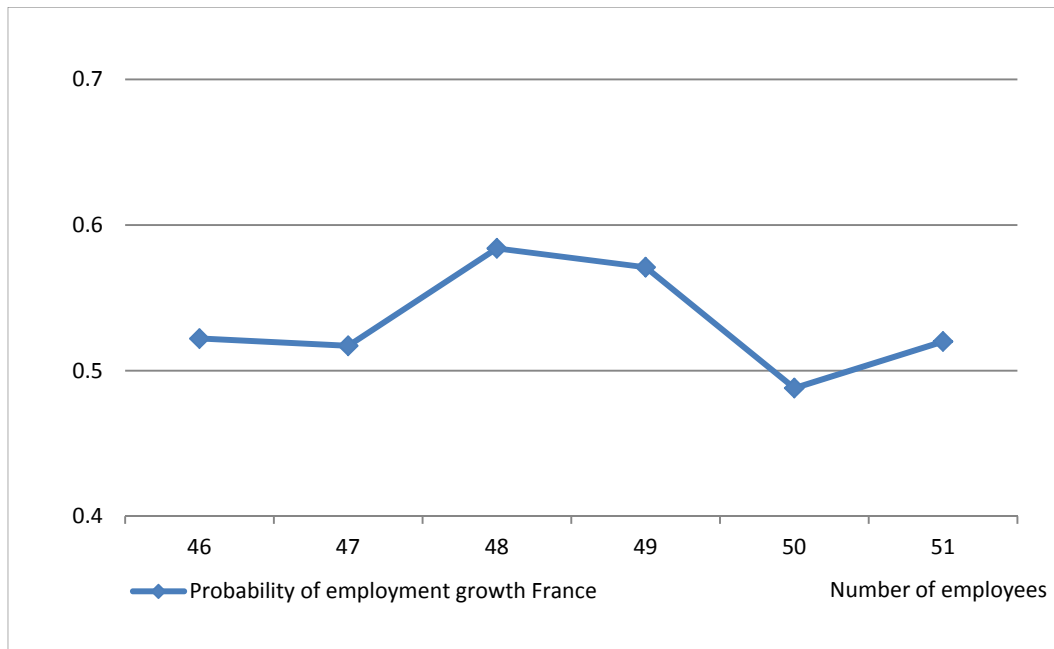
Figure B2: Estimated probability of increase in employment according to firm size in the manufacturing sector in France and Germany



Taken all periods together, French firms are 15% less likely to grow if they are just below the threshold of 50 employees. The effect can be observed for firms with 48 and 49 employees. **French manufacturing firms with 47 employees have an estimated growth probability of 38%. This probability drops directly below the threshold to only 25%.** Above 49 employees, we then estimate a growth probability of 40%. Economic theory would predict that an increase in employment should not systematically depend on firm size in the absence of regulations imposing a burden when crossing a threshold.¹ The sharp decline in employment growth estimated for firms directly below the threshold indicates the distorting effects of the threshold. We do not find any particular effect on employment growth for German firms with 47 to 51 employees. Estimated probability of employment growth among German small and medium manufacturing firms remains relatively constant at levels of 44 to 49% over the interval shown in Figure B2.

¹ Theoretical work dates back until a seminal contribution of R. Gibrat (1931) which is known as Gibrat's law. Empirical evidence on this strong proposition is mixed though.

Figure B3: Estimated probability of increase in assets among firms not growing in employment in the manufacturing sector in France



Moreover, if the estimated effects for France are generated by distortions originating from the regulatory requirements we should observe further reallocation of resources: instead of hiring more workers, profit maximizing firms with growth potential in employment would invest in capital. Figure B3 shows asset growth among those firms which do not grow in terms of employees in the sample for France described above. Before the regulatory threshold of 50 employees firms seem to increase their productive capital to absorb some of the impediments to employment growth. The Appendix provides background information on how the probabilities were estimated with the data at hand.

Part C: A qualitative evaluation of reforms and their potential effects

As shown above, regulatory thresholds significantly restrict employment growth below the threshold in France. The impacts of five possible reforms intended to boost employment and growth are estimated in the following.

i. Temporary suspension of the application of the threshold for a period of three years for firms, which are below the thresholds and, when hiring new employees, find themselves above the threshold

A temporary suspension of the regulatory thresholds for the firms that are currently below would significantly reduce the costs of going above the threshold during the period of suspension. However, firms would face steep additional costs after the temporary suspension is over if they stayed above the threshold. As a result, it is likely that most of the employment growth would take place through fixed-term contracts, allowing the firms to return below the threshold after the temporary suspension is over. Even a temporary decline in unemployment in the form of fixed-term contracts would generate more tax revenues and reduce spending on social assistance. There should be a small long-term increase in employment, as even a temporary suspension of the thresholds might encourage some firms to expand sufficiently so that they would stay above the threshold even after the temporary suspension is over.

ii. Cancellation of the 50-employee-threshold followed by an alignment with the obligations applied to firms below the 50-employee-threshold

This reform would boost employment and could be expected to completely eliminate the current valley above the 50-employee threshold. Especially firms which have currently 40 to 49 employees can be expected to grow significantly. More modest growth effects are to be expected also among firms that have already more than 50 employees, as cancelling the 50-employee-threshold would reduce marginal costs associated with additional employment. Clearly, such a reform would also change the balance of power in the labour market, increasing the relative power of employers. Social evaluation of the distributional consequences of this is a political question. Long-term effects would depend also on how labour unions respond to this. Given that the unemployment rate is currently so high, it is likely that initial wage responses would be modest, meaning that the reform would improve French firms' competitiveness and boost employment. Rising tax revenues from employed workers and lower unemployment aid would improve government finances.

iii. Increase of the threshold from 50 to 60 employees

This reform would encourage firm growth above 50 employees. There would be significantly more firms with up to 59 employees, but a new valley at 60 employees. Compared with reform proposal (i), this reform would result in more permanent new jobs being created, but the effect would be limited below the new threshold of 60 employees. Unlike reform (i), this reform should not affect the mix between permanent and temporary jobs in any significant way.

iv. Doubling of the threshold from 50 to 100 employees

This reform would have qualitatively similar effects as reform option (iii), but it would result in more jobs being created, with a valley being located at the new threshold of 100 employees. As reform (iii), this reform should not affect a mix between permanent and temporary employees in any significant way.

v. Financial compensation paid by the State of the additional costs incurred by firms with 49 employees at the time when they hire new employees. This scenario does not allow for financial compensation to firms with more than 50 employees before the reform implementation

A challenge in implementing this reform proposal is how to determine what should be the size of the compensation. As far as additional payroll costs, like additional vocational training contributions are concerned, the best approach would be to eliminate these, or to replace these by a uniform contribution that would not depend on the firm's number of employees. However, it is not easy to determine the costs associated with administrative structures. From the perspective of companies the most prevailing costs would be time costs. These would also depend on how well or badly the cooperation with the employee representatives runs. Determining the right compensation for each firm individually would be administratively costly and would also create incentives for firms to exaggerate costs, in order to claim more compensation. Basing such a compensation on estimated average costs, in turn, would mean that for some firms, compensation would be less than realised additional costs, and for others more. Nonetheless, this is likely to be a better option than trying to estimate the costs at the firm level. The best approach would be to estimate the costs of additional obligations facing the firm at 50 employees, and then cut the payroll tax rate on the additional employees correspondingly. One could target such a reduction so that there would be a maximum reduction. For example, one could establish a reduction in the payroll tax rate for companies with more than 50 employees of 1% of the payroll tax rate, but cap the reduction at a level that corresponds to the estimated costs of the new burdens arising with the 50-employee threshold.

If the system applied only to the firms that have less than 50 employees before the reform implementation, it would put firms above that threshold at the time of the reform implementation at a permanent disadvantage compared with firms that grow above the threshold after the reform. Furthermore, a question to be decided is how to deal with a firm that first reduces its employee number below 50 employees, and subsequently grows above it. Applying this new benefit also to such a firm would encourage companies to reduce the number of employees and then to hire employees back, which is inefficient and undesirable from the perspective of promoting employment. There is also the question of how long the financial compensation would be paid to firms. Again, treating firms with more than 49 employees on the payroll before the reform permanently less favourably than firms that rise above the threshold after the reform would put the previously larger firms at a permanent disadvantage compared with firms that grow above the threshold after the reform.

To sum up: compensating only firms that are initially below the 50-employee threshold would create a new distortion and the size of this distortion would depend crucially on how such a compensation would be implemented. Therefore, it is a riskier scenario than the reform proposals (i) to (iv).

Conclusion

Both France and Germany have a number of regulations that come into force when the number of employees in a firm exceeds a certain threshold. Making regulations conditional on the number of employees is an attempt to solve a trade-off between costs and coverage. The lower the threshold the wider the coverage. On the other hand, the lower the threshold, the more burdensome the regulation can become to firms close to the threshold.

Regulatory thresholds have been established to promote a number of social goals, like employee participation in firms' governance, protection of employees from unjustified dismissals and hiring of disabled persons. This report has shown that these regulations have an unintended side effect in France: they prevent a large number of firms from growing in size above the threshold. This depresses employment and puts the French economy in a competitive disadvantage relative to other countries, including Germany. The German case is an especially interesting comparison as German firms also face regulatory thresholds that depend on the number of employees. Moreover, the German social model resembles the French one, in emphasising social partnership between labour market partners, and also encouraging profit sharing and other corresponding arrangements.

In our empirical analysis on small and medium-sized manufacturing firms we find evidence for distorting effects on the firm size distribution only in France. French firms are increasingly concentrated below the regulatory thresholds of 10, 20, and 50 employees. We evaluate in particular the effects of the 50 employee threshold on employment growth at the firm level. Just below the size of 50 employees, firms are about 15 percentage points less likely to hire new workers. Moreover, these firms increase their investment in capital as a factor of production. This indicates a substitution of workers with capital in order to avoid the increasing marginal costs of employment. Thus, we estimate the 50 employee regulatory threshold in France to generate significant distortions and impede employment growth among the affected firms.

When it comes to different reform proposals, increasing the thresholds permanently would encourage firm growth in the range between the current and the new threshold. In the longer term, a new distortion would be established at the new threshold. On the other hand, a temporary lifting of new regulatory burdens for the firms exceeding a threshold would encourage firms to rely increasingly on hiring temporary new workers, to be able to return below the threshold once the period of temporary alleviation is over.

Conclusion

As for additional payroll costs, the best approach would be to eliminate them, or to replace them by payroll costs collected from all firms according to the same rules, regardless of the number of employees. There can be lots of justifications for regulations depending on the number of employees. However, the crucial challenge is to avoid making these regulations excessively costly. Currently, it appears that the additional cost burden associated with exceeding the regulatory thresholds is much higher in France than in Germany. In order to encourage firms to grow above such regulatory thresholds, it would be advisable to reduce these additional burdens. Furthermore, it would be advisable to consider whether some of the burden could be moved from the firms to the employees or to tax payers in general. For example, when it comes to hiring disabled workers, an alternative to the current penalties for firms not fulfilling the recruitment goals would be a tax benefit to firms hiring disabled persons, for example in terms of lower payroll taxes.

Regulations varying according to the number of employees can be efficient. In such case, the most efficient way to reduce distortions at the threshold would be to estimate the costs that such regulations impose on firms, and then offer firms that exceed that threshold a reduction in payroll tax when the threshold is crossed. In order to reduce the fiscal costs to the state, there could be a maximum reduction in the payroll tax obligations associated with each relevant threshold. For example, it could be that once a 50-employee threshold is crossed, the payroll tax burden is reduced by one percentage point until the firm accumulates a certain maximum rebate. Firms whose payroll tax burden is so high that the one percentage point reduction would exceed the maximum rebate would receive just the maximum rebate, and otherwise pay the regular payroll tax rate for their employees. For administrative simplicity and to avoid incentives for firms to exaggerate their costs, such a maximum rebate should be uniform for all firms, affected by similar regulations. It would not be necessary to compensate the threshold effects fully. Already a partial compensation would help to reduce the distortions, the more so the higher the rate of compensation.

Appendix A

Table A 1.1: Workplace representation in France and Germany

Country	Theme	Law	Content	Thresholds		Calculation of threshold
France	Employee delegates (Délégués du personnel)	Code du travail, articles L.2312-1	Obligation to conduct the election of staff representatives which represent the claims on behalf of the employees relating to employment regulations and rules.	Number of employees	Number of employee delegates	General calculation according to the working time.
				11 - 25	1	
				26 - 74	2	
				75 - 99	3	
				100 - 124	4	
				125 - 174	5	
				175 - 249	6	
				250 - 499	7	
				500 - 749	8	
				750 - 1,000	9	
	More than 1,000	+ 1 for every 250 empl.				
	Where the employer has decided that the employee delegates should also act as the works council a slightly larger number of individuals are elected.					
	Works council (Comité d'entreprise)	Code du travail, article L.2322-1-28	Obligation to establish a staff committee which should protect the interests of the employees professionally, economically, socially and culturally. The council must be informed of/consulted on questions of an economic nature. The employer is a member of the works council, and presides at meetings.	Number of employees	Number of work council members	General calculation according to the working time.
				50 - 74	3	
				75 - 99	4	
				100 - 399	5	
				400 - 749	6	
				750 - 999	7	
				1,000 - 5,000	+ 1 for every 1,000 empl.	
				5,000 - 10,000	+ 1 for every 2,500 empl.	
				More than 10,000	15	

Table A 1.1: Workplace representation in France and Germany

Country	Theme	Law	Content	Thresholds	Calculation of threshold	
France (cont.)	Trade union delegate (Délégué syndical)	Code du travail, article L.2143-3	Unions represented in that firm have the right to nominate a trade union delegate if demanded by workers.	Firms with 50 or more employees.	General calculation according to the working time.	
	Board-level representation (Administrateurs représentant les salariés)	Code de commerce, article L225-27-1	Employee representation at board level is obligatory in Société Anonyme (SA) and Société en commandite par actions (SCA) company forms for companies with 5,000/10,000 employees.	In all companies with 10,000 or more employees worldwide or 5,000 in France, there will be one employee representative, where there are up to twelve board members, and two where there are more than twelve.	General calculation according to the working time.	
Germany	Works council	Works Constitution Act (Betriebsverfassungsgesetz, BetrVG)	“Works councils shall be elected in all establishments that normally have five or more permanent employees with voting rights, including three who are eligible.” (BetrVG). The main tasks of the works council include monitoring the employer’s adherence to all legal requirements, safety regulations, collective agreements and in-house agreements on the employees’ behalf. There are various social matters in which the works council’s agreement is needed before the employer can take the respective measure (known as its ‘right of co-determination’).	Number of employees	Number of works council members	Employees are counted by head (including fixed-term and part-time workers, mini-jobbers, employees on sick or maternal leave).
				5 - 20	1	
				21 - 50	3	
				51 - 100	5	
				101 - 200	7	
				201 - 400	9	
				401 - 700	11	
				701 - 1,000	13	
				1,000 - 1,500	15	
				1,500 - 5,000	+ 2 for every 500 empl.	
				5,000 - 7,000	+ 2 for every 1,000 empl.	
7,000 - 9,000	35					
More than 9,000	+ 2 for every 3,000 empl.					

Table A 1.1: Workplace representation in France and Germany

Country	Theme	Law	Content	Thresholds		Calculation of threshold
Germany (cont.)	Youth and trainees' delegation	Works Constitution Act (Betriebsverfassungsgesetz, BetrVG)	In establishments that employ five or more persons under 18 years of age (young employees) or persons under 25 years of age receiving vocational training, youth and trainee delegations shall be elected.	Number of trainees	Number of youth delegation members	Employees are counted by head (including fixed-term and part-time workers, mini-jobbers, employees on sick or maternal leave).
				5 - 20	1	
				21 - 50	3	
				51 - 150	5	
				151 - 300	7	
				301 - 500	9	
				501 - 700	11	
				701 - 1,000	13	
				More than 1,000	15	
	Board-level representation	Co-determination Act (Drittelbeteiligungsgesetz, DrittelbG / Mitbestimmungsgesetz, MibestG)	In corporate companies (limited companies, stock companies) with 500 or more employees, employee representatives have a right to seats on the supervisory board. The coal, iron and steel industries have their own co-determination rules.	Number employed	Seats in supervisory board	Employees are counted by head.
				500 - 2,000	1/3 of the seats	
				More than 2,000	1/2 of the seats	

Sources: Bundesministerium für Arbeit und Soziales, Bundesministerium der Justiz und für Verbraucherschutz, European Trade Union Institute, French Code du travail.

Table A 1.2: Health and safety representation in France and Germany

Country	Theme	Law	Content	Thresholds		Calculation of threshold
France	Committee on health, safety and working conditions (Comité d'hygiène, de sécurité et des conditions de travail)	Code du travail, article L.4611-1	Obligation to establish a separate committee which deals with health and safety issues. Chaired by the employer or the employer's representative and the number of employee representatives.	Number of employees	Number of employee representatives	Employees counted according to their working time.
				50 - 199	3 (of which 1 should be a manager)	
				200 - 499	4 (of which 1 should be a manager)	
				500 - 1,499	6 (of which 2 should be managers)	
				More than 1,500	9 (of which 3 should be managers)	
				In workplaces with at least 500 employees it is possible to have several health and safety committees, if this is warranted by the nature of the work.		
	Nurses (Infirmier)	Code du travail, article R.4623-51	Obligation to appoint nurses.	Number of employees	Number of nurses	Employees counted according to their working time.
				Industrial firms: from 200 to 800	At least one nurse	
				Industrial firms: more than 800	+ 1 for every 600 employees	
				Other firms: from 500 to 1,000	At least 1 nurse	
				Other firms: more than 1,000	+ 1 for every 1,000 employees	

Table A 1.2: Health and safety representation in France and Germany

Country	Theme	Law	Content	Thresholds	Calculation of threshold
Germany	Occupational physician and occupational safety specialist	Act on Occupational Physicians, Safety Engineers and Other Occupational Safety Specialists.	The employer has to appoint occupational physicians and occupational safety specialists who shall support him in occupational safety and health as well as accident prevention matters.	Every firm.	
	Occupational safety and health committee (Arbeitsschutz-ausschuss)	Act on Occupational Physicians, Safety Engineers and Other Occupational Safety Specialists	The employer shall set up an occupational safety and health committee in establishments. The committee shall have the following members: The employer or an appointed representative, two members of the works council appointed by the works council, occupational physicians, occupational safety specialists.	Firms with more than 20 employees.	Employees counted according to their working time.

Sources: Bundesministerium für Arbeit und Soziales, Bundesministerium der Justiz und für Verbraucherschutz, European Trade Union Institute, French Code du travail.

Table A.1.3: Financial participation in France and Germany

Country	Theme	Law	Content	Thresholds	Calculation of threshold
France	Profit-sharing scheme (Participation des salariés aux résultats de l'entreprise)	Code du travail, article L.3322-2	All companies employing 50 workers or more are obliged by law to let employees participate in the financial success of the company by compulsory deferred profit-sharing plans (accords de participation). Companies must establish a deferred profit-sharing fund (RSP), the level of which is calculated on the basis of a legally binding or otherwise pre-determined profit-sharing formula.	Firms with 50 or more employees.	Employees counted according to their working time.
Germany	Employee share ownership	Mitarbeiterkapitalbeteiligungsgesetz	Law for promoting employee share ownership. Consists mainly of tax amendments for firms offering share ownership for their employees; hence there is no obligation to do so. No profit sharing schemes by law.		–

Sources: Bundesministerium für Arbeit und Soziales, Bundesministerium der Justiz und für Verbraucherschutz, European Trade Union Institute, French Code du travail.

Table A 2: Lay-off conditions

	Theme	Law	Content	Thresholds	Calculation
France	General regulation	Code du travail L.1231-1 to L.1233-20	The basic notice period increases with the duration for which employees have been employed in a firm. Employees with a permanent work contract who have been employed for at least one year are entitled to a severance pay provided that they have not committed a serious misconduct. The severance pay amounts to at least 1/5 monthly salaries per year of employment. Workers who have been employed for more than 10 years get at least 2/15 monthly salaries in addition to the general severance pay for each additional year of employment.		
	Protection of employees with representative functions	Code du travail L.2411-1 to L.2411-22	The works council must be informed if staff representatives, members of the works council, union representatives and representatives in the committee on health, safety and working conditions are to be dismissed. Employees who have submitted their application for a representative function are protected for a time period of six months; the protection after the ending of the representative function lasts for either 6 or 12 months depending on the function. The permission of the labour inspector is necessary for a dismissal of all protected employees.		
	Protection from mass lay-offs	Code du travail L.1233-21 to L.1233-91	Mass lay-offs have to be reported to the administrative authority. Plan to safeguard employment necessary: its purpose is to avoid dismissals or reduce the number of dismissals; if dismissals are inevitable, a reclassification plan must be established. The plan to safeguard employment must also include training activities and measures to reduce the working time of employees.	Obligation applies to firms with 50 or more employees if at least ten employees are to be dismissed within a time period of 30 days.	

Table A 2: Lay-off conditions

	Theme	Law	Content	Thresholds	Calculation
France (cont.)	Maternity protection	Code du travail L.1225-1 to L.1225-72	Maternity protection: during pregnancy, lay-offs are only possible for economic reasons or in case of a serious misconduct. During maternity leave, lay-offs are not allowed at all.		
Germany	General regulation	Employment Protection Act (Kündigungsschutzgesetz) §§ 1-14	Basic notice period: employees can be dismissed with a notice period of 4 weeks on the 15th of a month or at the end of a month. Longer notice period for employees who have been employed in a firm for a longer time period. Entitlement to severance pay in case of dismissal for operational reasons: severance pay usually equals 0.5 monthly salaries per year of employment; the maximum amount of the severance pay usually corresponds to 12 monthly salaries. Exceptions: • if employee is at least 50 years old and has been employed for at least 15 years, maximum amount equals 15 monthly salaries; • if employee is at least 55 years old and has been employed for at least 20 years, maximum amount equals 18 monthly salaries.	Employment Protection Act applies to firms with • more than ten employees who were hired after the 1st January 2004; • more than 5 employees who were hired before the 1st January 2004. Notice period: In firms with less than 20 employees, the basic notice period can be shortened: employees can be dismissed with a notice period of four weeks on any day of the month.	• relevant reference period is the number of employees at the point of dismissal; • employees are counted according to their working time; • apprentices are not counted. Notice period: reference period: Number of employees usually employed in a firm.
	Protection of employees with representative functions	Employment Protection Act (Kündigungsschutzgesetz) §§ 15-16	Employers are usually not allowed to dismiss staff representatives and members of the works council. Employees who have submitted their application for a representative function are protected for a time period of six months; the protection after the ending of the function lasts one year.		

Table A 2: Lay-off conditions

	Theme	Law	Content	Thresholds	Calculation
Germany (cont.)	Protection from mass lay-offs	Employment Protection Act (Kündigungsschutzgesetz) §§ 17-22	Mass lay-offs have to be reported to the employment agency; the dismissals become effective one month after the reporting. During this time, measures can either be taken to avoid the dismissals or the employment agency can try to find alternative employment possibilities to avoid unemployment. Mass lay-offs have to be reported to the works council; the reasons for the planned dismissals and the criteria for selecting the employees must be reported.	Obligation to report mass lay-offs to employment agency: <ul style="list-style-type: none"> • if more than 5 employees are to be dismissed in a firm with 21 to 59 employees, • if 10% of employees or more than 25 employees are to be dismissed in a firm with 60 to 499 employees, • if at least 30 employees are to be dismissed in a firm with at least 500 employees. 	Reference period: number of employees usually employed in a firm.
	Maternity protection	Maternity Protection Act (Mutterschutzgesetz)	Maternity protection: lay-offs are usually not allowed from the beginning of the pregnancy until four months after the birth of the child. Lay-offs are usually not allowed during parental leave.		

Sources: Bundesministerium für Arbeit und Soziales, Bundesministerium für Justiz und Verbraucherschutz, French Code du travail.

Table A 3: Continuing vocational training in France and Germany

	Theme	Law	Content	Threshold	Calculation
France	The personal training account (Compte personnel de formation, CPF)	Code du travail, articles L6323-1 - L6323-9, L6323-10 - L6323-15, L6323-16 - L6323-17, L6323-18 - L6323-19	The personal training account allows workers to accumulate up to 150 hours, which are retained if the employer changes or during unemployment. These rights can be topped up by the unemployment agency, the employer or the worker him/ herself.	In companies with 50 or more employees the account can be abounded if the employer has not achieved the intended professional maintenance.	Employees counted according to their working time.
	Professional development council (Conseil en évolution professionnelle, CEP)	Code du travail, article L6111-6	The CEP is a free, personalized support system offered to any employee wishing to develop and formalize a professional development project. The CEP provides the employee the following services: a personal interview to analyse their work situation, a council to define their professional project, and support in the implementation of this project. It is provided by special agencies.		
	The training plan (Plan de formation)	Code du travail, articles L6312-1, L6321-1, L6321-6 - L6321-12, D6321-5 - D6321-10	Comprises all training measures for employees at the initiative of their employer to adapt their abilities to their current post or develop new skills. It can include measures like an assessment of competencies (bilan de compétences) or a validation of personal and professional experiences (VAE).		

Table A 3: Continuing vocational training in France and Germany

	Theme	Law	Content	Threshold	Calculation
France (cont.)	The professionalisation period (Période de professionnalisation)	Code du travail, articles L6324-1 - L6324-6, D6324-1, L6324-7, D6324-2 - D6324-6, D6321-5 - D6321-10	Open to certain employees on open-ended contracts to maintain their employability through work-study programmes recognised by the branch or a collective agreement. The employee has a right to continue receiving his/her salary, when the training measure takes place during working hours; otherwise, he/she will receive a training allowance. The benefit of the professionalization period is subject to consideration by the company in the percentage of employees simultaneously absent because of training. This percentage should not exceed 2% of the total number of company employees.	In firms with less than 50 employees, the period of professionalization may be deferred at the employer's initiative when it leads to the simultaneous absence of at least two employees.	Employees counted according to their working time.
	The personal training leave (Congé individuel de formation, Cif)	Code du travail, articles L6322-1 - L6322-3, R6322-1/R6322-2, R6322-20, Décret n°84-613 du 16 juillet 1984	Gives employees who comply with certain seniority conditions the right to ask for a training leave to acquire a higher degree, change jobs or follow other personal interests. The leave can be total or partial and last up to a year or a maximum of 1200 hours. The worker can maintain between 80-100% of his/her salary if the measure is approved by an agency (Fonds de gestion de congé individuel de formation - Organisme paritaire au titre du congé individuel de formation or Forfecif-Opacif) jointly run by trade unions and business associations. To benefit the employee must provide proof of permanent employment of at least two years consecutive of which one year in the same company.	Proof of consecutive three years in case of an employee of a craft business with fewer than ten employees.	Employees counted according to their working time.

Table A 3: Continuing vocational training in France and Germany

	Theme	Law	Content	Threshold	Calculation
Germany	Professional trainings related to the workplace	Collective agreements	In companies for which collective agreements apply obligations for employers to pay trainings may apply, but are mostly not mandatory. Usually it concerns trainings which are necessary and functional and related to the workplace. These trainings are financed by the employer.		
	Support for continuing vocational training by the federal government	Federal law: Book III of the Social Code (SGB III, §81-§87)	<p>Financial support given by the government for educational training for:</p> <ul style="list-style-type: none"> Workers not in possession of a vocational qualification: To enable low-skilled workers to return to and complete vocational training, such workers can receive financial support to cover training expenses. Employees over 45 years of age in small and medium-sized companies: The costs involved in continuing training and education can be covered partly or completely for employed workers. Employees under 45 years of age in small and medium-sized companies: The employer contributes at least 50% of the training costs. Continuing Education Grant: Employees who have an annual income less than 20,000 Euros while working at least 15 hours per week receive up to 500 Euro for training purpose. 	Firms with less than 250 employees (SMEs).	Employees counted according to their working time.

Table A 3: Continuing vocational training in France and Germany

	Theme	Law	Content	Threshold	Calculation
Germany (cont.)	Educational leave (Bildungsurlaub)	No federal law, theme is subject to the laws of the federal states.	In most federal states (except of Bavaria, Saxony, Thuringia and Baden-Württemberg – the last two mentioned will implement such a law in 2015) employees have the right to take one week each year of additional leave for an “educational leave” (Bildungsurlaub). The employer doesn’t have to pay for the training, but the employee will receive his/her regular salary during this week. The training is financed by employees themselves.	Depending on federal state. (For example North-Rhine Westphalia: Law applies for firms from ten employees; firms with 10-50 employees will only have to give “educational leave” to a certain fraction of employees).	

Sources: OECD Economic Surveys: France 2015, Box 1.4. The main vocational training measures in France, p. 85; Le portail de l'administration française; German Federal Ministry of Labour and Social Affairs.

Table A 4: Hiring of disabled persons

Country	Theme	Law	Content	Thresholds	Calculation
France	Obligation to hire disabled persons	Code du travail L.5212-1 to L.5212-8	Firms are obliged to employ a certain number of handicapped persons.	In firms employing at least 20 workers, disabled persons must account for at least 6% of the staff. If the share of disabled persons lies below 6%, firms are considered as fulfilling their obligation if they <ul style="list-style-type: none"> • have a hiring plan of disabled persons; • hire disabled apprentices; • have subcontracts or supply contracts with firms employing disabled persons. 	Firms having employed at least 20 workers for three year.
	Contribution in case of violation against obligation	Code du travail L.5212-9 to L.5212-17	In case of a violation against their obligation, employers have to pay a contribution to the association for the professional integration of disabled persons (Association pour la gestion du fonds pour l'insertion professionnelle des personnes handicapées (Agefiph) per missing disabled person per year.	The amount of the contribution depends on the missing number of disabled persons: <ul style="list-style-type: none"> • for firms with 20 to 199 employees: 400 times the hourly minimum wage (9,53 Euro) = 3,812 Euro per year; • for firms with 200 to 749 employees: 500 times the hourly minimum wage = 4,765 Euro per year; • for firms with at least 750 employees: 600 times the hourly minimum wage = 5,718 Euro per year. 	

Table A 4: Hiring of disabled persons

Country	Theme	Law	Content	Thresholds	Calculation
Germany	Obligation to hire disabled persons	Social Security Code IX - Rehabilitation and Integration of Disabled Persons (Sozialgesetzbuch (SGB) Neuntes Buch (IX) - Rehabilitation und Teilhabe behinderter Menschen) §§ 71-76	Firms are obliged to employ a certain number of disabled persons.	In firms employing at least 20 workers, disabled persons must account for at least 5% of the staff.	<ul style="list-style-type: none"> Reference period: workers on a yearly average; employees working at least 18 hours per week are counted per head; apprentices are not counted.
	Countervailing charge in case of violation against obligation	Social Security Code IX - Rehabilitation and Integration of Disabled Persons (Sozialgesetzbuch (SGB) Neuntes Buch (IX) - Rehabilitation und Teilhabe behinderter Menschen) §§ 77-79	In case of a violation against their obligation, employers have to pay a countervailing charge per missing disabled person per year.	The amount of the countervailing charge depends on the missing number of disabled persons: <ul style="list-style-type: none"> disabled persons account for 3% to <5% of the staff: 115 Euro per year; disabled persons account for 2% to <3% of the staff: 200 Euro per year; disabled persons account for <2% of the staff: 290 Euro per year; for firms with >20, but <40 employees and <1 disabled person: 115 Euro per year; for firms with >40, but <60 employees – and <1 disabled person: 200 Euro per year; – and <2 disabled persons: 115 Euro per year. 	

Sources: French Code du travail, Sozialgesetzbuch (SGB).

Table A 5.1.a: Social contributions in Germany, effective 1.1.2015 (Basis: Gross earnings)

Contribution / Contribution rates in percent	Employee	Employer	Acknowledgments
Health insurance → Reduced health insurance	7.30 + x ^{a)} 7.00 + x	7.30 7.00	Reduced rate applies for persons without sick pay entitlement: self-employed, pensioners, students, etc.
Long term care insurance	1.175/ 1.425	1.175	+ 0.25 supplement for employees without children from age 23 on.
Old age (pension)	9.35	9.35	
Unemployment insurance	1.50	1.50	
Sick pay (Umlage U1)	-	1.3 - 3.9 ^{c)}	Only for firms up to 30 employees. Level depending on health insurance company and covered level. ^{b)}
Maternity pay (Umlage U2)	-	0.38 ^{c)}	Level depending on health insurance company.
Insolvency pay (Umlage U3)	-	0.15	
Total contributions			
Firm < 30 employees	19.325 + x^{a)} /	21.155 - 23.755	
Employee > 23 years and no children	19.575 + x ^{a)}		
Firm > 30 employees	19.325 + x^{a)} /	19.855	
Employee > 23 years and no children	19.575 + x ^{a)}		
Accident insurance	-	+ variable	Rate depending on risk level and insurance company.

(a) Supplement of x depending on the health insurance company. -

(b) Health insurance companies will cover 50- 80% of the sick pay for a sick employee of the firm. Calculation of number of employees for sick pay: 1) Employees working up to ten hours factor 0.25; 2) Employees working up to 20 hours factor 0.50; 3) Employees working up to 30 hours factor 0.75; Disabled employees and employees in apprenticeship are not counted. -

(c) As an example rates taken from the German health insurance company DAK, as of April 2015.

Note: Maximum contribution to health and long term care insurance reached at 49,500 Euro gross earnings/year. Maximum contribution to old age (pension) and unemployment insurance reached at 72,600 Euro gross earnings/year. Earnings above these thresholds are only subject to social contributions up to the maximum contribution, the part of the salary above the threshold is free of social contributions.

Source: Bundesministerium der Justiz und für Verbraucherschutz, Health insurance company DAK and own research.

Table A 5.1.b: Social contributions for mini-jobs in Germany, effective 1.1.2015

Contribution / Contribution rates in percent	Employee	Employer
Health Insurance	-	13.00
Long term care insurance	-	-
Old Age (pension)	3.70	15.00
Unemployment insurance	-	-
Taxes	-	2.00
Sick pay (Umlage U1)	-	0.70
Maternity pay (Umlage U2)	-	0.24
Insolvency pay (Umlage U3)	-	0.15
Total	3.70	31.00
Accident insurance	-	+ variabel

Note: The contributions apply for mini-jobs in firms, for mini-jobs in private households other contributions apply (see source).

Source: Minijob-Zentrale.

Table A 5.2: Comparison of social contributions in France (Paris Ile-de-France) and Germany as of 1.1.2015

Contribution / Contribution rates in percent	Germany		France	
	Employee	Employer	Employee ^{b)}	Employer ^{c)}
Health Insurance (Maladie)	7.30 + x ^{a)}	7.30	0.75	12.80
Old age pension (Vieillesse plafonnée, 0–3,170 Euro)	9.35	9.35	6.85	8.50
Old age pension (Vieillesse déplafonnée)	–	–	0.30	1.80
Unemployment insurance (Assurance Chômage)	1.50	1.50	2.40	4.00
Maternity pay (Maternité)	–	0.38 ^{d)}	Included in health insurance	
Insolvency pay (Fonds de garantie des salaires)	–	0.15	–	0.30
Accident insurance (Accidents du travail)	–	variable	–	variable
Contributions which only apply in Germany				
Long term care insurance / Employees over 25 without children	1.175 / 1.425	1.175	–	–
Sick pay (up to 30 employees)	–	1.3 – 3.9 ^{d)}	–	–
Contributions which only apply in France / For all employers				
Contribution solitary (Contribution solidarité autonomie)	–	–	–	0.30
Trade unions (Organisations syndicales)	–	–	–	0.016
Child allowance (Allocations familiales)	–	–	–	5.25
Private pension (Retraite complémentaire): 0–3,170 Euro, 3,170 Euro–9,510 Euro monthly wage	–	–	3.10	4.65
Private pension administration (AGFF) : 0–3,170 Euro, 3,170–9,510 Euro monthly wage	–	–	8.10	12.15
Vocational training contribution (Formation), from ten employees	–	–	0.80	1.20
	–	–	0.90	1.30
	–	–	–	0.55
	–	–	–	1.00

Table A.5.2: Comparison of social contributions in France (Paris Ile-de-France) and Germany as of 1.1.2015

Contribution / Contribution rates in percent	Germany		France	
	Employee	Employer	Employee ^{b)}	Employer ^{c)}
Housing allowance (Aide au logement, 0-3,170 Euro), + from 20 employees (Supplément)	-	-	-	0.10 + 0.50
Apprenticeship contribution (Taxe d'apprentissage), + from 250 employees (Supplément)	-	-	-	0.68 + 0.1
Contributions which apply only in France / Only above a certain firm size				
Transport contribution from 10 employees (Versement de transport)	-	-	-	1.5 / 1.91 / 2.85 ^{e)}
Construction contribution from 20 employees (construction)	-	-	-	0.45
Contributions which apply only in France / Additional contributions for executive staff (Cadres)				
+/- Private pension (+/- Retraite complémentaire):	-	-	-0.30	+0.60
Extra contribution to private pension (CET)	-	-	0.13	0.22
For labour bureau (APEC)	-	-	0.024	0.036
Burial insurance (Prévoyance des cadres)	-	-	-	1.50
Total contributions (examples)				
Example 1: Firm < 10 employees (<3,170 Euro wage / no executive)	19.325/19.575 + x ^{a)}		14.20	40.146
Example 2: Firm 30 employees (<3,170 Euro wage / no executive)	19.325/19.575 + x ^{a)}		14.20	43.046 / 43.456 / 44.396 ^{e)}
Example 3: Firm 250 employees (<3,170 Euro wage / no executive)	19.325/19.575 + x ^{a)}		14.20	43.146 / 43.556 / 44.496 ^{e)}
+ Accident insurance	-	-	-	+ variable
+ Contributions for executives (Cadres)	-	-	-0.146	+ 2.356
+ Contributions for higher wages of employees	-	-	+ x	+ x

(a) Supplement of x depending on insurance company. – (b) The contributions CSG (7.5%) and CRDS (2.4%) which apply for the employee are not considered in this calculation as they are not part of the social contributions (Sécurité sociale). – (c) The payroll tax (Taxe sur les salaires) is not included in the calculation as it only applies for firms which are not obliged to pay VAT. – (d) Rate depending on insurance company, levels taken from the insurance company DAK. (e) Level depending on the department.

Source: CCI Paris Ile-de-France, Les charges sociales au 1er janvier 2015 and own data collection and calculations.

Appendix B

Methodological note

The sample of analysed French and German firms is restricted to companies in the manufacturing sector with at most 100 employees in 2004. The time period for empirical analysis reported in the tables is 2004 to 2010 for both countries.

The first columns for France and Germany in Table B1 show estimates from Pooled OLS Regressions reporting the estimated employment growth effects for the subsequent time period just below and above the thresholds of 10, 20, and 50 employees.

Standard errors of the estimates are reported in brackets.

To account for spurious correlation in the samples we include control variables for general business cycle effects as well as on the firm level for size, age as well as location and sector in which the firm operates on the European NACE 2 digit level.

Column 2 reports Fixed effects estimates controlling for time invariant factors by exploiting only variation in the data over time on the individual firm level.

Time invariant control variables are not included in this specification.

Table B2 reports estimates for asset growth among firms which do not grow in employment. We also report Pooled OLS and fixed effects estimations with similar control variables as described above.

Table B3 reports estimated growth probabilities underlying Figure 2 and 3 which are calculated from similar model specifications as reported in Tables B1 and B2. For these predictions we specifically estimate employment growth effects at firm size of 46, 47, 48, 49, 50 and 51 employees.

Table B 1: Estimation results for the probability of firm growth in the manufacturing sector between 2004 and 2010 among firms with less than 100 employees in 2004. Reported are estimated coefficients for pooled ordinary least squared model as well as fixed effects model

Model	France		Germany	
	Pooled OLS → Fixed Effects	Pooled OLS → Fixed Effects	Pooled OLS → Fixed Effects	Pooled OLS → Fixed Effects
9 employees	-0.0218 (0.0068)	-0.107 (0.0105)	0.039 (0.0044)	-0.0277 (0.0053)
10 employees	0.0317 (0.0096)	-0.0769 (0.0139)	0.0328 (0.0045)	-0.0411 (0.0057)
19 employees	-0.0336 (0.0119)	-0.119 (0.0160)	0.0648 (0.0073)	-0.032 (0.0082)
20 employees	0.0626 (0.0163)	-0.0375 (0.0203)	0.0707 (0.0077)	-0.0301 (0.0087)
49 employees	-0.133 (0.0182)	-0.171 (0.0227)	0.0392 (0.0161)	-0.0081 (0.0166)
50 employees	-0.0221 (0.0331)	-0.094 (0.0358)	0.0378 (0.0165)	0.0081 (0.017)
Total number of employees	0.0038 (0.0001)	-0.0184 (0.00194)	0.0040 (0.0001)	-0.0207 (0.0009)
Total number of employees (squared)	-0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)
Age	-0.0045 (0.0003)	-0.0077 (0.0016)	-0.0078 (0.0003)	-0.0052 (0.0009)
Age (squared)	0.0000 (0.0000)	0.0000 (0.0000)	0.00012 (0.0000)	0.00006 (0.0000)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	No	Yes	No
Region dummies	Yes	No	Yes	No
Observations	97,481	97,481	366,894	366,894

Cluster robust standard errors in parentheses, constant included.

Table B 2: Estimation results for the probability of asset growth among French firms not growing in employment. Pooled ordinary least squares and fixed effects estimation

Model	Pooled OLS	Fixed effects
46 employees	0.0324 (0.0255)	-0.0160 (0.0344)
47 employees	-0.00276 (0.0268)	-0.0292 (0.0353)
48 employees	0.0619 (0.0227)	0.0392 (0.0327)
49 employees	0.0525 (0.0213)	0.0002 (0.0313)
50 employees	-0.0288 (0.0391)	-0.0011 (0.0500)
51 employees	0.0465 (0.0411)	0.0182 (0.0510)
Total number of employees	0.0004 (0.0001)	-0.0023 (0.0005)
Total number of employees (squared)	0.0000 (0.0000)	0.0000 (0.0000)
Age	-0.0007 (0.0004)	-0.0054 (0.0017)
Age (squared)	0.0000 (0.0000)	-0.0001 (0.0000)
Year dummies	Yes	Yes
Industry dummies	Yes	No
Region dummies	Yes	No
Observations	88,240	88,240

Cluster robust standard errors in parentheses, constant included.

Table B 3: Estimated probability of employment and asset growth around the 50 employee threshold according to the model specifications in Table B1 and B2

Number of employees	Probability of employment growth		Probability of asset growth among firms not growing in employment
	France	Germany	France
46	0.410	0.486	0.522
47	0.382	0.489	0.517
48	0.318	0.441	0.584
49	0.256	0.487	0.571
50	0.404	0.492	0.488
51	0.411	0.479	0.520