Labor and Financial Markets Interactions and Macroeconomic Performances: A Comparison between France and Germany

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Very preliminary version

Abstract

The aim of this paper is to analyze the role of the interactions between employment protection legislation (EPL), financialization and industrial relations with the aim of understanding the growing divergence in macroeconomic performances between France and Germany, particularly in terms of employment and wage/income inequality since the mid-2000s. I argue that France and Germany have followed divergent paths in terms of employment protection, resulting in different macroeconomic performances. However, these differences in employment protection level can be due to some institutional differences relating to corporate governance regime or to industrial relations institutions. Results from fixed-effects panel data estimations based on a sample of 19 OECD advanced countries from 1985 to 2013 provide some evidence for France or for Germany. When employment protection legislation (EPL) is interacted with financial development, results show a substitution relationship EPL and aggregate employment, regardless the nature of EL. However, I find a complementarity (resp. substitution) effect between higher EPL on regular contracts [EPR] (resp. EPL on temporary contracts [EPT]) and the degree of centralization of wage bargaining. By contrast, when explaining cross-country differences in wage/income inequality, I find a complementarity effect (respectively a substitution effect) between EPR (respectively EPT) and stock market capitalization or the degree of wage bargaining centralization.

Keywords: Financialization, industrial relations, employment protection legislation, institutional interactions, political economy

JEL Codes: G34 Mergers, Acquisitions, Restructuring, Corporate Governance, J50 Labor-Management Relations, Trade Unions, and Collective Bargaining: General, P16 Political Economy

1 Introduction

It has become very popular to argue that Germany's macroeconomic success since the mid-2000s (and especially from the 2009-10 recovery) results from flexibility-enhancing labor market reforms, causing thereby a reduction in unemployment rates and an increase in trade surpluses. Reduced unemployment rates or trade surpluses have been, however, achieved at the price of increased

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income inequality and labor market dualism (*i.e.* an increasing segregation between protected and unprotected workers). By contrast, France has experienced a more modest increase in income inequality but with persistent structurally high unemployment rates and low GDP growth rates, and this despite the continuous adoption of labor market reforms since the 1980S. From a comparison with France, this article proposes an alternative explanation of the Germany's economic success, emphasizing the role of institutional interactions between financial and labor markets.

The aim of this paper is to analyze the institutional factors explaining the growing divergence in macroeconomic performances between France and Germany, particularly in terms of employment and wage/income inequality since the mid-2000s. In line with the recent contribution by Dustmann *et al.* (2014), the purpose of this paper is challenge the conventional thesis that recent Germany's macroeconomic performances would only result from 'Hatz' reforms which have produced both higher labor market flexibility and higher income inequality in Germany. According to this argument, France's lower performances in terms of employment would result from high strictness of the employment protection legislation, thereby contributing to the increase in labor cost and limiting the competitiveness level of the French firms. Alternatively, Dustmann *et al.* (2014) stress that recent Germany's economic success mainly results from the long-term transformations in industrial relation systems that have provided greater flexibility to firms. In this contribution, I show that France and Germany have followed divergent paths in terms of employment protection, resulting in different macroeconomic performances. However, these differences in employment protection level can be due to some institutional differences relating to corporate governance regime or to industrial relations institutions. In accordance with the institutional complementarity theory (Hall and Soskice, 2001; Amable, 2003), there are strong interdependencies across financial systems, industrial relations and employment protection legislation: accordingly, successive transformations in corporate governance and industrial relations systems in France and in Germany had major consequences on employment protection legislation (hereafter EPL) and then on macroeconomic performances in the long run.

Empirical results from fixed-effects regression estimations based on a sample of 19 OECD advanced countries from 1985 to 2013 investigating the determinants of aggregate employment and wage/income inequality provide some evidence for the specific cases of France and Germany, especially to explain diffferences in employment performances. When employment protection legislation (EPL) is interacted with financial development, results show a substitution relationship EPL and aggregate employment, regardless the nature of EPL. However, I find a complementarity effect (respectively a substitution effect) between higher EPL on regular contracts [EPR] (respectively EPL on temporary contracts [EPT]) and the degree of centralization of wage bargaining. By contrast, when exploring the determinants of wage/income inequality, results from econometric estimations do not provide evidence for the cases of France and Germany: EPR is positively correlated to higher inequality whereas EPT is negatively correlated to higher inequality, with no differences when EPL is interacted with stock market capitalization ratio or with the degree of wage bargaining centralization.

The paper is organized as follows. Section 2 presents some figures showing a growing divergence in macroeconomic performances between France and Germany. Then, Section 3 sets out the theoretical channels and the related empirical literature. In Section 4, I describe data on recent institutional changes in employment protection legislation, industrial relations and financial systems and I report some estimation results. Finally, Section 5 provides some concluding remarks and policy implications.

2 A growing divergence in macroeconomic performances between France and Germany

2.1 GDP growth and employment performances

It has been frequently argued that there has been a growing divergence in macroeconomic performances between France and Germany, especially since the mid-2000s. To show this, Figure 1 displays GDP growth rates, employment and unemployment rates, the export surplus (defined by the difference between export and import as a percentage of GDP) from 1990 to 2014. Data are provided by Eurostat.

[Insert about here Figure 1]

During the first period in the 1990s, France experienced higher GDP growth and export surpluses. Economic growth respectively averaged about 2.0% per year in France and only about 1.4% per year in Germany between 1992 and 1998. At the same period, export surpluses respectively averaged about 1.3% of GDP per year in France and only about 0.4% of GDP per year in Germany. However, Germany experienced higher employment performances than in France with lower unemployment rates (8.1% in Germany against 9.7% in France on average on the 1990-1998 period) and higher employment rates (64.4% in Germany *versus* 60.0% in France on average between 1990 and 1998). At that time, due to these lower macroeconomic performances, Germany was often called 'the sick man of Europe' (Dustmann *et al.*, 2014), caused partly by the Reunification in 1991.

Between 1999 and 2003, Germany's economic growth is even lower in average compared to prior period (1.2% in Germany and 2.2% in France). However, export surpluses strongly increased during this period in Germany (2.2% of the GDP on average in Germany, and 1.5% of the GDP on average in France). While employment rate slightly increased from 1999 to 2003 (65.3% in Germany and 62.9% on average in France), unemployment rates increased on average in Germany compared to prior period and became relatively similar as in France (8.5% in Germany *versus* 8.6% in France).

It is striking to observe that macroeconomic divergence between the two countries has begun since the early-2000s, especially for the employment rate and the export surpluses. Germany's economic growth is on average higher than in France from 2014 to today (1.4% in Germany *versus* 1.1% in France). Employment rate strongly increased in Germany during this period although France also experienced an increase in employment compared to prior period (70.4% in Germany *versus* 64.1% in France). However, unemployment rate also decreased on average in Germany whereas it increased in France (7.5% in Germany *versus* 9.1% in France).[1]

It has been very frequently argued that these employment performances in Germany mainly result from the adoption of the 'Harz reforms' in 2003. The first measures of the 'Hartz reforms' were undertaken to create new job forms (including the 'Minijob' which are low-wage jobs) with the aim of stimulating job creation. But, the purpose of the main measure, called 'Hartz IV', was to reform the former unemployment benefits for long-term unemployed ('*Arbeitslosenhilfe*') and the welfare benefits ('*Sozialhilfe*'). This main measure became effective in 2005. In addition, export surpluses have been on average about 5.8% per year in Germany from 2004 (whereas France averaged about -1.2% during the same period).

[1] As displayed in Figure 1, unemployment has peaked in 2005 in Germany with an unemployment rate on 11.2%. Unemployment began to decrease from 2006 and has been particularly low (lower than 6.0%) from 2011.

2.2 Trends on income inequality

Wage Inequality France and Germany have followed different paths in the development of income inequality (Figure 2). First, overall wage inequality (measured by p_9/p_1 ratio) has gradually increased in Germany since the 1990s whereas it has slightly decreased in France during the same period.

[Insert about here Figure 2]

In the comparative political economy literature, Germany has been traditionally characterized by low levels of wage inequality due to 'encompassing' labor market institutions (such as powerful collective bargaining institutions or strong employment protection). This continuous increase in wage inequality in Germany might be closely related to recent changes in employment protection and in industrial relations (as described in Section 4). These changes have been accompanied by a decline in average wages with large disparities across the level of wages. In addition, it can be observed that in Germany lower-tail wage inequality (measured by the p_5/p_1 ratio) has strongly increased during the 1990s, thereby contributing to the increase in overall wage inequality. By contrast, France has experienced more little changes in labor market regulation (especially in terms of employment protection). Moreover, compared to Germany, average wages continued to increase during this recent period. For this reason, lower-tail wage inequality has continously decreased in France. However, whereas upper-tail wage inequality has remained quite lower than in France, it has also increased, especially during the mid-2000s. Nevertheless, overall wage inequality has slowly decreased over time.

Top Income Shares Income inequality at the very top of the income distribution has more rapidly grown in Germany than in France and this for the three variables (income shares held 10%, 5% and 1%). Data is provided by the World Top Income Database.

Anselmann and Krämer (2015) show that between 1950 and 1995 mean income of the bottom 90% grew slightly more than average income of the top 10% in Germany. By contrast, between 1995 and 2007 gross income of the bottom 90% declined by 1.0% but rose for the top 10% by 1.3%. In addition, there has been a change of income growth *within* top incomes. Commonly with all OECD countries, the increase in top income shares is mainly due to the rise of the wage share. In line with Atkinson (2001), Anselmann and Krämer (2015) argue that changing social norms regarding inequality and the acceptability of very high wages may explain the increase in top income shares in many OECD countries, including in Germany, through, for instance, the diffusion of the practices of granting stock-options to executives. As it will be analyzed in the following sections, these changes can be related to the evolutions of the financial systems, thereby impacting corporate governance and pay practices.

In Germany, top income shares have continously increased, including after the 2007-2008 financial crisis. Compared to Germany, top income shares in France slowly increased from 1990 to the 2007-2008 financial crisis, and decreased since then. According to the previous argument, on the degree of acceptability of very high wages might have been affected by the financial crash and the subsequent Great Recession.

3 Related Literature

This paper tries to connect institutional change in labor and financial markets to explain cross-country differences in macroeconomic performances between France and Germany. More particu-

larly, I argue that changes in industrial relations and corporate governance should be associated with changes in employment protection legislation which will influence macroeconomic performances. Exploring the impact of institutional changes in industrial relations on price competitiveness in Germany, Dustmann *et al.* (2014) argue that the successive transformations of industrial relations, which has led to the greater decentralization of the wage-setting process from the industry level to the firm level, has played a decisive role in the restructuring of the German labor market. The decentralization of collective bargaining institutions has created higher flexibility for firms which stimulates employment and economic growth. This argument is derived from Carlin and Soskice (2009) who argue that traditional Germany institutions based on employer-worker cooperation played a central role in the German recovery. Dustmann *et al.* (2014) thus challenge the conventional argument that Germany's economic resurgence from the early-2000s to nowadays would be only driven by a series of legislative labor market reforms, the so-called 'Hartz' reforms. Following this argument, the Hartz reforms which include the deregulation of temporary employment and the consolidation of social benefits and unemployment benefits (Deutsche Bank, 2014), would be not central to understand recent Germany's economic success. Despite continuous labor market reforms and a process of decentralization of collective bargaining institutions in France, there are, however, persistent cross-differences in macroeconomic performances between France and Germany as pointed out in Section 2: employment performances are higher in Germany whereas wage (and income) disparities are lower in France.

In order to explain this 'paradox', I argue that the effect of a change in employment protection legislation on macroeconomic performances depends on some other institutional features, such as corporate governance regimes (and more generally the nature of financial systems) and industrial relations. For this, I use the concept of 'institutional complementarity' (Milgrom and Roberts, 1990; Amable, 2003; Amable *et al.*, 2005). The main idea of this concept is that the coexistence (within a given system) of two or more institutions mutually enhances the performance contribution of each individual institution. In other words, specific institutional forms are complementary if they jointly contribute to a higher economic performance in terms of economic activity, employment, or wage equality ... Some papers have shed the effects of the interdependence between financial and labor markets on gross domestic product (GDP) growth or on unemployment. Ernst (2004) shows that concentration of ownership structures and employment protection act favorable on growth in bank-financed industries while ownership dispersion and labor market flexibility foster growth in equity-financed industries. Gatti (2009) show that more concentrated ownership can stimulate GDP growth, particularly in countries approaching the technological frontier, provided that labour market regulation is sufficiently tight. In the absence of employment regulation, the logic of financial markets discipline applies and dispersed ownership appears as more favorable for growth. For this reason, GDP growth is stimulated in Anglo-Saxon countries as a result of a combination of deregulation (*i.e.* increased dispersion of ownership in a context of deregulated labour markets) but also in continental European countries as a result of an increased concentration of ownership in a context of reinforced labour regulation. Gatti *et al.* (2012) find that the interactions between labor and financial factors have a significant impact on unemployment in 18 OECD countries from 1980 to 2004: increasing stock market capitalization reduces unemployment with weak labor market institutions (union density and wage bargaining centralization), whereas enhancing intermediated credit increases employment with strongly regulated and coordinated labor markets. Darcillon (2016) finds that changes in the financial/credit and labor market regulation affect the income distribution. By increasing labor market regulation, one also weakens the impact of the flexibilisation in the financial/credit market on the increase in income inequality.

A large literature in political economy has analyzed the interactions between employment legis-

lation, industrial relations and corporate governance.[2] There are strong interactions between corporate governance and the system of codetermination in Germany. As argued by Vitols (2004), unlike in the Anglo-American style of corporate governance, the system of codetermination in Germany allow to give workers (and more generally stakeholders) a great influence in the decision-making process, thereby acting as constraints on management and minority shareholders (for instance foreign institutional investors). Combined with the transformations in corporate governance, this institutional role given to employees through the system of codetermination has contributed to higher decentralization of collective bargaining institutions, providing higher flexibility for firms. In addition, this system of codetermination combined with a low pressure from hostile takeovers and capital markets appears as an 'institutional comparative advantage' (Hall and Soskice, 2001). Thus, it can argued that this German employment performance is derived from this institutional comparative advantage based on the interactions between corporate governance and industrial relations. In another vein, Masouros (2014) stresses that the successive transformations in corporate governance, mainly during the 1990s, is closely related to the moderation of labor costs. At that time, institutional investors began to playing a greater role in the corporate governance, and this at the expense of the big banks which traditionally were very influential on the decision-making process.

In the following subsection, I briefly report some theoretical mechanisms by which financial and labor market interactions may affect employment performances (Subsection 3.1) and wage or income inequality (Subsection 3.2).

3.1 Financial and labor market interactions and employment performances

Employment protection makes more difficult for a worker to be laid off even during economic downturns. Higher employment protection raises the costs of employment which moves downwards the labor demand curve particularly for lower-productivity workers. To this sense, increasing EPL implies a rise in labor cost, thereby causing lower aggregate employment. A growing theoretical literature has, however, questioned this negative relation highlighting an ambiguous effect on labor market institutions on aggregate employment. Some papers have shown that the effect of EPL on aggregate employment may also be conditional to the intensity in product market regulation. There are two competing conceptions in the literature. A dominant literature sees a positive effect of reducing labor market regulation on the reduction in unemployment, particularly in countries with strongly deregulated product markets: Blanchard and Giavazzi (2003) find that strongly deregulated product markets increase the incentive to reduce labor market regulation which will have a positive effect on aggregate employment. Thus, reducing employment protection in countries with deregulated product markets may decrease unemployment and then wage dispersion. A challenging view considers product market competition and labor market competition as substitutes. Using a dynamic efficiency model, Amable and Gatti (2004) demonstrate that higher product market competition by increasing job turnover and thus efficiency wage premium results in lower aggregate employment. Increasing employment protection has in this case a positive effect on aggregate employment by avoiding wage pressure. Amable, Demmou and Gatti (2011) find support for the substitution hypothesis between product market competition and labor market competition. Thus,

[2]According to the institutional complementarity theory (Hall and Soskice, 2001; Amable, 2003), a more dispersed shareholder ownership and a market-based financial system are more compatible with a more decentralized bargaining structure. At the firm level, shareholders pursue financial interests, the representation rights of workers are weak and the structure of decision making is hierarchical. By contrast, a more concentrated shareholder ownership and a bank-based financial system are more compatible with more a centralized wage bargaining structure. At the firm level, the company's goals are to ensure its stability and its growth: shareholders pursue strategic interests, the representation rights of workers are strong and the structure of decision making is consensual (Aguilera and Jackson, 2003).

increasing employment protection in countries with deregulated product markets may reduce unemployment.

3.1.1 Financial markets, employment protection and employment performances

There are strong institutional complementarities between financial markets and labor markets institutions on the incentive to invest in specific assets: high liquidity on the financial and labor markets increases the outside option for workers and for financial investors which reduces their incentive to invest in specific resources (Hall and Soskice, 2001; Ernst, Amable and Palombarini, 2005). From this point of view, labor and financial markets can be seen as complementary to maintain high incentives to workers to invest in specific skills. This is particularly the case for 'permanent' workers who are in general more productive than 'temporary' workers with general skills. In other words, high level of employment protection for permanent workers and low financial development can be considered as complementary (Amable and Ernst, 2005): first, low labor market liquidity increases the incentives for those permanent workers to invest in specific skills while low financial market liquidity increases the incentives for firms to invest in the skills of their workforce. By contrast, this condition does not hold for temporary workers (with more generally transferrable assets) where employment protection and financial development are not complementary to maintain strong incentives to invest in specific assets. Empirically, Amable, Demmou and Gatti (2011) find a negative impact of financialization (measured by financial assets) on employment. An increased financialization yields a change in agent's time horizon, which may lead to industrial restructuring implying layoffs.

Alternatively, Rendon (2013) shows that financial development should be positively correlated to the growth in the share of permanent workers. He argues that when firms mainly rely on debt to finance investment, these firms (mainly small ones) will use temporary workers as a means for relaxation of financial constraints in order to increase capital accumulation. In this dynamic model, as firms accumulate more capital they will rely less on debt and will substitute more temporary workers by permanent workers.

3.1.2 Industrial relations, employment protection and employment performances

As argued below, industrial relations and employment protection legislation have strong mutual interactions which can influence employment performances. According to the Varieties of Capitalism (hereafter VoC) (Hall and Soskice, 2001), 'cooperative' industrial relations (based on employer-employee cooperation) is more comptatible with higher employment protection level. Indeed, the existence of collective bargaining institutions and strong employment protection are two forms of labor market regulation in the sense that these two institutions are based on a long-term time horizon. Unions' power refers to their capacity to influence the wage-setting bargaining process: in other words, the level of wage bargaining is more likely to be centralized in the presence of strong and powerful unions. By contrast, a decentralized level of wage bargaining is more institutionally compatible with lower employment protection legislation.

According to Calmfors and Driffill (1988), one will obtain similar macroeconomic results when wage bargaining is either completely decentralized / uncoordinated or completely centralized / coordinated, with intermediate levels usually having different consequences for wage and employment levels. Hall and Soskice (2001) and Hall and Gingerich (2009) find some empirical evidence for this argument. However, it can be claimed that industrial relations, especially in Germany, have experienced some mutations with a greater decentralization of collective bargaining institutions which has fragilized the unions' bargaining power. For this reason, a decline in unionization can be

observable in continental and South European countries, such as France, Germany, Spain and Italy. These transformations in industrial relations can increase the tensions on maintaining high level of employment protection with ambiguous effect on employment performances.

3.2 Financial and labor market interactions and wage/income inequality

In a recent contribution, Darcillon (2016) explores the influence of the interactions between central labor market institutions (employment protection, unionization ...) and financial development on the dynamics of income inequality (measured by the Gini coefficient) in 18 OECD countries from 1980 to 2012. Different channels have been identified to explain to which mechanisms financial development (respectively the labour market structure) affects inequality and why this effect depends on the level of labour market factors (resp. financial factors).

3.2.1 Financial markets, employment protection and income inequality

A first series of contributions investigates the joint impact of financial and labor market institutions on the corporate strategies. It has been frequently argued that bank financing may reduce firms' turnover and increase workers' efforts. This also contributes to stabilizing the time horizon of management and to giving greater incentive for firms to adopt a long-term strategy regarding wage bargaining. More specifically, when financial markets' pressure is low, union and firm choose long-term strategies while when financial markets' is high, both choose short-term (Amable, Ernst and Palombarini, 2005). In other terms, when financial markets' influence is high, managers are more likely to adopt short-term strategies, such as the use of individual bonuses for managerial employees and collective bonuses for all employees. The more frequent use of performance related pay (PRP) and other incentive devices by top managers may result in an increase in the earnings volatility (OECD, 2011). These specific earnings schemes are indexed on the firms' profits making the wages more volatile, which also increases income disparities (Rodrik, 1997).

A second argument stresses the institutional complementarities between financial markets and labor markets institutions on the incentive to invest in specific assets (Hall and Soskice, 2001; Ernst, Amable and Palombarini, 2005). When financial and labor markets are both very liquid, firms are more likely to offer higher wages for trained and skilled workers (due to the wage efficiency premium) to prevent 'skill poaching'. Competitive markets on labor markets combined with diffuse capital ownership may lead to higher wage differentials. According to Acemoglu and Pischke (1999), the countries with general skill training (such as the United States) in comparison with the countries with specific skill training (such as Germany) have weaker incentive to train unskilled workers in reaction to the introduction of new technologies. By contrast, in the economies with low liquidity of financial markets, stronger ownership concentration (*i.e.* insider monitoring) combined with strong union's bargaining power improve the evaluation of firm-specific assets and increases the incentive for workers to invest in specific assets: thus, the incentives for the development of internal labor markets are increased which induces a more compressed wage structure. In addition, employment protection appears as a powerful driver for specific skill investment (Estevez-Abe, Iversen and Soskice, 2001): in this case, workers provide higher effort (because they are more productive) and firms do not need to offer high efficiency premium to attract workers.

The nature of employment protection legislation will also affect incentive to invest in specific assets, thereby contributing to widening or not wage/income disparities. Very few papers have investigated the impact of different types of employment protection legislation on wage or income inequality. As shown by Rossvoll and Sparrman (2015), higher employment protection legislation for regular contracts (EPR) will be positively correlated to higher wage inequality because EPR

will increase the incentives to invest more in training of employees in regular positions, leading to accumulation of firm-specific human capital which can increase both productivity and wages. By contrast, Rossvoll and Sparrman (2015) find that higher EPT is negatively correlated to lower-tail wage inequality (p_5/p_1). Indeed, workers with temporary contracts have lower incentives to invest in specific human capital assets, contributing to decreasing the within group wage dispersion.

3.2.2 Industrial relations, employment protection and income inequality

Labor market institutions are generally seen as powerful mechanisms of income insurance against shocks and may have strong impact on wages and employment. First, a vast literature has shown a direct reducing-effect of higher unionization and collective bargaining institutions on wage dispersion (Card, Lemieux and Riddell, 2004; Western and Rosenfeld, 2011; Rueda and Pontusson, 2000). More particularly, Koeniger, Leonardi and Nunziata (2007) emphasize a strong complementarity between unions' decisions and the degree of centralization/coordination of wage bargaining: a large agreement coverage increases the unions' influence throughout the economy. They also argue that the strictness of employment protection legislation is more likely to protect the unskilled relative to the skilled workers and therefore to improve their bargaining position. It is implicitly supposed that firing taxes are more important for unskilled workers: dismissal costs create a hold-up problem in the sense that they reduce the producers' outside options. Collective dismissal costs allow workers to collectively bid up their wage. For this reason, dismissal costs compress the wage differential if they are relatively more important for unskilled workers.

In addition, following the traditional argument that higher unemployment would be associated with higher wage inequality, the effect of labor market institutions on aggregate unemployment is central. First, as it has been frequently argued in the standard wage bargaining models, the effect of higher union bargaining power on wage dispersion can be ambiguous: the objective of the union is to maximize the expected wage of its members. Because unions tend to reduce wage competition, this reduces low-wage employment, which has two contradictory effects: it increases average wages for low-skilled, which tends to decrease wage dispersion, but this effect might be offset by a rise in unemployment rates caused by an increased average wage (Checchi and García-Peñalosa, 2010). But another explanation claims that unions may be willing to moderate their wage claims, and this more particularly when unions are more coordinated: union leaders take into account that higher wages may induce an increase in unemployment. Wage moderation has, in this case, a positive effect on aggregate employment (Checchi and Nunziata, 2011).

4 Institutional changes in employment protection, in industrial relations and in financial systems

4.1 Employment protection and industrial relations in France and in Germany

Employment protection Cross-countries differences in the levels of employment protection can also be remarkable between France and Germany. When focusing on different measures of the strictness of employment protection proposed by the OECD, there is a large difference between the two countries according to the nature of the labor contract (temporary versus permanent contracts). The strictness of the employment protection on regular or permanent contracts (EPR) is traditionally higher in Germany than France (which experienced larger variations since the 1990s). The picture is totally different on the strictness of the employment protection on temporary contracts (EPT). Whereas France has maintained a very high level of protection for these contracts (even higher than for regular contracts), successive labor market reforms in Germany (such as the

'Hartz' reforms in 2005) have gradually contributed to the reduction in the level of protection for temporary contracts.

[Insert about here Figure 3]

Alternative measures of the degree of labor market regulation also show relatively large differences between France and Germany. The Center for Business Research (CBR) has recently proposed a new multidimensional indicator labor laws in 117 countries for the period from the 1970s to 2013 for the OECD countries (Adams *et al.*, 2016). This indicator proposes data on protective regulation on five different dimensions: (i) different forms of employment, (ii) regulation of working time, (iii) regulation of dismissal; (iv) employee representation and (v) industrial action.[3] Figure 4 displays the aggregate indicator on labor market regulation and separate indicators on each dimension.

[Insert about here Figure 4]

According to this measure, France is traditionally characterized by a higher level of labor market regulation than Germany, even though the degree of regulation in Germany has constantly increased since the 1970s with an exception during the mid-1990s. Since the 1980s, except for the dimension on employee representation where Germany has the highest score, overall labor market regulation is higher in France than in Germany. The first dimension mainly refers to equal (legal) treatment between different forms of employment (permanent contracts, part-time and fixed-term contracts). For this first dimension, the degree of employment protection (especially for part-time workers and/or fixed-term workers) is the highest in France nearly since the 1980s whereas it has continuously increased in Germany since then from nowadays. For the second dimension on the regulation of working time (which notably refers to annual leave entitlements or duration of the normal working week), Germany has gradually decreased its level of protection in the mid-1990s whereas France has increased it in 1980 and in 2000 (with the introduction of the 35-hours-week). Then, when focusing on the regulation of dismissal, the degree of regulation has strongly increased in the mid-1970s in the wake of the increase in unemployment in France. Since then, the level of protection has remained very high with little variations over time, except in 2010 with a larger reduction. Germany has maintained a lower degree of protection for workers than France. However, the level of protection has increased since the mid-1990s. Concerning the dimension on employee representation, Germany has a higher score with its model of codetermination. Compared with Germany, successive laws of industrial relations in France have gradually contributed to the increase in the score on this dimension. Finally, on the last dimension on the industrial action, France is traditionally characterized by a strong industrial action due to the prominent role of the State in the French economy (political industrial action) or due to the weakness of trade unions. By contrast, Germany can be described as a country with a limited industrial action.

Industrial relations Industrial relations institutions which refer to the composition and the strength of trade unions and the system of collective bargaining are largely different between France and Germany. In Germany, these institutions are based on employer-worker cooperation which

[3] Unlike the indexes on the strictness of employment protection proposed by the OECD, this index is a "*measure of the extent to which a given aspect of employment or labour relations is regulated (from the point of view of the employer) or protected (from the point of view of the worker).*" As a result, "*there is no assumption, in the construction of the CBR-LRI, that a higher degree of protection implies 'strictness' or 'rigidity' in the sense of limiting employer discretion or distorting market outcomes.*"

gives a large influence of trade unions and employer associations in the economy. By contrast, the central role played by the State in France has been traditionally an obstacle for the existence of powerful trade unions and employer associations. More importantly, over the last two decades, industrial relations institutions have followed very a different path between the two countries. To show the institutional divergence between France and Germany, I use the database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS) provided by Visser (2015). Figure 5 displays various indicators of industrial relations: trade union density rate, bargaining coverage rate, a synthetic measure of actual level of wage bargaining, a summary measure of formal authority of unions regarding wage setting at peak and sectoral level and another summary measure of centralization of wage bargaining taking into account both union authority and union concentration at multiple levels.

[Insert about here Figure 5]

Trade union density, defined as the share of net union membership as a proportion in wage and salary earners in employment, and coverage, defined as the share of employees covered by collective (wage) bargaining agreements in all wage and salary earners, are commonly used to measure the institutional power/strength of unions in the whole economy. On this first dimension, it can be shown that Germany and France have both experienced a decline in trade union density rate since the early-1970s. Due to the strong role of the State in the French economy, France has traditionally a lower density than Germany. However, low density in France (reflecting a low capacity for unions to attract potential new members) is counterbalanced by a continuous increase in coverage rate. In comparison, Germany has experienced since the end of the 1990s a continuous reduction in coverage rate. A reduction in density or coverage reflects an 'erosion' of collective bargaining institutions (Hassel, 1999).

A second dimension on the level of centralization of collective bargaining institutions can be captured by the last three indicators. The first variable measures the actual level of wage bargaining or decentralization which refers to the dominant level at which bargaining takes (local/company; sector/industry; central/national levels) taking into account the frequency and diffusion of local (enterprise) bargaining, the articulation between sectoral and enterprise bargaining, and the existence and use of general derogation clauses or 'open' (framework-type) agreements that leave actual wages to be decided at enterprise level.[4] A higher value of this indicator reflects a higher actual degree of centralization. As noted by Visser (2016) , "*In Germany and France additional enterprise bargaining is common in large firms, controlled by works councils rather than the union, and shaped by specific and conditional opening clauses.*" Whereas France and Germany present the same dominant level of bargaining (*i.e.*, at the sector or industry level), the actual level of wage decentralization is higher in France than in Germany due to the absence of legal procedure to derogation in France. This trend is confirmed by the summary measure of centralization of wage bargaining, taking into account both authority and union concentration at multiple levels: France traditionally presents a low degree of centralization whereas Germany is classified as a more centralized country. In addition, the level authority of unions over their local or workplaces branches and representatives is largely higher in Germany than in France.

[4]The actual level of wage bargaining has been calculated by applying the following formula: L - (($fAEB$ + GOC)/max value)+ ((Art + DR - 1)/max value), where L is the dominant level of bargaining; $fAEB$ is the frequency of additional enterprise bargaining; GOC refers to the existence of general opening clauses in sectoral agreements; ART denotes the articulation of multi-level bargaining; and DR is the legal or contractual basis for derogation from sectoral or legal norms.

To conclude, unions' institutional power has gradually declined over time in Germany (which reflects an 'erosion' in collective bargaining institutions). However, as suggested by data, the persistent authority of unions over the local level, mainly through the system of codetermination, may reflect a complementarity between collective bargaining institutions and persistent power at the local / firm level. By comparison, France has experienced a more profound process of wage bargaining decentralization due to a weaker traditional presence of unions at the local or firm level.

4.2 The transformation of the financial systems

The French and German financial systems have experienced profound mutations since the 1970s. These two financial systems have been traditionally described as two variants of a 'bank-based financial system': the role of big banks was central whereas financial markets (*i.e.* stock or bond markets) were underdeveloped. In the two countries, financial markets was at that time not a dominant source of financing for corporate investment (compared to the US or the UK). In addition, due to reduced liquidity of the financial markets, foreign institutional investors had small influence on firms' practices.

Due to these institutional features, French firms have consistently had relatively low levels of market capitalization, albeit higher levels than German firms (Schmidt, 2003). Merger and acquisition activity was traditionnaly low in France as well as in Germany. Finally, France is caracterized by strong concentration of share ownership. As for industrial relations, the State in France has played a central role in the financial system. In Germany, the traditional *Modell Deutschland* protected firms and their executives from pressures of minority shareholders allowing to satisfy the demands of the workplace and trade unions. Thus, the German system was intrinsically based on 'patient capital'. The patient capital is complementary to the compromise between between business association and the wage earner unions. This compromise is embedded in the system of 'codetermination' at the firm level. In this framework, banks and families own blocks in companies: they can exercise a voting right in the management board (*Vorstand*). In this model, the firm's interests prevail over the shareholders' interests. The concentration of the capital ownership structure reduces the probability of hostile takeovers.

The increasing financial liberalization at the global and at the domestic levels has gradually contributed to the increase in the influence of the financial markets within the economy. In France the process of privatization and the end of state interventionism has also led to higher financial markets development with large consequences on corporate governance. From now on, foreign institutional investors (through heldge funds or private equity) increasingly play a more central role in corporate governance. In Germany, the traditional compromise between blockholders, managers and trade unions Germany was undermined when large German banks (such as Deutsche Bank, Dresdner Bank) in the mid-1980s ceased to play their traditional role of 'patient capital' providers to benefit from the internationalization of the Anglo-Saxon banks. Gradually, banks sold the shares they held in firms, withdrew from their management and supervisory boards and became investment banks. Obviously these evolutions directly affected the behavior of large German firms, becoming more sensitive from the pressures to generate 'shareholder value'.

Figure 6 displays different indicators of 'financialisation' which refers to the increasing influence of the financial markets. According to Jacoby (2008), financialization can be reflected by the salience of stock markets, by the growth of financial service industries, by more frequent waves of mergers and acquisitions (M&A), by the etablishment of shareholder primacy in corporate governance and finally by easy credit and high levels of household debt. First, I measure the salience of stock markets using the share of stock market capitalization in GDP as commonly used in the literature. Stock market capitalization ratios have continuously increased in France and in Germany since the

1970s, with larger variations during the 2000s. As underlined above, French firms have traditionally had much higher levels of market capitalization than German firms, with larger differences at the end of the time period. When considering the share of private credit in GDP, Germany's level of credit has been much higher than in France due to the traditional central role of commercial banks as dominant source of financing corporate investment. Second, the growth of financial service industries is captured by the share of the financial sector which refers to FIRE (finance, insurance and real estate).[5] The size of the financial sector can be measured by the share of value added (and respectively employment) in the financial sector in total value added (and respectivement in total employment). In France and in Germany, the share of value added in FIRE has continuously and very similarly increased since the 1970s. The share of employment in finance in total employment began declining in France from the early-1990s to the early-2000s and finally has increased since then while has decreased since the mid-2000s in Germany. Then, it has commonly argued that shareholder value as a central principle of corporate governance has led to an increased level of minority shareholder protection. The Center for Business Research (CBR) has proposed an indicator of minority shareholder protection from 1970 to 2013. It is striking that France has traditionally had a much higher level of minority shareholder protection than Germany. However, Germany's level of minority shareholder protection has continuously increased over time. Finally, the increasing influence of the financial markets may also stimulate household consumption through easy credit, thereby contributing to the increase in the level of household debt. On this dimension, there is a large divergence between France and Germany: whereas household debt has decreased in France since the 1990s, it has increased in Germany during the same period of time.

[Insert about here Figure 6]

4.3 Do interactions between financial and labor market explain macroeconomic divergence between France and Germany?

4.3.1 What do data suggest?

Employment protection legislation, aggregate employment and wage/income inequality Table 1 suggests that employment protection is differently correlated to aggregate employment according to the *nature* of employment protection (on regular or temporary contracts). In addition, results are different between France and Germany: there is a positive correlation between regular employment protection (EPR) and aggregate employment in Germany whereas there is no correlation between these two variables in France (Table A1). By contrast, there is a positive correlation between temporary employment protection (EPT) and aggregate employment in France whereas the two variables are negatively correlated in Germany. As a consequence, I find some empirical support that France and Germany have experienced different variations in aggregate employment as a result of different evolutions in the level of employment protection legislation.

[Insert about here Table 1]

Then, Table 1 shows different relationships between the level of specific employment protection and wage/income inequality, and this somewhat differently between France and Germany. As suggested in the abundant literature on the relationship between wage inequality and labor market regulation (see Section 3), I find that employment protection, regardless of the nature, is negatively

[5]The weight of financial intermediation in the whole economy can be considered as aan alternative measure of the financial sector.

correlated to overall wage disparities. I find very different results when considering the top 10% income shares as an alternative measure of income inequality. Results show a negative (but non-significant) relationship between EPR and income inequality in France whereas there is a positive correlation in Germany. By contrast, there is a positive correlation with EPT in France while a positive correlation in Germany. To sum up, I find no support of the conventional argument that the level of employment protection is systematically negatively correlated to aggregate employment and to wage/income inequality.

As a consequence, I argue that the relation between aggregate employment/ wage or income inequality and the level of specific employment protection may partly depend on the nature of industrial relations and corporate governance.

The role of corporate governance and industrial relations Table A1 also indicates higher stock market capitalization is positively correlated to higher EPR in both countries, with a larger effect in Germany. By contrast, I find a small positive correlation between higher stock market capitalization and EPT in France and a strong negative correlation between these two variables in Germany. These results suggest some sophisticated interrelations between financial development and employment protection legislation. First, higher financial development may have contributed to changes in employment protection legislation (Darcillon, 2015). Second, it can be argued that financial development has increased over time due to specific labor market institutional features, including employment protection legislation (Goyer and Hancké, 2006; Goyer, 2011). Then, I find a negative correlation between EPR and the actual level of wage bargaining in both countries, with a larger magnitude in Germany. Moreover, EPT is negatively (respectively positively) correlated to higher level of wage bargaining centralization in Germany (respectively in France).

In Germany, there is a strong comptability with the system of codetermination (and thereby corporate governance) and a high level of EPR (Höpner, 2007; Jackson *et al.*, 2006). It results from these interactions a strong positive correlation between EPR and aggregate employment. However, there is also a positive between EPR and top income shares (whereas EPR is negatively correlated to overall wage inequality). This positive correlation may result from a higher labor market dualization generated by this interaction between corporate governance and the system of codetermination (Jackson *et al.*, 2006), thereby contributing to the increase in uppper-tail income inequality in particular. Then, due to the high degree of labor market dualization (reflected by a strong negative correlation between EPR and EPT, I find negative correlations between EPT on the one hand and aggregate employment and top income shares on the other hand.

Compared to Germany, there is no such a comptability between EPR and corporate governance/industrial relations for France. Correlations between EPR and stock market capitalization or the actual level of wage bargaining centralization are quite smaller in France than in Germany. EPT is positively correlated with aggregate employment, maybe due to specific institutional features in France, such as unions' weakness and the prominent role of the State in the economy.

4.3.2 Discussion

The comparison between France and Germany suggests that the relationship between macroeconomic performances (such as aggregate employment and wage/income inequality) and specific forms of employment protection is not uniform but strongly depends on the institutional framework. More particularly, the institutional complementarities between the financial systems, the nature of industrial relations and specific forms of employment protection play a central role in explaining cross-differences in macroeconomic performances. I argue that changes in financialization and industrial

relations should be correlated to changes in employment protection level, thereby contributing to changes in macroeconomic performances. Data and simple correlations indicate that France and Germany have experienced very different paths in employment protection level: EPR has been maintained unleft in Germany whereas EPT has been continously reduced. By contrast, EPR has maintained quite lower in France but with higher level of EPT.

First, Germany has experience lower changes in financial systems and has maintained its central model of codetermination but with higher decentralization in wage bargaining process with the aim of providing firms more flexibility. This idea is in line with the argument proposed by Jackson *et al.* (2006) that increasing financialization through pro-minority shareholder protection reforms combined with the model of codetermination has contributed to the increase in the benefits of 'insiders', reflected by a rise in EPR level. In addition, the system of codetermination has also limited the scope of corporate governance reforms in Germany, thereby maintaining a relative insulation from hostile takeovers and capital market pressures (Vitols, 2004). Keeping these 'patient capital' institutions unchanged increases the incentives to permanent workers to invest in skill-specific human assets, compatible with lower pressures from capital markets. This combinaison is also beneficial for non-price competitiveness based on firms' higher capacitities of long-term innovation. Furthermore, a higher decentralization in wage bargaining is related to a decrease in EPT and to an increase in EPR due to the specific nature of corporate governance within the German firms. Due to the large workers' influence to corporate decision-making, German corporate governance style is quite different from US-style: in other words, the diffusion of shareholder value has been constrained by the institutional power given to workers (Vitols, 2004). The process of wage bargaining decentralization has then contributed to the increase in bargaining power from 'insider' workers (*i.e.*, workers with some influence to corporate decision-making, which are more likely to be permanent workers). As a result, the corporate governance structure combined to changes in industrial relations are directly associated with increasing level of EPR. Simultaneously, changes in corporate governance and in industrial relations have also contributed to the moderation of labor costs in the German industry, especially for temporary workers (or 'outsiders' workers). The moderation of labor costs has been reflected by a continuous decline in level of EPT. In that sense, the process of labor costs through a decrease in EPT level. Finally, as argued by Marousos (2014), higher aggregate employment (and especially increased export surpluses) in Germany can be interpreted as the result of a new institutional complementary between German corporate governance, German industrial relations and the institutions of the currency union.

Compared to Germany, France has experienced larger changes in the financial systems and in the decentralization of wage bargaining process since the two last decades with quite different consequences on the relative level in EPR/EPT. Surprisingly, results indicate that an increase in stock market capitalization ratio is weakly or not correlated to a change in EPR/EPT. Indeed, financialization is more likely to be associated with a reduction in employment protection level, particularly in countries with lower trade union density rate, such as in France. However, it should be noted that the absence of relation between financialization and relative changes in EPR/EPT levels could be resulted from the central role in the State in the economy in the wage-setting process. For instance, there are legal and administrative extension mechanisms in France that make possible the coverage of all employers who are members of the signatory parties of the collective agreements. For this reason, the bargaining coverage rate is particularly high in France. However, as like in Germany, higher decentralization in wage bargaining is also significantly correlated to a decline in EPT. Several decentralization-enhancing reforms have been undertaken with the aim of providing firms more flexibility (Howell, 2009; Amable, 2016) in a process of moderation of labor costs. However, unlike in Germany, this process of wage bargaining decentralization is not

correlated to a decline in EPT level in France (although I find a positive correlation between a higher decentralization and a higher level of EPR). In other words, these institutional reforms in the financial systems and in industrial relations seem to be associated with higher dualization in Germany but not in France with potential consequences macroeconomic performances.

Two combinaisons can be identified which can be interpreted as two different polical-economic equilibria with divergent macroeconomic performances: (1) a combinaison of high EPR and low EPT would be associated with higher aggregate employment ; (2) a combinaison of low EPR and high EPT would be associated with lower income/wage inequality. As a result, any change in financialization and/or industrial relations will be correlated to another combinaison between EPR/EPT and then finally to changes in aggregate employment and in income/wage inequality.

The aim of the following subsection is to provide some empirical evidence of this hypothesis based on a broader sample of countries (beyond France and Germany).

4.4 Econometric investigation

To analyze the specific determinants of macroeconomic performances (*i.e.*, aggregate employment and income/wage inequality), I decide not to focus only on France and Germany but to broaden my sample of countries to a larger number of OECD countries with some similar (ot not) institutional features compared to France and Germany. The aim of this empirical strategy is to emphasize the specific case of Germany compared to other OECD countries and to France. My sample is composed of 19 OECD advanced countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, New Zealand, Portugal, Spain, Sweden, United Kingdom and United States) from 1985 to 2013.

4.4.1 Determinants of aggregate employment

First, I consider the aggregate employment rate as the dependent variable. The structure of my data suggests to use Time Series Cross Section methodology, in order to obtain a sufficient variance and a convenient number of observation. For the general methodology, I follow Beck and Katz (2011), and I use Panel Corrected Standard Error in each regression.[6] Following Beck and Katz (2011) and after the appropriate tests, I chose a dynamic specification allowing for an autocorrelation at the first order, as shown in the baseline equation (Eq (1)). First, because this first dependent variable is not stationary, this variable is expressed in first-differences. Then, I control for serial correlation: A Lagrange-Multiplier test for serial correlation is necessary to see whether it is adequate to add a lagged dependent variable.[7] It has been suggested the inclusion of the lagged dependent variable in the regression to deal with this problem.

[6]Ordinary least squares (OLS) regression assumes homoscedasticity and independence of the errors. These specific hypotheses are not verified. First, the influence of the observed independent variables on the dependent variable needs to be the same for all individuals. I test for the pooling restrictions: if parameters of my baseline equation (Eq (1)) are equal across countries (*i.e.* $\beta_{1i} = \beta_1$, $\beta_{2i} = \beta_2$, $\beta_{3i} = \beta_3$ and $\beta_{ki} = \beta_k$, $\forall = [1, 19]$), time-series and cross-sectional data is more appropriate in this case. I run a Fisher test for the equality of coefficients across countries: the null hypothesis is strongly rejected. I run a Breusch-Pagan test. The null hypothesis in this test is that variances across entities are zero. These tests imply that Eq (1) includes country individual effects. Then, I calculate a modified Wald test for groupwise heteroscedasticity in the residuals of a fixed effect regression model. The null hypothesis of homoscedasticity is strongly rejected. The above tests suggest that we might not use the standard fixed effect procedure without taking into account spatial correlation and panel heteroscedasticity. As a consequence, we are able to use the OLS with Beck and Katz's (1995) panel corrected standard errors (PCSE).

[7]I implement the Wooldridge test for serial correlation in the idiosyncratic errors of a linear panel data model. The Wooldridge test does not allow rejecting serial correlation of the residuals.

$$\Delta \ln EMP_{it} = \beta_1 \cdot \ln EMP_{i,t-1} + \beta_2 \cdot EP_{it} + \beta_k \cdot \sum_k X_{k,it} + \nu_t + \eta_i + \epsilon_{it} \quad (1)$$

where $\ln EMP_{it}$ is the logarithm of the aggregate employment ratio in country i during the year t. EP_{it} is a set of two variables of specific employment protection legislation (EPR_{it} and EPT_{it}). $\sum_k X_{k,it}$ are some control variables in line with the literature (trade openness, real GDP growth). ν_t the time specific effect, η_i is the country i fixed effect, and ϵ_{it} an error term. Then, I introduce interaction terms between specific employment protection legislation and financial market variable (FIN_{it}) and an industrial relations variable ($CENT_{it}$). Eq (1) can be rewritten as follows:

$$\Delta \ln EMP_{it} = \beta_1 \cdot \ln EMP_{i,t-1} + \beta_2 \cdot EP_{it} + \beta_3 \cdot FIN_{it} + \beta_4 \cdot EP_{it} \cdot FIN_{it} + \beta_5 \cdot CENT_{it} + \beta_6 \cdot EP_{it} \cdot CENT_{it} + \beta_k \cdot \sum_k X_{k,it} + \nu_t + \eta_i + \epsilon_{it} \quad (2)$$

In addition, it should be noted that Eq (2) includes several interaction terms allowing us to capture the interdependence between financialization or industrial relations and specific level of employment protection. My principal argument is based on the idea that the effect of specific level of employment protection legislation (EPR or EPT) on aggregate employment is conditional on specific levels of financial development and the degree of wage bargaining centralization. From Eq (2), one has:

$$\frac{\partial \Delta \ln EMP_{it}}{\partial EP_{it}} = \hat{\beta}_2 + \hat{\beta}_4 \cdot FIN_{it} + \hat{\beta}_6 \cdot CENT_{it} \quad (3)$$

Table 2 displays the econometric results of the panel regressions of Eq (2) by the estimator of PCSE. To start with, the coefficient of the lagged value of dependent variable is highly significant and negative, indicating strong inertia in the evolution of aggregate employment ratio. In addition, I find that trade openness has a non-significant impact on the aggregate employment. By contrast, results indicate that real GDP growth significantly and positively influences my dependent variable. As expected, I find a negative correlation between the dependent variable and employment protection legislation, and this regardess the nature of employment protection. More importantly, my empirical strategy tries to analyze the interactions between employment protection legislation and specific institutional characteristics, such as financial development and industrial relations. Thus, Table 3 shows marginal coefficients estimated by STATA on the basis of results presented in Table 2.

[Insert about here Table 2]

Interactions between financial development and employment protection Table 3(a) presents marginal effects of employment protection legislation (with EPR in column (1) and EPT in column (2)) on aggregate employment conditional to the degree of financial development. I find that higher EPR has a negative impact on aggregate employment for low values of stock market capitalization ratio. By contrast, I do not find a significant correlation of higher EPR on the dependent variable for values higher than average value. In other words, in countries with a high degree of financial development, higher EPR is not significantly correlated to lower aggregate employment. As displayed in column (2), higher EPT is negatively correlated to aggregate employment, but only for lowest values of stock market capitalization ratio. By contrast, when the stock market capitalization ratio is increasing, I find a positive and significant relationship between EPT level and my dependent variable.

[Insert about here Table 3]

To sum up, I find a positive (respectively negative) relationship between employment protection and aggregate employment when stock markets are strongly (respectively weakly) financially developed, with no significant difference across the nature of employment protection legislation. In other words, I find a 'substitution' relationship between financial and labor market regulation affecting aggregate employment. This finding seems to invalidate the prediction of a complementarity relationship (*i.e.*, a positive (respectively negative) relationship between employment protection legislation and aggregate employment with strong (respectively weak) financial market regulation) suggested by the VoC approach. By contrast, my result would suggest that increasing employment protection level can also weaken a potential negative impact of financial development on aggregate employment, assuming a non-linear relationship between financial development and aggregate employment.

These findings provide some evidence for Germany and France. Decreasing EPT in Germany in times of financial development could have had some beneficial effects on aggregate employment. By contrast, following my empirical results, the strategy led by France, namely decreasing more recenty EPR level, may have had lower impact on aggregate employment.

Interactions between industrial relations and employment protection Table 3(b) presents marginal effects of employment protection legislation (with EPR in column (3) and EPT in column (4)) on aggregate employment conditional to the level of wage bargaining centralization. First, I find a negative but decreasing relationship between EPR and aggregate employment when the degree of wage bargaining centralization is increasing. Then, I find that there is a negative (respectively positive) association between EPT and a low degree (respectively a high degree) of wage bargaining centralization. No significant correlations are, however, found in this case.

To sum up, compared to regression results when using stock market capitalization ratio as an explanatory variable (models (1) and (2)), I find some conflicting results. Results indicate a higher EPR has a negative effect particularly in weakly financially countries (column (1)) and in countries with a centralized wage bargaining level. Indeed, in line with the Institutional Complementarity (IC) approach, it has been shown that a more dispersed shareholder ownership and a market-based financial system are more compatible with a more decentralized bargaining structure whereas a more concentrated shareholder ownership and a bank-based financial system are more compatible with more a centralized wage bargaining structure (Hall and Soskice, 2001; Aguilera and Jackson, 2003).

These conflicting results may suggest two different mechanisms. Regarding the interaction between employment protection and financial development, the ununiform effect of EPR on aggregate employment conditional to the level of financial development may derived from a potential non-linear relationship between financial development and aggregate employment. By contrast, when considering the interaction between employment protection and the degree of wage bargaining centralization, maintaining higher level of employment protection is more comptable in the presence of higher level of wage centralization according to the VoC literature (Hall and Soskice, 2001). For this reason, aggregate employment is more likely to be negatively affected by higher EPR level in particular when the level of wage bargaining is decentralized.

4.4.2 Determinants of income/wage inequality

Second, I consider different measures of income/wage inequality as additional dependent variables. I use three different measures of wage inequality. overall wage inequality (p_9/p_1), lower-tail wage

inequality (p_5/p_1), upper-tail wage inequality (p_9/p_5). Finally, I employ the top 10% income share as a measure of upper-tail income inequality. As in the first series of regressions, I use Panel Corrected Standard Error in each regression. After the appropriate tests (stationarity and serial correlation), my second model of regressions can be written as follows:

$$\ln INEQ_{it} = \beta_1 \cdot EP_{it} + \beta_k \cdot \sum_k X_{k,it} + \nu_t + \eta_i + \epsilon_{it} \tag{4}$$

where $\ln INEQ_{it}$ is the logarithm of a given measure of wage/income inequality in country i during the year t. As in the first series of regressions, Eq (4) can be rewritten as follows:

$$\ln INEQ_{it} = \beta_1 \cdot EP_{it} + \beta_2 \cdot FIN_{it} + \beta_3 \cdot EP_{it} \cdot FIN_{it} + \beta_4 \cdot CENT_{it} + \beta_5 \cdot EP_{it} \cdot CENT_{it} + \beta_k \cdot \sum_k X_{k,it} + \nu_t + \eta_i + \epsilon_{it} \tag{5}$$

Then, from Eq (5), one has:

$$\frac{\partial \ln INEQ_{it}}{\partial EP_{it}} = \hat{\beta}_1 + \hat{\beta}_3 \cdot FIN_{it} + \hat{\beta}_5 \cdot CENT_{it} \tag{6}$$

Tables 4 and 5 display the econometric results of the panel regressions of Eq (5) by the estimator of PCSE. First, I find some conflicting results regarding my different control variables. I find that trade openness is negatively correlated to lower-tail wage inequality, thereby invalidating the conventional thesis that trade openness is more likely to increase wage inequality at the bottom of the distribution (*e.g.*, Rodrik, 1997). By contrast, results indicate that trade openness is positively correlated to upper-tail wage inequality.

[Insert about here Tables 4 and 5]

Then, I find that higher EPR is positively associated with higher wage/income inequality, invalidating the thesis that higher labor market regulation mechanically reduces wage or income disparities. As explained in the literature review, higher EPR level increases the incentives to invest more in training of employees in regular positions, leading to accumulation of firm-specific human capital, thereby contributing both to the increase in productivity and wages. By contrast, when the coefficients are statistically significant, higher EPT is negatively associated with my different dependent variables, especially with upper-tail wage/income inequality. Based on these coefficients, I compute marginal coefficients of EPR/EPT on my different dependent variables according to the degree of stock market capitalization ratio (Table 4) and the level of wage bargainining centralization (Table 5).

Interactions between financial development and employment protection Table 4 shows a positive but decreasing relation between EPR and wage/income inequality when the level of stock market capitalization ratio is increasing (columns (1), (3) and (5)). In line with the 'capital-skill complementarity' thesis (Larrain, 2015), financial development also contributes to increasing the incentives to invest more in training of employees in regular positions. In that sense, higher EPR higher and financial development are mutually reinforcing, thereby explaining the continuous increase in wage/income inequality.

By contrast, higher EPT is negatively correlated to overall and upper-tail wage inequality, especially for high levels of stock market capitalization (columns (2) and (6)). Very surprisingly, I

do not find, as expected, that higher EPT level is negatively correlated to lower-tail wage inequality, when interacted neither with stock market capitalization ratio nor with the level of wage bargaining centralization. In addition, results show that higher EPT is positively correlated to higher top income shares, especially for high levels of stock market capitalization ratio. To sum up, higher employment protection level on temporary contracts strongly contributes to reduce wage inequality associated with higher financial development. This suggests that, except for top income shares, increasing employment protection level can also weaken a potential positive impact of financial development on the increase in wage inequality, invalidating the thesis of a trade-off between higher employment performances and lower wage disparities (as in the case of France and Germany).

Interactions between financial development and industrial relations Table 5 shows a positive and increasing relation between EPR and wage inequality when the degree of wage bargaining centralization is increasing. As a central labor market institution, a high degree of wage centralization can also increase the incentives to invest more in training of employees in regular positions, thereby contributing to the increase in wage/income inequality. When the degree of wage bargaining centralization is low, the correlation between higher EPR and wage inequality is lower whereas this correlation is higher in the presence of a high degree of wage bargaining centralization.

Then, when interacted with the degree of wage bargaining centralization, EPT has no statistically significant effect on overall and lower-tail wage inequality (columns (2) and (4)). I find that EPT has a particular negative effect on wage inequality for a low degree of wage bargaining centralization (column (6)). When focusing on 10% top income shares, I find, by contrast, that higher EPT is significantly and negatively correlated to lower top income shares when the degree of wage bargaining centralization is increasing (column (8)). This finding suggests that EPT contributes to the decrease in top income shares particularly in countries with a centralized level of wage bargaining.

Summary of the empirical results Table 6 provides a summary of the main results found from the econometric estimations. To explain cross-country differences in aggregate employment, I find some different results when employment protection legislation is interacted with stock market capitalization ratio or with the degree of centralization of wage bargaining. When employment protection legislation (EPL) is interacted with financial development, results show a substitution relationship EPL and aggregate employment, regardless the nature of EPL. However, I find a complementarity effect (respectively a substitution effect) between higher EPR (resp. EPT) and the degree of centralization of wage bargaining. By contrast, when explaining cross-country differences in wage/income inequality, I find similar results: a complementarity effect (respectively a substitution effect) between EPR (respectively EPT) and stock market capitalization or the degree of wage bargaining centralization.

[Insert about here Table 6]

5 Conclusion

The aim of this paper is to analyze the role of the interactions between employment protection legislation on the one hand and financialization and industrial relations on the other hand in order to explain the growing divergence in macroeconomic performances between France and Germany, particularly in terms of employment and wage/income inequality since the mid-2000s. Descriptive statistics show that France and Germany have followed divergent paths in terms of employment

protection, resulting in different macroeconomic performances. I argue that these differences in employment protection level can be due to some institutional differences relating to corporate governance regime or to industrial relations.

Then, I test the existence of institutional complementarities (Hall and Soskice, 2001; Amable, 2003) across financial systems, industrial relations and employment protection level, using fixed-effects panel data regression estimations based on a sample of 19 OECD advanced countries from 1985 to 2013, which can explain cross-country differences in aggregate employment and in wage or income inequality. First, to explain cross-country differences in aggregate employment ratio, I find a positive correlation between EPR and aggregate employment especially in countries with strongly developed financial markets and with a centralized level of wage bargaining. This finding provide some evidence for the case of Germany and not for France. By contrast, overall results from fixed-effects regression estimations provide some evidence for France but in the case of EPT where I find a positive correlation with aggregate employment especially in countries with strongly developed financial markets and with a centralized level of wage bargaining. Then, to explain cross-country differences in wage/income inequality, I find different results according the specific nature of employment protection legislation (with similar finding when EPL is interacted with the stock market capitalization ratio or with the degree of wage bargaining centralization). Results indicate that EPR is positively correlated to higher inequality whereas EPT is negatively correlated to higher inequality, with no differences when EPL is interacted with stock market capitalization ratio or with the degree of wage bargaining centralization). These different findings provide no evidence for the cases of France and Germany: Descriptive statistics in the cases of France and Germany do not reveal any differences in the nature of EPL on the evolution in wage or income inequality. I find that higher EPR and EPT are both negatively correlated to higher inequality.

Focusing on the specific cases of France and Germany, I find two central results. First, institutional changes in financialization (and especially in corporate governance) and in industrial relations (through the continuous process of wage bargaining decentralization) have different consequences on the nature of employment protection legislation in France and in Germany. Second, I have identified two different political economy equilibria: higher EPR combined with lower EPT have contributed to higher increase in aggregate employment and to an rise in wage or income inequality (as in Germany) whereas higher EPT combined with lower EPR have participated to lower rise in aggregate employment and to a decrease in wage or income inequality (as in France). Accordingly, these findings tend to undermine the conventional argument that recent economic success in Germany in terms of employment (or GDP growth or price competitiveness) does not essentially result from the labor market reforms (labelled as 'Hartz reforms') undertaken in Germany in the early-2000s. For this main reason, this paper clearly illustrated that sophisticated institutional arrangements (such as the complementarity between the system of codetermination, the role of trade unions and the nature of the financial systems) strongly influence macroeconomic performances. In that sense, higher employment performances in Germany could have resulted from the gradual transformations in corporate governance and in industrial relations since the 1990s. By contrast, the declining role of the State within the French economy has also many consequences on long-term macroeconomic performances.

References

Acemoglu, Daron and Pischke, Jörn-Steffen (1999), "Beyond Becker: Training in Imperfect Labour Markets", *The Economic Journal*, 109: 112-142.

Adams, Zoe, Bishop, Louise and Deakin, Simon (2016), *CBR Labour Regulation Index (Dataset*

of 117 Countries), Cambridge: Centre for Business Research.

Aguilera, Ruth V. and Jackson, Gregory (2003), "The Cross-National Diversity of Corporate Governance: Dimensions and Determinants", *Academy of Management Review*, 28: 447-465.

Amable, Bruno (2003), *The Diversity of Modern Capitalism*, Oxford, Oxford University Press.

Amable, Bruno (2016), "The Political Economy of the Neoliberal Transformation of French Industrial Relations", *Industrial and Labor Relations Review*, 69(3): 523-550.

Amable Bruno, Demmou, Lila and Gatti, Donatella (2011), "The Effect of Employment Protection and Product Market Performance: Substitution or Complementarity?', *Applied Economics* 43: 449-464.

Amable, Bruno and Ernst, Ekkehard (2005), "Financial and Labour Market Interactions. Specific Investment and Labour Market Activity", *Center for Empirical Macroeconomics*, Working Paper No. 93.

Amable, Bruno, Ernst, Ekkehard and Palombarini, Stefano (2005), "How Do Financial Markets Affect Industrial Relations: An Institutional Complementarity Approach", *Socio-Economic Review*, 3, 311-330.

Amable, Bruno and Gatti, Donatella (2004), "Product Market Competition, Job Security, and Aggregate Employment", *Oxford Economic Papers*, 56: 667-686.

Anselmann, Christina & Krämer, Hagen M. (2015), "Income inequality and top incomes: some recent empirical developments with a focus on Germany", *International Review of Applied Economics*, 29(6): 770-786.

Atkinson, Anthony B. (2001), "A Critique of the Transatlantic Consensus on Rising Income Inequality", *The World Economy*, 24(4): 433-452.

Beck, Nathaniel, and Katz, Jonathan N. (1995), "What To Do (and Not To Do) with Times-Series-Cross-Section Data in Comparative Politics", *American Political Science Review*, 89(3): 634-647.

Beck, Nathaniel, and Katz, Jonathan N. (2011), "Modeling Dynamics in Time-Series-Cross-Section Political Economy Data', *Annual Review of Political Science*, 14, (1): 331-352.

Blanchard, Olivier and Giavazzi, Francesco (2003), "Macroeconomic Effects of Regulation and Deregulation in Goods and Labour Markets", *The Quarterly Journal of Economics* 118: 879-907.

Calmfors, Lars and Driffill, John (1988), "Bargaining structure, corporatism and macroeconomic performance", *Economic Policy*, 3(6): 13-61.

Card David, Lemieux, Thomas and Riddell, W. Craig (2004), "Unions and Wage Inequality", *Journal of Labour Research*, 25: 519-559.

Carlin, Wendy, and Soskice, David (2009), "German Economic Performance: Disentangling the Role of Supply-side Reforms, Macroeconomic Policy and Coordinated Economy Institutions", *Socio-Economic Review*, 7(1): 67-99.

Checchi, Daniele and Garcia-Penalosa, Cecilia (2010), "Labour Market Institutions and the Personal Distribution of Income in the OECD", *Economica* 77: 413-450.

Checchi, Daniele and Nunziata, Luca (2011), "Models of Unionism and Unemployment", *European Journal of Industrial Relations*, 17: 141-152.

Darcillon, Thibault (2015), "How does Finance Affect Labor Market Institutions? An Empirical Analysis in 16 OECD Countries", *Socio-Economic Review*, 13(3): 477-504.

Darcillon, Thibault (2016), "Do Interactions between Finance and Labour Market Institutions Affect the Income Distribution?", *LABOUR: Review of Labour Economics and Industrial Relations*, 30(3): 235-257.

Deutsche Bank (2014), "Can Hollande Pull Off a Schröder and Will It Work?", *Deutsche Bank Research*, Frankfurt am Main, February 24, 2014.

Dustmann, Christian, Fitzenberger, Bernd, Schönberg, Uta and Spitz-Oener, Alexandra (2014), "From Sick Man of Europe to Economic Superstar: Germany's Resurgent Economy", *Journal of Economic Perspectives*, 28(1): 167-188

Ernst Ekkehard (2004), "Financial Systems, Industrial Relations and Industry Specialization: An Econometric Analysis of Institutional Complementarity", H. Schubert (ed.) Oesterrichische Nationalbank, Workshops, Proceedings of the OeNB Workshops No.1, *The Transformation of the European Financial System. Where Do We Go? Where Should We Go?*, OeNB, Vienna: Österreichische Nationalbank: 60-95.

Estevez-Abe, Margarita, Iversen, Torben and Soskice, David (2001), "Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State", *In* Peter A. Hall and David Soskice (Eds.) *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*: 145-183.

Gatti, Donatella (2009), "Macroeconomic effects of ownership structure in OECD countries", *Industrial and Corporate Change*, 18(5): 901-928.

Goyer, Michel (2011), *Contingent Capital: Short-Term Investors and the Evolution of Corporate Governance in France and Germany*, Oxford, Oxford University Press

Goyer, Michel and Hancké, Bob (2006), "Labour in French Corporate Governance: The missing link" *in* Gospel, Howard and Andrew Pendleton (eds.), *Corporate Governance and Labour Management*, Oxford: Oxford University Press: 173-196.

Höpner, Martin (2007), "Corporate Governance Reform and the German Party Paradox", *Comparative Politics*, 39: 401-420.

Hall, Peter A. and Soskice, David (2001), "An Introduction to Varieties of Capitalism", *In* Hall, Peter A. and Soskice, David (eds) *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, Oxford, Oxford University Press: 1-68.

Hall, Peter A., and Gingerich, Daniel W. (2009), "Varieties of capitalism and institutional complementarities in the political economy", *British Journal of Political Science*, 39(3): 449-482.

Hassel, Anke (1999), "The Erosion of the German System of Industrial Relations", *British Journal of Industrial Relations*, 37: 488-505.

Howell, Chris (2009), "The transformation of French industrial relations: Labor representation and the state in a post-dirigiste era", *Politics and Society*, 37(2): 229-56.

Jackson, Gregory, Höpner, Martin and Kurdelbusch, Anja (2006), "Corporate Governance and Employees in Germany: Changing Linkages, Complementarities, and Tensions", *In* Gospel, Howard and Andrew Pendleton (eds) *Corporate Governance and Labour Management: An International Comparison*, Oxford, Oxford University Press: 84-121.

Jacoby, Sanford M. (2008), "Finance and labor: Perspectives on risk, inequality, and democracy" *Comparative Labor Law & Policy Journal*, 30(1): 17-65.

Koeniger, Winfried, Leonardi, Marco and Nunziata, Luca (2007), "Labour Market Institutions and Wage Differentials", *Industrial & Labour Relations Review* 60(3): 340-356.

Larrain Mauricio (2015), "Capital Account Opening and Wage Inequality", *Review of Financial Studies*, 28(6): 1555-1587.

Masouros, Pavlos E. (2014), "Corporate Governance and the Great Recession: An Alternative Explanation for Germany's Success in the Post-2008 World", *Crisis Observatory Research Paper* No 8/2014.

Milgrom, Paul and Roberts, John (1990), "The Economics of Modern Manufacturing: Technology, Strategy and Organization", *The American Economic Review*, 80(3): 511-528.

OECD (2011), "Earnings Volatility: Causes and Consequences", *OECD Employment Outlook 2011*, Paris.

Rendon, Silvio (2013), "Job Creation and Investment in Imperfect Capital and Labor Markets", working paper.

Rodrik, Dani (1997), *Has globalisation gone too far?* Institute for International Economics: Washington DC.

Rossvoll, Ellen Marie and Sparrman, Victoria (2015), "Labor Market Institutions and Wage Inequality in the OECD countries", *Discussion Paper*, Statistics Norway Research department, No. 826, October.

Rueda, David, and Pontusson, Jonas (2000), "Wage Inequality and Varieties of Capitalism", *World Politics*, 52(3), 350-383.

Schmidt, Vivien A. (2003), "French capitalism transformed, yet still a third variety of capitalism", *Economy and Society*, 32(4): 526-554.

Visser Jelle (2016), "What happened to collective bargaining during the great recession?", *IZA Journal of Labor Policy*, 5(1).

Visser, Jelle (2015), *ICTWSS Database. Version 5.0*, Amsterdam: Amsterdam Institute for Advanced Labour Studies AIAS. October 2015.

Vitols, Sigurt (2004), "Negotiated Shareholder Value: the German Variant of an Anglo-American Practice", *Competition and Change*, 8: 357-374.

Western, Bruce (1995), "A Comparative Study of Working Class Disorganisation: Union Decline in Eighteen Advanced Capitalist Countries", *American Sociological Review*, 60(2): 179-201.

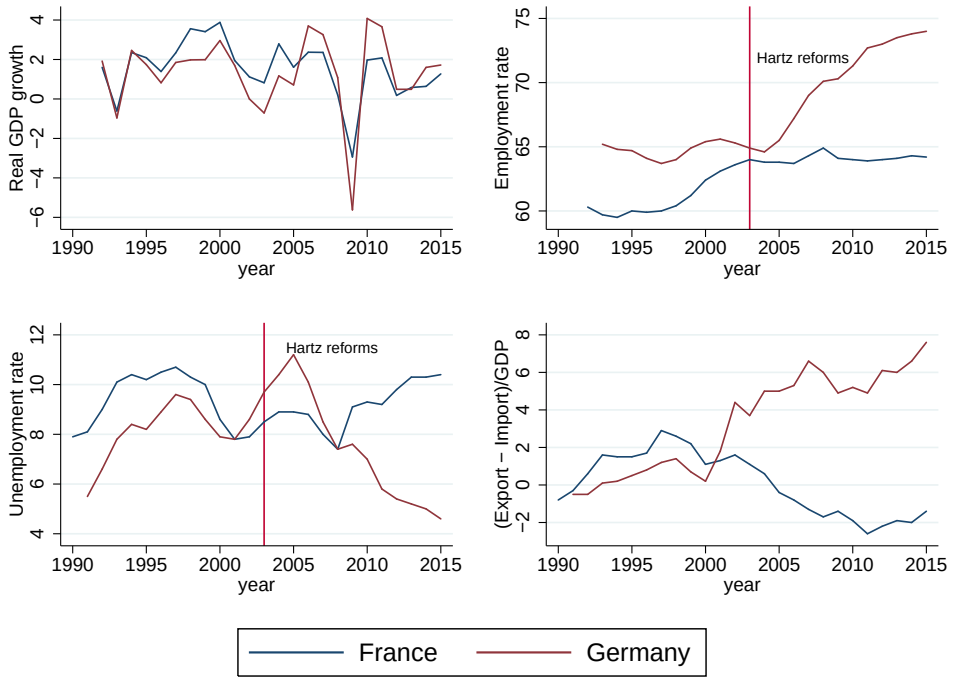

Figure 1: GPD growth, unemployment and employment rates and export surpluses

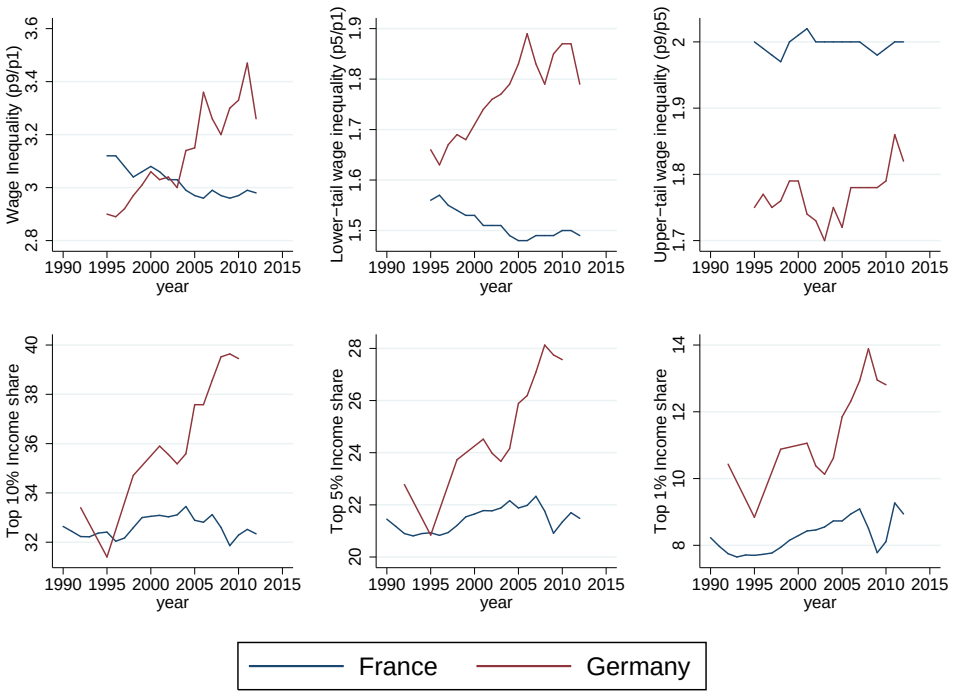

Figure 2: Wage and top income inequality in France and in Germany (1990-2012)

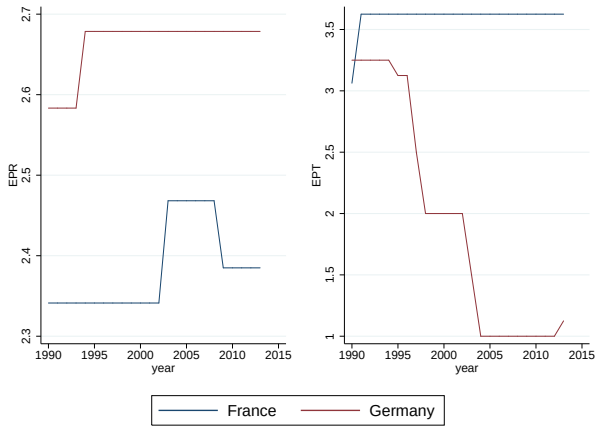

Figure 3: Permanent Employment Protection (EPR) and Temporary Employment Protection (EPT) in France and in Germany (1990-2013)

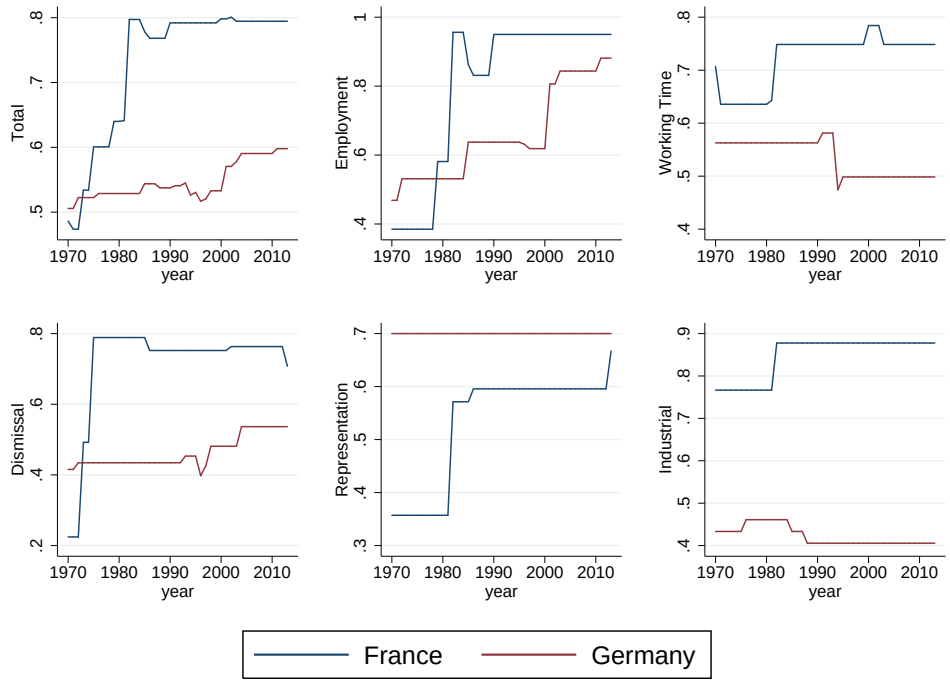

Figure 4: Measure of protective regulation (CBR-LRI) in France and in Germany (1970-2013)

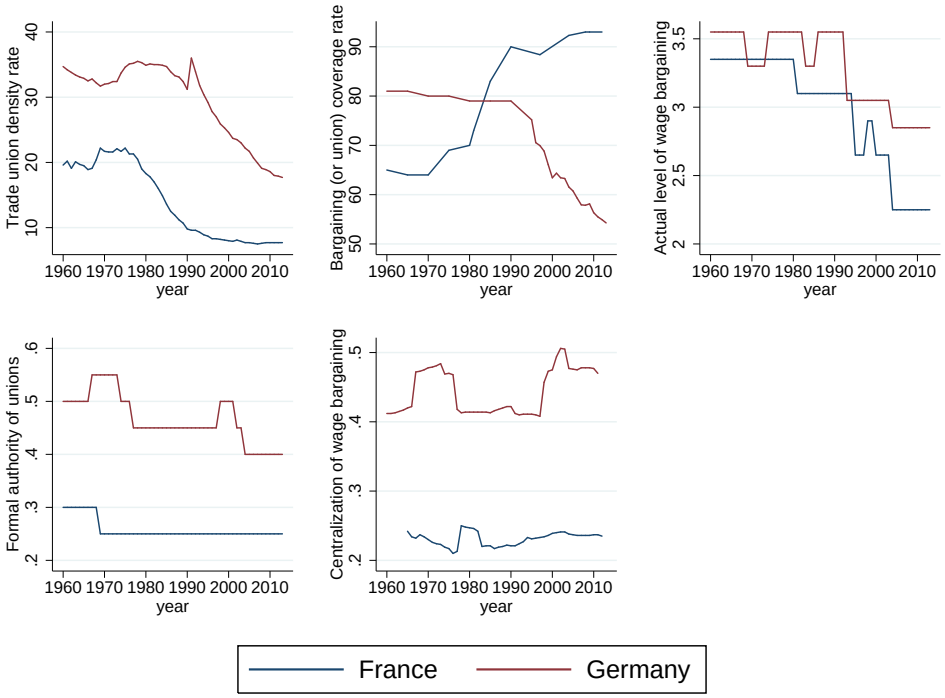

Figure 5: Indicators of industrial relations in France and in Germany (1960-2013)

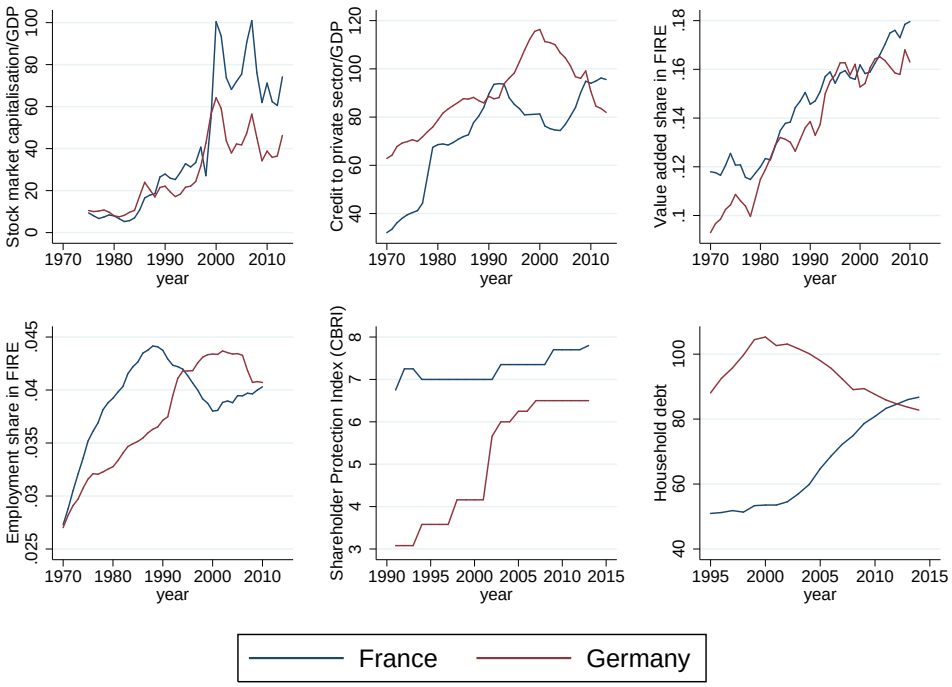

Figure 6: Indicators of financialization

Table 1: Descriptive statistics

		1970-1974	1975-1979	1980-1984	1985-1990	1990-1994	1995-1999	2000-2004	2005-2010	2010-2013
France	Employment ratio	64.11	63.26	60.59	58.16	61.04	61.33	64.52	64.33	64.44
	Overall wage inequality (p_9/p_1)	-	-	-	-	-	3.08	3.04	2.97	2.98
	Lower-tail inequality (p_5/p_1)	-	-	-	-	-	1.55	1.51	1.49	1.49
	Upper-tail inequality (p_9/p_5)	-	-	-	-	-	1.99	2.01	2.00	2.00
	Top 10% income share	33.35	32.14	30.46	31.74	32.38	32.44	33.15	32.66	32.38
	EPR	-	-	-	2.44	2.34	2.34	2.39	2.45	2.38
	EPT	-	-	-	3.06	3.51	3.63	3.63	3.63	3.63
	Stock market capitalization	-	7.98	6.50	18.02	28.13	37.39	81.61	80.99	67.07
	Actual level of wage centralization	3.35	3.35	3.15	3.10	3.10	2.75	2.57	2.25	2.25
Germany	Employment ratio	67.23	64.42	62.54	62.14	65.38	64.41	65.20	68.67	73.29
	Overall wage inequality (p_9/p_1)					3.10	2.94	3.05	3.25	3.36
	Lower-tail inequality (p_5/p_1)					1.77	1.66	1.75	1.84	1.83
	Upper-tail inequality (p_9/p_5)					1.75	1.77	1.74	1.77	1.83
	Top 10% income share	31.80	31.50	31.67	31.67	33.40	31.40	35.90	38.58	39.45
	EPR	-	-	-	2.58	2.60	2.68	2.68	2.68	2.68
	EPT	-	-	-	3.60	3.25	2.55	1.70	1.00	1.03
	Stock market capitalization	-	10.26	8.80	20.07	19.73	35.41	49.43	44.96	39.35
	Actual level of wage centralization	3.35	3.55	3.45	3.50	3.35	3.05	3.01	2.85	2.85

Table 2: Determinants of aggregate employment rate (PCSE/OLS estimations)

Dependent variable: Changes in Aggregate Employment Rate

	(1)	(2)	(3)	(4)
Lagged dependent variable	-0.0741***	-0.0686***	-0.0799***	-0.0734***
	(0.0122)	(0.0136)	(0.0147)	(0.0155)
EPR	-0.0109***		-0.0135**	
	(0.0039)		(0.0061)	
EPT		-0.0027***		-0.0031
		(0.0009)		(0.0020)
Stock mkt capitalization/GDP	-0.0001	-0.0000		
	(0.0001)	(0.0000)		
Degree of wage centralization			0.0018	0.0026**
			(0.0022)	(0.0012)
EPR*Stock mkt capitalization	0.0001**			
	(0.0000)			
EPT*Stock mkt capitalization		0.0001***		
		(0.0000)		
EPR*wage centralization			0.0010	
			(0.0010)	
EPT*wage centralization				0.0008
				(0.0005)
Trade openness	-0.0000	0.0001	0.0001	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
GDP growth	0.0044***	0.0044***	0.0044***	0.0045***
	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Constant	0.3137***	0.2770***	0.3266***	0.2818***
	(0.0501)	(0.0561)	(0.0629)	(0.0636)
Observations	489	489	508	508
R-squared	0.4891	0.4903	0.4946	0.4898
Number of coun	19	19	19	19

Standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 3: Marginal effects of EPR/EPT conditional to (a) the stock market capitalization ratio and (b) the degree of wage bargaining centralization

(a) Stock market capitalization ratio

	(1)	(2)
em_min	-0.0107***	-0.0026***
	(0.0039)	(0.0009)
em_mean_less_1sd	-0.0100**	-0.0017**
	(0.0040)	(0.0008)
em_mean	-0.0077*	0.0010
	(0.0045)	(0.0009)
em_mean_plus_1sd	-0.0053	0.0037***
	(0.0051)	(0.0014)
em_max	0.0033	0.0137***
	(0.0082)	(0.0035)

(b) Degree of wage bargaining centralization

	(3)	(4)
em_min	-0.0125**	-0.0023
	(0.0054)	(0.0016)
em_mean_less_1sd	-0.0119**	-0.0018
	(0.0050)	(0.0014)
em_mean	-0.0106**	-0.0007
	(0.0043)	(0.0010)
em_mean_plus_1sd	-0.0093**	0.0003
	(0.0040)	(0.0011)
em_max	-0.0079*	0.0015
	(0.0042)	(0.0015)

Notes: Panel-corrected standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Based on the results displayed in Table 2.

Table 4: Determinants of income/wage inequality - Stock market capitalization (PCSE/OLS estimations)

Dependent variable	p_9/p_1		p_5/p_1		p_9/p_5		**top10**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EPR	0.1461***		0.0972***		0.0489***		0.1384	
	(0.0128)		(0.0140)		(0.0079)		(0.1036)	
EPT		0.0090		0.0079		0.0011		-0.2413***
		(0.0103)		(0.0090)		(0.0026)		(0.0491)
Stock mkt capitalization/GDP	0.0007***	0.0007***	0.0004**	0.0003*	0.0003***	0.0004***	0.0005	0.0009
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0021)	(0.0022)
EPR*Stock mkt cap.	-0.0002**		-0.0001		-0.0001		0.0009	
	(0.0001)		(0.0001)		(0.0001)		(0.0007)	
EPT*Stock mkt cap.		-0.0003**		-0.0001		-0.0002***		0.0012*
		(0.0001)		(0.0001)		(0.0001)		(0.0007)
Trade openness	-0.0002	-0.0012***	-0.0012***	-0.0018***	0.0010***	0.0006***	-0.0003	-0.0071
	(0.0001)	(0.0003)	(0.0002)	(0.0003)	(0.0002)	(0.0002)	(0.0048)	(0.0059)
GDP growth	0.0035***	0.0033	0.0025**	0.0027	0.0009	0.0006	-0.0163	-0.0144
	(0.0013)	(0.0022)	(0.0010)	(0.0017)	(0.0008)	(0.0008)	(0.0220)	(0.0225)
Constant	0.8002***	1.0180***	0.4160***	0.5533***	0.3842***	0.4648***	3.2594***	3.9629***
	(0.0249)	(0.0317)	(0.0254)	(0.0254)	(0.0113)	(0.0115)	(0.2637)	(0.2873)
Marginal effects of EPR/EPT on inequality conditional to the stock market capitalization ratio								
em_min	0.1457***	0.0083	0.0970***	0.0077	0.0487***	0.0006	0.1404	-0.2389***
	(0.0128)	(0.0101)	(0.0139)	(0.0088)	(0.0079)	(0.0025)	(0.1037)	(0.0486)
em_mean_less_1sd	0.1433***	0.0044	0.0958***	0.0064	0.0475***	-0.0021	0.1527	-0.2235***
	(0.0129)	(0.0090)	(0.0135)	(0.0076)	(0.0080)	(0.0025)	(0.1046)	(0.0463)
em_mean	0.1361***	-0.0075	0.0921***	0.0026	0.0440***	-0.0101***	0.1893*	-0.1778***
	(0.0139)	(0.0079)	(0.0129)	(0.0056)	(0.0087)	(0.0037)	(0.1115)	(0.0500)
em_mean_plus_1sd	0.1289***	-0.0193*	0.0884***	-0.0012	0.0405***	-0.0182***	0.2258*	-0.1321**
	(0.0154)	(0.0103)	(0.0133)	(0.0075)	(0.0099)	(0.0057)	(0.1237)	(0.0660)
em_max	0.1018***	-0.0639**	0.0745***	-0.0155	0.0274	-0.0484***	0.3633*	0.0397
	(0.0244)	(0.0289)	(0.0216)	(0.0246)	(0.0167)	(0.0147)	(0.1957)	(0.1572)
Observations	313	313	313	313	313	313	397	397
R-squared	0.9738	0.9701	0.9499	0.9432	0.9679	0.9678	0.2458	0.2684
Number of coun	19	19	19	19	19	19	17	17

Notes: (Panel corrected) Standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: Determinants of income/wage inequality - Wage bargaining centralization (PCSE/OLS estimations)

Dependent variable	p_9/p_1		p_5/p_1		p_9/p_5		***top10***	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EPR	0.0893***		0.0677***		0.0216		0.0607	
	(0.0320)		(0.0250)		(0.0222)		(0.1595)	
EPT		-0.0128		0.0036		-0.0164**		-0.0729
		(0.0120)		(0.0092)		(0.0079)		(0.0868)
Degree of wage centralization	-0.0248**	-0.0233***	-0.0119	-0.0093*	-0.0129*	-0.0141***	-0.1609**	-0.0939*
	(0.0108)	(0.0065)	(0.0084)	(0.0050)	(0.0075)	(0.0043)	(0.0626)	(0.0561)
EPR*Stock mkt cap.	0.0077		0.0034		0.0044		0.0238	
	(0.0056)		(0.0044)		(0.0039)		(0.0289)	
EPT*Stock mkt cap.		0.0038		-0.0005		0.0043**		-0.0125
		(0.0032)		(0.0025)		(0.0021)		(0.0234)
Trade openness	-0.0007*	-0.0018***	-0.0018***	-0.0024***	0.0011***	0.0006**	0.0084***	0.0063*
	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0032)	(0.0036)
GDP growth	0.0055***	0.0058***	0.0041***	0.0041***	0.0015	0.0017	-0.0105	-0.0114
	(0.0016)	(0.0017)	(0.0013)	(0.0013)	(0.0011)	(0.0011)	(0.0181)	(0.0186)
Constant	0.8595***	1.1311***	0.4927***	0.6638***	0.3667***	0.4673***	3.5595***	3.7677***
	(0.0755)	(0.0445)	(0.0589)	(0.0343)	(0.0523)	(0.0295)	(0.2914)	(0.2004)
Marginal effects of EPR/EPT on inequality conditional to the degree of wage bargaining centralization								
em_min	0.0970***	-0.0090	0.0710***	0.0031	0.0260	-0.0121**	0.0844	-0.0853
	(0.0284)	(0.0092)	(0.0221)	(0.0071)	(0.0197)	(0.0061)	(0.1379)	(0.0674)
em_mean_less_1sd	0.1017***	-0.0066	0.0731***	0.0028	0.0286	-0.0094*	0.0989	-0.0929
	(0.0265)	(0.0077)	(0.0207)	(0.0059)	(0.0184)	(0.0051)	(0.1262)	(0.0569)
em_mean	0.1122***	-0.0014	0.0776***	0.0021	0.0346**	-0.0035	0.1312	-0.1098**
	(0.0236)	(0.0055)	(0.0184)	(0.0042)	(0.0164)	(0.0036)	(0.1062)	(0.0428)
em_mean_plus_1sd	0.1227***	0.0038	0.0822***	0.0014	0.0405**	0.0024	0.1634*	-0.1267**
	(0.0230)	(0.0063)	(0.0179)	(0.0048)	(0.0159)	(0.0042)	(0.0984)	(0.0494)
em_max	0.1337***	0.0093	0.0869***	0.0007	0.0467***	0.0086	0.1972*	-0.1445**
	(0.0248)	(0.0096)	(0.0194)	(0.0074)	(0.0172)	(0.0063)	(0.1064)	(0.0725)
Observations	316	316	316	316	316	316	412	412
R-squared	0.5925	0.5496	0.5958	0.5639	0.2698	0.2619	0.2399	0.2451
Number of coun	19	19	19	19	19	19	17	17

Notes: (Panel corrected) Standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 6: Summary of the empirical results

	Interactions employment protection legislation with	
	Financialization	Industrial relations
Aggregate employment	*Substitution effect.* Higher employment protection has a negative impact (respectively a positive) in weakly (resp. strongly) financially developed countries suggesting a non-linear relationship between financial development and aggregate employment	*Complementarity effect.* Aggregate employment is more likely to positively (resp. negatively) affected by higher employment protection legislation when the level of wage bargaining is centralized (resp. decentralized) in accordance with the Institutional Complementarity approach.
Income/wage inequality	*Complementarity effect with EPR.* EPR and financial development by both increasing the incentives to invest more in training of employees in regular positions are mutually reinforcing in increasing in wage/income inequality. *Substitution effect with EPT.* Except for top income shares, increasing employment protection level can also weaken a potential positive impact of financial development on the increase in wage inequality	*Complementarity effect with EPR.* Higher level of EPR and a centralized level of wage bargaining both contribue to increase wage disparities. *Substitution effect with EPT.* Higher EPT has a particular negative effect on wage inequality for low degree of wage bargaining centralization.

Table A1. Correlation matrices

Panel A. 19 advanced OECD countries

	Employ. rate	p_9/p_1	p_9/p_5	p_5/p_1	Top 10 %	EPR	EPT	Stock mkt cap.	Centralization
Employ. rate	1.0000								
p_9/p_1	-0.0425	1.0000							
p_9/p_5	0.0230	0.9230	1.0000						
p_5/p_1	-0.1326	0.8813	0.6413	1.0000					
Top 10 %	-0.1782	0.4276	0.3654	0.4007	1.0000				
EPR	-0.1659	-0.7241	-0.8281	-0.4416	-0.2473	1.0000			
EPT	-0.2931	-0.5008	-0.6118	-0.2766	-0.1600	0.7197	1.0000		
Stock mkt cap.	0.1201	0.3817	0.3706	0.3277	0.1050	-0.3766	-0.4072	1.0000	
Centralization	-0.2930	-0.3597	-0.4565	-0.1626	-0.1831	0.4507	0.2333	-0.3368	1.0000

Panel B. France

	Employ. rate	p_9/p_1	p_9/p_5	p_5/p_1	Top 10 %	EPR	EPT	Stock mkt cap.	Centralization
Employ. rate	1.0000								
p_9/p_1	-0.7390	1.0000							
p_9/p_5	-0.8435	0.9314	1.0000						
p_5/p_1	-0.1484	0.6436	0.3209	1.0000					
Top 10 %	0.4698	0.0867	-0.2224	0.6977	1.0000				
EPR	0.5197	-0.6932	-0.7445	-0.2380	0.1185	1.0000			
EPT									
Stock mkt cap.	0.8238	-0.5024	-0.7043	0.1745	0.6155	0.4728		1.0000	
Centralization	-0.5227	0.7999	0.7428	0.5230	0.2243	-0.6785		-0.4469	1.0000

Panel C. Germany

	Employ. rate	p_9/p_1	p_9/p_5	p_5/p_1	Top 10 %	EPR	EPT	Stock mkt cap.	Centralization
Employ. rate	1.0000								
p_9/p_1	0.7674	1.0000							
p_9/p_5	0.5482	0.9379	1.0000						
p_5/p_1	0.7166	0.3394	-0.0077	1.0000					
Top 10 %	0.8454	0.6714	0.4838	0.6102	1.0000				
EPR	0.1302	-0.3688	-0.5604	0.4386	0.3640	1.0000			
EPT	-0.5527	-0.3884	-0.2669	-0.3757	-0.8655	-0.6029	1.0000		
Stock mkt cap.	0.1709	-0.0339	-0.1653	0.3412	0.5127	0.6077	-0.6142	1.0000	
Centralization	-0.4518	-0.0337	0.1405	-0.4552	-0.6777	-0.8663	0.8604	-0.5818	1.0000